EMPIRE telecom

April 29, 2019

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Street
New Britain, CT 06051

Regarding:	Notice of Exempt Modification – Swap of 3 Antennas and Swap of 3 TMAs
Property Address:	1 Will Russ Court (aka 29 Will Russ Court), Norwalk, CT (the "Property")
Applicant:	AT&T Mobility ("AT&T", Site CT5046)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 94 foot Utility tower ("tower") at the above-referenced address, latitude 41.1258055555556, longitude -73.43275. AT&T's facility consists of six (6) wireless telecommunications antennas at 105 feet. The tower is controlled and owned by Eversource Energy. Assessor's information is attached hereto.

AT&T desires to modify its existing telecommunications facility by swapping six (3) antennas and three (3) TMAs. The centerline height of said antennas is and will remain at 105 feet.

Please accept this application as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72 (b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Mayor of the City of Norwalk, the Chief Building Official of the City of Norwalk, and the Planning and Zoning Director of the City of Norwalk. A copy of this letter is also being sent to Eversource Energy, the owner of the structure that AT&T is located.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The planned modifications will not result in an increase in the height of the existing structure. AT&T's antennas and associated lines will be installed at 105 foot level of the 94 foot Utility tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level at the facility by six decibel or more, or to levels that exceed state and local criteria.

16 Esquire Road, Billerica, MA 01862 Phone 978-284-3906 Email: ncaplan@empiretelecomm.com

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. An RF emissions calculation is attached.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (Please see attached Structural analysis completed by Centek Engineering dated November 21, 2018).

For the foregoing reasons AT&T respectfully requests that the proposed swap of 3 antennas and 3 TMAs be allowed within the exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

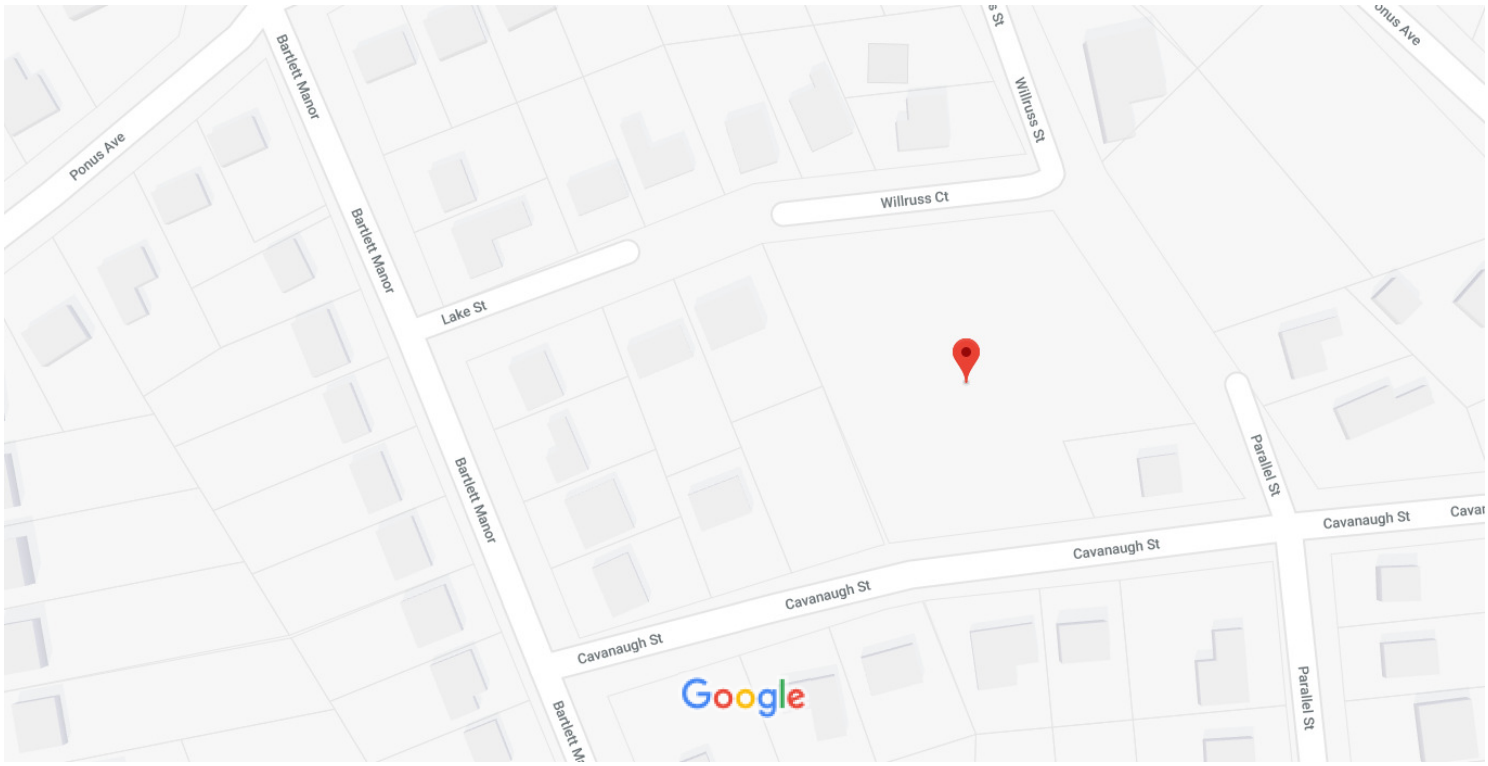
Sincerely,

Nicole Caplan-Mason
Site Acquisition Supervisor
Empire Telecom

CC: The Honorable Harry W. Rilling, Mayor, City of Norwalk
William Ireland, Chief Building Official, City of Norwalk
Steven Kleppin, Planning and Zoning Director, City of Norwalk
Eversource Energy, c/o Joel Szarkowicz

16 Esquire Road, Billerica, MA 01862 Phone 978-284-3906 Email: ncaplan@empiretelecomm.com

41°07'32.9"N 73°25'57.9"W



Map data ©2018 Google 50 ft

at&t

WIRELESS COMMUNICATIONS FACILITY
CT5046 - LTE 3C/4C/5C
NORWALK CENTER
1 WILL RUSS COURT
NORWALK, CT 06850

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE, INCLUDING THE TIA–222 REVISION "G" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2018 CONNECTICUT FIRE SAFETY CODE AND, 2018 NATIONAL ELECTRICAL CODE AND LOCAL CODES.

2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.

10. 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.

11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.

12. 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.

13. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T 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.

14. 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.

15. 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.

16. 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.

17. 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.

18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB–CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.

19. 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.

20. 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 PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.

21. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT

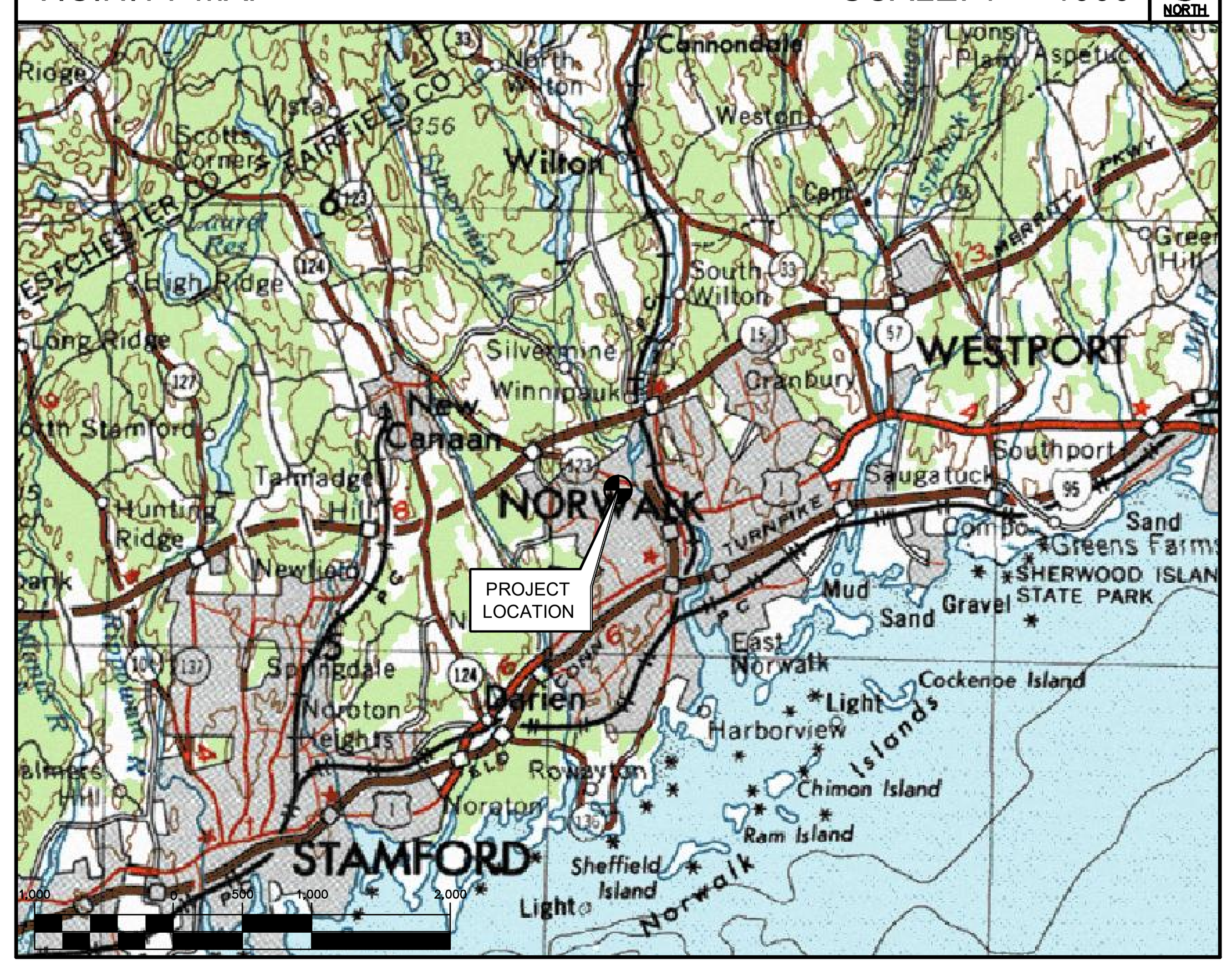
TO: 1 WILL RUSS COURT, NORWALK, CONNECTICUT

1.	TURN LEFT ONTO CAPITAL BLVD.	0.36 MI
2.	TURN LEFT ONTO WEST ST.	0.27 MI
3.	TURN LEFT TO MERGE ONTO I–91 S TOWARD NEW HAVEN.	0.30 MI
4.	MERGE ONTO CT–15 S VIA EXIT 17 TOWARD E MAIN ST.	9.59 MI
5.	TAKE EXIT 40A TOWARD US–7 S/NORWALK.	47.29 MI
6.	MERGE ONTO MAIN AVE.	0.09 MI
7.	MAIN AVE BECOMES MAIN ST.	0.84 MI
8.	TURN RIGHT ONTO NEW CANAAN AVE/CT–123.	0.31 MI
9.	STAY STRAIGHT TO GO ONTO PONUS AVE.	0.41 MI
10.	TURN RIGHT TO STAY ON PONUS AVE.	0.08 MI
11.	TAKE THE 1ST LEFT ONTO WILLRUSS ST.	0.12 MI
12.	TAKE THE 1ST RIGHT ONTO WILLRUSS CT.	0.03 MI
13.	WILLRUSS CT, NORWALK, CT 06850–2613, 1 WILLRUSS CT IS ON THE LEFT.	0.01 MI

VICINITY MAP

SCALE: 1" = 1000'

NORTH



PROJECT SUMMARY

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

   A. AT EACH ANTENNA SECTOR:
   - REMOVE POWERWAVE ANTENNA AT POS. 1. AND REPLACE WITH QUINTEL ANTENNA AT POS. 1. (TOTAL OF 3)
   - REPLACE EXISTING TMAs WITH TWIN TMAs (TOTAL OF 6)

   B. AT THE EQUIPMENT SHELTER
   - ADD 2ND XMU AND REPLACE DUS WITH 5216
   - INSTALL (1) RBS 6630–RET
   - INSTALL (3) RRUS–32 AT POS. 1. WITH (12) SURGE ARRESTORS
   - INSTALL (3) 4426 B66 AT POS. 1. WITH (12) SURGE ARRESTORS
   - INSTALL (3) 4478 B5 AT POS. 3. WITH (12) SURGE ARRESTORS
   - REPLACE EXISTING DIPLEXERS WITH TRIPLEXERS (TOTAL OF 6)
   - REPLACE EXISTING DIPLEXERS WITH QUADPLEXERS (TOTAL OF 12)
   - INSTALL (6) SMART BIAS TEE (K SBT 782–11055)

PROJECT INFORMATION

AT&T SITE NUMBER:	CT5046
AT&T SITE NAME:	NORWALK CENTER
SITE ADDRESS:	1 WILL RUSS COURT NORWALK, CT 06850
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
AT&T PACE ID NUMBER:	PACE JOB 1 – MRCTB031041 PACE JOB 2 – MRCTB031949 PACE JOB 3 – MRCTB031707
AT&T FA LOCATION CODE:	10071181
ENGINEER:	CENTEK ENGINEERING, INC. 63–2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°–07'–33.11" N LONGITUDE: 73°–25'–57.89" W GROUND ELEVATION: ±102' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T–1	TITLE SHEET	0
N–1	NOTES, SPECIFICATIONS AND ANTENNA SCHEDULE	0
C–1	PLANS AND ELEVATION	0
C–2	ANTENNA CONFIGURATION DETAILS	0
C–3	DETAILS	0
C–4	DETAILS	0
E–1	SCHEMATIC DIAGRAM AND NOTES	0
E–2	WIRING DIAGRAM	0
E–3	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	04/26/19	TJL	DMD	ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

at&t

EMPIRE telecom

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

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
NORWALK CENTER
CT5046 - LTE 3C/4C/5C
1 WILL RUSS COURT
NORWALK, CT 06850

DATE: 09/26/18
SCALE: AS NOTED
JOB NO. 18000.55

TITLE SHEET

T–1

Sheet No. 1 of 9

NOTES AND SPECIFICATIONS

DESIGN BASIS:

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

1. DESIGN CRITERIA:

   ANTENNA MAST

   - WIND LOAD: PER TIA 222 G – 93 MPH (NOMINAL)
   - RISK CATEGORY: III (BASED ON IBC TABLE 1604.5)

   TRANSMISSION TOWER

   - WIND LOAD: PER NESC C2–2012 SECTION 25 RULE 250B – 4PSF
   - WIND LOAD: PER NESC C2–2012 SECTION 25 RULE 250C – 110MPH
   - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7–10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

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

STRUCTURAL STEEL

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

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

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

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) TMA/DIPLEXER/TRIPLEXER/QUADPLEXER (QTY)	(E/P) RRU (QTY)	FEEDER/LENGTH (QTY)	(E/P) SURGE ARRESTOR (QTY)
A1	PROPOSED	UMTS 850 LTE AWS/WCS	QUINTEL (QS46512–2)	52 x 12 x 10.8	105'	30°	TMA: (P) TMAT21X23B68–31–43 (2) ON TOWER QUADPLEXER: (P) QBC0007F1V51–1 (4) AT EQUIPMENT	(P) 4426 B66 (1), (P) RRUS–32 (1) AT EQUIPMENT	ANDREW: 1⅝ø COAX (4) LENGTH: 145.04'	(E) ANDREW: APTDC–BDFDM (4)
A3	EXISTING	LTE 850/700BC/PCS	KMW (AM–X–CD–14–65–00T–RET)	48 x 11.8 x 5.9	105'	30°	TMA: (E) KAELUS TMA2093FXXVX–1 (1) ON TOWER TRIPLEXER: (P) CCI TRIPLEXER –TPX–070821 (2) AT EQUIPMENT	(E) RRUS–11 (1), (E) RRUS–12 (1), (P) 4478 B5 AT EQUIPMENT	ANDREW: 1⅝ø COAX (2) LENGTH: 145.04'	(P) POLYPHASER: TSXDC–4310FM (12)
B1	PROPOSED	UMTS 850 LTE AWS/WCS	QUINTEL (QS46512–2)	52 x 12 x 10.8	105'	150°	TMA: (P) TMAT21X23B68–31–43 (2) ON TOWER QUADPLEXER: (P) QBC0007F1V51–1 (4) AT EQUIPMENT	(P) 4426 B66 (1), (P) RRUS–32 (1) AT EQUIPMENT	ANDREW: 1⅝ø COAX (4) LENGTH: 145.04'	(E) ANDREW: APTDC–BDFDM (4)
B3	EXISTING	LTE 850/700BC/PCS	KMW (AM–X–CD–14–65–00T–RET)	48 x 11.8 x 5.9	105'	150°	TMA: (E) KAELUS TMA2093FXXVX–1 (1) ON TOWER TRIPLEXER: (P) CCI TRIPLEXER –TPX–070821 (2) AT EQUIPMENT	(E) RRUS–11 (1), (E) RRUS–12 (1), (P) 4478 B5 AT EQUIPMENT	ANDREW: 1⅝ø COAX (2) LENGTH: 145.04'	(P) POLYPHASER: TSXDC–4310FM (12)
C1	PROPOSED	UMTS 850 LTE AWS/WCS	QUINTEL (QS46512–2)	52 x 12 x 10.8	105'	270°	TMA: (P) TMAT21X23B68–31–43 (2) ON TOWER QUADPLEXER: (P) QBC0007F1V51–1 (4) AT EQUIPMENT	(P) 4426 B66 (1), (P) RRUS–32 (1) AT EQUIPMENT	ANDREW: 1⅝ø COAX (4) LENGTH: 145.04'	(E) ANDREW: APTDC–BDFDM (4)
C3	EXISTING	LTE 850/700BC/PCS	KMW (AM–X–CD–14–65–00T–RET)	48 x 11.8 x 5.9	105'	270°	TMA: (E) KAELUS TMA2093FXXVX–1 (1) ON TOWER TRIPLEXER: (P) CCI TRIPLEXER –TPX–070821 (2) AT EQUIPMENT	(E) RRUS–11 (1), (E) RRUS–12 (1), (P) 4478 B5 AT EQUIPMENT	ANDREW: 1⅝ø COAX (2) LENGTH: 145.04'	(P) POLYPHASER: TSXDC–4310FM (12)

RRU	SIZE (INCHES) (L x W x D)
RRUS–11	19.7 x 17 x 7.2
RRUS–12	20.4 x 18.5 x 7.5
RRUS–32	27.2 x 12.1 x 7
4426 B66	15 x 13.2 x 5.8
4478 B5	16.5 x 13.4 x 7.7

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0	04/26/19	TJL	DMD	ISSUED FOR CONSTRUCTION

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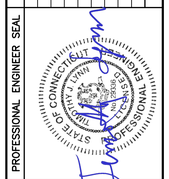

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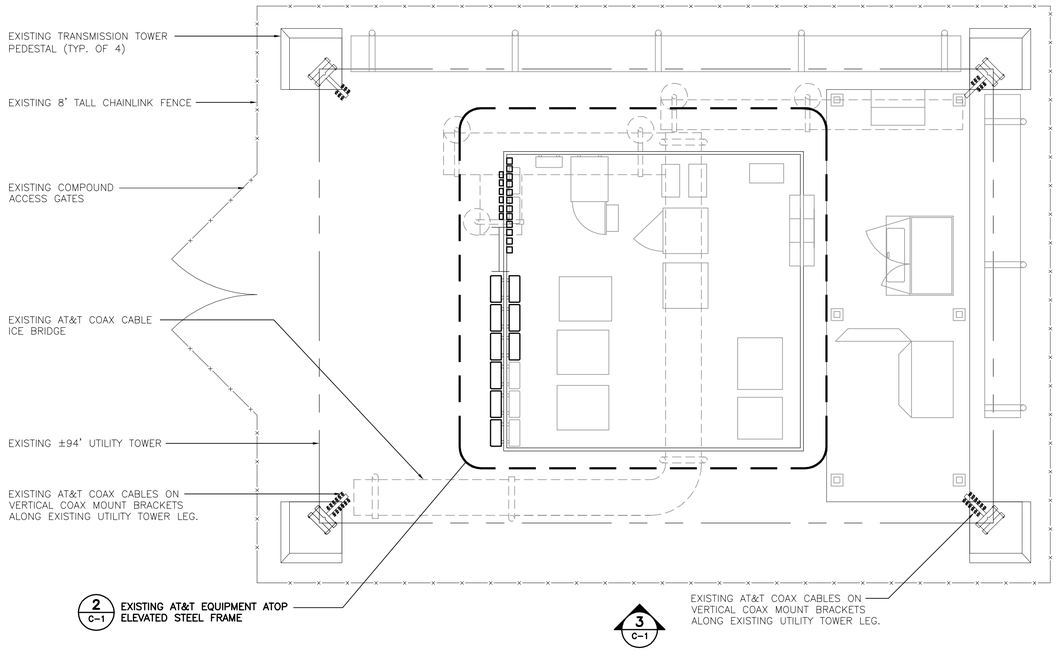
NOTES, SPECIFICATIONS & ANTENNA SCHEDULE

N–1

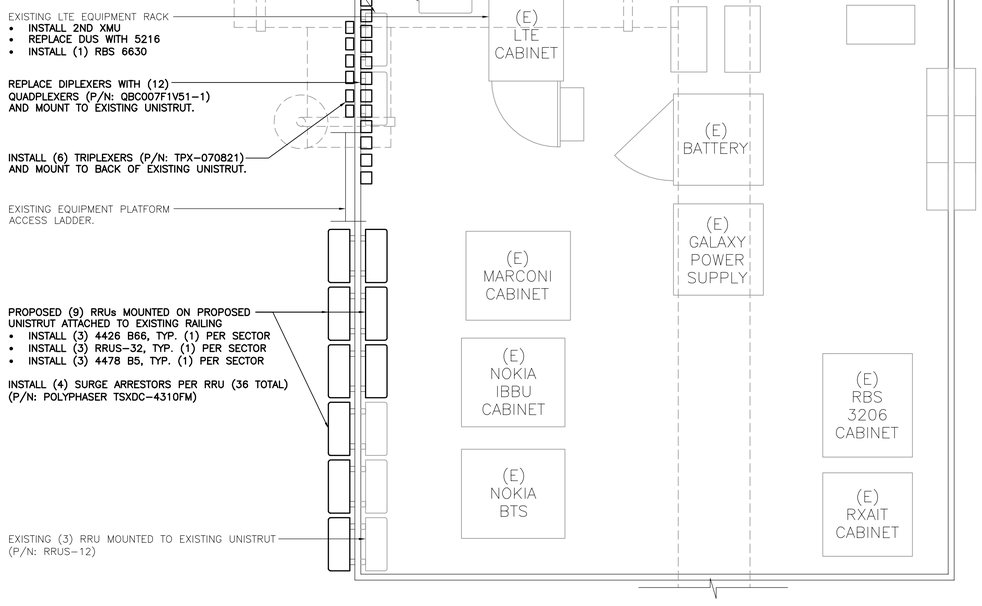
Sheet No. 2 of 9



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

APPROXIMATE NORTH

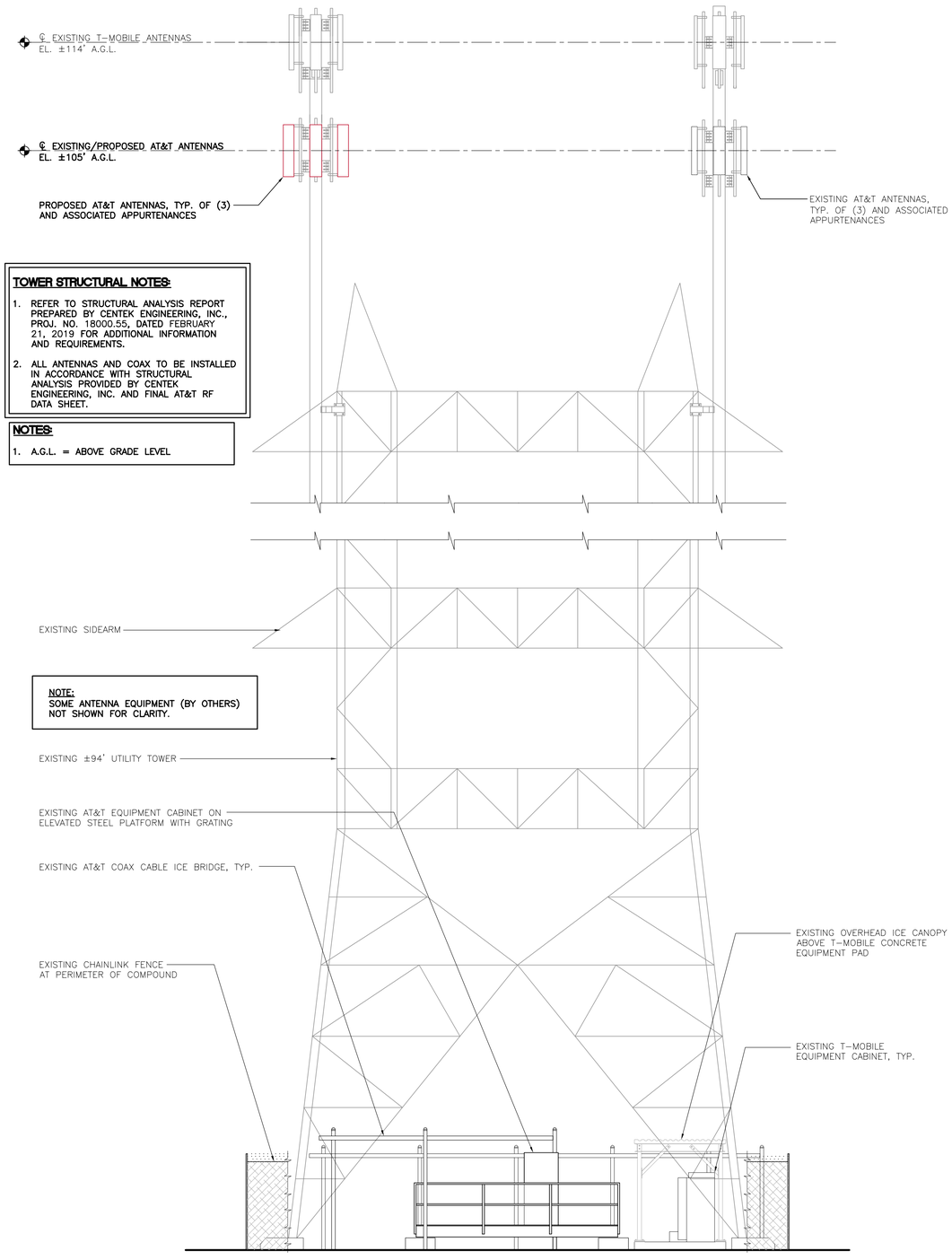
GRAPHIC SCALE
8 0 4 8 16
(IN FEET)
1/4 inch = 1 ft.



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

APPROXIMATE NORTH

GRAPHIC SCALE
4 0 2 4 8
(IN FEET)
1/2 inch = 1 ft.



TOWER STRUCTURAL NOTES:

1. REFER TO STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING, INC., PROJ. NO. 18000.55, DATED FEBRUARY 21, 2019 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CENTEK ENGINEERING, INC. AND FINAL AT&T RF DATA SHEET.

NOTES:

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

NOTE:
SOME ANTENNA EQUIPMENT (BY OTHERS) NOT SHOWN FOR CLARITY.

3 C-1 **PARTIAL SOUTHWEST ELEVATION - PROPOSED**
SCALE: 3/16" = 1'-0"

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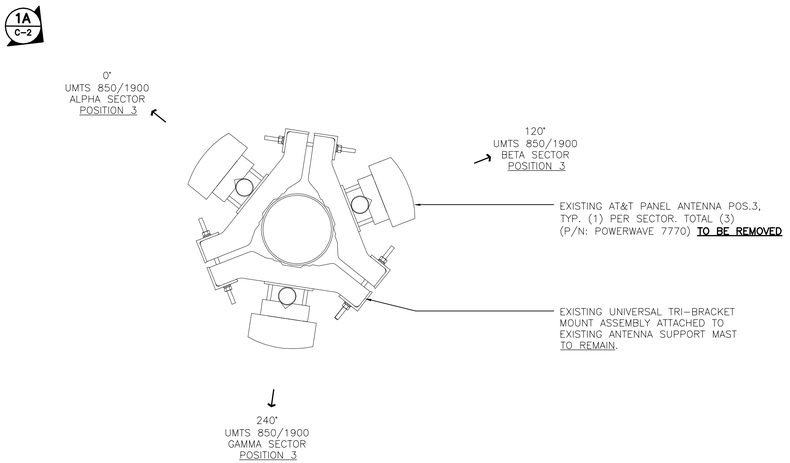
PLANS AND ELEVATION

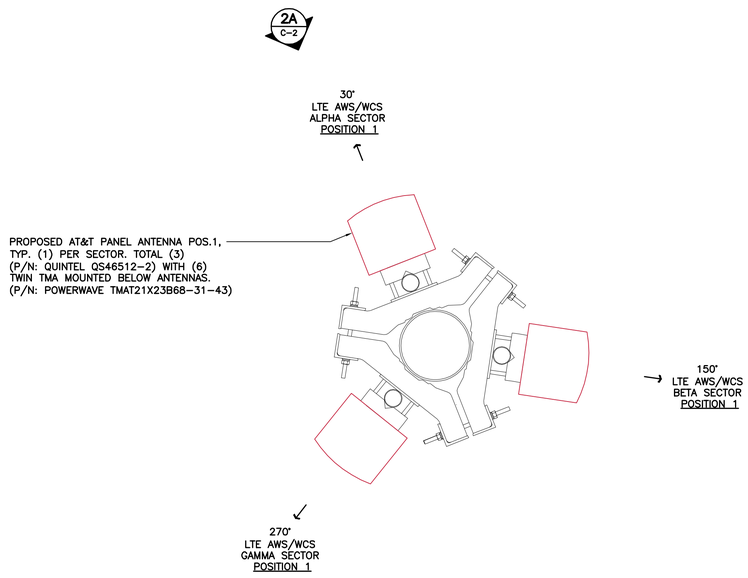
C-1

Sheet No. 3 of 9



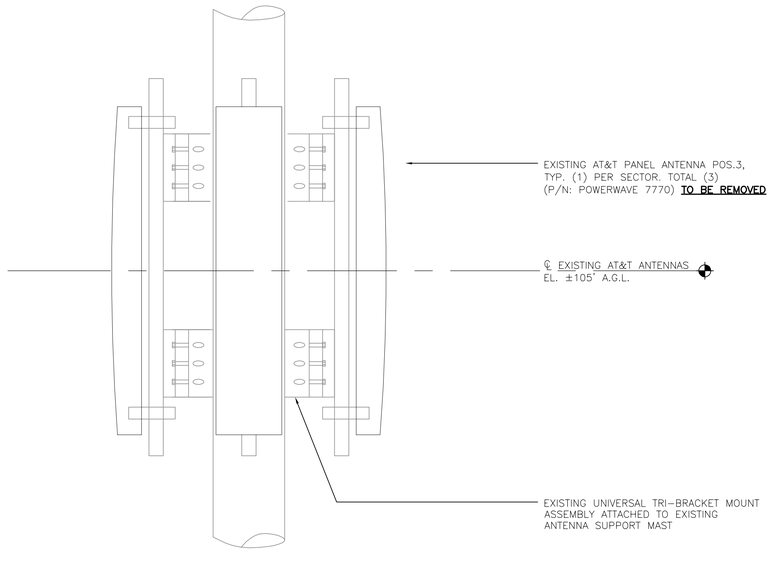
1 C-2 **EXISTING ANTENNA PLAN**
SCALE: 1" = 1'-0"

APPROXIMATE NORTH

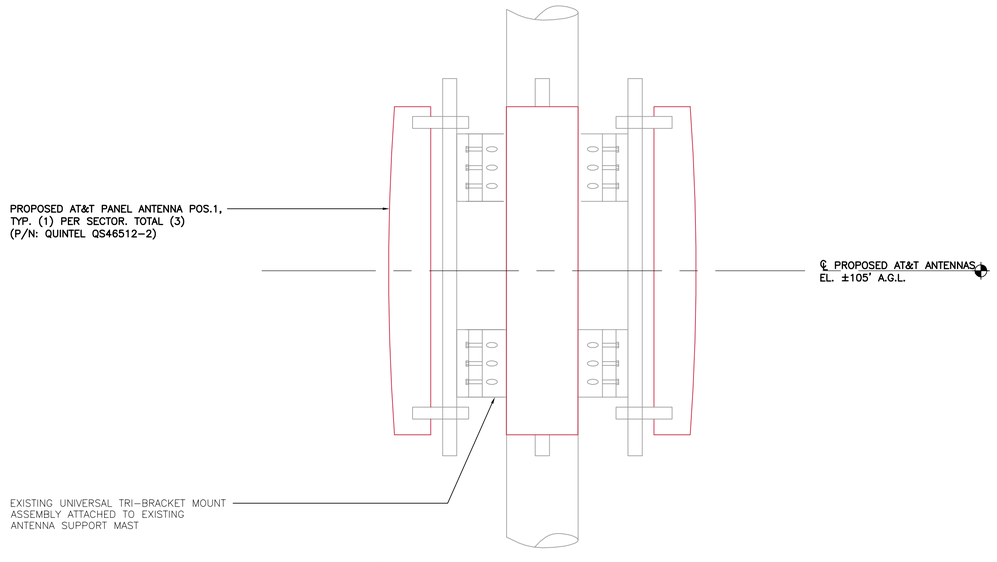


2 C-2 **PROPOSED ANTENNA PLAN**
SCALE: 2" = 1'-0"

APPROXIMATE NORTH



1A C-2 **EXISTING ANTENNA ELEVATION**
SCALE: 1" = 1'-0"



2A C-2 **PROPOSED ANTENNA ELEVATION**
SCALE: 1" = 1'-0"

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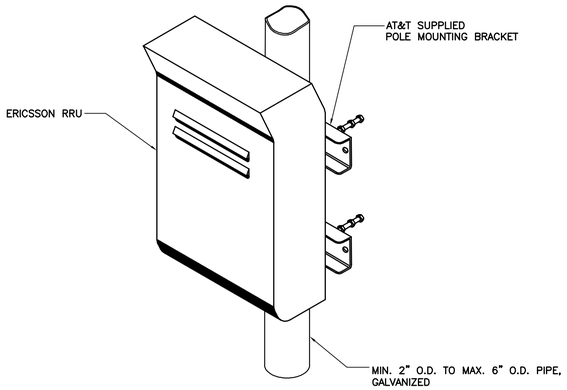
ANTENNA CONFIGURATION DETAILS

C-2

Sheet No. 4 of 9

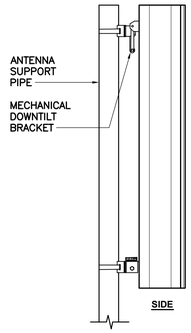


ISOMETRIC VIEW

NOTES:

1. AT&T SHALL SUPPLY RRU, AND RRU POLE–MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE–MOUNTING BRACKET. CONTRACTOR SHALL INSTALLS RRU AND MAKES CABLE TERMINATIONS.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 / C-3 **TYPICAL RRUS MOUNTING DETAILS**
NOT TO SCALE



SIDE

BOTTOM

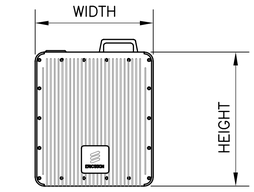
ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: QUINTEL MODEL: QS46512–2	52"L x 12"W x 10.8"D	75 LBS.

2 / C-3 **PROPOSED ANTENNA DETAIL**
NOT TO SCALE

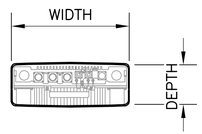
SURGE ARESSTOR		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: POLYPHASER MODEL: TSXDC–4310FM	3.07"H x 1.49"W x 1.65"D	1.32 LBS.

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

3 / C-3 **POLYPHASER – TSXDC-4310FM DETAIL**
NOT TO SCALE



FRONT VIEW



BOTTOM VIEW

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: 4426 B66	15.0"L x 13.2"W x 5.8"D	48.5 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

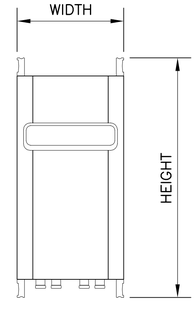
NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

4 / C-3 **ERICSSON 4426 B66 DETAIL**
NOT TO SCALE

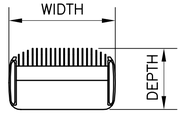
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: 4478 B5	16.5"L x 13.4"W x 7.7"D	59.9 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

5 / C-3 **ERICSSON 4478 B5 DETAIL**
NOT TO SCALE



FRONT VIEW



BOTTOM VIEW

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS–32	27.17"L x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

6 / C-3 **ERICSSON RRUS-32 DETAIL**
NOT TO SCALE

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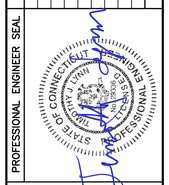

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DETAILS

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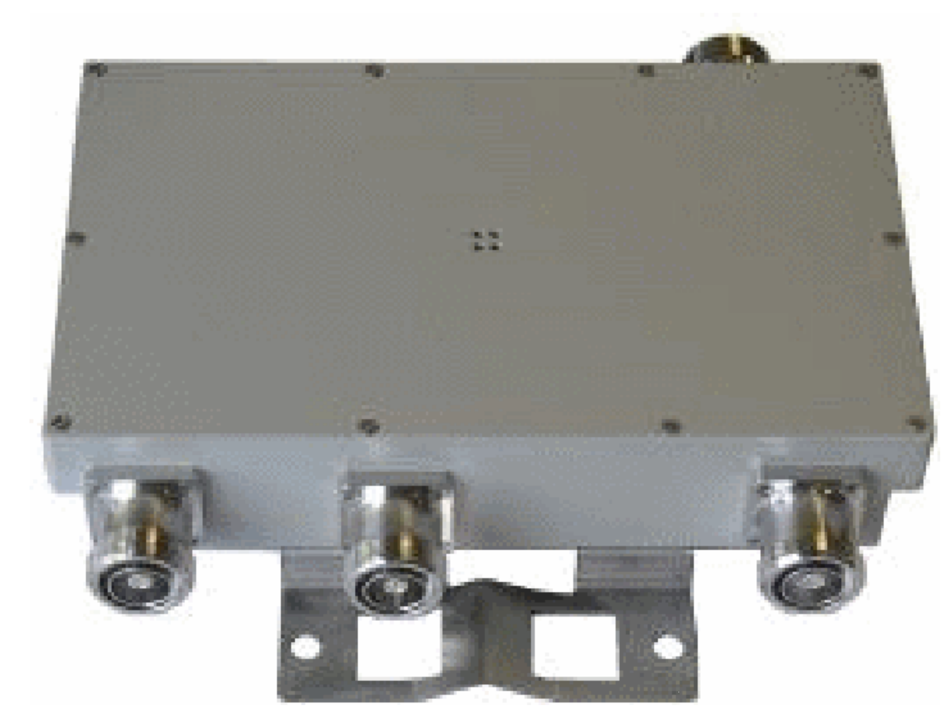
QUADRUPLEXER 700/850/1900 - AWS/WCS		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KAELUS MODEL: QBC0007F1V51-1	9.73"H x 8.78"W x 8.06"D	16.7 LBS.

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

1 / C-4 **KAELUS - QBC0007F1V51-1 DETAIL**
NOT TO SCALE



TRIPLEXER		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: TPX-070821	5.83"H x 9.65"W x 2.05"D	7.5 LBS.

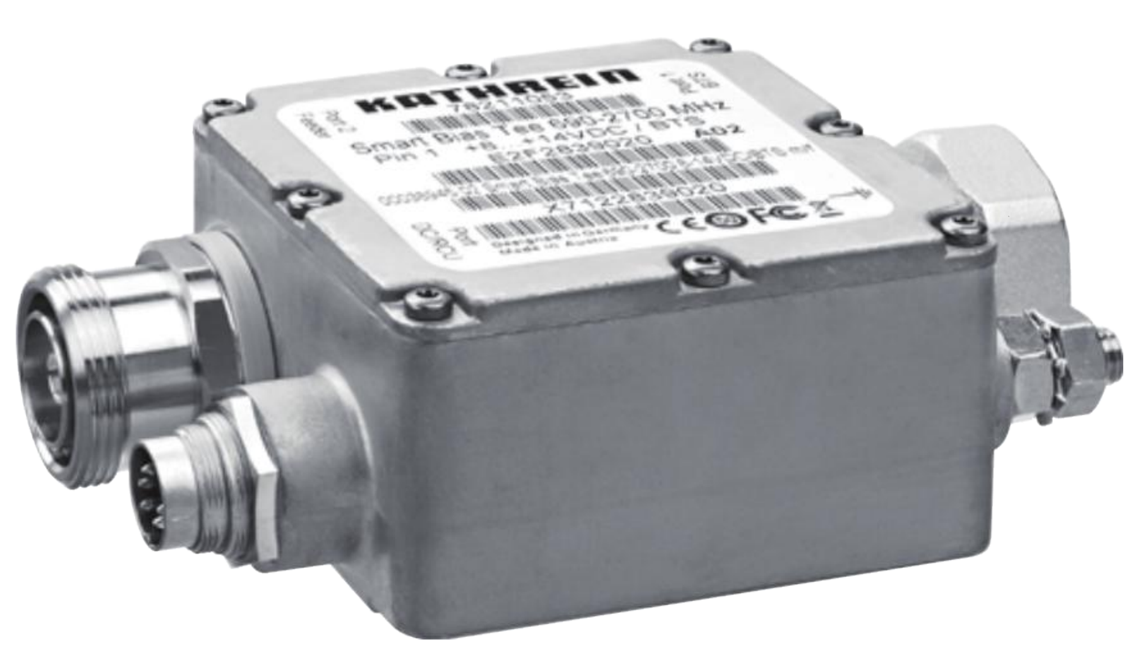
NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

2 / C-4 **CCI - TPX-070821 DETAIL**
NOT TO SCALE

TWIN TMA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: POWERWAVE MODEL: TMAT21X23B68-31-43	9.7"H x 11.0"W x 3.9"D	22 LBS.

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

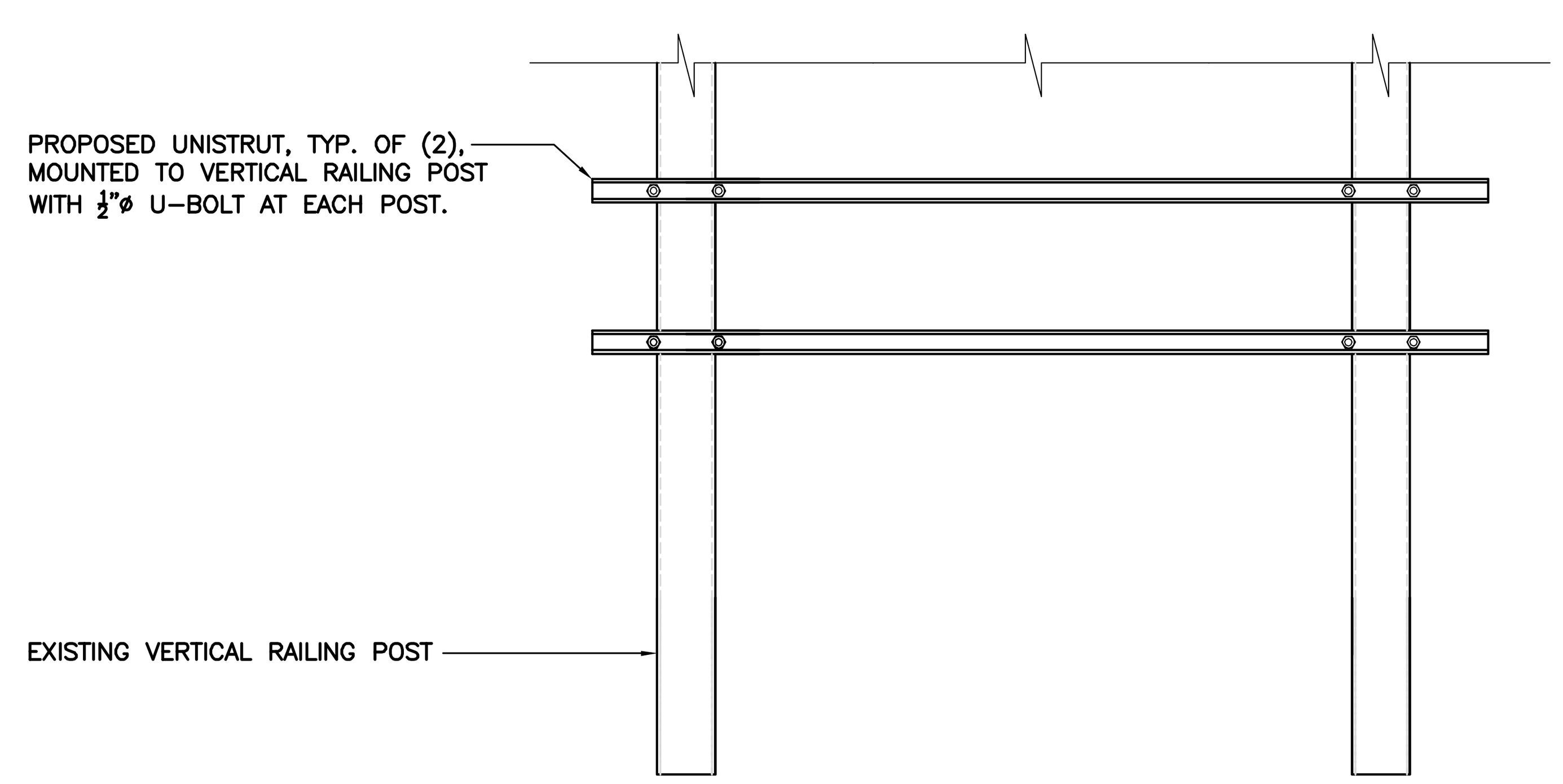
3 / C-4 **POWERWAVE - TMAT21X23B68-31-43 DETAIL**
NOT TO SCALE



SMART BIAS TEE		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KATHREIN MODEL: 782-11055	3.18"H x 3.18"W x 1.81"D	1.76 LBS.

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

4 / C-4 **KATHREIN - K SBT 782-11055 DETAIL**
NOT TO SCALE



5 / C-4 **TYPICAL APPURTENANCE FRAME DETAIL**
NOT TO SCALE

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C-4

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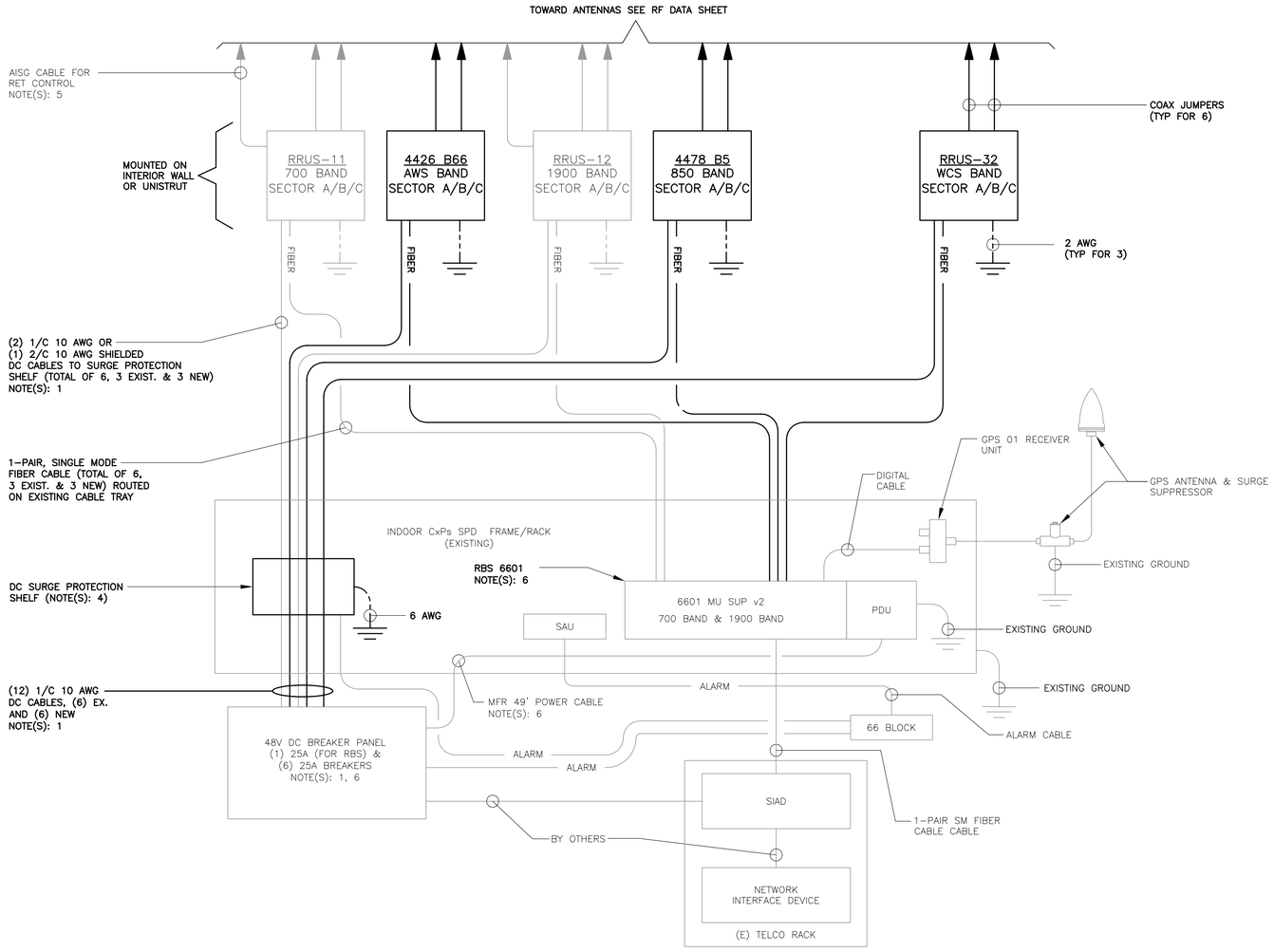


SCHEMATIC DIAGRAM NOTES:

1. BREAKERS TO BE TAGGED AND LOCKED OUT. A 20A (MIN.) OR 30A (MAX.) BREAKER FOR RRUs MAY BE SUBSTITUTED FOR THE RECOMMENDED 25A BREAKER. SIZE 12 CONDUCTORS MAY BE USED ONLY WITH 20A BREAKERS.
2. LEAVE COILED AND PROTECTED UNTIL TERMINATED.
3. DC AND FIBER CABLE SHALL BE ROUTED WITH THE EXISTING COAX CABLE.
4. DC SURGE PROTECTION SHELF SHALL BE RAYCAP DCx-48-60-RM.
5. FIBER & DC DISTRIBUTION BOX W/DC SURGE PROTECTION SHALL BE RAYCAP DC6-48-60-18-8F.
6. SUPPORT FIBER & DC POWER CABLES WITH SNAP-IN HANGERS SPACED NO GREATER THAN 3 FEET APART ON TOWER. SUPPORT FIBER AND DC POWER CABLES INSIDE MONOPOLE WITH CABLE HOISTING GRIPS AT 250 FT MAXIMUM INTERVALS. DRESS CABLES TO PREVENT CONTACT WITH ENTRANCE AND EXIT OPENINGS.
7. CONDUIT TO BE USED ON A TOWER IF THE RRU IS MORE THAN 10' FROM THE DISTRIBUTION UNITS. MAX CABLE LENGTH IS 16 FEET.
8. SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX® OR KS24194™, COPPER, UL LISTED RHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS I (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/ 75°C WET INSTALLATION.
9. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
10. FIBER OPTIC CABLES SHALL BE INSTALLED IN FLEXIBLE CONDUIT AS SCOPED BY MARKET.
11. RET CONTROL FROM THE RRU IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
12. RBS 6601 VARIANT 2 REQUIRES A 25A BREAKER AND 10 AWG (MIN.) CONDUCTORS. REPLACE EXISTING 15A OR 20A BREAKERS AND 12 AWG CONDUCTORS WHEN UPGRADING AN EXISTING RBS 6601 VARIANT 1.

1 / E-1 **SCHEMATIC DIAGRAM**

NOT TO SCALE

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. 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:
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. 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.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. 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.
16. 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.
17. 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.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

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: RESISTANCE TO GROUND TEST ON THE CELLULAR 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. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM 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.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	04/26/19	TJL	DMD	ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT — TIMOTHY J. LYNCH — 27470 — REGISTERED PROFESSIONAL ENGINEER

at&t

EMPIRE telecom

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

AT&T MOBILITY

WIRELESS COMMUNICATIONS FACILITY

NORWALK CENTER

CT5046 - LTE 3C/4C/5C

1 WILL RUSS COURT

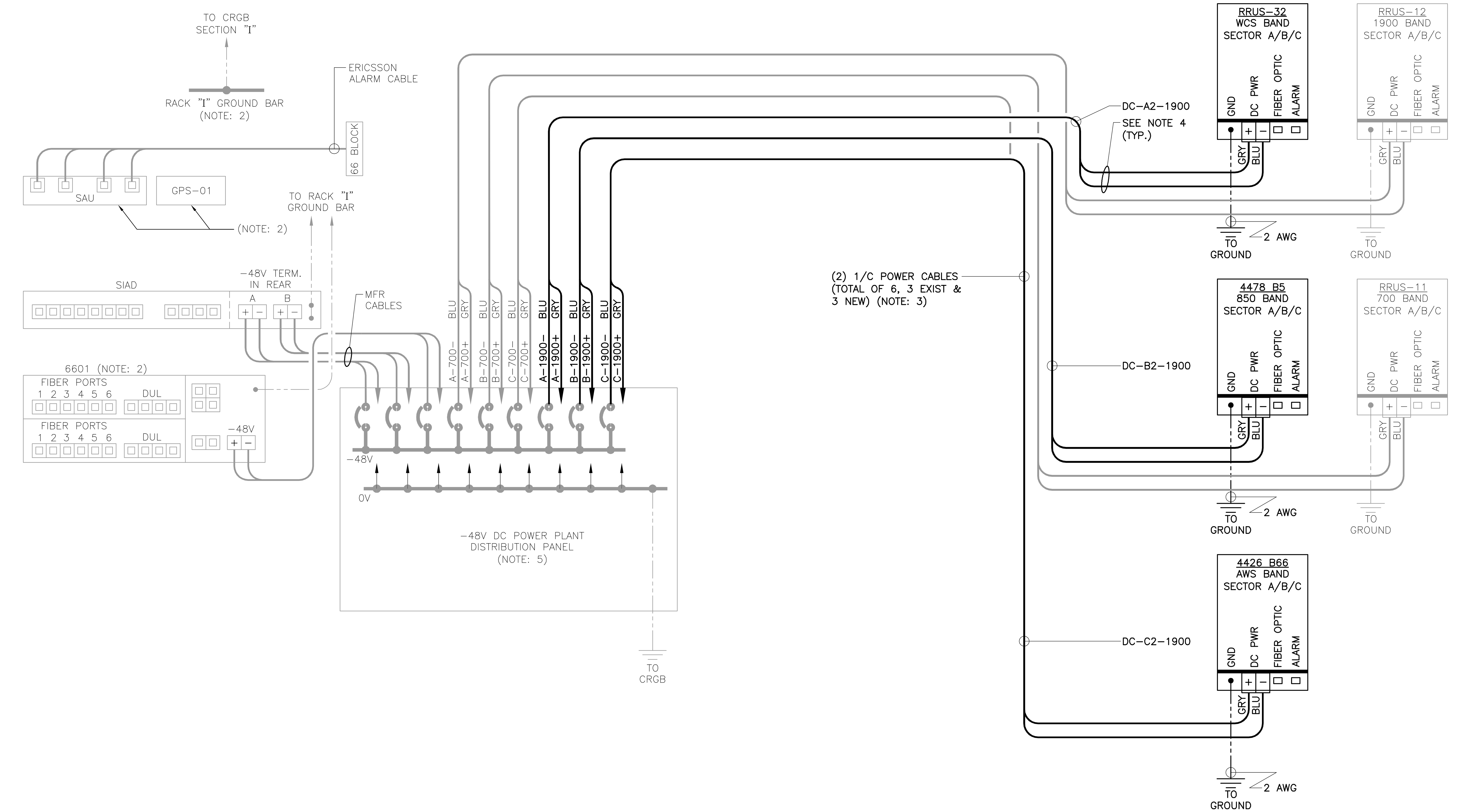
NORWALK, CT 06850

DATE:	09/26/18
SCALE:	AS NOTED
JOB NO.	18000.55

SCHEMATIC DIAGRAM AND NOTES

E-1

Sheet No. 7 of 9



WIRING DIAGRAM NOTES:

1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-1900+". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AT&T.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE SHALL BE CONNECTED TO THE "P" GROUND BAR ON THE RACK. WHEN A SHIELDED CABLE IS USED, THE DRAIN WIRE ALSO SHALL BE CONNECTED TO THE "P" GROUND BAR.
4. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRU AND DC POWER PLANT.
5. SEE LTE SCHEMATIC DIAGRAM DETAIL 1/E-1 FOR BREAKER RATING.

1 / E-2 **WIRING DIAGRAM**
NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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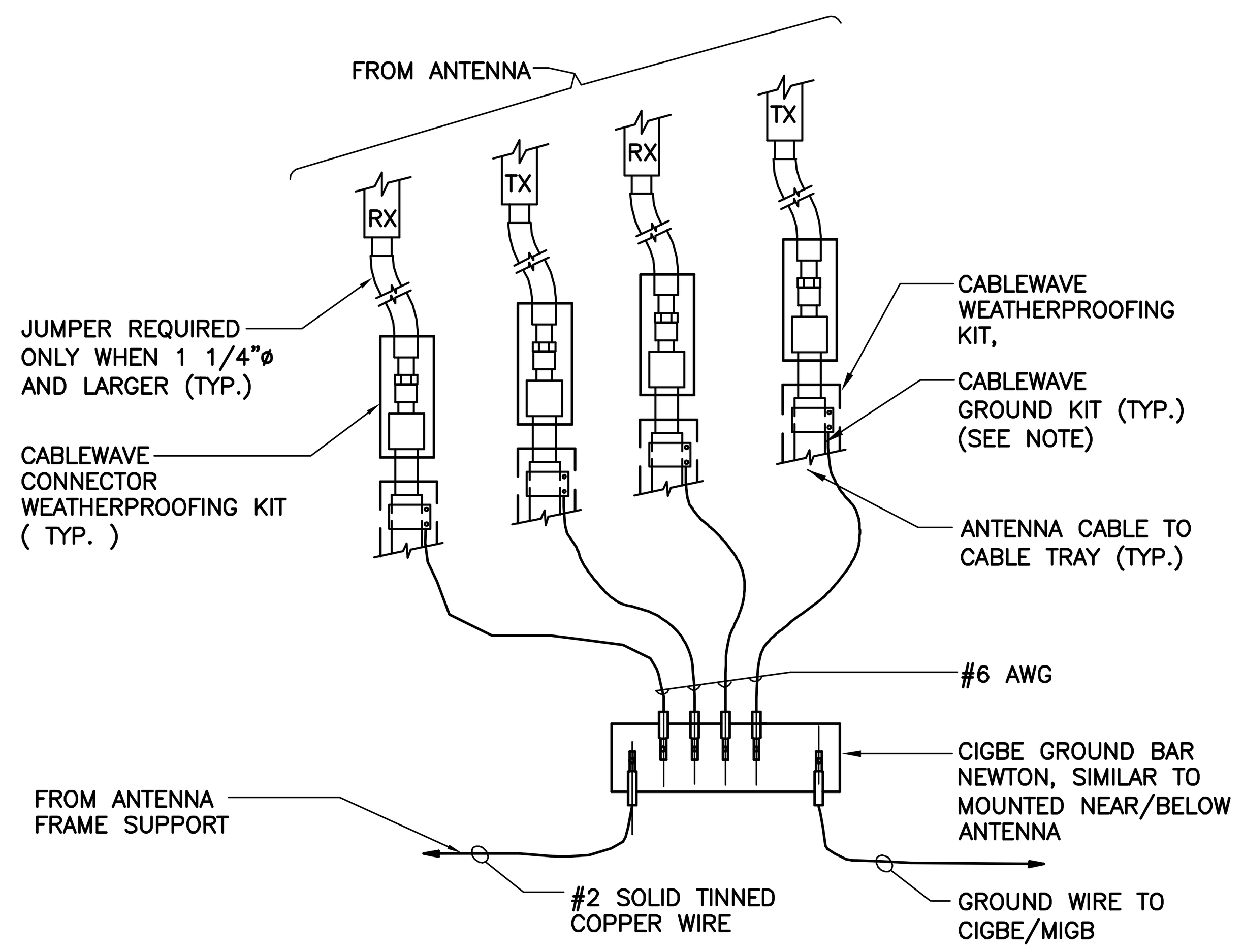
NORWALK, CT 06850

DATE: 09/26/18
SCALE: AS NOTED
JOB NO. 18000.55

WIRING DIAGRAM

E-2

Sheet No. 8 of 9



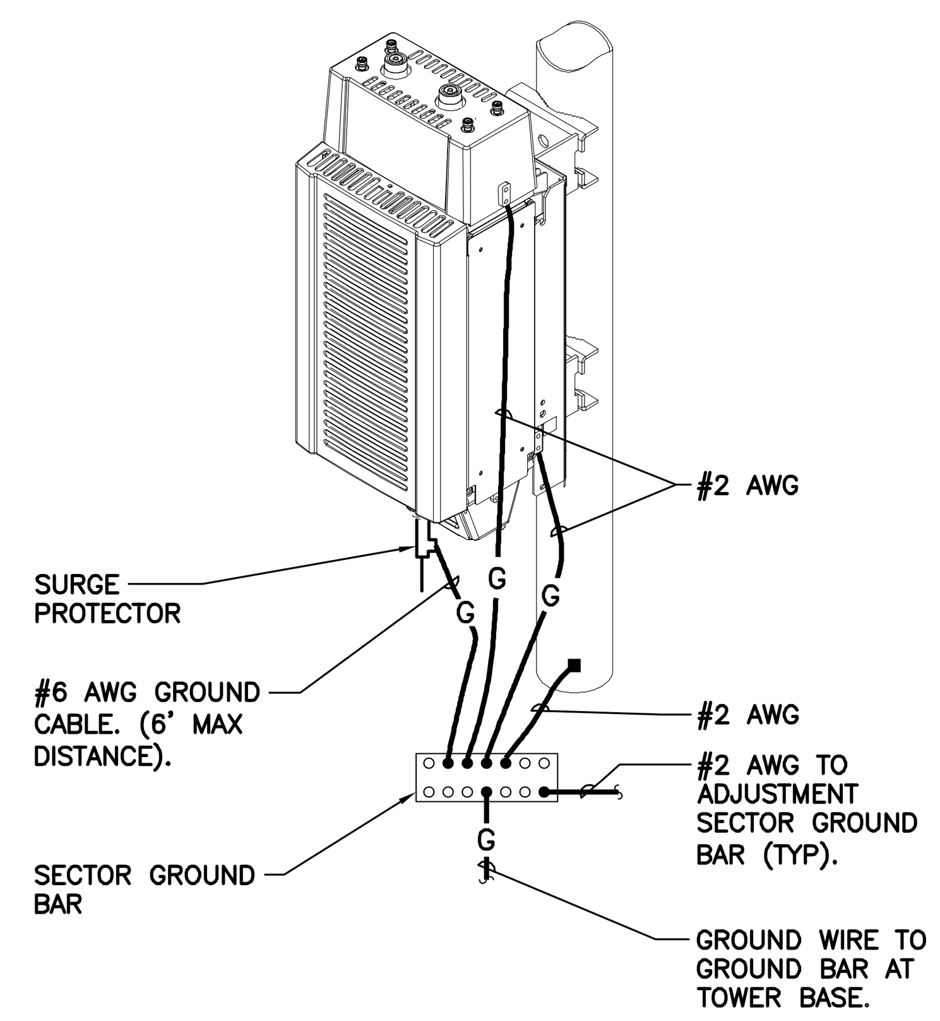
NOTE:

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

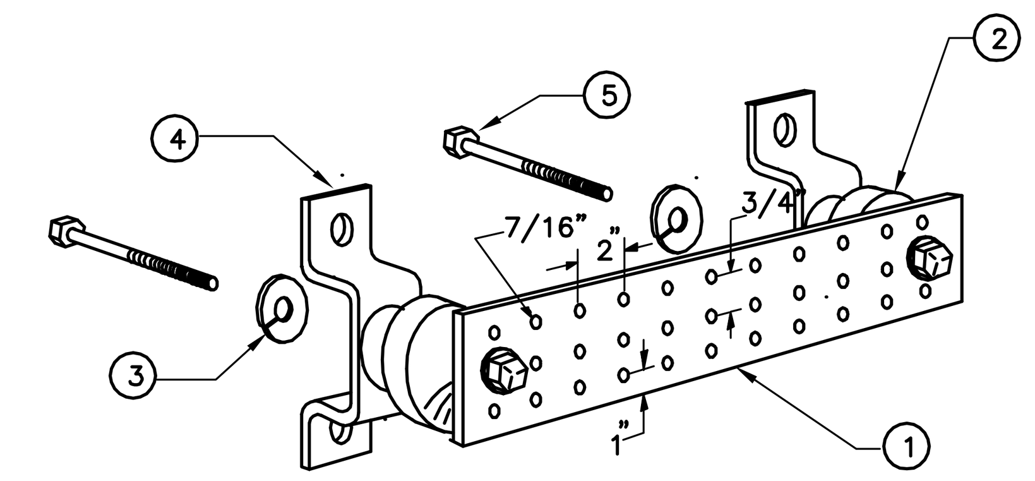
1 E-3 CONNECTION OF GROUND WIRES TO GROUND BAR
NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:

1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



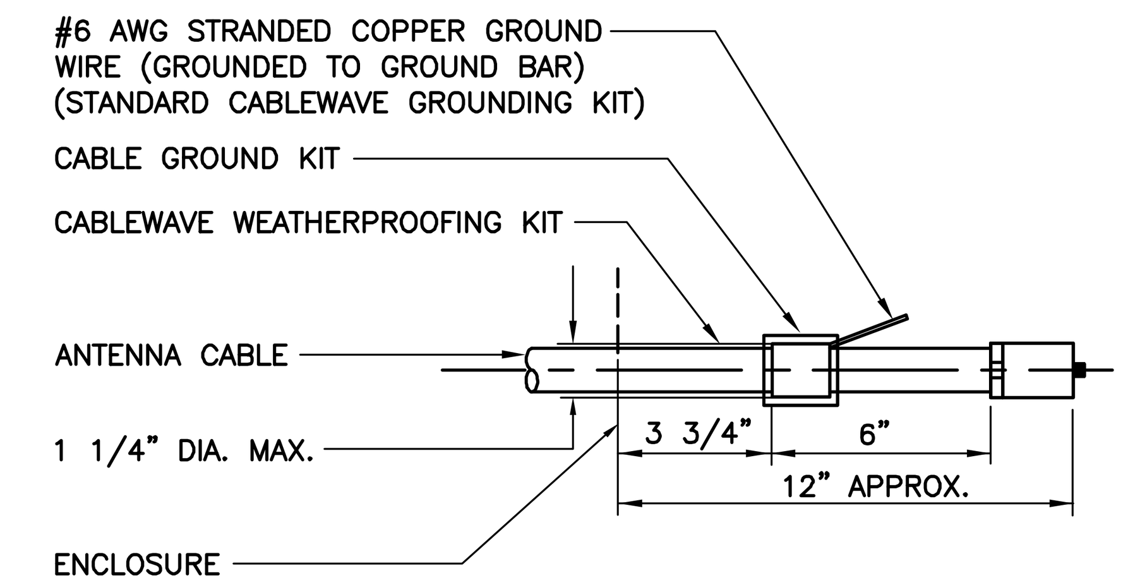
2 E-3 RRU POLE MOUNT GROUNDING
NOT TO SCALE



LEGEND

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

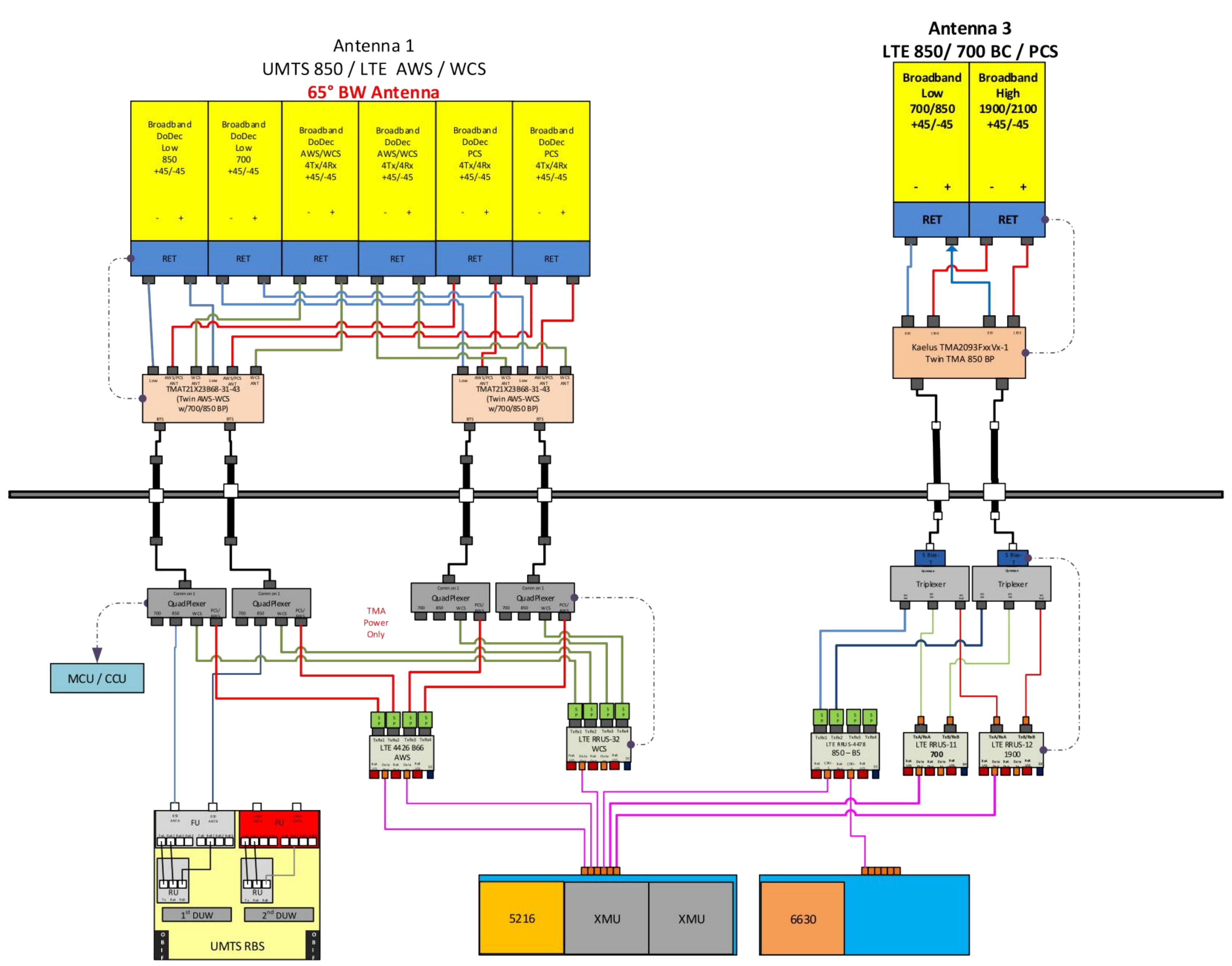
3 E-3 GROUND BAR DETAIL
NOT TO SCALE



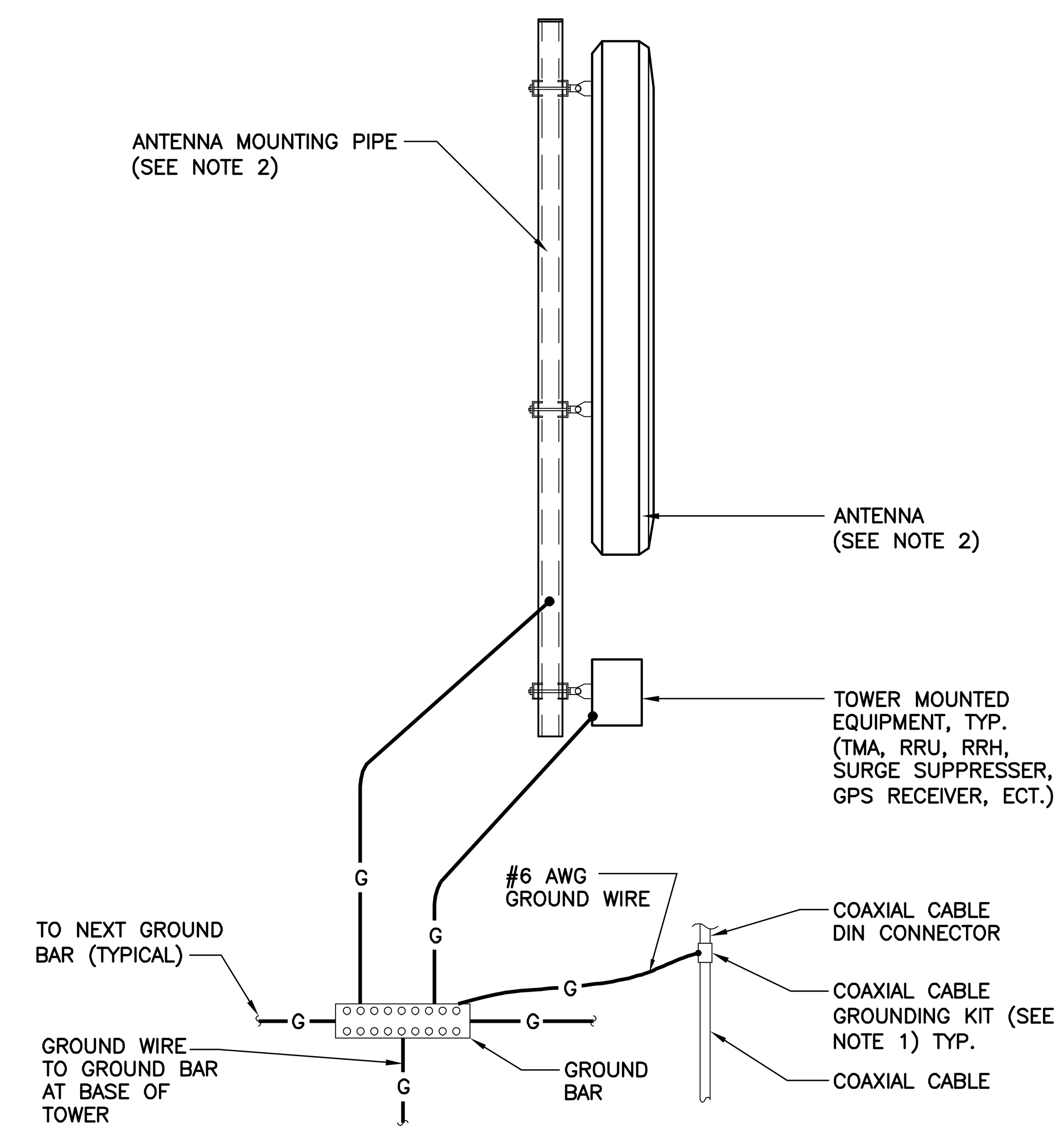
NOTE:

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

4 E-3 ANTENNA CABLE GROUNDING DETAIL
NOT TO SCALE



5 E-3 RF PLUMBING DIAGRAM
NOT TO SCALE



NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

6 E-3 TYPICAL ANTENNA GROUNDING DETAIL
NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	04/26/19	TJL	DMD	ISSUED FOR CONSTRUCTION

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DATE: 09/26/18
SCALE: AS NOTED
JOB NO. 18000.55

TYPICAL ELECTRICAL DETAILS

E-3

Sheet No. 9 of 9

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Antenna Mast and Tower

AT&T Site Ref: CT5046

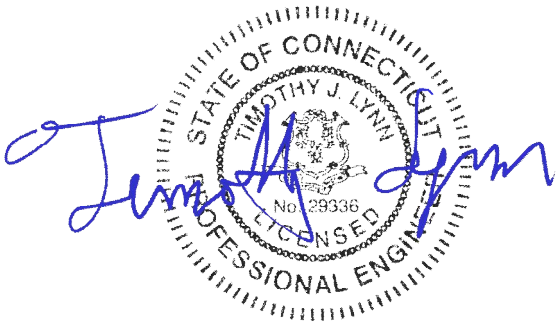
Eversource Structure No. 1102

94' Electric Transmission Lattice Tower

Willruss Court
Norwalk, CT

CENTEK Project No. 18000.55

Date: November 21, 2018



Prepared for:
AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

Table of Contents

Introduction

The purpose of this report is to analyze the existing antenna mast and 94' utility tower located on Willruss Court in Norwalk, CT for the proposed antenna and equipment upgrade by AT&T.

The existing and proposed loads consist of the following:

- T-MOBILE (Existing):

  Antennas: Three (3) RFS APX16DWV-16DWVS-E-A20 panel antennas and three (3) Bias Tees mounted the existing North mast with a RAD center elevation of 114-ft above tower base plate.
  Coax Cables: Twelve (12) 1-1/4" ∅ coax cables running on the Northeast leg of the tower.

- T-MOBILE (Existing):

  Antennas: Three (3) Commscope RV4PX306R panel antennas and three (3) Bias Tees mounted the existing South mast with a RAD center elevation of 114-ft above tower base plate.
  Coax Cables: Twenty-Four (24) 1-1/4" ∅ coax cables running on the Southwest leg of the tower.

- AT&T (Existing to Remain):

  Antennas: Three (3) KMW AM-X-CD-14-65 panel antennas and three (3) Kaelus TMA2093F00V1-1 TMAs mounted on the existing South mast with a RAD center elevation of 105-ft above tower base plate.
  Coax Cables: Six (6) 1-1/4" ∅ coax cables running on the Southeast leg of the tower and six (6) 1-1/4" ∅ coax cables running on the Northwest leg of the tower.

- AT&T (Existing to Remove):

  Antennas: Three (3) Powerwave 7770 panel antennas and three (3) Powerwave TT19-08BP111-001 TMAs mounted on the existing North mast with a RAD center elevation of 105-ft above tower base plate.

- **AT&T (Proposed):**

  Antennas: Three (3) Quintel QS46512-2 panel antennas and three (3) Commscope TMAT21X23B68-31-43 TMAs mounted on the existing South mast with a RAD center elevation of 105-ft above tower base plate.
  Coax Cables: Six (6) 1-1/4" ∅ coax cables running on the Northwest leg of the tower.

Primary assumptions used in the analysis

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

Analysis

Structural analysis of the existing antenna mast was independently completed using the current version of RISA-3D computer program licensed to CENTEK Engineering, Inc.

The existing mast consisting of a 12" sch. 80 pipe conforming to ASTM A53 Grade B (Fy = 35ksi) connected at four points to the existing tower was analyzed for its ability to resist loads prescribed by the TIA standard. Section 5 of this report details these gravity and lateral wind loads. NESC prescribed loads were also applied to the mast in order to obtain reactions needed for analyzing the utility tower structure. These loads are developed in Section 7 of this report. Load cases and combinations used in RISA-3D for TIA loading and for NESC loading are listed in report Sections 6 and 8 respectively.

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

Design Basis

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

- UTILITY TOWER ANALYSIS

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

  Load cases considered:

  Load Case 1: NESC Heavy

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

  Load Case 2: NESC Extreme

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

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

- MAST ASSEMBLY ANALYSIS

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

  Load cases considered:

  Load Case 1:
  Wind Speed…….... 93 mph (2018 CSBC Appendix-N)
  Radial Ice Thickness……. 0”

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

R e s u l t s

- ANTENNA MAST

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

Component	Design Limit	Stress Ratio (percentage of capacity)	Result
12” Sch. X-Strong	Bending	45.6%	**PASS**
HSS6x6x1/4	Bending	65.6%	**PASS**
Connection	Shear	5.9%	**PASS**

- UTILITY TOWER

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

  A maximum usage of **88.16%** occurs in the utility tower 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 g25Y	88.16%	**PASS**

- FOUNDATION AND ANCHORS

The existing foundation consists of four (4) 3-ft square tapering to 6-ft square x 9.5-ft long reinforced concrete piers and four (4) 11-ft square x 3-ft thick reinforced concrete pads. The base of the tower is connected to the foundation by one (1) anchor stub per leg. Foundation information was obtained from NUSCO drawing # 01135-60003.

BASE REACTIONS:

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

Load Case	Shear	Uplift	Compression
NESC Heavy Wind	42.60 kips	70.17 kips	126.77 kips
NESC Extreme Wind	38.41 kips	84.33 kips	111.56 kips

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

FOUNDATION:

The foundation was found to be within allowable limits.

Foundation	Design Limit	Required FS (1)	Proposed Loading FS (2)	Result
Reinf. Conc. Pad & Pier	Uplift	1.0	2.71	**PASS**
	Bearing Pressure	9 ksf	1.85 ksf	**PASS**

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

Conclusion

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

The analysis is based, in part on the information provided to this office by Eversource and AT&T. If the existing conditions are different than the information in this report, CENTEK engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES

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

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

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

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

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

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

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ RISA-3D

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

Modeling Features:

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

Analysis Features:

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

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

Graphics Features:

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

Design Features:

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

Results Features:

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

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ PLS-TOWER

PLS-TOWER is a Microsoft Windows program for the analysis and design of steel latticed towers used in electric power lines or communication facilities. Both self-supporting and guyed towers can be modeled. The program performs design checks of structures under user specified loads. For electric power structures it can also calculate maximum allowable wind and weight spans and interaction diagrams between different ratios of allowable wind and weight spans.

Modeling Features:

- Powerful graphics module (stress usages shown in different colors)
- Graphical selection of joints and members allows graphical editing and checking
- Towers can be shown as lines, wire frames or can be rendered as 3-d polygon surfaces
- Can extract geometry and connectivity information from a DXF CAD drawing
- CAD design drawings, title blocks, drawing borders or photos can be tied to structure model
- XML based post processor interface
- Steel Detailing Neutral File (SDNF) export to link with detailing packages
- Can link directly to line design program PLS-CADD
- Automatic generation of structure files for PLS-CADD
- Databases of steel angles, rounds, bolts, guys, etc.
- Automatic generation of joints and members by symmetries and interpolations
- Automated mast generation (quickly builds model for towers that have regular repeating sections) via graphical copy/paste
- Steel angles and rounds modeled either as truss, beam or tension-only elements
- Guys are easily handled (can be modeled as exact cable elements)

Analysis Features:

- Automatic handling of tension-only members
- Automatic distribution of loads in 2-part suspension insulators (v-strings, horizontal vees, etc.)
- Automatic calculation of tower dead, ice, and wind loads as well as drag coefficients according to:
    - ASCE 74-1991
    - NESC 2002
    - NESC 2007
    - IEC 60826:2003
    - EN50341-1:2001 (CENELEC)
    - EN50341-3-9:2001 (UK NNA)
    - EN50341-3-17:2001 (Portugal NNA)
    - ESAA C(b)1-2003 (Australia)
    - TPNZ (New Zealand)
    - REE (Spain)
    - EIA/TIA 222-F
    - ANSI/TIA 222-G
    - CSA S37-01
- Automated microwave antenna loading as per EIA/TIA 222-F and ANSI/TIA 222-G
- Minimization of problems caused by unstable joints and mechanisms
- Automatic bandwidth minimization and ability to solve large problems
- Design checks according to (other standards can be added easily):
    - ASCE Standard 10-90

- AS 3995 (Australian Standard 3995)
- BS 8100 (British Standard 8100)
- EN50341-1 (CENELEC, both empirical and analytical methods are available)
- ECCS 1985
- NGT-ECCS
- PN-90/B-03200
- EIA/TIA 222-F
- ANSI/TIA 222-G
- CSA S37-01
- EDF/RTE Resal
- IS 802 (India Standard 802)

Results Features:

- Design summaries printed for each group of members
- Easy to interpret text, spreadsheet and graphics design summaries
- Automatic determination of allowable wind and weight spans
- Automatic determination of interaction diagrams between allowable wind and weight spans
- Capability to batch run multiple tower configurations and consolidate the results
- Automated optimum angle member size selection and bolt quantity determination

Tool for interactive angle member sizing and bolt quantity determination.

Criteria for Design of PCS Facilities On or Extending Above Metal Electric Transmission Towers & Analysis of Transmission Towers Supporting PCS Masts (1)

Introduction

This criteria is the result from an evaluation of the methods and loadings specified by the separate standards, which are used in designing telecommunications towers and electric transmission towers. That evaluation is detailed elsewhere, but in summary; the methods and loadings are significantly different. This criteria specifies the manner in which the appropriate standard is used to design PCS facilities including masts and brackets (hereafter referred to as "masts"), and to evaluate the electric transmission towers to support PCS masts. The intent is to achieve an equivalent level of safety and security under the extreme design conditions expected in Connecticut and Massachusetts.

ANSI Standard TIA-222 covering the design of telecommunications structures specifies a working strength/allowable stress design approach. This approach applies the loads from extreme weather loading conditions, and designs the structure so that it does not exceed some defined percentage of failure strength (allowable stress).

ANSI Standard C2-2007 (National Electrical Safety Code) covering the design of electric transmission metal structures is based upon an ultimate strength/yield stress design approach. This approach applies a multiplier (overload capacity factor) to the loads possible from extreme weather loading conditions, and designs the structure so that it does not exceed its ultimate strength (yield stress).

Each standard defines the details of how loads are to be calculated differently. Most of the NU effort in "unifying" both codes was to establish what level of strength each approach would provide, and then increasing the appropriate elements of each to achieve a similar level of security under extreme weather loadings.

Two extreme weather conditions are considered. The first is an extreme wind condition (hurricane) based upon a 50-year recurrence (2% annual probability). The second is a winter condition combining wind and ice loadings.

The following sections describe the design criteria for any PCS mast extending above the top of an electric transmission tower, and the analysis criteria for evaluating the loads on the transmission tower from such a mast from the lower portions of such a mast, and loads on the pre-existing electric lower portions of such a mast, and loads on the pre-existing electric transmission tower and the conductors it supports.

Note 1: Prepared from documentation provide from Northeast Utilities.

P C S M a s t

The PCS facility (mast, external cable/trays, including the initial and any planned future support platforms, antennas, etc. extending the full height above the top level of the electric transmission structure) shall be designed in accordance with the provisions of TIA 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 “NU Design Criteria”. This specifies uniform loadings (different from the TIA loadings) on the each of the following components of the installed facility:

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

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

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

Attachment A
Eversource Design Criteria

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

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

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

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

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

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

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

c) Electric Transmission Structure

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

   ii) Shape Factor Multiplier:

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

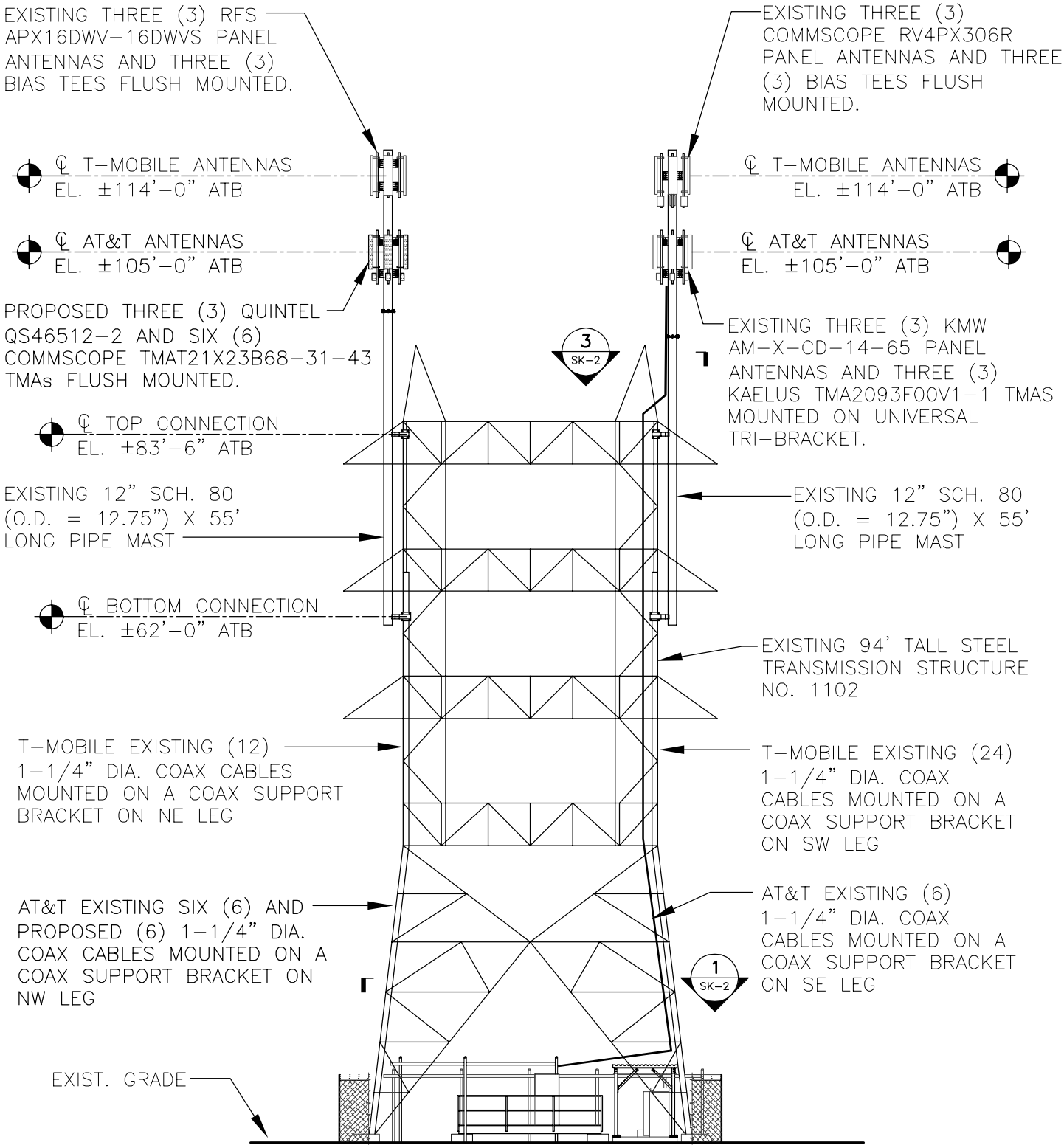
   iii) When Coaxial Cables are mounted alongside the pole structure, the shape multiplier shall be:

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

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

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

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



1 / SK-1

TOWER & MAST ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
00	11/21/18	ISSUED FOR REVIEW

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CT5046
EVERSOURCE 1102

WILLRUSS COURT
NORWALK, CT 06850

PROJECT NO:	18000.55
DRAWN BY:	TJL
CHECKED BY:	CAG
SCALE:	AS NOTED
DATE:	11/21/18

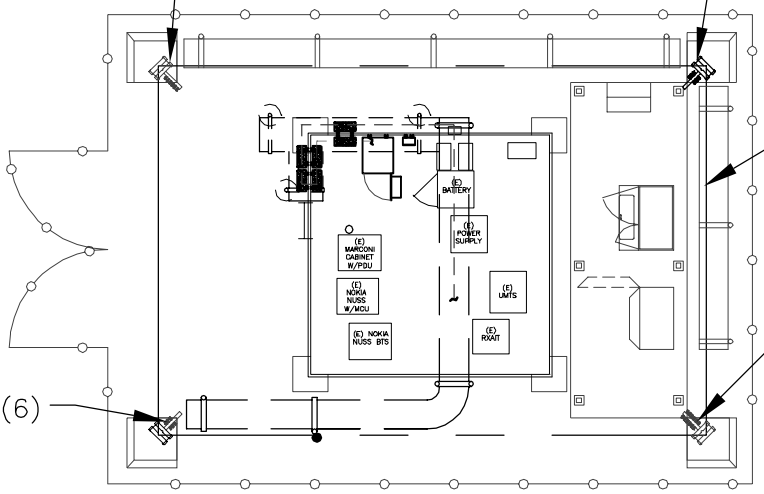
TOWER AND MAST ELEVATION

SK-1

DWG. 1 OF 2

T–MOBILE EXISTING (12) 1–1/4" DIA. COAX CABLES MOUNTED ON A COAX SUPPORT BRACKET ON NE LEG

AT&T EXISTING (6) 1–1/4" DIA. COAX CABLES MOUNTED ON A COAX SUPPORT BRACKET ON SE LEG



EXISTING 94' TALL CL&P STEEL TRANSMISSION STRUCTURE NO. 1102

T–MOBILE EXISTING (24) 1–1/4" DIA. COAX CABLES MOUNTED ON A COAX SUPPORT BRACKET ON SW LEG

AT&T EXISTING SIX (6) AND PROPOSED (6) 1–1/4" DIA. COAX CABLES MOUNTED ON A COAX SUPPORT BRACKET ON NW LEG

1 / SK–2 TOWER PLAN

SCALE: NOT TO SCALE

TRUE NORTH

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CT5046
EVERSOURCE 1102

WILLRUSS COURT
NORWALK, CT 06850

PROJECT NO:	18000.55
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	11/21/18

TOWER AND COAX PLAN

SK-2

DWG. 2 OF 2

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Subject:	Loads on North Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/21/18	Prepared by: T.J.L. Checked by: C.A.G. Job No. 18000.55

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

Wind Speeds

Basic Wind Speed $V := 93$ mph (User Input - 2016 CSBC Appendix N)

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

Input

Structure Type = Structure_Type := Lattice (User Input)

Structure Category = $SC := III$ (User Input)

Exposure Category = $Exp := C$ (User Input)

Structure Height = $h := 94$ ft (User Input)

Height to Center of Antennas = $z_{TMo} := 114$ ft (User Input)

Height to Center of Antennas = $z_{ATT} := 105$ ft (User Input)

Height to Center of Mast = $z_{Mast1} := 90$ ft (User Input)

Radial Ice Thickness = $t_i := 0.75$ in (User Input per Annex B of TIA-222-G)

Radial Ice Density = $Id := 56.00$ pcf (User Input)

Topograpic Factor = $K_{zt} := 1.0$ (User Input)

$K_a := 1.0$ (User Input)

Gust Response Factor = $G_H := 1.35$ (User Input)

Output

Wind Direction Probability Factor =

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

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

Importance Factors =

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

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

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

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

$$K_{iz} := \left(\frac{z_{TMo}}{33}\right)^{0.1} = 1.132 \qquad t_{izTMo} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.122$$

Velocity Pressure Coefficient Antennas =
$$Kz_{TMo} := 2.01\left(\left(\frac{z_{TMo}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.301$$

Velocity Pressure w/o Ice Antennas =
$$qz_{TMo} := 0.00256 \cdot K_d \cdot Kz_{TMo} \cdot V^2 \cdot I_{Wind} = 28.158$$

Velocity Pressure with Ice Antennas =
$$qz_{ice.TMo} := 0.00256 \cdot K_d \cdot Kz_{TMo} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 7.078$$

$$K_{iz} := \left(\frac{z_{ATT}}{33}\right)^{0.1} = 1.123 \qquad t_{izATT} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.105$$

Velocity Pressure Coefficient Antennas =
$$Kz_{ATT} := 2.01\left(\left(\frac{z_{ATT}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.279$$

Velocity Pressure w/o Ice Antennas =
$$qz_{ATT} := 0.00256 \cdot K_d \cdot Kz_{ATT} \cdot V^2 \cdot I_{Wind} = 27.675$$

Velocity Pressure with Ice Antennas =
$$qz_{ice.ATT} := 0.00256 \cdot K_d \cdot Kz_{ATT} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 6.956$$

$$K_{izMast1} := \left(\frac{z_{Mast1}}{33}\right)^{0.1} = 1.106 \qquad t_{izMast1} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast1} \cdot K_{zt}^{0.35} = 2.073$$

Velocity Pressure Coefficient Mast =
$$Kz_{Mast1} := 2.01\left(\left(\frac{z_{Mast1}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.238$$

Velocity Pressure w/o Ice Mast=
$$qz_{Mast1} := 0.00256 \cdot K_d \cdot Kz_{Mast1} \cdot V^2 \cdot I_{Wind} = 26.791$$

Velocity Pressure with Ice Mast =
$$qz_{ice.Mast1} := 0.00256 \cdot K_d \cdot Kz_{Mast1} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 6.734$$

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Subject:	Loads on North Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/21/18	Prepared by: T.J.L. Checked by: C.A.G. Job No. 18000.55

Development of Wind & Ice Load on Mast

Mast Data: (12" Sch. 80 Pipe) (User Input)

Mast Shape = Round (User Input)

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

Mast Length = $L_{mast} := 55$ ft (User Input)

Mast Thickness = $t_{mast} := 0.5$ in (User Input)

Velocity Coefficient = $C := \sqrt{I \cdot Kz_{Mast1}} \cdot V \cdot \frac{D_{mast}}{12} = 110$

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

Wind Load (without ice)

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

Total Mast Wind Force = $qz_{Mast1} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 23$ plf **BLC 5,7**

Wind Load (with ice)

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot t_{izMast1}\right)}{12} = 1.408$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast1} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 8$ plf **BLC 4,6**

Gravity Loads (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast1} \cdot 2\right)^2 - D_{mast}^2\right] = 96.5$ sq in

Weight of Ice on Mast = $W_{ICEmast1} := Id \cdot \frac{Ai_{mast}}{144} = 38$ plf **BLC 3**

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Quintel QS46512-2		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 52$	in	(User Input)
Antenna Width =	$W_{ant} := 12$	in	(User Input)
Antenna Thickness =	$T_{ant} := 10.8$	in	(User Input)
Antenna Weight =	$WT_{ant} := 75$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.3$		
Antenna Force Coefficient =	$Ca_{ant} = 1.28$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.3$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 13$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{ATT} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 622$	lbs	**BLC 5,7**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{izATT}) \cdot (W_{ant} + 2 \cdot t_{izATT})}{144} = 6.3$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 19$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.ATT} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 228$	lbs	**BLC 4,6**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 225$	lbs	**BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6739$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{izATT})(W_{ant} + 2 \cdot t_{izATT}) \cdot (T_{ant} + 2 \cdot t_{izATT}) - V_{ant} = 6938$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 225$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 674$	lbs	**BLC 3**

Development of Wind & Ice Load on Antennas

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Subject:	Loads on North Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/21/18	Prepared by: T.J.L. Checked by: C.A.G. Job No. 18000.55

Antenna Data: (AT&T)

Antenna Model =	Commscope TMAT21x23B68-31-43			
Antenna Shape =	Flat		(User Input)	
Antenna Height =	$L_{ant} := 9.7$	in	(User Input)	
Antenna Width =	$W_{ant} := 11$	in	(User Input)	
Antenna Thickness =	$T_{ant} := 3.9$	in	(User Input)	
Antenna Weight =	$WT_{ant} := 22$	lbs	(User Input)	
Number of Antennas =	$N_{ant} := 6$		(User Input)	
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 0.9$			
Antenna Force Coefficient =	$Ca_{ant} = 1.2$			

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.7$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 4.4$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{ATT} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 199$	lbs	**BLC 5,7**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{izATT}) \cdot (W_{ant} + 2 \cdot t_{izATT})}{144} = 1.5$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 8.8$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.ATT} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 99$	lbs	**BLC 4,6**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 416$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{izATT})(W_{ant} + 2 \cdot t_{izATT}) \cdot (T_{ant} + 2 \cdot t_{izATT}) - V_{ant} = 1300$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 42$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 253$	lbs	**BLC 3**

Development of Wind & Ice Load on Antenna Mounts

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Subject: Loads on North Mast on Structure #1102

Location: Norwalk, CT

Rev. 0: 11/21/18

Prepared by: T.J.L. Checked by: C.A.G.
Job No. 18000.55

Mount Data: (AT&T)

Mount Type: Tri-Bracket and Pipes

Mount Shape =	Flat		(User Input)
Mount Projected Surface Area =	$CaAa := 0$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CaAa_{ice} := 0$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 265$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 300$	lbs	

Wind Load (without ice)

Total Mount Wind Force = $F_{mnt} := qz_{ATT} \cdot G_H \cdot CaAa = 0$ lbs **BLC 5,7**

Wind Load (with ice)

Total Mount Wind Force = $Fi_{mnt} := qz_{ice.ATT} \cdot G_H \cdot CaAa_{ice} = 0$ lbs **BLC 4,6**

Gravity Loads (without ice)

Weight of All Mounts = $WT_{mnt} = 265$ lbs **BLC 2**

Gravity Loads (ice only)

Weight of Ice on All Mounts = $WT_{mnt.ice} - WT_{mnt} = 35$ lbs **BLC 3**

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	RFSAPX16DWV-16DWVS			
Antenna Shape =	Flat		(User Input)	
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)	
Antenna Width =	$W_{ant} := 13$	in	(User Input)	
Antenna Thickness =	$T_{ant} := 3.15$	in	(User Input)	
Antenna Weight =	$WT_{ant} := 41$	lbs	(User Input)	
Number of Antennas =	$N_{ant} := 3$		(User Input)	
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.3$			
Antenna Force Coefficient =	$Ca_{ant} = 1.28$			

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 15.1$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 737$	lbs	**BLC 5,7**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{izTMo}) \cdot (W_{ant} + 2 \cdot t_{izTMo})}{144} = 7.2$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 21.6$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 264$	lbs	**BLC 4,6**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 123$	lbs	**BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2289$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{izTMo})(W_{ant} + 2 \cdot t_{izTMo}) \cdot (T_{ant} + 2 \cdot t_{izTMo}) - V_{ant} = 5381$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 174$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 523$	lbs	**BLC 3**

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	Commscope ATSBT-TOP-FM-4G 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 =	$N_{ant} := 3$		(User Input)	
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 1.5$			
Antenna Force Coefficient =	$Ca_{ant} = 1.2$			

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.1$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.4$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 20$	lbs	**BLC 5,7**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{izTMo}) \cdot (W_{ant} + 2 \cdot t_{izTMo})}{144} = 0.5$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 1.6$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 19$	lbs	**BLC 4,6**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 42$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{izTMo})(W_{ant} + 2 \cdot t_{izTMo}) \cdot (T_{ant} + 2 \cdot t_{izTMo}) - V_{ant} = 448$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 15$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 44$	lbs	**BLC 3**

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

Subject:	Loads on North Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/21/18	Prepared by: T.J.L. Checked by: C.A.G. Job No. 18000.55

Development of Wind & Ice Load on Antenna Mounts

Mount Data: (T-Mobile)

Mount Type: Tri-Bracket and Pipes

Mount Shape =	Flat		(User Input)
Mount Projected Surface Area =	$CaAa := 0$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CaAa_{ice} := 0$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 265$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 300$	lbs	

Wind Load (without ice)

Total Mount Wind Force = $F_{mnt} := qz_{TMo} \cdot G_H \cdot CaAa = 0$ lbs **BLC 5,7**

Wind Load (with ice)

Total Mount Wind Force = $Fi_{mnt} := qz_{ice.TMo} \cdot G_H \cdot CaAa_{ice} = 0$ lbs **BLC 4,6**

Gravity Loads (without ice)

Weight of All Mounts = $WT_{mnt} = 265$ lbs **BLC 2**

Gravity Loads (ice only)

Weight of Ice on All Mounts = $WT_{mnt.ice} - WT_{mnt} = 35$ lbs **BLC 3**

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Subject:	Loads on North Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/21/18	Prepared by: T.J.L. Checked by: C.A.G. Job No. 18000.55

Development of Wind & Ice Load on Coax Cables

Coax Cable Data:

Coax Type =	HELIAX 1-1/4"			
Shape =	Round		(User Input)	
Coax Outside Diameter =	$D_{coax} := 1.55$	in	(User Input)	
Coax Cable Length =	$L_{coax} := 20$	ft	(User Input)	
Weight of Coax per foot =	$Wt_{coax} := 0.66$	plf	(User Input)	
Total Number of Coax =	$N_{coax} := 24$		(User Input)	
Total Number of Exterior Coax =	$Ne_{coax} := 24$		(User Input)	(12 AT&T & 12 T-Mobile)
No. of Coax Projecting Outside Face of Mast =	$NP_{coax} := 4$		(User Input)	
Coax aspect ratio,	$Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 154.8$			
Coax Cable Force Factor Coefficient =	$Ca_{coax} = 1.2$			

Wind Load (without ice)

Coax projected surface area =	$A_{coax} := \frac{(NP_{coax} D_{coax})}{12} = 0.5$	sf/ft	
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast1} \cdot G_H \cdot A_{coax} = 22$	plf	**BLC 5,7**

Wind Load (with ice)

Coax projected surface area w/ Ice =	$AICE_{coax} := \frac{(NP_{coax} D_{coax} + 2 \cdot t_{izMast1})}{12} = 0.9$	sf/ft	
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast1} \cdot G_H \cdot AICE_{coax} = 9$	plf	**BLC 4,6**

Gravity Loads (without ice)

Weight of all cables w/o ice	$WT_{coax} := Wt_{coax} \cdot N_{coax} = 16$	plf	**BLC 2**

Gravity Loads (ice only)

Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[(D_{coax} + 2 \cdot t_{izMast1})^2 - D_{coax}^2\right] = 23.6$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 220$	plf	**BLC 3**

Development of Wind & Ice Load on Brace Member

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Subject:	Loads on North Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/21/18	Prepared by: T.J.L. Checked by: C.A.G. Job No. 18000.55

Member Data: HSS6x6x1/4

Antenna Shape =	Flat		(User Input)		
Height =	$H_{mem} := 6$	in	(User Input)		
Width =	$W_{mem} := 6$	in	(User Input)		
Thickness =	$t_{mem} := 0.25$	in	(User Input)		
Length =	$L_{mem} := 42$	in	(User Input)		
Member Aspect Ratio =	$Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 7.0$				
Member Force Coefficient =	$Ca_{mem} = 1.4$				
Wind Load (without ice)					
Member Projected Surface Area =	$A_{mem} := \frac{H_{mem}}{12} = 0.5$			sf/ft	
Total Member Wind Force =	$F_{mem} := qz_{Mast1} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 25$			plf	**BLC 5,7**
Wind Load (with ice)					
Member Projected Surface Area w/ Ice =	$A_{ICEmem} := \frac{\left(H_{mem} + 2 \cdot t_{izMast1}\right)}{12} = 0.8$			sf/ft	
Total Member Wind Force w/ Ice =	$Fi_{mem} := qz_{ice.Mast1} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 11$			plf	**BLC 4,6**
Gravity Load (without ice)					
Weight of Member =	Self Weight			plf	**BLC 1**
Gravity Loads (ice only)					
Ice Area per Linear foot =	$Ai_{mem} := \left(W_{mem} + 2 \cdot t_{izMast1}\right) \cdot \left(H_{mem} + 2 \cdot t_{izMast1}\right) - W_{mem} \cdot H_{mem} = 67$			sq in	
Weight of Ice on Member =	$W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 26$			plf	**BLC 3**

(Global) Model Settings

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

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

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

(Global) Model Settings, Continued

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

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mast	PIPE_12.0X	Column	Pipe	A53 Gr. B	Typical	17.5	339	339	678
2	Brace	HSS6X6X4	Beam	Tube	A500 Gr.46	Typical	5.24	28.6	28.6	45.6

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Mast	33	Segment	Segment	Lbyy						Lateral
2	M2	Brace	2.25			Lbyy						Lateral
3	M3	Brace	7			Lbyy						Lateral
4	M4	Brace	2.25			Lbyy						Lateral
5	M5	Brace	2.25			Lbyy						Lateral
6	M6	Brace	7			Lbyy						Lateral
7	M7	Brace	2.25			Lbyy						Lateral
8	M8	Mast	22									Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N3			Mast	Column	Pipe	A53 Gr. B	Typical
2	M2	N8	N12			Brace	Beam	Tube	A500 Gr....	Typical
3	M3	N12	N11			Brace	Beam	Tube	A500 Gr....	Typical
4	M4	N11	N7			Brace	Beam	Tube	A500 Gr....	Typical
5	M5	N6	N10			Brace	Beam	Tube	A500 Gr....	Typical
6	M6	N10	N9			Brace	Beam	Tube	A500 Gr....	Typical
7	M7	N9	N5			Brace	Beam	Tube	A500 Gr....	Typical
8	M8	N3	N4			Mast	Column	Pipe	A53 Gr. B	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	0	0	
2	N2	0	21.5	0	0	
3	N3	0	33	0	0	
4	N4	0	55	0	0	
5	N5	-2.25	0	3.5	0	
6	N6	-2.25	0	-3.5	0	
7	N7	-2.25	21.5	3.5	0	
8	N8	-2.25	21.5	-3.5	0	
9	N9	0	0	3.5	0	
10	N10	0	0	-3.5	0	
11	N11	0	21.5	3.5	0	
12	N12	0	21.5	-3.5	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N8	Reaction	Reaction	Reaction			
2	N7	Reaction	Reaction	Reaction			
3	N5	Reaction	Reaction	Reaction			
4	N6	Reaction	Reaction	Reaction			

Member Point Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M8	Y	-.225	10
2	M8	Y	-.132	10
3	M8	Y	-.265	10
4	M8	Y	-.123	19
5	M8	Y	-.006	19
6	M8	Y	-.265	19

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M8	Y	-.674	10
2	M8	Y	-.253	10
3	M8	Y	-.035	10
4	M8	Y	-.523	19
5	M8	Y	-.044	19
6	M8	Y	-.035	19

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M8	X	.228	10
2	M8	X	.099	10
3	M8	X	.264	19
4	M8	X	.019	19

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M8	X	.622	10
2	M8	X	.199	10
3	M8	X	.737	19
4	M8	X	.02	19

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M8	Z	.228	10
2	M8	Z	.099	10
3	M8	Z	.264	19
4	M8	Z	.019	19

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M8	Z	.622	10
2	M8	Z	.199	10
3	M8	Z	.737	19
4	M8	Z	.02	19

Member Distributed Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.016	-.016	23	33
2	M8	Y	-.016	-.016	0	8

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.038	-.038	0	0
2	M8	Y	-.038	-.038	0	0
3	M1	Y	-.22	-.22	23	33
4	M8	Y	-.22	-.22	0	8
5	M2	Y	-.026	-.026	0	0
6	M3	Y	-.026	-.026	0	0
7	M4	Y	-.026	-.026	0	0
8	M5	Y	-.026	-.026	0	0
9	M6	Y	-.026	-.026	0	0
10	M7	Y	-.026	-.026	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.008	.008	0	0
2	M8	X	.008	.008	0	8
3	M1	X	.012	.012	23	33
4	M8	X	.012	.012	0	8
5	M3	X	.011	.011	0	0
6	M6	X	.011	.011	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.023	.023	0	0
2	M8	X	.023	.023	0	8
3	M1	X	.034	.034	23	33
4	M8	X	.034	.034	0	8
5	M3	X	.025	.025	0	0
6	M6	X	.025	.025	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.008	.008	0	0
2	M8	Z	.008	.008	0	8
3	M1	Z	.012	.012	23	33
4	M8	Z	.012	.012	0	8
5	M2	Z	.011	.011	0	0
6	M5	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/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.023	.023	0	0
2	M8	Z	.023	.023	0	8
3	M1	Z	.034	.034	23	33

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
4	M8	Z	.034	.034	0	8
5	M2	Z	.013	.013	0	0
6	M5	Z	.013	.013	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Self Weight	None		-1						
2	Weight of Appurtenances	None					6	2		
3	Weight of Ice Only	None					6	10		
4	(x) TIA Wind with Ice	None					4	6		
5	(x) TIA Wind	None					4	6		
6	(z) TIA Wind with Ice	None					4	6		
7	(z) TIA Wind	None					4	6		

Load Combinations

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

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N8	max	-1.403	6	3.18	3	-1.107	3	0	6	0	6	0	6
2		min	-4.708	1	-1.936	5	-4.147	4	0	1	0	1	0	1
3	N7	max	2.569	5	4.567	4	2.912	1	0	6	0	6	0	6
4		min	-4.708	1	-.454	2	-3.756	5	0	1	0	1	0	1
5	N5	max	1.922	1	3.92	3	1.238	5	0	6	0	6	0	6
6		min	-.944	5	.213	5	-1.232	1	0	1	0	1	0	1
7	N6	max	1.922	1	3.92	3	1.562	4	0	6	0	6	0	6
8		min	1.024	6	2.033	5	.714	3	0	1	0	1	0	1
9	Totals:	max	0	6	14.199	6	0	3						
10		min	-5.573	1	4.49	2	-5.103	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
1	N1	max	-.004	5	-.13	5	0	3	0	3	0	3	3.013e-03	2
2		min	-.033	1	-.429	3	-.035	4	-2.402e-03	4	-8.935e-05	4	-1.121e-03	6
3	N2	max	.077	1	-.131	5	.104	4	8.052e-03	4	7.402e-04	4	-3.746e-04	5
4		min	.004	5	-.433	3	0	1	0	1	0	1	-1.022e-02	1
5	N3	max	2.486	1	-.132	5	2.212	4	2.087e-02	4	7.402e-04	4	-3.777e-04	5
6		min	.056	5	-.436	3	0	1	0	1	0	1	-2.307e-02	1
7	N4	max	9.668	1	-.132	5	8.812	4	2.639e-02	4	7.402e-04	4	-3.796e-04	5
8		min	.156	5	-.438	3	0	1	0	1	0	1	-2.859e-02	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
9	N5	max	0	6	0	6	0	6	-2.596e-03	5	1.452e-03	4	-8.991e-04	5
10		min	0	1	0	1	0	1	-4.998e-03	3	-1.64e-04	1	-1.108e-02	3
11	N6	max	0	6	0	6	0	6	4.998e-03	3	1.501e-03	4	-4.461e-03	2
12		min	0	1	0	1	0	1	2.396e-04	5	9.507e-05	3	-1.146e-02	6
13	N7	max	0	6	0	6	0	6	2.554e-03	5	3.876e-04	1	-8.635e-03	2
14		min	0	1	0	1	0	1	-4.008e-03	3	-4.351e-03	4	-1.321e-02	4
15	N8	max	0	6	0	6	0	6	5.83e-03	4	-1.473e-04	3	5.013e-03	5
16		min	0	1	0	1	0	1	-6.744e-04	2	-4.405e-03	4	-1.218e-02	3
17	N9	max	0	5	-.023	5	0	3	-2.596e-03	5	7.949e-04	4	-7.89e-04	5
18		min	0	1	-.284	3	-.034	4	-4.998e-03	3	2.974e-04	3	-8.939e-03	3
19	N10	max	0	6	-.11	2	0	1	4.998e-03	3	6.502e-04	5	-2.981e-03	2
20		min	0	1	-.295	6	-.034	4	2.396e-04	5	-5.128e-04	1	-9.406e-03	6
21	N11	max	.001	1	-.235	2	.103	4	2.554e-03	5	-4.607e-04	3	-8.913e-03	2
22		min	0	5	-.339	4	0	3	-4.008e-03	3	-2.305e-03	4	-1.07e-02	4
23	N12	max	.001	1	.128	5	.103	4	5.83e-03	4	1.212e-03	1	3.95e-03	5
24		min	0	6	-.317	3	-.001	1	-6.744e-04	2	-2.158e-03	5	-1.047e-02	3

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

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc.....	L...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M1	PIPE_12.0X	.456	21....	1	.034	21....	4	524.199	551.25	184.275	184.275	1...	H1-1b
2	M2	HSS6X6X4	.356	2.25	5	.067	0 z	4	214.996	216.936	38.64	38.64	1...	H1-1b
3	M3	HSS6X6X4	.656	3.5	4	.394	7 y	4	198.868	216.936	38.64	38.64	1...	H3-6
4	M4	HSS6X6X4	.489	0	4	.075	2.25 y	4	214.996	216.936	38.64	38.64	1...	H1-1b
5	M5	HSS6X6X4	.270	2.25	3	.064	0 y	3	214.996	216.936	38.64	38.64	1...	H1-1b
6	M6	HSS6X6X4	.528	3.5	3	.334	0 y	3	198.868	216.936	38.64	38.64	1...	H3-6
7	M7	HSS6X6X4	.270	0	3	.064	2.25 y	3	214.996	216.936	38.64	38.64	1...	H1-1b
8	M8	PIPE_12.0X	.220	0	1	.020	0	1	458.537	551.25	184.275	184.275	2...	H1-1b

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N8	-4.708	-.083	-2.912	0	0	0
2	1	N7	-4.708	-.083	2.912	0	0	0
3	1	N5	1.922	3.077	-1.232	0	0	0
4	1	N6	1.922	3.077	1.232	0	0	0
5	1	Totals:	-5.573	5.987	0			
6	1	COG (ft):	X: -.036	Y: 30.25	Z: 0			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N8	-4.622	-.454	-2.858	0	0	0
2	2	N7	-4.622	-.454	2.858	0	0	0
3	2	N5	1.836	2.699	-1.178	0	0	0
4	2	N6	1.836	2.699	1.178	0	0	0
5	2	Totals:	-5.573	4.49	0			
6	2	COG (ft):	X: -.036	Y: 30.25	Z: 0			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	3	N8	-1.783	3.18	-1.107	0	0	0
2	3	N7	-1.783	3.18	1.107	0	0	0
3	3	N5	1.129	3.92	-.714	0	0	0
4	3	N6	1.129	3.92	.714	0	0	0
5	3	Totals:	-1.308	14.199	0			
6	3	COG (ft):	X: -.034	Y: 31.298	Z: 0			

Joint Reactions

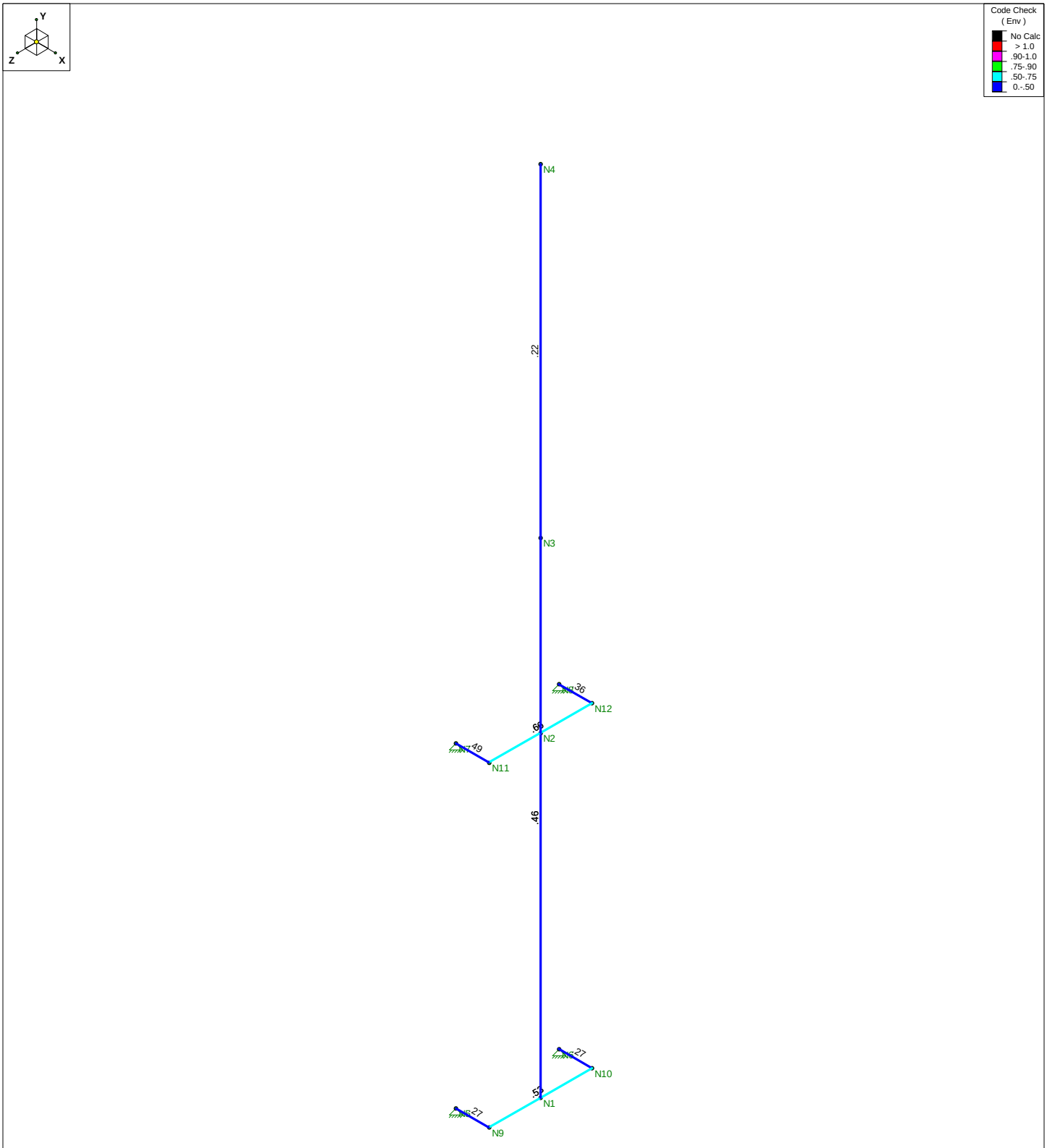
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	4	N8	-3.121	-1.572	-4.147	0	0	0
2	4	N7	2.497	4.567	-3.714	0	0	0
3	4	N5	-.872	.583	1.197	0	0	0
4	4	N6	1.495	2.41	1.562	0	0	0
5	4	Totals:	0	5.987	-5.103			
6	4	COG (ft):	X: -.036	Y: 30.25	Z: 0			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	5	N8	-3.038	-1.936	-4.092	0	0	0
2	5	N7	2.569	4.18	-3.756	0	0	0
3	5	N5	-.944	.213	1.238	0	0	0
4	5	N6	1.412	2.033	1.506	0	0	0
5	5	Totals:	0	4.49	-5.103			
6	5	COG (ft):	X: -.036	Y: 30.25	Z: 0			

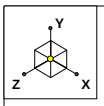
Joint Reactions

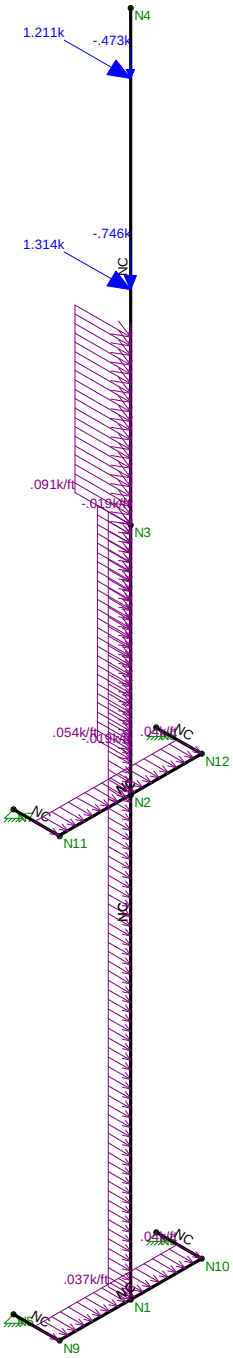
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	6	N8	-1.403	2.822	-1.402	0	0	0
2	6	N7	-.072	4.305	-.466	0	0	0
3	6	N5	.451	3.313	-.123	0	0	0
4	6	N6	1.024	3.758	.787	0	0	0
5	6	Totals:	0	14.199	-1.204			
6	6	COG (ft):	X: -.034	Y: 31.298	Z: 0			



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

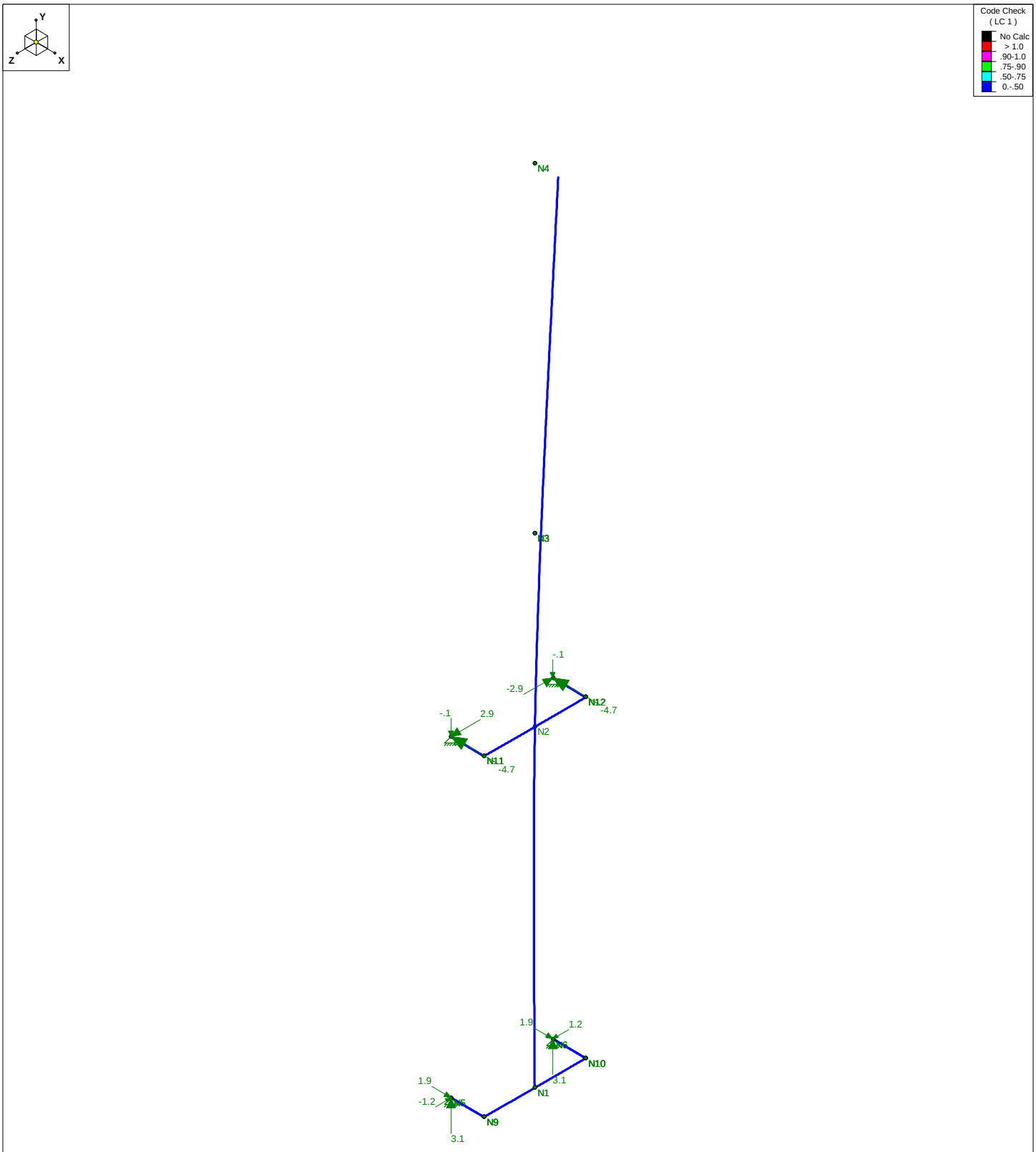
CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:14 AM
18000.55	Unity Check	TIA North Mast.r3d





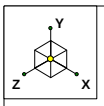
Member Code Checks Displayed
Loads: LC 1, 1.2D + 1.6W (X-direction)

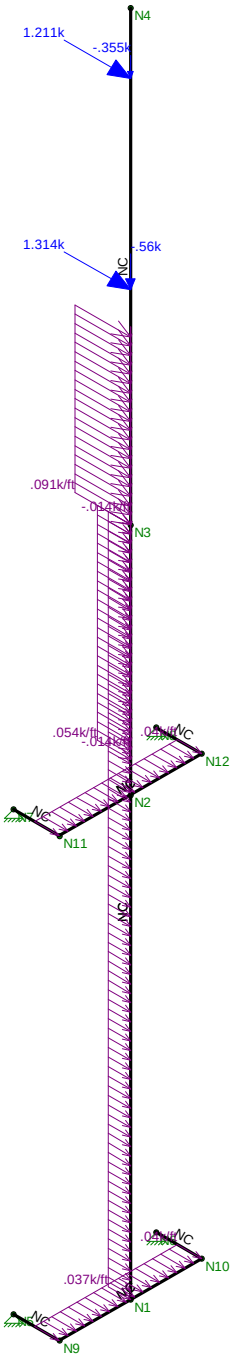
CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:14 AM
18000.55	LC #1 Loads	TIA North Mast.r3d



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

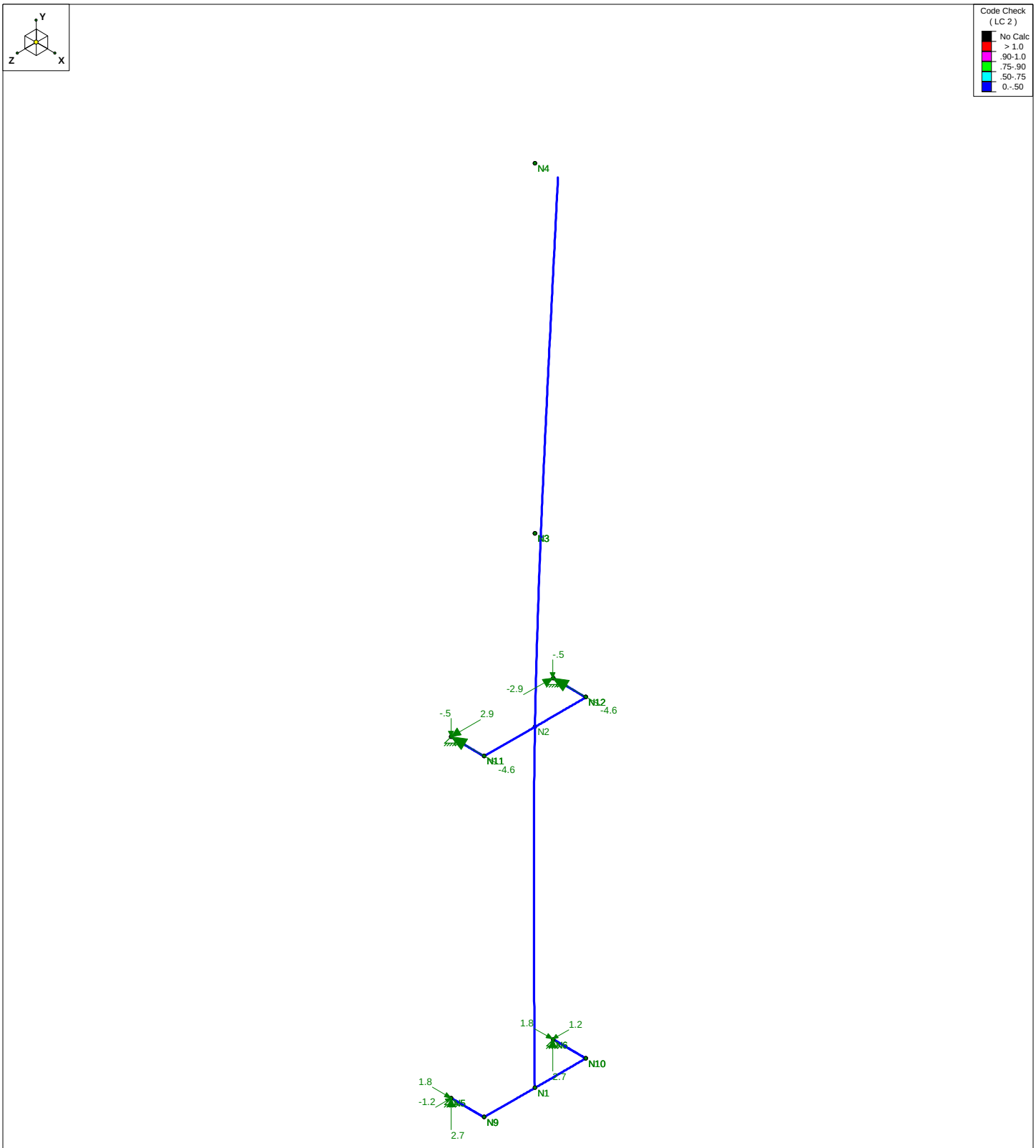
CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:16 AM
18000.55	LC #1 Reactions and Deflected Shape	TIA North Mast.r3d





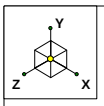
Member Code Checks Displayed
Loads: LC 2, 0.9D + 1.6W (X-direction)

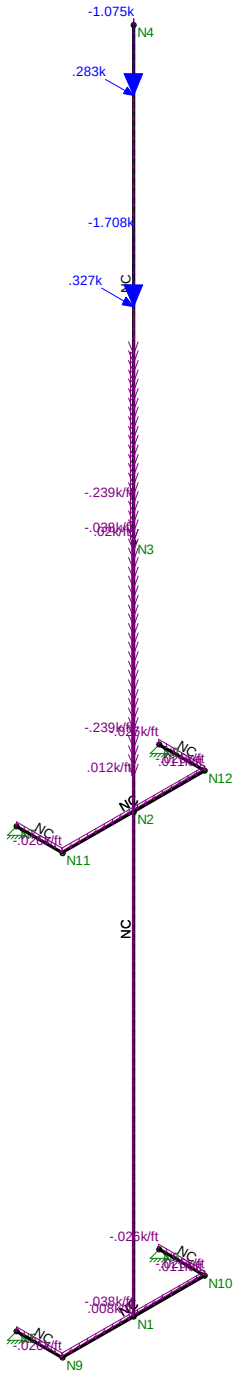
CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:14 AM
18000.55	LC #2 Loads	TIA North Mast.r3d



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

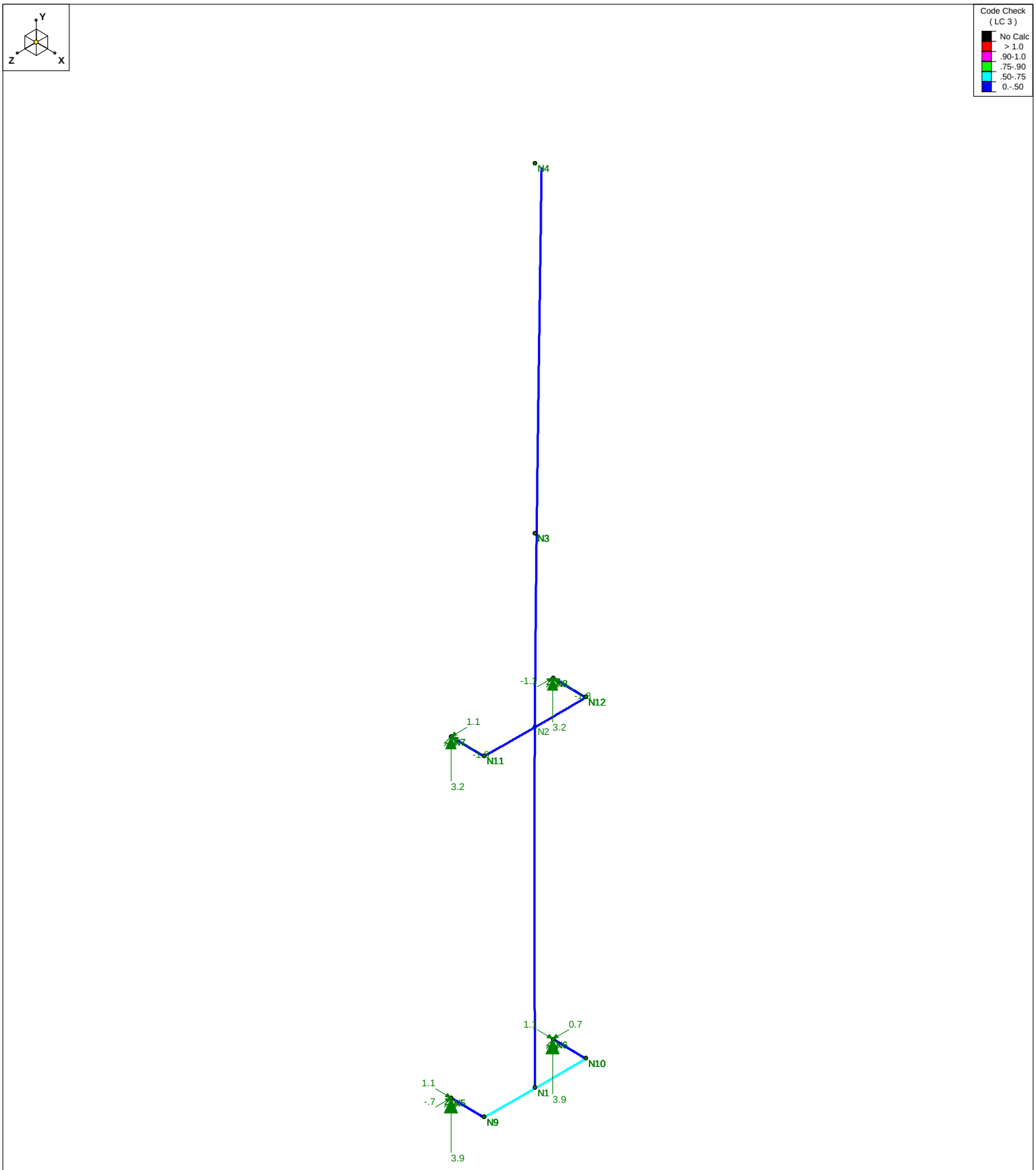
CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:16 AM
18000.55	LC #2 Reactions and Deflected Shape	TIA North Mast.r3d





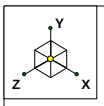
Member Code Checks Displayed
Loads: LC 3, 1.2D + 1.0Di + 1.0Wi (X-direction)

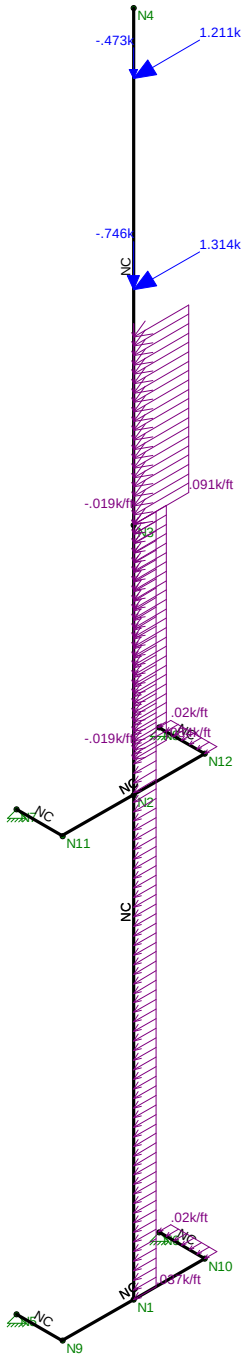
CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:15 AM
18000.55	LC #3 Loads	TIA North Mast.r3d



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

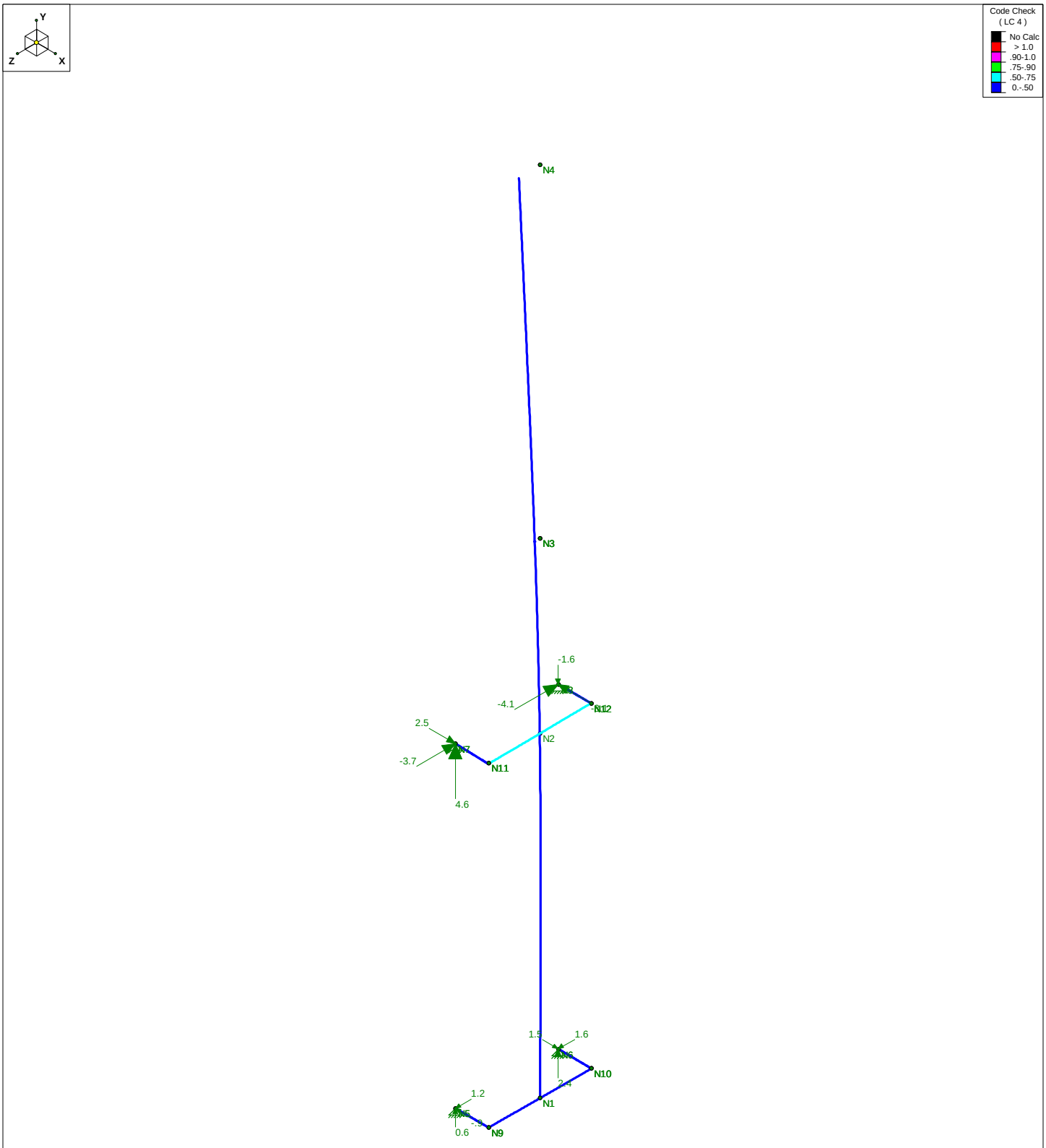
CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:17 AM
18000.55	LC #3 Reactions and Deflected Shape	TIA North Mast.r3d





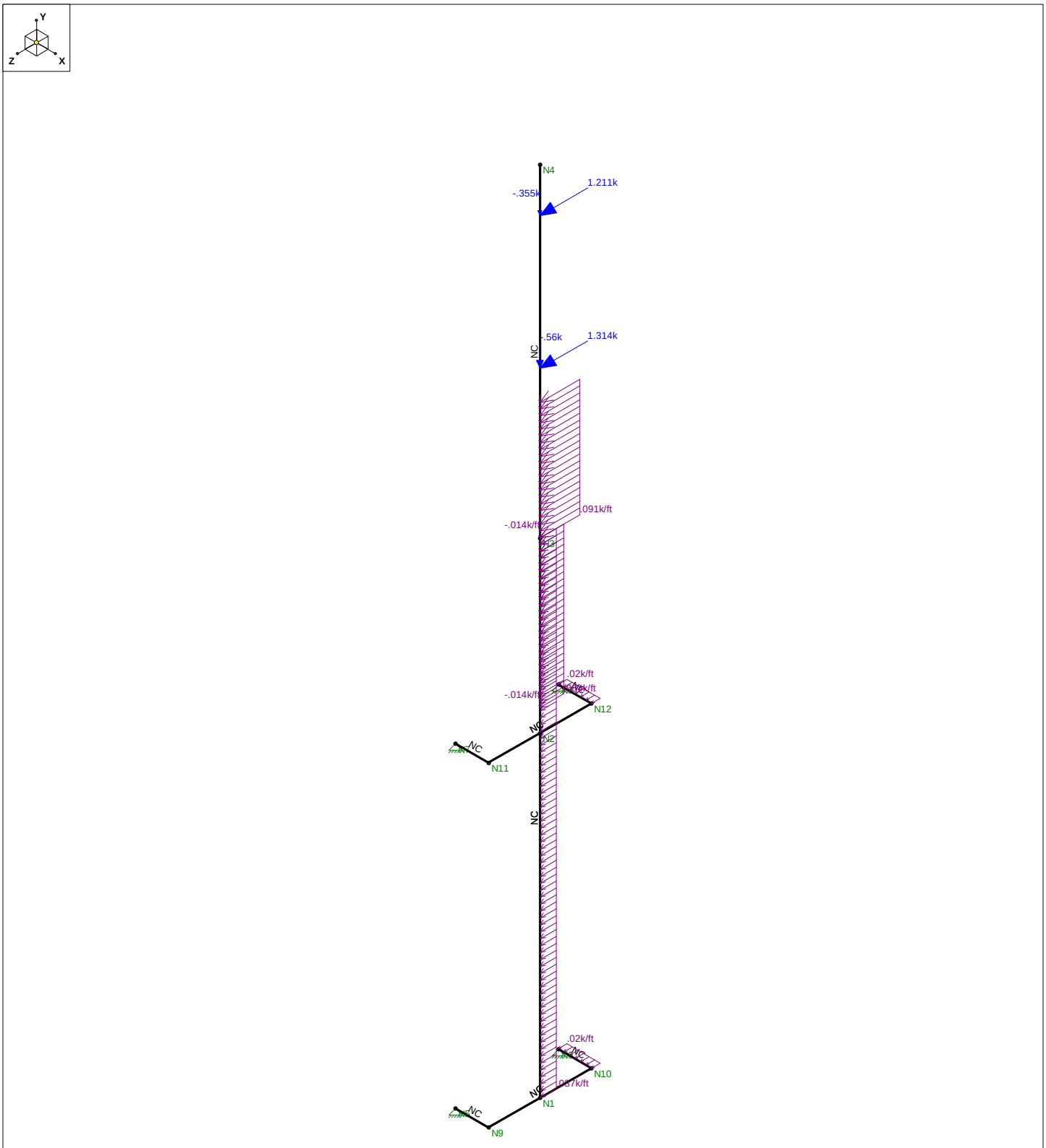
Member Code Checks Displayed
Loads: LC 4, 1.2D + 1.6W (Z-direction)

CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:15 AM
18000.55	LC #4 Loads	TIA North Mast.r3d



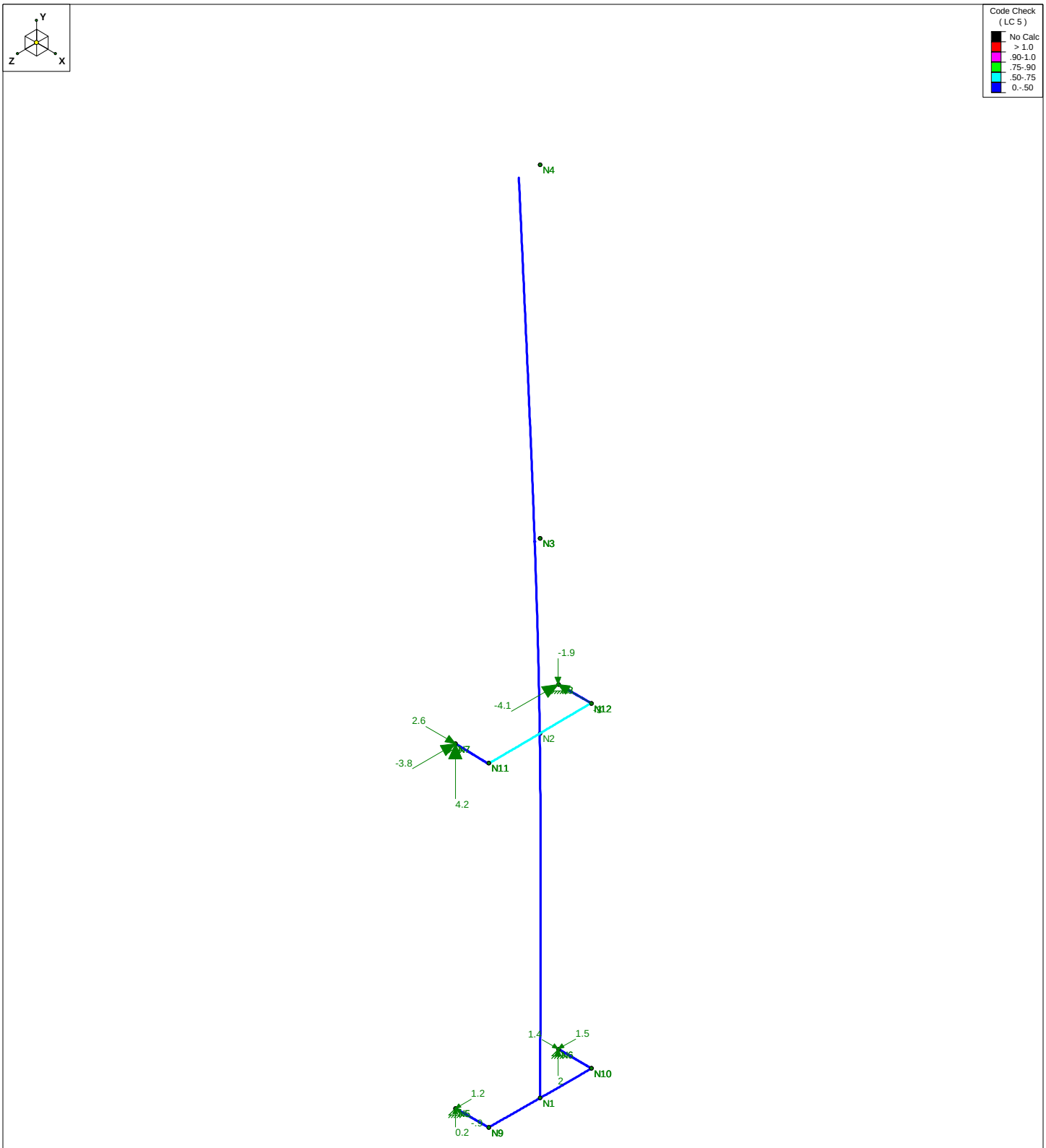
Member Code Checks Displayed
Results for LC 4, 1.2D + 1.6W (Z-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:17 AM
18000.55	LC #4 Reactions and Deflected Shape	TIA North Mast.r3d



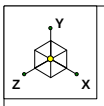
Member Code Checks Displayed
Loads: LC 5, 0.9D + 1.6W (Z-direction)

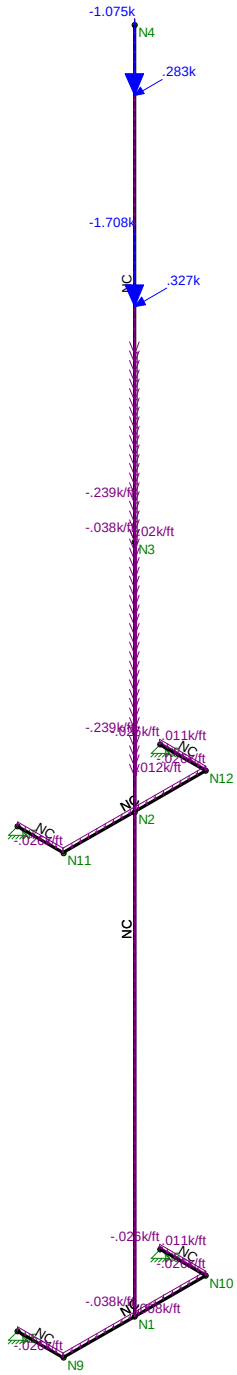
CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:15 AM
18000.55	LC #5 Loads	TIA North Mast.r3d



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

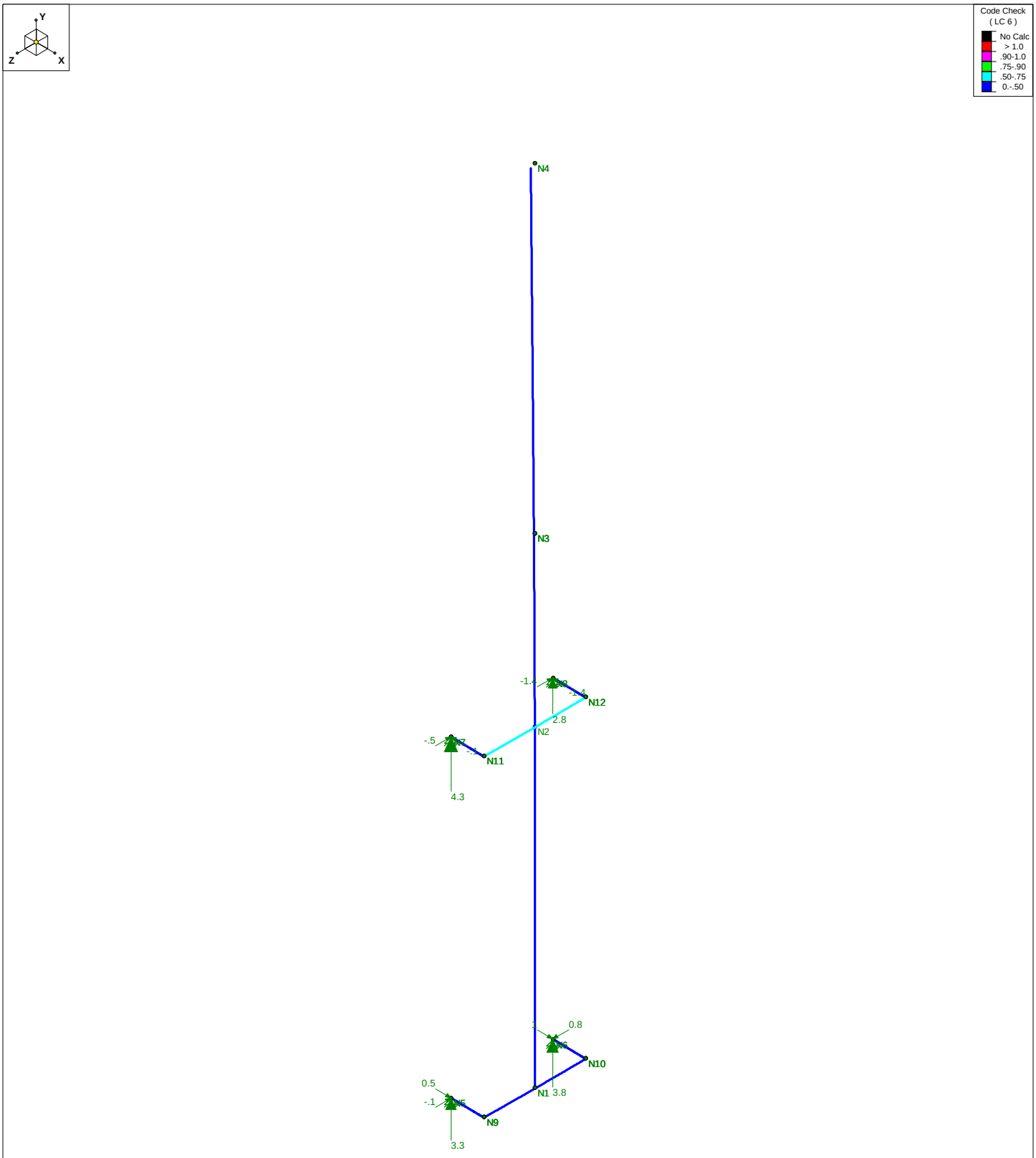
CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:17 AM
18000.55	LC #5 Reactions and Deflected Shape	TIA North Mast.r3d





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

CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:15 AM
18000.55	LC #6 Loads	TIA North Mast.r3d

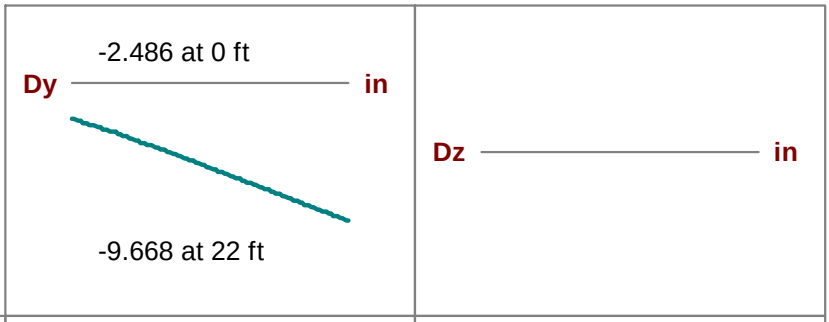


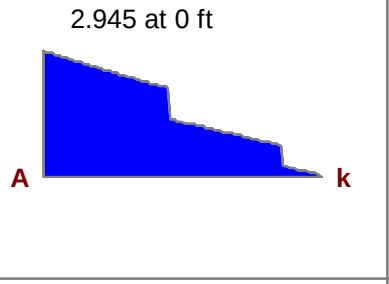
Member Code Checks Displayed
Results for LC 6, 1.2D + 1.0Di + 1.0Wi (Z-direction)
Reaction and Moment Units are k and k-ft

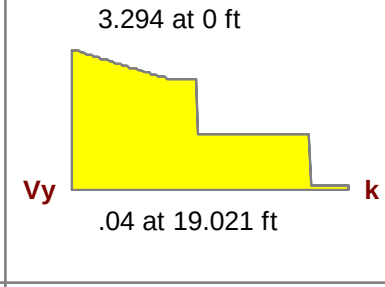
CENTEK Engineering, INC.		
TJL	North Mast - Tower # 1102	Nov 21, 2018 at 9:18 AM
18000.55	LC #6 Reactions and Deflected Shape	TIA North Mast.r3d

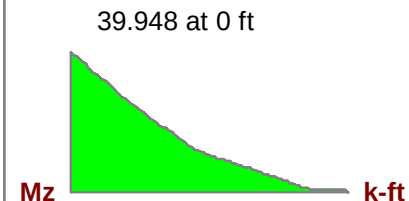
Column: ***M8***

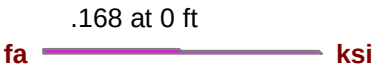
Shape: **PIPE_12.0X**
Material: **A53 Gr. B**
Length: **22 ft**
I Joint: **N3**
J Joint: **N4**
LC 1: 1.2D + 1.6W (X-direction)
Code Check: **0.220 (bending)**
Report Based On 97 Sections

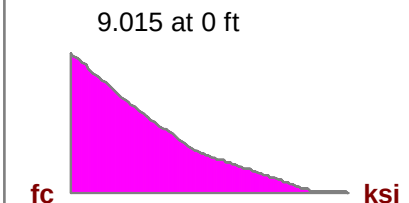


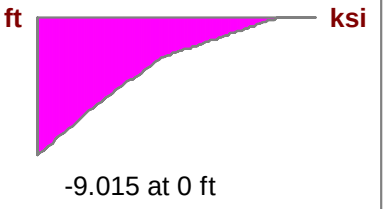












AISC 14th(360-10): LRFD Code Check

Direct Analysis Method

Max Bending Check	**0.220**	Max Shear Check	**0.020 (s)**
Location	**0 ft**	Location	**0 ft**
Equation	**H1-1b**	Max Defl Ratio	**L/36**

Bending	**Compact**	Compression	**Non-Slender**

			y-y	z-z
Fy	**35 ksi**	Lb	**22 ft**	**22 ft**
phi*Pnc	**458.537 k**	KL/r	**59.982**	**59.982**
phi*Pnt	**551.25 k**			
phi*Mny	**184.275 k-ft**	L Comp Flange	**22 ft**	
phi*Mnz	**184.275 k-ft**	L-torque	**22 ft**	
phi*Vny	**165.375 k**	Tau_b	**1**	
phi*Vnz	**165.375 k**			
phi*Tn	**173.622 k-ft**			
Cb	**2.272**			

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:	Flange Bolts and Flangeplate Analysis
Location:	Norwalk, CT
Rev. 0: 11/21/18	Prepared by: T.J.L. Checked by: C.A.G. Job No. 18000.55

Flange Bolt and Flange Plate Analysis:

Input Data:

Tower Reactions:

Overturning Moment =	OM := 39.9·ft·kips	(Input From RisaTower)
Shear Force =	Shear := 3.3·kips	(Input From RisaTower)
Axial Force =	Axial := 3.0·kips	(Input From RisaTower)

Flange Bolt Data:

Use AST MA325

Number of Flange Bolts =	N := 8	(User Input)
Diameter of Bolt Circle =	D_{bc} := 17·in	(User Input)
Bolt Minimum Tensile Strength =	F_{ub} := 120·ksi	(User Input)
Bolt Modulus =	E := 29000·ksi	(User Input)
Diameter of Flange Bolts =	D := 1.125·in	(User Input)
Threads per Inch =	n := 7	(User Input)

Flange Plate Data:

Use AST MA36

Plate Yield Strength =	Fy_{bp} := 50·ksi	(User Input)
Flange Plate Thickness =	t_{bp} := 1·in	(User Input)
Flange Plate Diameter =	D_{bp} := 20·in	(User Input)
Outer Pole Diameter =	D_{pole} := 12.8·in	(User Input)

Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

Radius of Bolt Circle =: $R_{bc} := \frac{D_{bc}}{2} = 8.5 \cdot in$

Distance to Bolts = $i := 1 .. N$

$d_i := \left| \theta \leftarrow 2 \cdot \pi \cdot \left(\frac{i}{N} \right) \right.$
$\left. d \leftarrow R_{bc} \cdot \sin(\theta) \right.$

$d_1 = 6.01 \cdot in$ $d_7 = -6.01 \cdot in$

$d_2 = 8.50 \cdot in$ $d_8 = -0.00 \cdot in$

$d_3 = 6.01 \cdot in$

$d_4 = 0.00 \cdot in$

$d_5 = -6.01 \cdot in$

$d_6 = -8.50 \cdot in$

Critical Distances For Bending in Plate:

Outer Pole Radius = $R_{pole} := \frac{D_{pole}}{2} = 6.4 \cdot in$

Moment Arms of Bolts about Neutral Axis = $MA_i := if\left(d_i \geq R_{pole}, d_i - R_{pole}, 0in\right)$

$MA_1 = 0.00 \cdot in$ $MA_7 = 0.00 \cdot in$

$MA_2 = 2.10 \cdot in$ $MA_8 = 0.00 \cdot in$

$MA_3 = 0.00 \cdot in$

$MA_4 = 0.00 \cdot in$

$MA_5 = 0.00 \cdot in$

$MA_6 = 0.00 \cdot in$

Effective Width of Flangeplate for Bending = $B_{eff} := .8 \cdot 2 \cdot \sqrt{\left(\frac{D_{bp}}{2}\right)^2 - \left(\frac{D_{pole}}{2}\right)^2} = 12.3 \cdot in$

Flange Bolt Analysis:

Calculated Flange Bolt Properties:

Polar Moment of Inertia = $I_p := \sum_i \left(d_i\right)^2 = 289 \cdot in^2$

Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 0.994 \cdot in^2$

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n}\right)^2 = 0.763 \cdot in^2$

Net Diameter = $D_n := \frac{2 \cdot \sqrt{A_n}}{\sqrt{\pi}} = 0.986 \cdot in$

Radius of Gyration of Bolt = $r := \frac{D_n}{4} = 0.246 \cdot in$

Section Modulus of Bolt = $S_x := \frac{\pi \cdot D_n^3}{32} = 0.094 \cdot in^3$

Check Flange Bolt Tension Force:

Maximum Tensile Force = $T_{Max} := OM \cdot \frac{R_{bc}}{I_p} - \frac{Axial}{N} = 13.7 \cdot kips$

Maximum Shear Force = $V_{Max} := \frac{Shear}{N} = 0.4 \cdot kips$

Design Tensile Strength = $\Phi R_{nt} := \left(0.75 \cdot F_{ub} \cdot 0.75 \cdot A_g\right) = 67.1 \cdot kips$

Bolt Tension % of Capacity = $\frac{T_{Max}}{\Phi R_{nt}} = 20.43 \cdot \%$

Condition1 = $Condition1 := if\left(\frac{T_{Max}}{\Phi R_{nt}} \le 1.00, "OK", "Overstressed"\right)$

Condition1 = "OK"

Design Shear Strength = $\Phi R_{nv} := \left(0.75 \cdot 0.45 \cdot F_{ub} \cdot A_g\right) = 40.3 \cdot kips$

Condition2 = $Condition2 := if\left[\left(\frac{V_{Max}}{\Phi R_{nv}}\right)^2 + \left(\frac{T_{Max}}{\Phi R_{nt}}\right)^2 \le 1.00, "OK", "Overstressed"\right]$

Condition2 = "OK"

Flange Plate Analysis:

Force from Bolts = $C_i := \frac{OM \cdot d_i}{I_p} + \frac{Axial}{N}$

$C_1 = 10.3 \cdot kips$

$C_2 = 14.5 \cdot kips$

$C_3 = 10.3 \cdot kips$

$C_4 = 0.4 \cdot kips$

$C_5 = -9.6 \cdot kips$

$C_6 = -13.7 \cdot kips$

$C_7 = -9.6 \cdot kips$

$C_8 = 0.4 \cdot kips$

Maximum Bending Stress in Plate =

$$f_{bp} := \sum_i \frac{4 \cdot C_i \cdot MA_i}{\left(B_{eff} \cdot t_{bp}^2\right)} = 9.9 \cdot ksi$$

Allowable Bending Stress in Plate = $F_{bp} := 0.9 \cdot Fy_{bp} = 45 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 22.0 \cdot \%$

Condition3 = $Condition2 := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed"\right)$

Condition2 = "Ok"

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Subject:	Connection of Mast to Tower # 1102
Location:	Norwalk, CT
Rev. 0: 11/21/18	Prepared by: T.J.L. Checked by: C.A.G. Job No. 18000.55

Mast Connection to Tower:

Reactions:

Moment = $Moment := 0 \cdot kips$ (Input From Risa-3D)

Vertical = $Vertical := 3.1 \cdot kips$ (Input From Risa-3D)

Horizontal x-dir = $Horizontal_x := 4.7 \cdot kips$ (Input From Risa-3D)

Horizontal z-dir = $Horizontal_z := 2.9 \cdot kips$ (Input From Risa-3D)

Bolt Data:

Bolt Type = ASTMA325 (User Input)

Bolt Diameter = $D := 0.75 \cdot in$ (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)

Shear Force = $f_v := \frac{\sqrt{Horizontal_z^2 + Vertical^2}}{N_b} = 1.1 \cdot kips$

Bolt Shear % of Capacity = $\frac{f_v}{F_v} = 5.93 \cdot \%$

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

$Bolt\_Shear = "OK"$

Tension Force = $f_t := \frac{Horizontal_x}{N_b} = 1.2 \cdot kips$

Bolt Tenison % of Capacity = $\frac{f_t}{F_t} = 3.94 \cdot \%$

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

$Bolt\_Tension = "OK"$

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Subject:	Load Analysis of South Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L Checked by: C.A.G. Job No. 18000.55

Basic Components

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

Factors for Extreme Wind Calculation

Elevation of Top of PCS Mast Above Grade =	TME := 117	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.25		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2007 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2007 Section 250.C.2)

Velocity Pressure Coefficient = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.308$ (NESC 2007 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.306$ (NESC 2007 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.834$ (NESC 2007 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.858$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 34.8$ psf (NESC 2007 Section 250.C.2)

Shape Factors

NUS Design Criteria Issued April 12, 2007

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

Overload Factors

NU Design Criteria Table

Overload Factors for Wind Loads:

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

Overload Factors for Vertical Loads:

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

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Subject:	Load Analysis of South Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L Checked by: C.A.G. Job No. 18000.55

Development of Wind & Ice Load on Mastt

Mast Data: (12" Sch. 80)

Mast Shape =	Round		(User Input)
Mast Diameter =	$D_{mast} := 12.8$	in	(User Input)
Mast Length =	$L_{mast} := 55$	ft	(User Input)
Mast Thickness =	$t_{mast} := 0.5$	in	(User Input)

Wind Load (NESC Extreme)

Mast Projected Surface Area = $A_{mast} := \frac{D_{mast}}{12} = 1.067$

Total Mast Wind Force (Below Top of Tower) =	$qz \cdot Cd_R \cdot A_{mast} = 48$	plf	**BLC 5**
Total Mast Wind Force (Above Top of Tower) =	$qz \cdot Cd_R \cdot A_{mast} \cdot m = 60$	plf	**BLC 5**

Wind Load (NESE Heavy)

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot Ir)}{12} = 1.15$

Total Mast Wind Force w/ Ice =	$p \cdot Cd_R \cdot AICE_{mast} = 6$	plf	**BLC 4**

Gravity Loads (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[(D_{mast} + Ir \cdot 2)^2 - D_{mast}^2\right] = 20.9$ sq in

Weight of Ice on Mast =	$W_{ICEmast} := Id \cdot \frac{Ai_{mast}}{144} = 8$	plf	**BLC 3**

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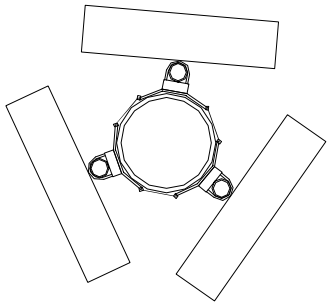
Subject:	Load Analysis of South Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L Checked by: C.A.G. Job No. 18000.55

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	KMW AM-X-CD-14-65		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 48$	in	(User Input)
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 5.9$	in	(User Input)
Antenna Weight =	$WT_{ant} := 36.4$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)



Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 3.9$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 11.8$	sf	
Total Antenna Wind Force =	$F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 820$	lbs	**BLC 5**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 4.4$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 13.1$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := p \cdot Cd_F \cdot A_{ICEant} = 84$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 109$	lbs	**BLC 2**

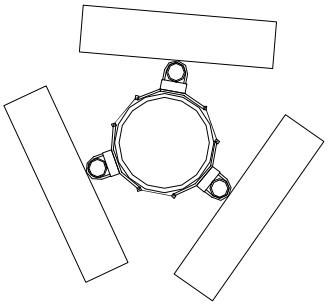
Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 3342$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 986$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 32$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 96$	lbs	**BLC 3**

Development of Wind & Ice Load on TMA's

TMA Data: (AT&T)

TMA Model =	Kaleus TMA2093F00V1-1		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 11.8$	in	(User Input)
TMA Width =	$W_{TMA} := 9.8$	in	(User Input)
TMA Thickness =	$T_{TMA} := 3.7$	in	(User Input)
TMA Weight =	$WT_{TMA} := 23$	lbs	(User Input)
Number of TMA's =	$N_{TMA} := 3$		(User Input)



Wind Load (NESC Extreme Wind)

Assumes Maximum Possible Wind Pressure Applied to All TMA's Simultaneously

Surface Area for One TMA = $SA_{TMA} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.8$ sf

TMA Projected Surface Area = $A_{TMA} := SA_{TMA} \cdot N_{TMA} = 2.4$ sf

Total TMA Wind Force = $F_{TMA} := qz \cdot Cd_F \cdot A_{TMA} \cdot m = 167$ lbs **BLC 5**

Wind Load (NESC Heavy Wind)

Assumes Maximum Possible Wind Pressure Applied to All TMA's Simultaneously

Surface Area for One TMA w/ Ice = $SA_{ICETMA} := \frac{(L_{TMA} + 2 \cdot Ir) \cdot (W_{TMA} + 2 \cdot Ir)}{144} = 1$ sf

TMA Projected Surface Area w/ Ice = $A_{ICETMA} := SA_{ICETMA} \cdot N_{TMA} = 2.9$ sf

Total TMA Wind Force w/ Ice = $Fi_{TMA} := p \cdot Cd_F \cdot A_{ICETMA} = 18$ lbs **BLC 4**

Gravity Load (without ice)

Weight of All TMA's = $Wgt_{TMA} := (WT_{TMA} \cdot N_{TMA}) = 69$ lbs **BLC 2**

Gravity Load (ice)

Volume of Each TMA = $V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 428$ cu in

Volume of Ice on Each TMA = $V_{ice} := (L_{TMA} + 2 \cdot Ir)(W_{TMA} + 2 \cdot Ir)(T_{TMA} + 2 \cdot Ir) - V_{TMA} = 222$ cu in

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

Weight of Ice on All TMA's = $Wgt_{ice.TMA} := (W_{ICETMA} \cdot N_{TMA}) = 22$ lbs **BLC 3**

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Subject: Load Analysis of South Mast on Structure #1102

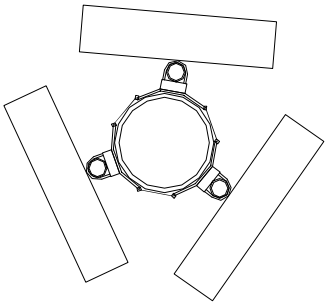
Location: Norwalk, CT

Rev. 0: 11/20/18

Prepared by: T.J.L Checked by: C.A.G.
Job No. 18000.55

Development of Wind & Ice Load on Antenna Mounts

Mount Data: (AT&T)



Mount Type:	Microflect Universal Tri-Bracket			
Mount Shape =	Flat		(User Input)	
Pipe Mount Length =	$L_{mnt} := 72$	in	(User Input)	
2 inch Pipe Mount Linear Weight =	$W_{mnt} := 3.66$	plf	(User Input)	
Pipe Mount Outside Diameter =	$D_{mnt} := 2.375$	in	(User Input)	
Number of Mounting Pipes =	$N_{mnt} := 3$		(User Input)	
Tri-Bracket Weight =	$W_{tb.mnt} := 197$	lbs	(User Input)	

Wind Load (NESC Extreme)

Assumes Mount is Shielded by Antenna

Mount Projected Surface Area =	$A_{mnt} := 0.0$	sf	
Total Mount Wind Force =	$F_{mnt} := qz \cdot Cd_F \cdot A_{mnt} \cdot m = 0$	lbs	**BLC 5**

Wind Load (NESC Heavy)

Assumes Mount is Shielded by Antenna

Mount Projected Surface Area w/ Ice =	$A_{ICEmnt} := 0.0$	sf	
Total Mount Wind Force =	$Fi_{mnt} := p \cdot Cd_F \cdot A_{ICEmnt} = 0$	lbs	**BLC 4**

Gravity Loads (without ice)

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

Weight Each Pipe Mount =	$WT_{mnt} := W_{mnt} \cdot \frac{L_{mnt}}{12} = 22$	lbs	
Weight of All Mounts =	$WT_{mnt} \cdot N_{mnt} + W_{tb.mnt} = 263$	lbs	**BLC 2**

Gravity Load (ice only)

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

Volume of Each Pipe =	$V_{mnt} := \frac{\pi}{4} \cdot D_{mnt}^{2} \cdot L_{mnt} = 319$	cu in	
Volume of Ice on Each Pipe =	$V_{ice} := \left[\frac{\pi}{4} \cdot \left[(D_{mnt} + 1)^2\right] \cdot (L_{mnt} + 1)\right] - V_{mnt} = 334$	cu in	
Weight of Ice each mount (incl, hardware) =	$W_{ICEmnt} := \frac{V_{ice}}{1728} \cdot Id = 11$	lbs	
Weight of Ice on All Mounts =	$W_{ICEmnt} \cdot N_{mnt} + 5 = 37$	lbs	**BLC 3**

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Subject: Load Analysis of South Mast on Structure #1102

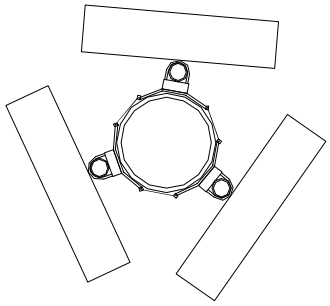
Location: Norwalk, CT

Rev. 0: 11/20/18

Prepared by: T.J.L Checked by: C.A.G.
Job No. 18000.55

Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)



Antenna Model =	Commscope RV4PX306R		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 63$	in	(User Input)
Antenna Width =	$W_{ant} := 13.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.2$	in	(User Input)
Antenna Weight =	$WT_{ant} := 53$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 6.1$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 18.2$	sf	
Total Antenna Wind Force =	$F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1268$	lbs	**BLC 5**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 6.6$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 19.9$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := p \cdot Cd_F \cdot A_{ICEant} = 127$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 159$	lbs	**BLC 2**

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 7181$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1592$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 52$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 155$	lbs	**BLC 3**

Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	CommscopeATSBT-TOP-FM-4G 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 =	$N_{ant} := 3$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.1$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.4$	sf	
Total Antenna Wind Force =	$F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 30$	lbs	**BLC 5**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

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

Gravity Load (without ice)

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

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 42$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 52$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 2$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 5$	lbs	**BLC 3**

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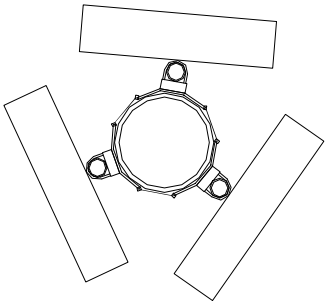
Subject:	Load Analysis of South Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L Checked by: C.A.G. Job No. 18000.55

Development of Wind & Ice Load on Antenna Mounts

Mount Data: (T-Mobile)

Mount Type: Microflect Universal Tri-Bracket



Mount Shape =	Flat		(User Input)	
Pipe Mount Length =	$L_{mnt} := 72$	in	(User Input)	
2 inch Pipe Mount Linear Weight =	$W_{mnt} := 3.66$	plf	(User Input)	
Pipe Mount Outside Diameter =	$D_{mnt} := 2.375$	in	(User Input)	
Number of Mounting Pipes =	$N_{mnt} := 3$		(User Input)	
Tri-Bracket Weight =	$W_{tb.mnt} := 197$	lbs	(User Input)	

Wind Load (NESC Extreme)

Assumes Mount is Shielded by Antenna

Mount Projected Surface Area = $A_{mnt} := 0.0$ sf

Total Mount Wind Force = $F_{mnt} := qz \cdot Cd_F \cdot A_{mnt} \cdot m = 0$ lbs **BLC 5**

Wind Load (NESC Heavy)

Assumes Mount is Shielded by Antenna

Mount Projected Surface Area w/ Ice = $A_{ICEmnt} := 0.0$ sf

Total Mount Wind Force = $Fi_{mnt} := p \cdot Cd_F \cdot A_{ICEmnt} = 0$ lbs **BLC 4**

Gravity Loads (without ice)

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

Weight Each Pipe Mount = $WT_{mnt} := W_{mnt} \cdot \frac{L_{mnt}}{12} = 22$ lbs

Weight of All Mounts = $WT_{mnt} \cdot N_{mnt} + W_{tb.mnt} = 263$ lbs **BLC 2**

Gravity Load (ice only)

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

Volume of Each Pipe = $V_{mnt} := \frac{\pi}{4} \cdot D_{mnt}^{2} \cdot L_{mnt} = 319$ cu in

Volume of Ice on Each Pipe = $V_{ice} := \left[\frac{\pi}{4} \cdot \left[\left(D_{mnt} + 1\right)^2\right] \cdot \left(L_{mnt} + 1\right)\right] - V_{mnt} = 334$ cu in

Weight of Ice each mount (incl, hardware) = $W_{ICEmnt} := \frac{V_{ice}}{1728} \cdot Id = 11$ lbs

Weight of Ice on All Mounts = $W_{ICEmnt} \cdot N_{mnt} + 5 = 37$ lbs **BLC 3**

Development of Wind & Ice Load on Coax Cables

Coax Cable Data:

Coax Type =	HELIAX 1-1/4"			
Shape =	Round		(User Input)	
Coax Outside Diameter =	$D_{coax} := 1.55$	in	(User Input)	
Coax Cable Length =	$L_{coax} := 20$	ft	(User Input)	
Weight of Coax per foot =	$Wt_{coax} := 0.66$	plf	(User Input)	
Total Number of Coax =	$N_{coax} := 30$		(User Input)	(6 AT&T & 24 T-Mobile)
No. of Coax Projecting Outside Face of PCS Mast =	$NP_{coax} := 6$		(User Input)	

Wind Load (NESC Extreme)

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

Total Coax Wind Force (Above NU Structure) = $F_{coax} := qz \cdot Cd_{coax} \cdot A_{coax} \cdot m = 49$ plf **BLC 5**

Wind Load (NESC Heavy)

Coax projected surface area w/ Ice = $AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot Ir)}{12} = 0.9$ ft

Total Coax Wind Force w/ Ice = $Fi_{coax} := p \cdot Cd_{coax} \cdot AICE_{coax} = 5$ plf **BLC 4**

Gravity Loads (without ice)

Weight of all cables w/o ice $WT_{coax} := Wt_{coax} \cdot N_{coax} = 20$ plf **BLC 2**

Gravity Load (ice only)

Ice Area per Linear Foot = $Ai_{coax} := \frac{\pi}{4}\left[(D_{coax} + 2 \cdot Ir)^2 - D_{coax}^2\right] = 3.2$ sq in

Ice Weight All Coax per foot = $WTi_{coax} := Id \cdot \left(N_{coax} \cdot \frac{Ai_{coax}}{144}\right) = 38$ plf **BLC 3**

Development of Wind & Ice Load on Brace Member

Member Data: HSS6x6x1/4

Shape =	Flat		(User Input)
Width =	$W_{mem} := 6$	in	(User Input)
Length =	$L_{mem} := 5$	ft	(User Input)
Height =	$H_{mem} := 6$	in	(User Input)

Wind Load (NESC Extreme)

Member Projected Surface Area = $A_{mem} := \frac{W_{mem}}{12} = 0.5$

Total Member Wind Force = $qz \cdot Cd_F \cdot A_{mem} = 28$ plf **BLC 5,7**

Wind Load (NESE Heavy)

Member Projected Surface Area w/ Ice = $AICE_{mem} := \frac{\left(W_{mem} + 2 \cdot Ir\right)}{12} = 0.583$

Total Member Wind Force w/ Ice = $p \cdot Cd_F \cdot AICE_{mem} = 4$ plf **BLC 4,6**

Gravity Loads (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mem} := \left(W_{mem} + 2 \cdot Ir\right) \cdot \left(H_{mem} + 2 \cdot Ir\right) - W_{mem} \cdot H_{mem} = 13$ sq in

Weight of Ice on Member = $W_{ICEmem} := Id \cdot \frac{Ai_{mem}}{144} = 5$ plf **BLC 3**

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63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Load Analysis of North Mast on Structure #1102

Location: Norwalk, CT

Rev. 0: 11/20/18

Prepared by: T.J.L Checked by: C.A.G.
Job No. 18000.55

Basic Components

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

Factors for Extreme Wind Calculation

Elevation of Top of PCS Mast Above Grade =	TME := 118	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.25		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2007 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2007 Section 250.C.2)

Velocity Pressure Coefficient = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.31$ (NESC 2007 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.305$ (NESC 2007 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.833$ (NESC 2007 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.857$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 34.8$ psf (NESC 2007 Section 250.C.2)

Shape Factors

NUS Design Criteria Issued April 12, 2007

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

Overload Factors

NU Design Criteria Table

Overload Factors for Wind Loads:

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

Overload Factors for Vertical Loads:

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

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Development of Wind & Ice Load on Mastt

Mast Data: (12" Sch. 80)

Mast Shape =	Round		(User Input)
Mast Diameter =	$D_{mast} := 12.8$	in	(User Input)
Mast Length =	$L_{mast} := 55$	ft	(User Input)
Mast Thickness =	$t_{mast} := 0.5$	in	(User Input)

Wind Load (NESC Extreme)

Mast Projected Surface Area = $A_{mast} := \frac{D_{mast}}{12} = 1.067$

Total Mast Wind Force (Below Top of Tower) =	$qz \cdot Cd_R \cdot A_{mast} = 48$	plf	**BLC 5**
Total Mast Wind Force (Above Top of Tower) =	$qz \cdot Cd_R \cdot A_{mast} \cdot m = 60$	plf	**BLC 5**

Wind Load (NESE Heavy)

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot Ir\right)}{12} = 1.15$

Total Mast Wind Force w/ Ice =	$p \cdot Cd_R \cdot AICE_{mast} = 6$	plf	**BLC 4**

Gravity Loads (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + Ir \cdot 2\right)^2 - D_{mast}^2\right] = 20.9$ sq in

Weight of Ice on Mast =	$W_{ICEmast} := Id \cdot \frac{Ai_{mast}}{144} = 8$	plf	**BLC 3**

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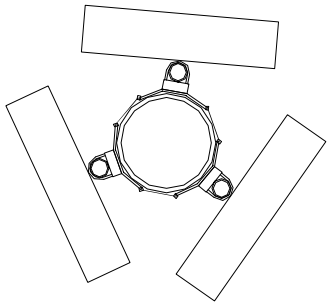
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L Checked by: C.A.G. Job No. 18000.55

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Quintel QS46512-2		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 52$	in	(User Input)
Antenna Width =	$W_{ant} := 12$	in	(User Input)
Antenna Thickness =	$T_{ant} := 10.8$	in	(User Input)
Antenna Weight =	$WT_{ant} := 75$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)



Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.3$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 13$	sf	
Total Antenna Wind Force =	$F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 904$	lbs	**BLC 5**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 4.8$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 14.4$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := p \cdot Cd_F \cdot A_{ICEant} = 92$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 225$	lbs	**BLC 2**

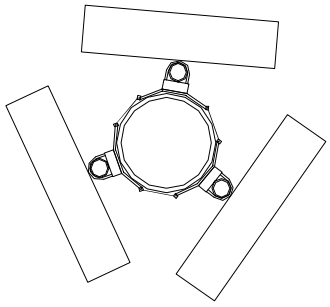
Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6739$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1391$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 45$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 135$	lbs	**BLC 3**

Development of Wind & Ice Load on TMA's

TMA Data: (AT&T)

TMA Model =	Commscope TMAT21X23B68-31-43		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 9.7$	in	(User Input)
TMA Width =	$W_{TMA} := 11.0$	in	(User Input)
TMA Thickness =	$T_{TMA} := 3.9$	in	(User Input)
TMA Weight =	$WT_{TMA} := 22$	lbs	(User Input)
Number of TMA's =	$N_{TMA} := 6$		(User Input)



Wind Load (NESC Extreme Wind)

Assumes Maximum Possible Wind Pressure Applied to All TMA's Simultaneously

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

TMA Projected Surface Area = $A_{TMA} := SA_{TMA} \cdot N_{TMA} = 4.4$ sf

Total TMA Wind Force = $F_{TMA} := qz \cdot Cd_F \cdot A_{TMA} \cdot m = 309$ lbs **BLC 5**

Wind Load (NESC Heavy Wind)

Assumes Maximum Possible Wind Pressure Applied to All TMA's Simultaneously

Surface Area for One TMA w/ Ice = $SA_{ICETMA} := \frac{(L_{TMA} + 2 \cdot Ir) \cdot (W_{TMA} + 2 \cdot Ir)}{144} = 0.9$ sf

TMA Projected Surface Area w/ Ice = $A_{ICETMA} := SA_{ICETMA} \cdot N_{TMA} = 5.3$ sf

Total TMA Wind Force w/ Ice = $Fi_{TMA} := p \cdot Cd_F \cdot A_{ICETMA} = 34$ lbs **BLC 4**

Gravity Load (without ice)

Weight of All TMA's = $Wgt_{TMA} := (WT_{TMA} \cdot N_{TMA}) = 132$ lbs **BLC 2**

Gravity Load (ice)

Volume of Each TMA = $V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 416$ cu in

Volume of Ice on Each TMA = $V_{ice} := (L_{TMA} + 2 \cdot Ir)(W_{TMA} + 2 \cdot Ir)(T_{TMA} + 2 \cdot Ir) - V_{TMA} = 213$ cu in

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

Weight of Ice on All TMA's = $Wgt_{ice.TMA} := (W_{ICETMA} \cdot N_{TMA}) = 41$ lbs **BLC 3**

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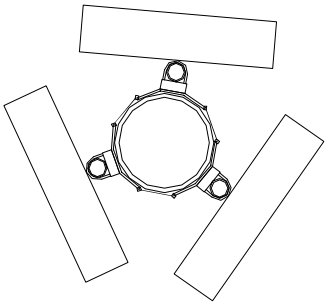
Location: Norwalk, CT

Rev. 0: 11/20/18

Prepared by: T.J.L Checked by: C.A.G.
Job No. 18000.55

Development of Wind & Ice Load on Antenna Mounts

Mount Data: (AT&T)



Mount Type:	Microflect Universal Tri-Bracket			
Mount Shape =	Flat		(User Input)	
Pipe Mount Length =	$L_{mnt} := 72$	in	(User Input)	
2 inch Pipe Mount Linear Weight =	$W_{mnt} := 3.66$	plf	(User Input)	
Pipe Mount Outside Diameter =	$D_{mnt} := 2.375$	in	(User Input)	
Number of Mounting Pipes =	$N_{mnt} := 3$		(User Input)	
Tri-Bracket Weight =	$W_{tb.mnt} := 197$	lbs	(User Input)	

Wind Load (NESC Extreme)

Assumes Mount is Shielded by Antenna

Mount Projected Surface Area =	$A_{mnt} := 0.0$	sf	
Total Mount Wind Force =	$F_{mnt} := qz \cdot Cd_F \cdot A_{mnt} \cdot m = 0$	lbs	**BLC 5**

Wind Load (NESC Heavy)

Assumes Mount is Shielded by Antenna

Mount Projected Surface Area w/ Ice =	$A_{ICEmnt} := 0.0$	sf	
Total Mount Wind Force =	$Fi_{mnt} := p \cdot Cd_F \cdot A_{ICEmnt} = 0$	lbs	**BLC 4**

Gravity Loads (without ice)

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

Weight Each Pipe Mount =	$WT_{mnt} := W_{mnt} \cdot \frac{L_{mnt}}{12} = 22$	lbs	
Weight of All Mounts =	$WT_{mnt} \cdot N_{mnt} + W_{tb.mnt} = 263$	lbs	**BLC 2**

Gravity Load (ice only)

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

Volume of Each Pipe =	$V_{mnt} := \frac{\pi}{4} \cdot D_{mnt}^{2} \cdot L_{mnt} = 319$	cu in	
Volume of Ice on Each Pipe =	$V_{ice} := \left[\frac{\pi}{4} \cdot \left[(D_{mnt} + 1)^2\right] \cdot (L_{mnt} + 1)\right] - V_{mnt} = 334$	cu in	
Weight of Ice each mount (incl, hardware) =	$W_{ICEmnt} := \frac{V_{ice}}{1728} \cdot Id = 11$	lbs	
Weight of Ice on All Mounts =	$W_{ICEmnt} \cdot N_{mnt} + 5 = 37$	lbs	**BLC 3**

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Subject: Load Analysis of North Mast on Structure #1102

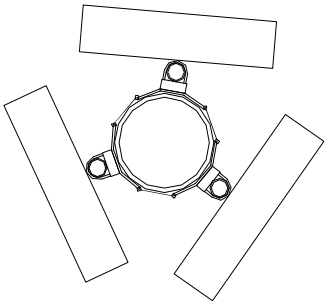
Location: Norwalk, CT

Rev. 0: 11/20/18

Prepared by: T.J.L Checked by: C.A.G.
Job No. 18000.55

Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)



Antenna Model =	RFSAPX16DWV-16DWVS		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)
Antenna Width =	$W_{ant} := 13$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3.15$	in	(User Input)
Antenna Weight =	$WT_{ant} := 40.7$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 15.1$ sf

Total Antenna Wind Force = $F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1053$ lbs **BLC 5**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 5.5$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 16.6$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant} := p \cdot Cd_F \cdot A_{ICEant} = 106$ lbs **BLC 4**

Gravity Load (without ice)

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

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2289$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1017$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 33$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 99$ lbs **BLC 3**

Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	CommscopeATSBT-TOP-FM-4G 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 =	$N_{ant} := 3$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

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

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

Total Antenna Wind Force = $F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 30$ lbs **BLC 5**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 0.2$ sf

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

Total Antenna Wind Force w/ Ice = $Fi_{ant} := p \cdot Cd_F \cdot A_{ICEant} = 4$ lbs **BLC 4**

Gravity Load (without ice)

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

Gravity Load (ice only)

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

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 52$ cu in

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

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 5$ lbs **BLC 3**

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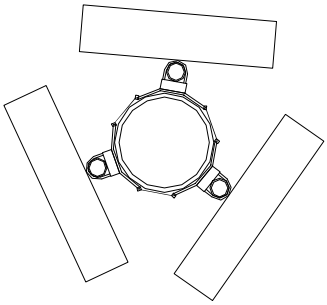
Location: Norwalk, CT

Rev. 0: 11/20/18

Prepared by: T.J.L Checked by: C.A.G.
Job No. 18000.55

Development of Wind & Ice Load on Antenna Mounts

Mount Data: (T-Mobile)



Mount Type:	Microflect Universal Tri-Bracket			
Mount Shape =	Flat		(User Input)	
Pipe Mount Length =	$L_{mnt} := 72$	in	(User Input)	
2 inch Pipe Mount Linear Weight =	$W_{mnt} := 3.66$	plf	(User Input)	
Pipe Mount Outside Diameter =	$D_{mnt} := 2.375$	in	(User Input)	
Number of Mounting Pipes =	$N_{mnt} := 3$		(User Input)	
Tri-Bracket Weight =	$W_{tb.mnt} := 197$	lbs	(User Input)	

Wind Load (NESC Extreme)

Assumes Mount is Shielded by Antenna

Mount Projected Surface Area =	$A_{mnt} := 0.0$	sf	
Total Mount Wind Force =	$F_{mnt} := qz \cdot Cd_F \cdot A_{mnt} \cdot m = 0$	lbs	**BLC 5**

Wind Load (NESC Heavy)

Assumes Mount is Shielded by Antenna

Mount Projected Surface Area w/ Ice =	$A_{ICEmnt} := 0.0$	sf	
Total Mount Wind Force =	$Fi_{mnt} := p \cdot Cd_F \cdot A_{ICEmnt} = 0$	lbs	**BLC 4**

Gravity Loads (without ice)

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

Weight Each Pipe Mount =	$WT_{mnt} := W_{mnt} \cdot \frac{L_{mnt}}{12} = 22$	lbs	
Weight of All Mounts =	$WT_{mnt} \cdot N_{mnt} + W_{tb.mnt} = 263$	lbs	**BLC 2**

Gravity Load (ice only)

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

Volume of Each Pipe =	$V_{mnt} := \frac{\pi}{4} \cdot D_{mnt}^{2} \cdot L_{mnt} = 319$	cu in	
Volume of Ice on Each Pipe =	$V_{ice} := \left[\frac{\pi}{4} \cdot \left[\left(D_{mnt} + 1\right)^2\right] \cdot \left(L_{mnt} + 1\right)\right] - V_{mnt} = 334$	cu in	
Weight of Ice each mount (incl, hardware) =	$W_{ICEmnt} := \frac{V_{ice}}{1728} \cdot Id = 11$	lbs	
Weight of Ice on All Mounts =	$W_{ICEmnt} \cdot N_{mnt} + 5 = 37$	lbs	**BLC 3**

Development of Wind & Ice Load on Coax Cables

Coax Cable Data:

Coax Type =	HELIAX 1-1/4"			
Shape =	Round		(User Input)	
Coax Outside Diameter =	$D_{coax} := 1.55$	in	(User Input)	
Coax Cable Length =	$L_{coax} := 20$	ft	(User Input)	
Weight of Coax per foot =	$Wt_{coax} := 0.66$	plf	(User Input)	
Total Number of Coax =	$N_{coax} := 24$		(User Input)	(12 AT&T & 12 T-Mobile)
No. of Coax Projecting Outside Face of PCS Mast =	$NP_{coax} := 6$		(User Input)	

Wind Load (NESC Extreme)

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

Total Coax Wind Force (Above NU Structure) = $F_{coax} := qz \cdot Cd_{coax} \cdot A_{coax} \cdot m = 49$ plf **BLC 5**

Wind Load (NESC Heavy)

Coax projected surface area w/ Ice = $AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot Ir)}{12} = 0.9$ ft

Total Coax Wind Force w/ Ice = $Fi_{coax} := p \cdot Cd_{coax} \cdot AICE_{coax} = 5$ plf **BLC 4**

Gravity Loads (without ice)

Weight of all cables w/o ice $WT_{coax} := Wt_{coax} \cdot N_{coax} = 16$ plf **BLC 2**

Gravity Load (ice only)

Ice Area per Linear Foot = $Ai_{coax} := \frac{\pi}{4}\left[(D_{coax} + 2 \cdot Ir)^2 - D_{coax}^2\right] = 3.2$ sq in

Ice Weight All Coax per foot = $WTi_{coax} := Id \cdot \left(N_{coax} \cdot \frac{Ai_{coax}}{144}\right) = 30$ plf **BLC 3**

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

Subject:	Load Analysis of North Mast on Structure #1102
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L Checked by: C.A.G. Job No. 18000.55

Development of Wind & Ice Load on Brace Member

Member Data: HSS6x6x1/4

Shape =	Flat		(User Input)
Width =	$W_{mem} := 6$	in	(User Input)
Length =	$L_{mem} := 5$	ft	(User Input)
Height =	$H_{mem} := 6$	in	(User Input)

Wind Load (NESC Extreme)

Member Projected Surface Area = $A_{mem} := \frac{W_{mem}}{12} = 0.5$

Total Member Wind Force = $qz \cdot Cd_F \cdot A_{mem} = 28$ plf **BLC 5,7**

Wind Load (NESE Heavy)

Member Projected Surface Area w/ Ice = $AICE_{mem} := \frac{(W_{mem} + 2 \cdot Ir)}{12} = 0.583$

Total Member Wind Force w/ Ice = $p \cdot Cd_F \cdot AICE_{mem} = 4$ plf **BLC 4,6**

Gravity Loads (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mem} := (W_{mem} + 2 \cdot Ir) \cdot (H_{mem} + 2 \cdot Ir) - W_{mem} \cdot H_{mem} = 13$ sq in

Weight of Ice on Member = $W_{ICEmem} := Id \cdot \frac{Ai_{mem}}{144} = 5$ plf **BLC 3**

(Global) Model Settings

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

Hot Rolled Steel Code	AISC 9th: ASD
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI 1999: ASD
Wood Code	AF&PA NDS-91/97: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-02
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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

(Global) Model Settings, Continued

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

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.2
2	A992	29000	11154	.3	.65	.49	50	1.1	65	1.2
3	A500 Gr.B (42)	29000	11154	.3	.65	.49	42	1.3	58	1.1
4	A500 Gr. B (46)	29000	11154	.3	.65	.49	46	1.5	58	1.2
5	A500 Gr. C (46)	29000	11154	.3	.65	.49	46	1.5	62	1.2
6	A500 Gr. C (50)	29000	11154	.3	.65	.49	50	1.5	62	1.2
7	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	60	1.2
8	A36	29000	11154	.3	.65	.49	36	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mast	PIPE_12.0X	Column	Pipe	A53 Gr. B	Typical	17.5	339	339	678
2	Brace	HSS6X6X4	Beam	Tube	A500 Gr. B (...	Typical	5.24	28.6	28.6	45.6

Hot Rolled Steel Design Parameters

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	Kyy	Kzz	Cm-yy	Cm-zz	Cb	y sway	z sway	Function
1	M1	Mast	33			Lbyy									Lateral
2	M2	Mast	22			Lbyy									Lateral
3	M3	Brace	2.25			Lbyy									Lateral
4	M4	Brace	7			Lbyy									Lateral
5	M5	Brace	2.25			Lbyy									Lateral
6	M6	Brace	2.25			Lbyy									Lateral
7	M7	Brace	7			Lbyy									Lateral
8	M8	Brace	2.25			Lbyy									Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	BOTTO...	FLANGE...			Mast	Column	Pipe	A53 Gr. B	Typical
2	M2	FLANGE...	TOP_M...			Mast	Column	Pipe	A53 Gr. B	Typical
3	M3	N8	N12			Brace	Beam	Tube	A500 Gr...	Typical
4	M4	N12	N11			Brace	Beam	Tube	A500 Gr...	Typical
5	M5	N11	N7			Brace	Beam	Tube	A500 Gr...	Typical
6	M6	N6	N10			Brace	Beam	Tube	A500 Gr...	Typical
7	M7	N10	N9			Brace	Beam	Tube	A500 Gr...	Typical
8	M8	N9	N5			Brace	Beam	Tube	A500 Gr...	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	BOTTOM_CONNECTION	0	0	0	0	
2	TOP_CONNECTION	0	21.5	0	0	
3	FLANGE_CONNECTION	0	33	0	0	
4	TOP_MAST	0	55	0	0	
5	N5	-2.25	0	3.5	0	
6	N6	-2.25	0	-3.5	0	
7	N7	-2.25	21.5	3.5	0	
8	N8	-2.25	21.5	-3.5	0	
9	N9	0	0	3.5	0	
10	N10	0	0	-3.5	0	
11	N11	0	21.5	3.5	0	
12	N12	0	21.5	-3.5	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	BOTTOM_CONNEC...						
2	TOP_CONNECTION						
3	FLANGE_CONNECTI...						

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
4	TOP_MAST						
5	N7	Reaction	Reaction	Reaction			
6	N8	Reaction	Reaction	Reaction			
7	N11						
8	N12						
9	N5	Reaction	Reaction	Reaction			
10	N6	Reaction	Reaction	Reaction			
11	N9						
12	N10						

Member Point Loads (BLC 2 : Weight of PCS Structure)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Y	-.109	10
2	M2	Y	-.069	10
3	M2	Y	-.263	10
4	M2	Y	-.159	19
5	M2	Y	-.006	19
6	M2	Y	-.263	19

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Y	-.096	10
2	M2	Y	-.022	10
3	M2	Y	-.037	10
4	M2	Y	-.155	19
5	M2	Y	-.005	19
6	M2	Y	-.037	19

Member Point Loads (BLC 4 : NESC Heavy Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	X	.084	10
2	M2	X	.018	10
3	M2	X	.127	19
4	M2	X	.004	19

Member Point Loads (BLC 5 : NESC Extreme Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	X	.82	10
2	M2	X	.167	10
3	M2	X	1.268	19
4	M2	X	.03	19

Member Distributed Loads (BLC 2 : Weight of PCS Structure)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.02	-.02	23	33
2	M2	Y	-.02	-.02	0	8
3	M2	Y	-.016	-.016	8	17

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.008	-.008	0	0
2	M2	Y	-.008	-.008	0	0
3	M1	Y	-.038	-.038	23	33
4	M2	Y	-.038	-.038	0	8
5	M2	Y	-.031	-.031	8	17
6	M5	Y	-.005	-.005	0	0
7	M4	Y	-.005	-.005	0	0
8	M3	Y	-.005	-.005	0	0
9	M8	Y	-.005	-.005	0	0
10	M7	Y	-.005	-.005	0	0
11	M6	Y	-.005	-.005	0	0

Member Distributed Loads (BLC 4 : NESC Heavy Wind)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.006	.006	0	0
2	M2	X	.006	.006	0	8
3	M2	X	.006	.006	12	17
4	M1	X	.005	.005	23	33
5	M2	X	.005	.005	0	8
6	M2	X	.005	.005	12	17
7	M4	X	.004	.004	0	0
8	M7	X	.004	.004	0	0

Member Distributed Loads (BLC 5 : NESC Extreme Wind)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.048	.048	0	0
2	M2	X	.06	.06	0	8
3	M2	X	.06	.06	12	17
4	M1	X	.049	.049	23	33
5	M2	X	.049	.049	0	8
6	M2	X	.049	.049	12	17
7	M4	X	.028	.028	0	0
8	M7	X	.028	.028	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Self Weight (PCS Mast)	None		-1						
2	Weight of PCS Structure	None					6	3		
3	Weight of Ice Only on PCS Struct	None					6	11		
4	NESC Heavy Wind	None					4	8		
5	NESC Extreme Wind	None					4	8		

Load Combinations

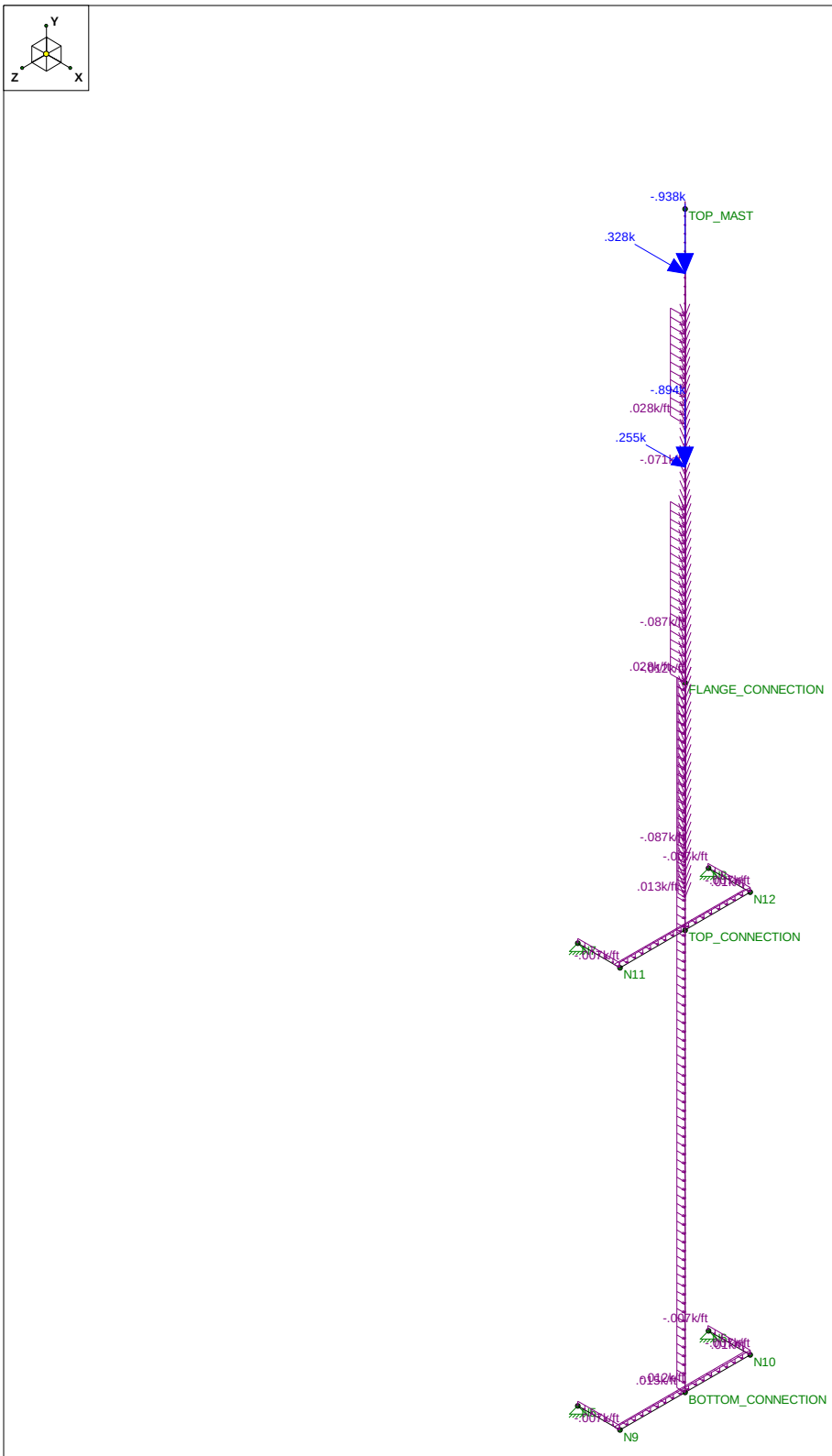
	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	NESC Heavy Wind on PC...	Yes			1	1.5	2	1.5	3	1.5	4	2.5														
2	NESC Extreme Wind on ...	Yes			1	1	2	1	5	1																
3	Self Weight				1	1																				

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N7	-1.834	2.197	1.135	0	0	0
2	1	N8	-1.834	2.197	-1.135	0	0	0
3	1	N5	.984	2.999	-.62	0	0	0
4	1	N6	.984	2.999	.62	0	0	0
5	1	Totals:	-1.7	10.392	0			
6	1	COG (ft):	X: -.033	Y: 31.551	Z: 0			

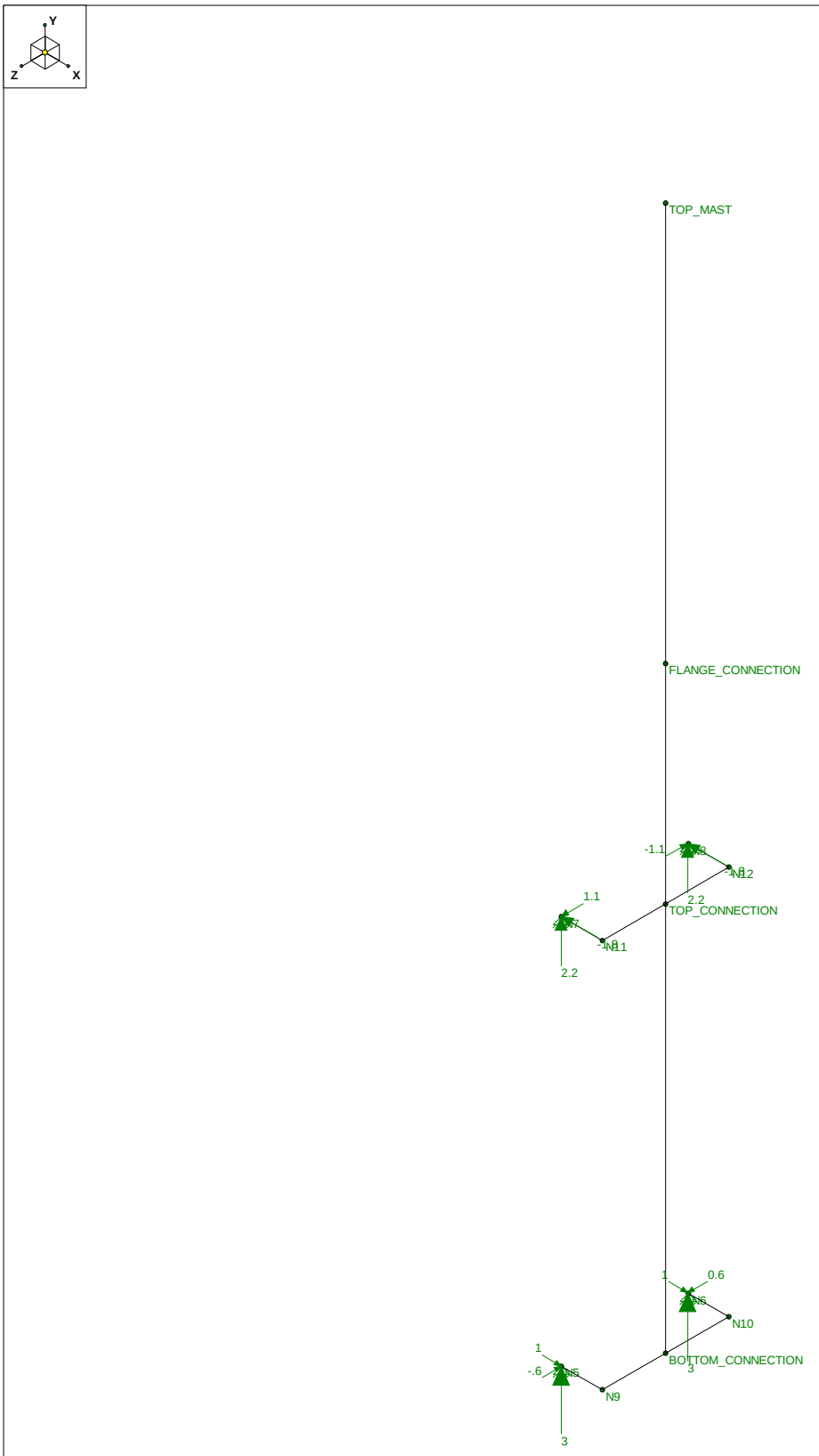
Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N7	-5.194	-.345	3.214	0	0	0
2	2	N8	-5.194	-.345	-3.214	0	0	0
3	2	N5	2.11	2.875	-1.335	0	0	0
4	2	N6	2.11	2.875	1.335	0	0	0
5	2	Totals:	-6.168	5.058	0			
6	2	COG (ft):	X: -.036	Y: 30.399	Z: 0			



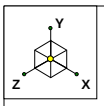
Loads: LC 1, NESC Heavy Wind on PCS Mast

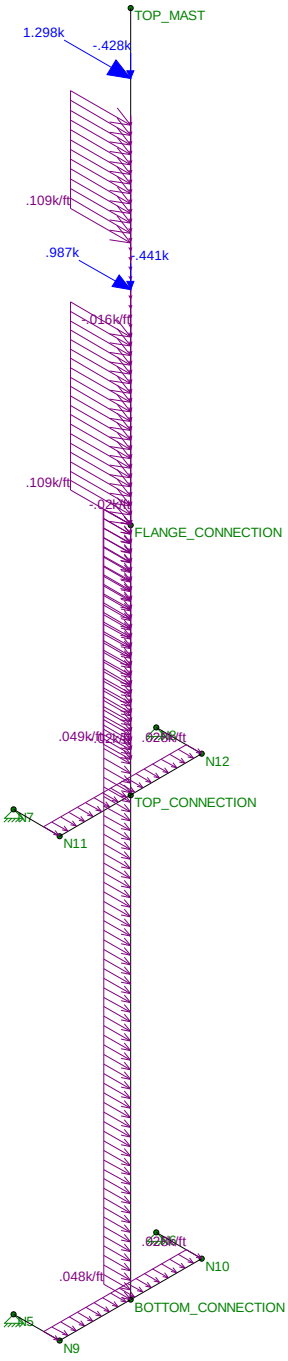
CENTEK Engineering, Inc.		
TJL	South Mast - Tower # 1102	Nov 20, 2018 at 3:18 PM
18000.55	LC #1 Loads	NESC South Mast.r3d



Results for LC 1, NESC Heavy Wind on PCS Mast
Reaction and Moment Units are k and k-ft

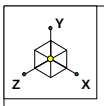
CENTEK Engineering, Inc.		
TJL	South Mast - Tower # 1102	Nov 20, 2018 at 3:18 PM
18000.55	LC #1 Reactions	NESC South Mast.r3d

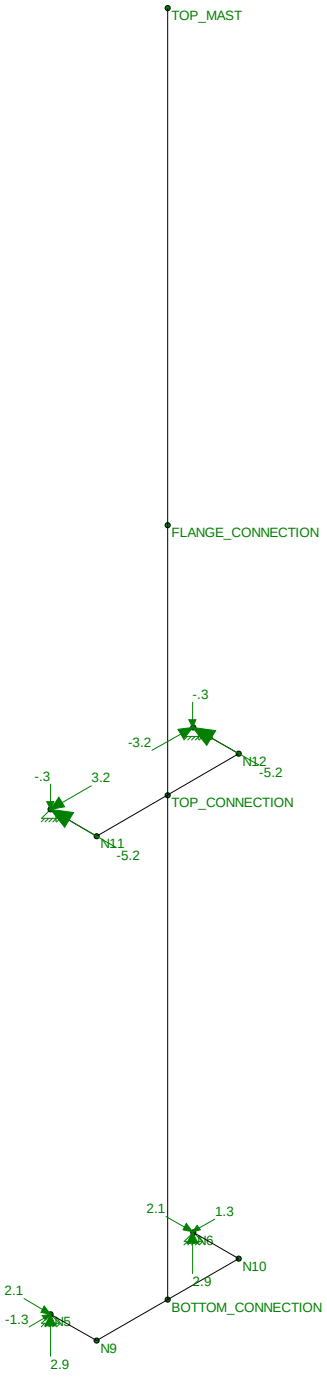




Loads: LC 2, NESC Extreme Wind on PCS Mast

CENTEK Engineering, Inc.		
TJL	South Mast - Tower # 1102	Nov 20, 2018 at 3:18 PM
18000.55	LC #2 Loads	NESC South Mast.r3d





Results for LC 2, NESC Extreme Wind on PCS Mast
Reaction and Moment Units are k and k-ft

CENTEK Engineering, Inc.		
TJL	South Mast - Tower # 1102	Nov 20, 2018 at 3:20 PM
18000.55	LC #2 Reactions	NESC South Mast.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?	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 9th: ASD
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI 1999: ASD
Wood Code	AF&PA NDS-91/97: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-02
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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

(Global) Model Settings, Continued

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

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.2
2	A992	29000	11154	.3	.65	.49	50	1.1	65	1.2
3	A500 Gr.B (42)	29000	11154	.3	.65	.49	42	1.3	58	1.1
4	A500 Gr. B (46)	29000	11154	.3	.65	.49	46	1.5	58	1.2
5	A500 Gr. C (46)	29000	11154	.3	.65	.49	46	1.5	62	1.2
6	A500 Gr. C (50)	29000	11154	.3	.65	.49	50	1.5	62	1.2
7	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	60	1.2
8	A36	29000	11154	.3	.65	.49	36	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mast	PIPE_12.0X	Column	Pipe	A53 Gr. B	Typical	17.5	339	339	678
2	Brace	HSS6X6X4	Beam	Tube	A500 Gr. B (...	Typical	5.24	28.6	28.6	45.6

Hot Rolled Steel Design Parameters

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	Kyy	Kzz	Cm-yy	Cm-zz	Cb	y sway	z sway	Function
1	M1	Mast	36			Lbyy									Lateral
2	M2	Mast	20			Lbyy									Lateral
3	M3	Brace	2.25			Lbyy									Lateral
4	M4	Brace	7			Lbyy									Lateral
5	M5	Brace	2.25			Lbyy									Lateral
6	M6	Brace	2.25			Lbyy									Lateral
7	M7	Brace	7			Lbyy									Lateral
8	M8	Brace	2.25			Lbyy									Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	BOTTO...	FLANGE...			Mast	Column	Pipe	A53 Gr. B	Typical
2	M2	FLANGE...	TOP_M...			Mast	Column	Pipe	A53 Gr. B	Typical
3	M3	N8	N12			Brace	Beam	Tube	A500 Gr...	Typical
4	M4	N12	N11			Brace	Beam	Tube	A500 Gr...	Typical
5	M5	N11	N7			Brace	Beam	Tube	A500 Gr...	Typical
6	M6	N6	N10			Brace	Beam	Tube	A500 Gr...	Typical
7	M7	N10	N9			Brace	Beam	Tube	A500 Gr...	Typical
8	M8	N9	N5			Brace	Beam	Tube	A500 Gr...	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	BOTTOM_CONNECTION	0	0	0	0	
2	TOP_CONNECTION	0	21.5	0	0	
3	FLANGE_CONNECTION	0	36	0	0	
4	TOP_MAST	0	56	0	0	
5	N5	2.25	0	3.5	0	
6	N6	2.25	0	-3.5	0	
7	N7	2.25	21.5	3.5	0	
8	N8	2.25	21.5	-3.5	0	
9	N9	0	0	3.5	0	
10	N10	0	0	-3.5	0	
11	N11	0	21.5	3.5	0	
12	N12	0	21.5	-3.5	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	BOTTOM_CONNEC...						
2	TOP_CONNECTION						
3	FLANGE_CONNECTI...						

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
4	TOP_MAST						
5	N7	Reaction	Reaction	Reaction			
6	N8	Reaction	Reaction	Reaction			
7	N11						
8	N12						
9	N5	Reaction	Reaction	Reaction			
10	N6	Reaction	Reaction	Reaction			
11	N9						
12	N10						

Member Point Loads (BLC 2 : Weight of PCS Structure)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Y	-.225	6
2	M2	Y	-.132	6
3	M2	Y	-.263	6
4	M2	Y	-.122	16
5	M2	Y	-.006	16
6	M2	Y	-.263	16

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Y	-.135	6
2	M2	Y	-.041	6
3	M2	Y	-.037	6
4	M2	Y	-.099	16
5	M2	Y	-.005	16
6	M2	Y	-.037	16

Member Point Loads (BLC 4 : NESC Heavy Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	X	.092	6
2	M2	X	.034	6
3	M2	X	.106	16
4	M2	X	.004	16

Member Point Loads (BLC 5 : NESC Extreme Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	X	.904	6
2	M2	X	.309	6
3	M2	X	1.053	16
4	M2	X	.03	16

Member Distributed Loads (BLC 2 : Weight of PCS Structure)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.008	-.008	23	36
2	M2	Y	-.008	-.008	0	4
3	M2	Y	-.004	-.004	4	15

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.008	-.008	0	0
2	M2	Y	-.008	-.008	0	0
3	M1	Y	-.023	-.023	23	36
4	M2	Y	-.023	-.023	0	4
5	M2	Y	-.023	-.023	4	15
6	M5	Y	-.005	-.005	0	0
7	M4	Y	-.005	-.005	0	0
8	M3	Y	-.005	-.005	0	0
9	M8	Y	-.005	-.005	0	0
10	M7	Y	-.005	-.005	0	0
11	M6	Y	-.005	-.005	0	0

Member Distributed Loads (BLC 4 : NESC Heavy Wind)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.006	.006	0	0
2	M2	X	.006	.006	0	4
3	M2	X	.006	.006	8	15
4	M1	X	.005	.005	23	36
5	M2	X	.005	.005	0	4
6	M2	X	.003	.003	8	15
7	M4	X	.004	.004	0	0
8	M7	X	.004	.004	0	0

Member Distributed Loads (BLC 5 : NESC Extreme Wind)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.048	.048	0	32
2	M1	X	.06	.06	32	36
3	M2	X	.06	.06	0	4
4	M2	X	.06	.06	8	15
5	M1	X	.049	.049	23	36
6	M2	X	.049	.049	0	4
7	M2	X	.024	.024	8	15
8	M4	X	.028	.028	0	0
9	M7	X	.028	.028	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Self Weight (PCS Mast)	None		-1						
2	Weight of PCS Structure	None					6	3		
3	Weight of Ice Only on PCS Struct	None					6	11		
4	NESC Heavy Wind	None					4	8		
5	NESC Extreme Wind	None					4	9		

Load Combinations

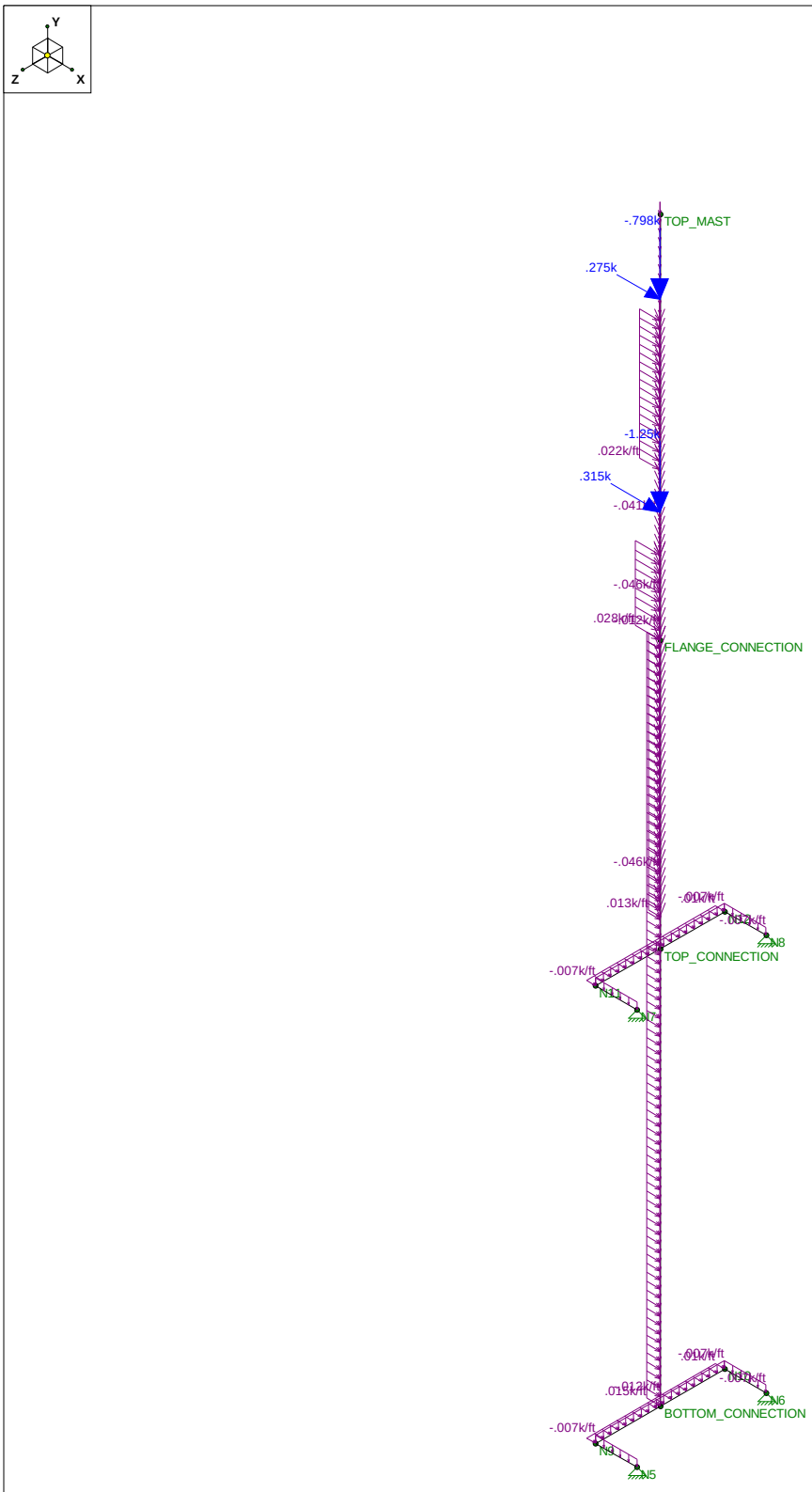
	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	NESC Heavy Wind on PC...	Yes			1	1.5	2	1.5	3	1.5	4	2.5														
2	NESC Extreme Wind on ...	Yes			1	1	2	1	5	1																
3	Self Weight				1	1																				

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N7	-.782	2.841	-.48	0	0	0
2	1	N8	-.782	2.841	.48	0	0	0
3	1	N5	-.068	2.031	-.035	0	0	0
4	1	N6	-.068	2.031	.035	0	0	0
5	1	Totals:	-1.7	9.745	0			
6	1	COG (ft):	X: .036	Y: 31.45	Z: 0			

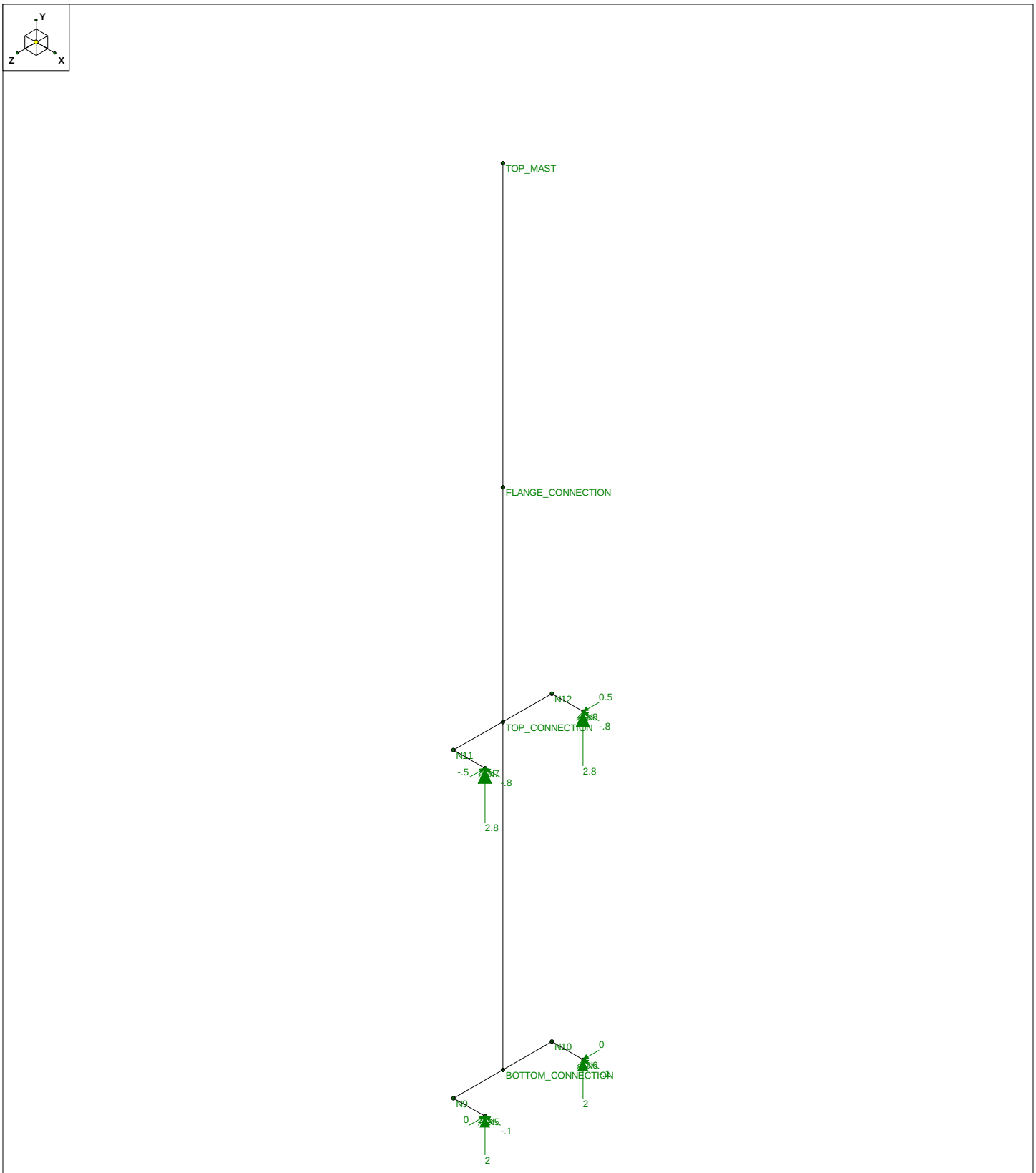
Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N7	-4.572	2.785	-2.826	0	0	0
2	2	N8	-4.572	2.785	2.826	0	0	0
3	2	N5	1.509	-.317	.96	0	0	0
4	2	N6	1.509	-.317	-.96	0	0	0
5	2	Totals:	-6.125	4.936	0			
6	2	COG (ft):	X: .037	Y: 30.479	Z: 0			



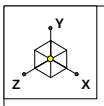
Loads: LC 1, NESC Heavy Wind on PCS Mast

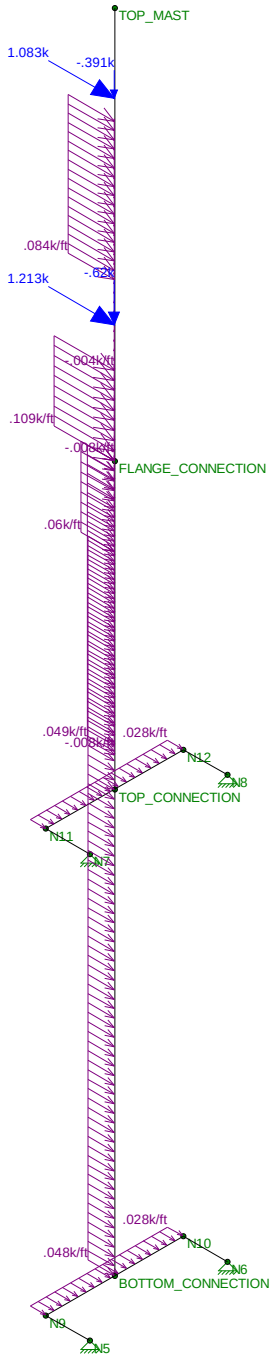
CENTEK Engineering, Inc.		
TJL	North Mast - Tower # 1102	Nov 20, 2018 at 3:27 PM
18000.55	LC #1 Loads	NESC North Mast.r3d



Results for LC 1, NESC Heavy Wind on PCS Mast
Reaction and Moment Units are k and k-ft

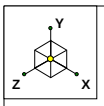
CENTEK Engineering, Inc.		
TJL	North Mast - Tower # 1102	Nov 20, 2018 at 3:28 PM
18000.55	LC #1 Reactions	NESC North Mast.r3d

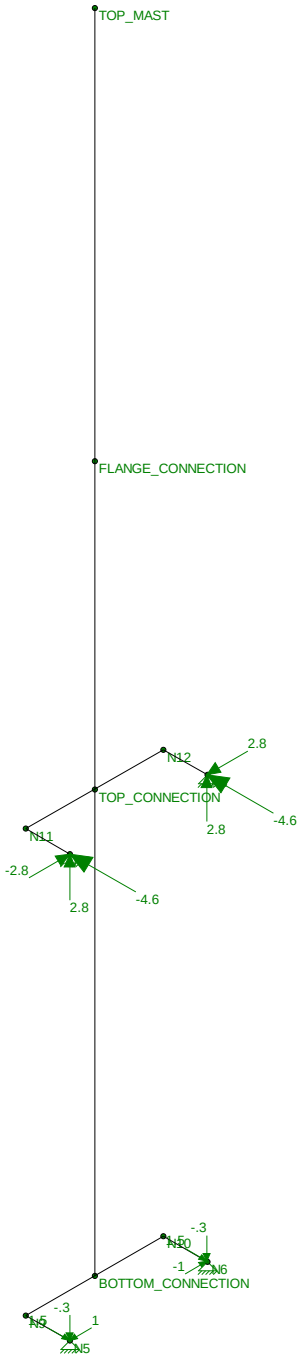




Loads: LC 2, NESC Extreme Wind on PCS Mast

CENTEK Engineering, Inc.		
TJL	North Mast - Tower # 1102	Nov 20, 2018 at 3:27 PM
18000.55	LC #2 Loads	NESC North Mast.r3d





Results for LC 2, NESC Extreme Wind on PCS Mast
Reaction and Moment Units are k and k-ft

CENTEK Engineering, Inc.		
TJL	North Mast - Tower # 1102	Nov 20, 2018 at 3:28 PM
18000.55	LC #2 Reactions	NESC North Mast.r3d

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

Subject:	Coax Cable on Tower # 1102
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L Checked by: C.A.G. Job No. 18000.55

Coax Cable on CL&P Tower — NW Leg - (AT&T)

Distance Between Coax Cable Attach Points =

Coaxial Cable Span = $Coax_{Span} := \begin{pmatrix} 10 \\ 10 \\ 10 \\ 10 \\ 13.25 \\ 31.75 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable = $D_{coax1} := 1.55 \cdot in$ *(User Input)*

Weight of Coax Cable = $W_{coax1} := 0.66 \cdot plf$ *(User Input)*

Number of Coax Cables = $N_{coax1} := 12$ *(User Input)*

Number of Projected Coax Cables = $NP_{coax1} := 6$ *(User Input)*

Extreme Wind Pressure = $qz := 35 \cdot psf$ *(User Input)*

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

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

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

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

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

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

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

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

Wind Area with Ice = $A_{ice} := \left(NP_{coax1} \cdot D_{coax1} + 2 \cdot Ir\right) = 10.3 \cdot in$

Wind Area without Ice = $A := \left(NP_{coax1} \cdot D_{coax1}\right) = 9.3 \cdot in$

Ice Area per Liner Ft = $Ai_{coax1} := \frac{\pi}{4} \cdot \left[\left(D_{coax1} + 2 \cdot Ir\right)^2 - D_{coax1}^{\ 2}\right] = 0.022\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax1} \cdot Id \cdot N_{coax1} = 15 \cdot plf$

Heavy Vertical Load =

$$Heavy_{Vert} := \overrightarrow{\left[\left(N_{coax1} \cdot W_{coax1} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HV}\right]}$$

Heavy Transverse Load =

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

$$Heavy_{Vert} = \begin{pmatrix} 344 \\ 344 \\ 344 \\ 344 \\ 456 \\ 1093 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 137 \\ 137 \\ 137 \\ 137 \\ 182 \\ 436 \end{pmatrix} lb$$

Extreme Vertical Load =

$$Extreme_{Vert} := \overrightarrow{\left[\left(N_{coax1} \cdot W_{coax1}\right) \cdot Coax_{Span} \cdot OF_{EV}\right]}$$

Extreme Transverse Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 79 \\ 79 \\ 79 \\ 79 \\ 105 \\ 251 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 434 \\ 434 \\ 434 \\ 434 \\ 575 \\ 1378 \end{pmatrix} lb$$

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

Subject:	Coax Cable on Tower # 1102
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L Checked by: C.A.G. Job No. 18000.55

Coax Cable on CL&P Tower — NE LEG - (T-Mobile)

Distance Between Coax Cable Attach Points =

Coaxial Cable Span = $Coax_{Span} := \begin{pmatrix} 10 \\ 10 \\ 10 \\ 10 \\ 13.25 \\ 31.75 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable = $D_{coax1} := 1.55 \cdot in$ *(User Input)*

Weight of Coax Cable = $W_{coax1} := 0.66 \cdot plf$ *(User Input)*

Number of Coax Cables = $N_{coax1} := 12$ *(User Input)*

Number of Projected Coax Cables = $NP_{coax1} := 6$ *(User Input)*

Extreme Wind Pressure = $qz := 35 \cdot psf$ *(User Input)*

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

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

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

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

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

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

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

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

Wind Area with Ice = $A_{ice} := \left(NP_{coax1} \cdot D_{coax1} + 2 \cdot Ir\right) = 10.3 \cdot in$

Wind Area without Ice = $A := \left(NP_{coax1} \cdot D_{coax1}\right) = 9.3 \cdot in$

Ice Area per Liner Ft = $Ai_{coax1} := \frac{\pi}{4} \cdot \left[\left(D_{coax1} + 2 \cdot Ir\right)^2 - D_{coax1}^{\ 2}\right] = 0.022\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax1} \cdot Id \cdot N_{coax1} = 15 \cdot plf$

Heavy Vertical Load =

$$Heavy_{Vert} := \overrightarrow{\left[\left(N_{coax1} \cdot W_{coax1} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HV}\right]}$$

Heavy Transverse Load =

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

$$Heavy_{Vert} = \begin{pmatrix} 344 \\ 344 \\ 344 \\ 344 \\ 456 \\ 1093 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 137 \\ 137 \\ 137 \\ 137 \\ 182 \\ 436 \end{pmatrix} lb$$

Extreme Vertical Load =

$$Extreme_{Vert} := \overrightarrow{\left[\left(N_{coax1} \cdot W_{coax1}\right) \cdot Coax_{Span} \cdot OF_{EV}\right]}$$

Extreme Transverse Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 79 \\ 79 \\ 79 \\ 79 \\ 105 \\ 251 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 434 \\ 434 \\ 434 \\ 434 \\ 575 \\ 1378 \end{pmatrix} lb$$

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

Subject:	Coax Cable on Tower # 1102
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L Checked by: C.A.G. Job No. 18000.55

Coax Cable on CL&P Tower — SE LEG - (AT&T)

Distance Between Coax Cable Attach Points =

Coaxial Cable Span = $Coax_{Span} := \begin{pmatrix} 10 \\ 10 \\ 10 \\ 10 \\ 13.25 \\ 31.75 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable = $D_{coax1} := 1.55 \cdot in$ *(User Input)*

Weight of Coax Cable = $W_{coax1} := 0.66 \cdot plf$ *(User Input)*

Number of Coax Cables = $N_{coax1} := 6$ *(User Input)*

Number of Projected Coax Cables = $NP_{coax1} := 3$ *(User Input)*

Extreme Wind Pressure = $qz := 35 \cdot psf$ *(User Input)*

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

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

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

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

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

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

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

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

Wind Area with Ice = $A_{ice} := \left(NP_{coax1} \cdot D_{coax1} + 2 \cdot Ir\right) = 5.65 \cdot in$

Wind Area without Ice = $A := \left(NP_{coax1} \cdot D_{coax1}\right) = 4.65 \cdot in$

Ice Area per Liner Ft = $Ai_{coax1} := \frac{\pi}{4} \cdot \left[\left(D_{coax1} + 2 \cdot Ir\right)^2 - D_{coax1}^{\ 2}\right] = 0.022\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax1} \cdot Id \cdot N_{coax1} = 8 \cdot plf$

Heavy Vertical Load =

$$Heavy_{Vert} := \overrightarrow{\left[\left(N_{coax1} \cdot W_{coax1} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HV}\right]}$$

Heavy Transverse Load =

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

$$Heavy_{Vert} = \begin{pmatrix} 172 \\ 172 \\ 172 \\ 172 \\ 228 \\ 546 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 75 \\ 75 \\ 75 \\ 75 \\ 100 \\ 239 \end{pmatrix} lb$$

Extreme Vertical Load =

$$Extreme_{Vert} := \overrightarrow{\left[\left(N_{coax1} \cdot W_{coax1}\right) \cdot Coax_{Span} \cdot OF_{EV}\right]}$$

Extreme Transverse Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 40 \\ 40 \\ 40 \\ 40 \\ 52 \\ 126 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 217 \\ 217 \\ 217 \\ 217 \\ 288 \\ 689 \end{pmatrix} lb$$

CENTEK engineering
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Subject:	Coax Cable on Tower # 1102
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L Checked by: C.A.G. Job No. 18000.55

Coax Cable on CL&P Tower — SW LEG - (T-Mobile)

Distance Between Coax Cable Attach Points =

Coaxial Cable Span = $Coax_{Span} := \begin{pmatrix} 10 \\ 10 \\ 10 \\ 10 \\ 13.25 \\ 31.75 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable = $D_{coax1} := 1.55 \cdot in$ *(User Input)*

Weight of Coax Cable = $W_{coax1} := 0.66 \cdot plf$ *(User Input)*

Number of Coax Cables = $N_{coax1} := 24$ *(User Input)*

Number of Projected Coax Cables = $NP_{coax1} := 6$ *(User Input)*

Extreme Wind Pressure = $qz := 35 \cdot psf$ *(User Input)*

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

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

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

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

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

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

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

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

Wind Area with Ice = $A_{ice} := \left(NP_{coax1} \cdot D_{coax1} + 2 \cdot Ir\right) = 10.3 \cdot in$

Wind Area without Ice = $A := \left(NP_{coax1} \cdot D_{coax1}\right) = 9.3 \cdot in$

Ice Area per Liner Ft = $Ai_{coax1} := \frac{\pi}{4} \cdot \left[\left(D_{coax1} + 2 \cdot Ir\right)^2 - D_{coax1}^{\ 2}\right] = 0.022\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax1} \cdot Id \cdot N_{coax1} = 30 \cdot plf$

Heavy Vertical Load =

$$Heavy_{Vert} := \overrightarrow{\left[\left(N_{coax1} \cdot W_{coax1} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HV}\right]}$$

Heavy Transverse Load =

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

$$Heavy_{Vert} = \begin{pmatrix} 688 \\ 688 \\ 688 \\ 688 \\ 912 \\ 2186 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 137 \\ 137 \\ 137 \\ 137 \\ 182 \\ 436 \end{pmatrix} lb$$

Extreme Vertical Load =

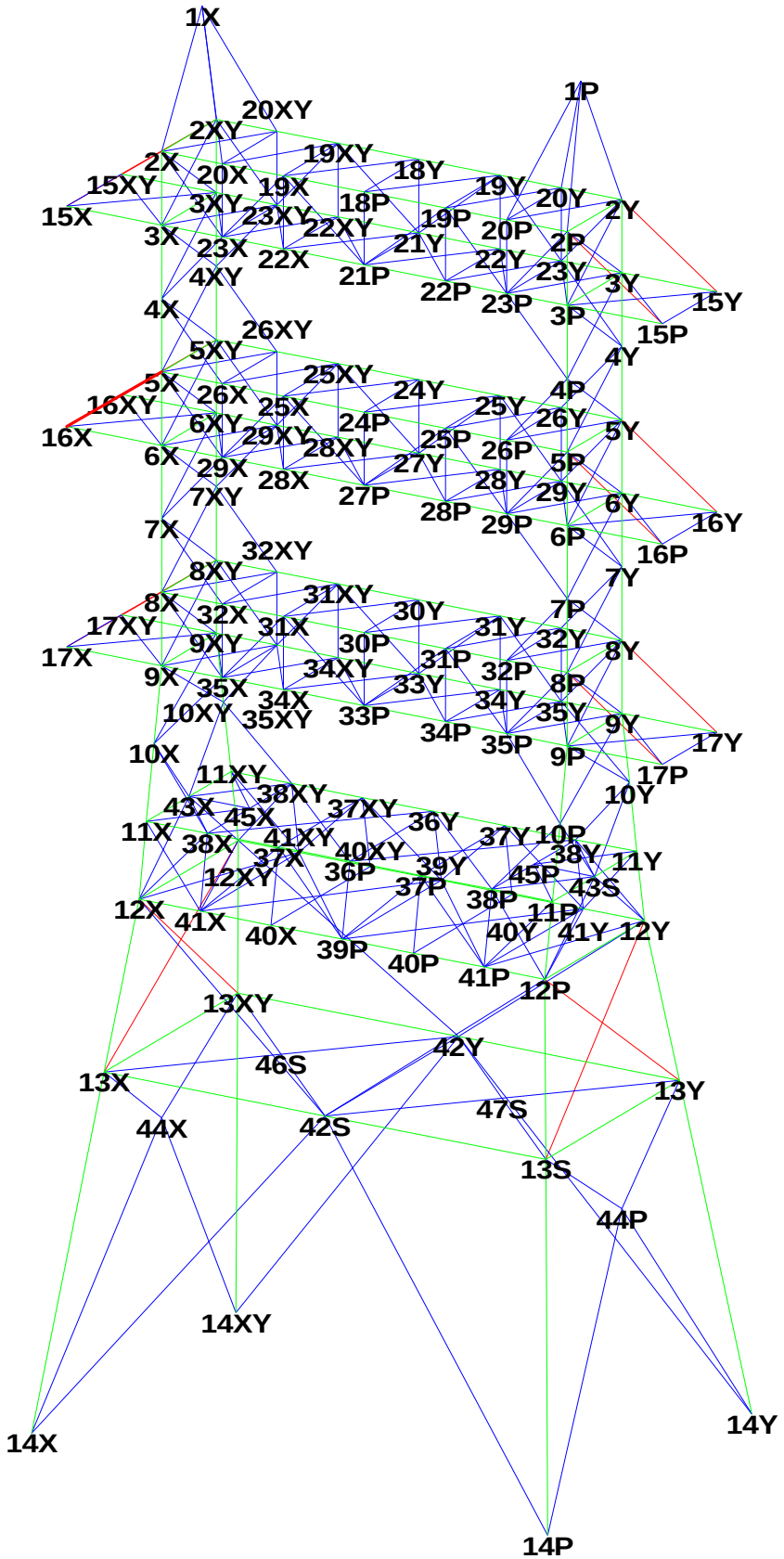
$$Extreme_{Vert} := \overrightarrow{\left[\left(N_{coax1} \cdot W_{coax1}\right) \cdot Coax_{Span} \cdot OF_{EV}\right]}$$

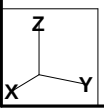
Extreme Transverse Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 158 \\ 158 \\ 158 \\ 158 \\ 210 \\ 503 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 434 \\ 434 \\ 434 \\ 434 \\ 575 \\ 1378 \end{pmatrix} lb$$

Centek Engineering Inc, Project: "norwalk1102"
Tower Version 12.50, 5:28:19 PM Tuesday, November 20, 2018
Undeformed geometry displayed





Project Name : 18000.55 - Norwalk, CT
Project Notes: Structure # 1102 / AT&T 5046
Project File : J:\Jobs\1800000.WI\55_CT5046\04_Structural\Calcs\Pls-Tower\norwalk1102.tow
Date run   : 8:08:56 AM Wednesday, November 21, 2018
by   : Tower Version 12.50
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

Angle member '36P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '36X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '36XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '36Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '39P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '39X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '39XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '39Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '42P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '42X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '42XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '42Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '45P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '45X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '45XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '45Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '48P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '48X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '48XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '48Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '51P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '51X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '51XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Angle member '51Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long" ??
Member "5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "5XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "5Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "8P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "8X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "8XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "8Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "10P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "10X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "10XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "10Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 247.53 exceeds maximum of 200.00 for member "26P" ??
KL/R value of 247.53 exceeds maximum of 200.00 for member "26X" ??
KL/R value of 247.53 exceeds maximum of 200.00 for member "26XY" ??
KL/R value of 247.53 exceeds maximum of 200.00 for member "26Y" ??
KL/R value of 244.21 exceeds maximum of 200.00 for member "27P" ??
KL/R value of 244.21 exceeds maximum of 200.00 for member "27X" ??
KL/R value of 244.21 exceeds maximum of 200.00 for member "27XY" ??
KL/R value of 244.21 exceeds maximum of 200.00 for member "27Y" ??
Member "30P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "30X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "30XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "30Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "31P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "31X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "31XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "31Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "32P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "32X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "32XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "32Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "33P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "33X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "33XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "33Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "44P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "44X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "44XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "44Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "47P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "47X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "47XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "47Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "53P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "53X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "53XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "53Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "56P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "56X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "56XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "56Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "59P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "59X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "59XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "59Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "62P" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "62Y" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "63P" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "63Y" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "64P" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "64Y" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "65P" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "65Y" ??
Member "68P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "68X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "68XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "68Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "69P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "69X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "69XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "69Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "86P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "86X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "86XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "86Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "88P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "88X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "88XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "88Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "90P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "90X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "90XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "90Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "92P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "92X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "92XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "92Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "94P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "94X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "94XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "94Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "96P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "96X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "96XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "96Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "97P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "103P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "109P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "115P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "116P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "117P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "118P" ??

KL/R value of 213.20 exceeds maximum of 200.00 for member "118X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "119P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "120P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "121P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "121X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "122P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "123P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "124P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "125P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "126P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "127P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "127X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "128P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "129P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "130P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "130X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "131P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "132P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "133P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "134P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "135P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "136P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "136X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "137P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "138P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "139P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "139X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "140P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "141P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "144P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "144X" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "146P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "146X" ??
Member "151P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "151X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "151XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "151Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "153P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "153X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "153XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "153Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "155P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "155X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "155XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "155Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "156P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "156X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "156XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "156Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 202.97 exceeds maximum of 200.00 for member "158P" ??
KL/R value of 202.97 exceeds maximum of 200.00 for member "158X" ??
KL/R value of 202.97 exceeds maximum of 200.00 for member "158XY" ??
KL/R value of 202.97 exceeds maximum of 200.00 for member "158Y" ??
KL/R value of 222.93 exceeds maximum of 200.00 for member "165P" ??
KL/R value of 250.54 exceeds maximum of 200.00 for member "166P" ??
KL/R value of 250.54 exceeds maximum of 200.00 for member "166X" ??
KL/R value of 250.54 exceeds maximum of 200.00 for member "166XY" ??
KL/R value of 250.54 exceeds maximum of 200.00 for member "166Y" ??
KL/R value of 205.25 exceeds maximum of 200.00 for member "169P" ??
KL/R value of 205.25 exceeds maximum of 200.00 for member "169X" ??
KL/R value of 205.25 exceeds maximum of 200.00 for member "169XY" ??
KL/R value of 205.25 exceeds maximum of 200.00 for member "169Y" ??
The model has 197 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\1800000.wi\55_ct5046\04_structural\calcs\pls-tower\norwalk1102.lca

*** Analysis Results:

Maximum element usage is 88.16% for Angle "25Y" in load case "NESC Extreme"
Maximum insulator usage is 25.74% for Clamp "C12" in load case "NESC Heavy"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
NESC Heavy	14P	-23.99	-35.20	-126.77	42.60	0.00	0.09	0.09	-0.05	0.00
NESC Heavy	14X	11.15	-19.12	50.04	22.13	0.42	0.04	0.42	-0.03	0.00
NESC Heavy	14XY	-15.82	-19.86	70.17	25.39	0.28	-0.17	0.33	-0.02	0.00
NESC Heavy	14Y	21.79	-28.81	-113.13	36.12	-0.07	-0.30	0.30	-0.04	0.00
NESC Extreme	14P	-20.51	-32.48	-111.56	38.41	0.07	0.27	0.28	0.04	0.00
NESC Extreme	14X	16.11	-24.76	75.45	29.54	0.54	0.08	0.54	-0.00	0.00
NESC Extreme	14XY	-18.37	-24.76	84.33	30.83	0.46	-0.17	0.49	-0.01	0.00
NESC Extreme	14Y	20.01	-29.83	-107.77	35.92	-0.03	-0.21	0.22	-0.05	0.00

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

Load Case	Support Origin Joint	Joint Member Leg Dir.	Leg Force In 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	14P	13S	13P	132.182	20.327	20.453	-0.285	20.451	-23.99	-35.20	-126.77
NESC Heavy	14X	13X	13X	-53.084	13.269	13.391	-1.566	13.299	11.15	-19.12	50.04
NESC Heavy	14XY	13XY	13XY	-73.686	11.807	11.939	2.386	11.698	-15.82	-19.86	70.17
NESC Heavy	14Y	13Y	13Y	117.736	15.542	15.646	-0.132	15.646	21.79	-28.81	-113.13
NESC Extreme	14P	13S	13P	116.386	19.403	19.512	-0.845	19.493	-20.51	-32.48	-111.56
NESC Extreme	14X	13X	13X	-79.450	15.924	16.065	-1.668	15.978	16.11	-24.76	75.45
NESC Extreme	14XY	13XY	13XY	-88.534	14.959	15.107	2.229	14.942	-18.37	-24.76	84.33
NESC Extreme	14Y	13Y	13Y	112.287	17.204	17.303	0.623	17.292	20.01	-29.83	-107.77

Overturning Moment Summary For All Load Cases:

Load Case	Transverse Moment (ft-k)	Longitudinal Moment (ft-k)	Resultant Moment (ft-k)
NESC Heavy	6868.420	441.486	6882.594
NESC Extreme	7230.881	165.688	7232.779

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	94.000	50.000	106	356	0.00	7.00	276.500	28.00	44.00	1416.000
2	50.000	0.000	58	165	7.00	26.15	828.655	30.00	38.15	1642.555

*** 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 No.	Angle Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Cont-rol	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R	KL/R	Length (ft)	Curve Comp.	No. Of Member	Bolts
PeakPost	L2.5x2.5x3/16		SAE	2.5X2.5X0.1875	33.0	36.70	Comp	36.70	1Y	-6.477	NESC Hea	17.649	27.200	25.312	0.500	0.500	0.500	117.68	118.84	9.708		3	2
Leg1	L5x5x3/8		SAE	5X5X0.375	33.0	23.94	Comp	23.94	4P	-25.501	NESC Hea	106.517	0.000	0.000	1.000	1.000	1.000	60.61	60.61	5.000		1	0
Leg2	L8x8x1/2		SAE	8X8X0.5	33.0	24.28	Comp	24.28	8P	-33.025	NESC Hea	245.252	136.000	337.499	1.000	1.000	1.000	37.74	37.74	5.000		1	10
Leg3	L8x8x1/2		SAE	8X8X0.5	33.0	36.59	Comp	36.59	10P	-89.606	NESC Hea	244.867	380.800	944.999	1.000	1.000	1.000	38.42	38.42	5.091		1	28
Leg4	L8x8x1/2		SAE	8X8X0.5	33.0	39.42	Comp	39.42	12P	-95.229	NESC Hea	241.598	380.800	944.999	0.500	0.500	0.500	43.81	43.81	11.611		1	28
Leg5	L8x8x1/2		SAE	8X8X0.5	33.0	40.92	Comp	40.92	13P	-98.333	NESC Hea	240.308	380.800	944.999	0.250	0.250	0.250	45.77	45.77	24.257		1	28

TTTC	L3x3x1/4	SAE	3X3X0.25	33.0	64.22	Tens	48.59	38X	-13.216	NESC	Ext	32.243	27.200	33.750	1.000	1.000	1.000	91.22	105.61	4.500	3	2
TTBC	L3x3x1/4	SAE	3X3X0.25	33.0	35.41	Tens	34.85	40P	-11.237	NESC	Ext	32.243	0.000	0.000	1.000	1.000	1.000	91.22	105.61	4.500	3	0
ARMTT	L4x4x1/4	SAE	4X4X0.25	33.0	22.23	Comp	22.23	67X	-6.048	NESC	Hea	40.528	27.200	33.750	1.000	1.000	1.000	105.66	112.83	7.000	3	2
MTTC	L4x4x1/4	SAE	4X4X0.25	33.0	69.21	Tens	63.96	43X	-30.528	NESC	Ext	47.728	0.000	0.000	1.000	1.000	1.000	67.92	93.96	4.500	3	0
MTBC	L4x4x1/4	SAE	4X4X0.25	33.0	42.00	Comp	42.00	46Y	-20.044	NESC	Ext	47.728	0.000	0.000	1.000	1.000	1.000	67.92	93.96	4.500	3	0
ARMMT	L4x4x1/4	SAE	4X4X0.25	33.0	15.78	Comp	15.78	68X	-6.395	NESC	Hea	40.528	40.800	50.625	1.000	1.000	1.000	105.66	112.83	7.000	3	3
BTTC	L4x4x5/16	SAE	4X4X0.3125	33.0	76.01	Tens	68.25	49X	-40.246	NESC	Hea	58.971	0.000	0.000	1.000	1.000	1.000	68.27	94.13	4.500	3	0
BTBC	L4x4x5/16	SAE	4X4X0.3125	33.0	45.26	Comp	45.26	52P	-26.691	NESC	Hea	58.971	0.000	0.000	1.000	1.000	1.000	68.27	94.13	4.500	3	0
ARMBT	L4x4x1/4	SAE	4X4X0.25	33.0	15.50	Comp	15.50	69X	-6.280	NESC	Hea	40.528	40.800	50.625	1.000	1.000	1.000	105.66	112.83	7.000	3	3
BTC	8x8x1/2	SAE	8X8X0.5	33.0	20.85	Tens	16.53	55X	-34.517	NESC	Hea	208.793	0.000	0.000	1.000	1.000	1.000	39.62	79.81	5.250	3	0
BBC	6x6x1/2	SAE	6X6X0.5	33.0	28.99	Tens	22.15	59P	-27.113	NESC	Ext	152.178	122.400	303.750	1.000	1.000	1.000	45.76	82.88	4.500	3	9
Diag1	L2x2x3/16	SAE	2X2X0.1875	33.0	6.89	Cross	6.89	15X	-0.629	NESC	Hea	9.142	27.200	25.312	1.000	0.500	0.500	167.31	149.09	8.602	6	2
Diag2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	33.0	14.41	Comp	14.41	22XY	-3.043	NESC	Hea	21.126	27.200	33.750	0.780	0.560	0.560	128.62	126.61	9.398	5	2
Diag3	L3x3x5/16	SAE	3X3X0.3125	33.0	8.78	Tens	8.24	21XY	-3.360	NESC	Hea	43.226	40.800	63.281	0.750	0.500	0.500	87.63	95.72	8.602	2	3
Diag4	L3x3x3/16	SAE	3X3X0.1875	33.0	29.10	Comp	29.10	24P	-3.885	NESC	Hea	13.351	27.200	25.312	1.000	1.000	1.000	163.08	152.87	8.100	5	2
Diag5	L2.5x2x3/16	SAU	2.5X2X0.1875	33.0	88.16	Comp	88.16	25Y	-3.076	NESC	Ext	3.489	27.200	25.312	0.570	0.780	0.570	300.76	257.78	18.775	5	2
Diag6	L3x2x1/4	SAU	3X2X0.25	33.0	23.36	Tens	11.18	26P	-0.621	NESC	Hea	5.559	40.800	50.625	1.000	1.000	1.000	287.31	247.53	10.415	5	3
Diag7	L4x4x1/4	SAE	4X4X0.25	33.0	64.57	Comp	64.57	30P	-27.911	NESC	Ext	43.226	54.400	67.500	1.000	1.000	1.000	101.54	106.15	6.727	2	4
Diag8	L4x4x3/8	SAE	4X4X0.375	33.0	59.07	Comp	59.07	32P	-37.144	NESC	Hea	62.882	68.000	126.562	1.000	1.000	1.000	103.47	107.60	6.795	2	5
Diag9	L3.5x3x1/4	DAS	3.5X3X0.25	33.0	64.55	Comp	64.55	34X	-32.466	NESC	Hea	50.291	54.400	67.500	0.540	1.000	0.540	137.62	133.47	18.923	5	2
Diag10	L4x3x7/16	DAS	4X3X0.4375	33.0	70.59	Comp	70.59	35P	-38.873	NESC	Hea	55.072	81.600	177.187	0.250	1.000	0.250	189.13	172.72	30.734	5	3
Diag11	L3x3x5/16	SAE	3X3X0.3125	33.0	64.54	Comp	64.54	28P	-18.580	NESC	Ext	28.788	40.800	63.281	1.000	1.000	1.000	137.05	133.03	6.727	5	3
Diag12	L3x3x3/16	SAE	3X3X0.1875	33.0	18.04	Tens	15.56	27Y	-0.814	NESC	Hea	5.231	40.800	37.969	1.000	0.333	0.333	282.96	244.21	22.141	5	3
Horz1	L3x3x3/16	SAE	3X3X0.1875	33.0	30.75	Comp	30.75	60XY	-4.057	NESC	Ext	13.192	40.800	37.969	0.500	0.500	0.500	164.28	153.78	16.318	5	3
Horz2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	36.00	Comp	36.00	61X	-8.742	NESC	Ext	24.283	40.800	50.625	0.500	0.500	0.500	147.69	141.14	17.082	5	3
Br1	L2x2x3/16	SAE	2X2X0.1875	33.0	45.03	Tens	0.00	65Y	0.000			1.570	13.600	12.656	1.000	1.000	1.000	359.76	359.76	11.812	4	1
Br2	L3x3x3/16	SAE	3X3X0.1875	33.0	45.97	Comp	45.97	66P	-4.849	NESC	Ext	10.549	13.600	12.656	0.750	0.500	0.500	171.97	171.97	17.082	4	1
ArmBr1	Bar 2x3/16	BAR	2 x 0.1875	33.0	56.80	Tens	0.00	72Y	0.000			0.029	27.200	25.312	1.000	1.000	1.000	1911.63	1911.63	8.602	4	2
ArmBr2	ArmBr2	SAE	2X2X0.25	33.0	14.70	Tens	6.99	77X	-0.815	NESC	Hea	11.659	13.600	16.875	0.750	0.500	0.500	151.91	151.91	9.899	4	1
ArmBr3	ArmBr3	SAU	3.5X2.5X0.25	33.0	82.15	Tens	0.00	78X	0.000			17.286	13.600	16.875	1.000	1.000	1.000	154.41				

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154.41  7.000     4     1
    TTBr1     L2x2x3/16   SAE     2X2X0.1875     33.0 45.30  Comp 45.30     83X  -4.400NESC Hea    9.713   27.200   25.312 1.000 1.000 1.000  152.28
144.64  5.000     5     2
    TTBr2     L3x3x3/16   SAE     3X3X0.1875     33.0 79.54  Comp 79.54     80X -11.264NESC Ext   14.161   27.200   25.312 1.000 1.000 1.000  157.25
148.43  7.810     5     2
    TTBr3     L3x3x5/16   SAE     3X3X0.3125     33.0 40.78  Comp 40.78     84P -11.741NESC Ext   28.788   40.800   63.281 1.000 1.000 1.000  137.05
133.03  6.727     5     3
    MTBr1     L2x2x3/16   SAE     2X2X0.1875     33.0 13.20  Tens  1.29     85Y  -0.125NESC Ext    9.713   27.200   25.312 1.000 1.000 1.000  152.28
144.64  5.000     5     2
    MTBr2    L3x2.5x1/4   SAU     3X2.5X0.25     33.0 48.77  Comp 48.77     89X -13.237NESC Ext   27.139   27.200   33.750 1.000 1.000 1.000  113.64
113.64  5.000     1     2
    MTBr3    L4x3.5x1/4   SAU     4X3.5X0.25     33.0 70.89  Comp 70.89     86X -22.996NESC Ext   32.441   40.800   50.625 1.000 1.000 1.000  127.69
125.90  7.810     5     3
    MTBr4  L3.5x3.5x1/4   SAE   3.5X3.5X0.25     33.0 61.09  Comp 61.09     88Y -20.573NESC Ext   33.676   40.800   50.625 1.000 1.000 1.000  116.31
117.24  6.727     2     3
    MTBr5      L4x4x1/4   SAE       4X4X0.25     33.0 55.95  Comp 55.95     90P -24.186NESC Ext   43.226   54.400   67.500 1.000 1.000 1.000  101.54
106.15  6.727     2     4
    BTBr1     L2x2x3/16   SAE     2X2X0.1875     33.0 13.66  Tens  1.31     91Y  -0.127NESC Hea    9.713   27.200   25.312 1.000 1.000 1.000  152.28
144.64  5.000     5     2
    BTBr2  L3.5x3.5x1/4   SAE   3.5X3.5X0.25     33.0 42.30  Comp 42.30     95X -17.257NESC Hea   43.754   40.800   50.625 1.000 1.000 1.000   86.46
86.46  5.000     1     3
    BTBr3     L4x4x5/16   SAE     4X4X0.3125     33.0 65.17  Comp 65.17     92X -30.596NESC Hea   46.945   54.400   84.375 1.000 1.000 1.000  118.49
118.87  7.810     2     4
    BTBr4      L4x4x1/4   SAE       4X4X0.25     33.0 65.11  Comp 65.11     94P -28.144NESC Hea   43.226   54.400   67.500 1.000 1.000 1.000  101.54
106.15  6.727     2     4
    BTBr5      L4x4x3/8   SAE      4X4X0.375     33.0 47.11  Comp 47.11     96P -29.834NESC Hea   63.333   68.000  126.562 1.000 1.000 1.000  102.44
106.83  6.727     2     5
     TBC1     L2x2x3/16   SAE     2X2X0.1875     33.0 42.47  Tens 32.68     97P  -1.461NESC Hea    4.471   13.600   12.656 1.000 1.000 1.000  213.20
213.20  7.000     4     1
     TBC2  L2.5x2.5x1/4   SAE   2.5X2.5X0.25     33.0 46.54  Tens  0.00    111X   0.000           14.856   27.200   33.750 1.000 1.000 1.000  171.08
151.41  7.000     6     2
     TBC3      L2x2x1/4   SAE       2X2X0.25     33.0 46.25  Tens 14.43    114P  -1.962NESC Hea   16.440   13.600   16.875 0.750 0.500 0.500  127.70
127.70  8.322     4     1
     TBC4 L2.5x2.5x3/16   SAE 2.5X2.5X0.1875     33.0 26.48  Comp 26.48    113P  -3.016NESC Hea   11.388   27.200   25.312 1.000 1.000 1.000  169.70
150.56  7.000     6     2
     TTC1     L2x2x3/16   SAE     2X2X0.1875     33.0 48.03  Comp 48.03    121P  -2.147NESC Hea    4.471   13.600   12.656 1.000 1.000 1.000  213.20
213.20  7.000     4     1
     TTC2 L2.5x2.5x3/16   SAE 2.5X2.5X0.1875     33.0  3.77  Tens  0.00    141P   0.000            6.344   13.600   12.656 1.000 1.000 1.000  201.74
201.74  8.322     4     1
    Horz3 L2.5x2.5x3/16   SAE 2.5X2.5X0.1875     33.0 15.04  Comp 15.04    142P  -1.557NESC Ext   10.354   27.200   25.312 1.000 1.000 1.000  169.70
157.91  7.000     5     2
    Horz4     L2x2x3/16   SAE     2X2X0.1875     33.0 19.47  Tens 12.96    146X  -0.580NESC Ext    4.471   13.600   12.656 1.000 1.000 1.000  213.20
213.20  7.000     4     1
    Horz5 L3.5x3.5x5/16   SAE 3.5X3.5X0.3125     33.0  9.24  Comp  9.24    147P  -3.667NESC Hea   39.688   40.800   63.281 1.000 1.000 1.000  121.74
121.37  7.000     5     3
    Horz6    L3.5x3x1/4   SAU     3.5X3X0.25     33.0 15.37  Tens  7.54    149X  -2.052NESC Ext   29.777   27.200   33.750 0.500 0.500 0.500  121.18
120.94 12.744     5     2
     BBr1     L2x2x3/16   SAE     2X2X0.1875     33.0  4.25  Comp  4.25    150P  -0.401NESC Hea    9.436   27.200   25.312 1.000 1.000 1.000  155.05
146.75  5.091     5     2
     BBr2      L4x4x3/8   SAE      4X4X0.375     33.0 42.02  Comp 42.02    151X -24.924NESC Hea   59.320   68.000  126.562 1.000 1.000 1.000  111.37
113.52  7.313     2     5
     BBr3     L4x4x5/16   SAE     4X4X0.3125     33.0 45.09  Tens 37.71    154X -20.513NESC Ext   65.583   54.400   84.375 1.000 1.000 1.000   77.23
77.23  5.091     1     4
     BBr4     L7x4x7/16   SAU     7X4X0.4375     33.0  8.10  Tens  6.92    155P  -9.024NESC Hea  130.359  149.600  324.843 0.500 0.750 0.500   54.56
70.92  6.789     2    11
     BTC1  L3.5x3.5x1/4   SAE   3.5X3.5X0.25     33.0 10.99  Tens  0.00    157P   0.000           16.690   27.200   33.750 1.000 1.000 1.000  185.88
170.24 10.750     5     2
     BTC2     L2x2x3/16   SAE     2X2X0.1875     33.0 46.17  Comp 46.17    158X  -2.277NESC Ext    4.933   27.200   25.312 0.750 0.500 0.500  228.84
202.97 15.027     5     2
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BTC3	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	17.18	Tens	0.00	161X	0.000		24.779	40.800	50.625	1.000	1.000	1.000	122.16	121.69	5.375	5	3	
BTC4	L2.5x1.5x1/4	SAU	2.5X1.5X0.25	33.0	21.41	Comp	21.41	162Y	-2.742	NESC Ext	12.805	40.800	50.625	0.500	0.750	0.500	152.69	144.95	7.041	5	3	
BTC5	L2x2x1/4	SAE	2X2X0.25	33.0	15.18	Tens	0.00	164X	0.000		15.020	27.200	33.750	1.000	1.000	1.000	138.11	133.84	4.500	5	2	
BBC1	L3x3x3/16	SAE	3X3X0.1875	33.0	4.03	Comp	4.03	165P	-0.253	NESC Hea	6.278	27.200	25.312	1.000	1.000	1.000	255.02	222.93	12.666	5	2	
BBC2	L2x2x3/16	SAE	2X2X0.1875	33.0	27.99	Comp	27.99	166Y	-0.906	NESC Hea	3.237	13.600	12.656	0.750	0.500	0.500	250.54	250.54	16.452	4	1	
BBC3	L3x3x1/4	SAE	3X3X0.25	33.0	2.83	Comp	2.83	168X	-0.497	NESC Ext	17.576	27.200	33.750	1.000	0.500	0.500	163.43	153.14	12.666	5	2	

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Usage Control	Max Tension Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Connect. Shear Capacity (kips)	Connect. Bearing Capacity (kips)	Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts	No. Of Holes	Hole Diameter (in)
PeakPost	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	36.70	Comp	30.15	14Y	5.819	NESC Hea	21.917	27.200	25.312	19.301	10.271	2	1.000	0.875
Leg1	L5x5x3/8	SAE	5X5X0.375	33.0	23.94	Comp	17.83	4X	14.750	NESC Ext	82.747	0.000	0.000	0.000	5.000	0	3.360	0.875
Leg2	L8x8x1/2	SAE	8X8X0.5	33.0	24.28	Comp	16.63	7XY	32.921	NESC Ext	198.000	0.000	0.000	0.000	5.000	0	4.000	0.875
Leg3	L8x8x1/2	SAE	8X8X0.5	33.0	36.59	Comp	30.01	10XY	59.417	NESC Ext	198.000	380.800	944.999	874.999	5.091	28	4.000	0.875
Leg4	L8x8x1/2	SAE	8X8X0.5	33.0	39.42	Comp	32.47	12XY	64.299	NESC Ext	198.000	380.800	944.999	874.999	11.611	28	4.000	0.875
Leg5	L8x8x1/2	SAE	8X8X0.5	33.0	40.92	Comp	30.83	13XY	61.037	NESC Ext	198.000	380.800	944.999	874.999	24.257	28	4.000	0.875
TTTC	L3x3x1/4	SAE	3X3X0.25	33.0	64.22	Tens	64.22	38Y	14.842	NESC Ext	36.271	27.200	33.750	23.109	4.500	2	1.000	0.875
TTBC	L3x3x1/4	SAE	3X3X0.25	33.0	35.41	Tens	35.41	40XY	10.544	NESC Ext	29.774	0.000	0.000	0.000	4.500	0	2.000	0.875
ARMTT	L4x4x1/4	SAE	4X4X0.25	33.0	22.23	Comp	4.37	67P	1.189	NESC Ext	51.121	27.200	33.750	38.750	7.000	2	1.000	0.875
MTTC	L4x4x1/4	SAE	4X4X0.25	33.0	69.21	Tens	69.21	43P	30.887	NESC Ext	44.624	0.000	0.000	0.000	4.500	0	2.000	0.875
MTBC	L4x4x1/4	SAE	4X4X0.25	33.0	42.00	Comp	41.92	46XY	18.705	NESC Ext	44.624	0.000	0.000	0.000	4.500	0	2.000	0.875
ARMMT	L4x4x1/4	SAE	4X4X0.25	33.0	15.78	Comp	3.09	68P	1.259	NESC Ext	49.952	40.800	50.625	44.118	7.000	3	1.180	0.875
BTTC	L4x4x5/16	SAE	4X4X0.3125	33.0	76.01	Tens	76.01	49P	41.832	NESC Hea	55.038	0.000	0.000	0.000	4.500	0	2.000	0.875
BTBC	L4x4x5/16	SAE	4X4X0.3125	33.0	45.26	Comp	43.90	52XY	24.161	NESC Hea	55.038	0.000	0.000	0.000	4.500	0	2.000	0.875
ARMBT	L4x4x1/4	SAE	4X4X0.25	33.0	15.50	Comp	3.52	69P	1.436	NESC Ext	49.952	40.800	50.625	44.118	7.000	3	1.180	0.875
BTC	8x8x1/2	SAE	8X8X0.5	33.0	20.85	Tens	20.85	55P	34.442	NESC Hea	165.206	0.000	0.000	0.000	5.250	0	5.000	0.875
BBC	6x6x1/2	SAE	6X6X0.5	33.0	28.99	Tens	28.99	59X	35.487	NESC Hea	131.794	122.400	303.750	330.882	4.500	9	3.000	

Diag1	L2x2x3/16	SAE	2X2X0.1875	33.0	6.89	Cross	0.75	15XY	0.122	NESC	Ext	16.214	27.200	25.312	18.316	8.602	2	1.000 0.875
Diag2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	33.0	14.41	Comp	6.74	17X	1.834	NESC	Hea	28.846	27.200	33.750	29.203	8.602	2	1.000 0.875
Diag3	L3x3x5/16	SAE	3X3X0.3125	33.0	8.78	Tens	8.78	20X	3.583	NESC	Hea	44.745	40.800	63.281	56.660	8.602	3	1.000 0.875
Diag4	L3x3x3/16	SAE	3X3X0.1875	33.0	29.10	Comp	16.32	23XY	3.208	NESC	Hea	27.500	27.200	25.312	19.652	6.698	2	1.000 0.875
Diag5	L2.5x2x3/16	SAU	2.5X2X0.1875	33.0	88.16	Comp	6.59	25XY	1.264	NESC	Ext	19.184	27.200	25.312	24.609	18.775	2	1.000 0.875
Diag6	L3x2x1/4	SAU	3X2X0.25	33.0	23.36	Tens	23.36	26X	6.739	NESC	Ext	28.846	40.800	50.625	36.328	10.415	3	1.000 0.875
Diag7	L4x4x1/4	SAE	4X4X0.25	33.0	64.57	Comp	56.16	30X	26.338	NESC	Ext	46.898	54.400	67.500	58.823	6.727	4	1.650 0.875
Diag8	L4x4x3/8	SAE	4X4X0.375	33.0	59.07	Comp	55.53	33P	37.760	NESC	Hea	69.934	68.000	126.562	110.294	6.789	5	1.540 0.875
Diag9	L3.5x3x1/4	DAS	3.5X3X0.25	33.0	64.55	Comp	40.25	34P	19.435	NESC	Ext	72.542	54.400	67.500	48.281	18.923	2	2.000 0.875
Diag10	L4x3x7/16	DAS	4X3X0.4375	33.0	70.59	Comp	36.05	35X	29.421	NESC	Ext	121.751	81.600	177.187	164.062	30.734	3	2.000 0.875
Diag11	L3x3x5/16	SAE	3X3X0.3125	33.0	64.54	Comp	45.47	28X	18.552	NESC	Ext	44.745	40.800	63.281	46.699	6.727	3	1.000 0.875
Diag12	L3x3x3/16	SAE	3X3X0.1875	33.0	18.04	Tens	18.04	27XY	4.960	NESC	Hea	27.500	40.800	37.969	35.156	22.141	3	1.000 0.875
Horz1	L3x3x3/16	SAE	3X3X0.1875	33.0	30.75	Comp	0.00	60Y	0.000			27.500	40.800	37.969	26.473	16.318	3	1.000 0.875
Horz2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	36.00	Comp	0.00	61X	0.000			43.696	40.800	50.625	36.422	17.082	3	1.000 0.875
Br1	L2x2x3/16	SAE	2X2X0.1875	33.0	45.03	Tens	45.03	63P	3.689	NESC	Ext	16.214	13.600	12.656	8.191	11.812	1	1.000 0.875
Br2	L3x3x3/16	SAE	3X3X0.1875	33.0	45.97	Comp	0.00	66P	0.000			27.500	13.600	12.656	9.949	17.082	1	1.000 0.875
ArmBr1	Bar 2x3/16	BAR	2 x 0.1875	33.0	56.80	Tens	56.80	72Y	3.558	NESC	Hea	6.265	27.200	25.312	17.824	8.602	2	1.000 0.875
ArmBr2	ArmBr2	SAE	2X2X0.25	33.0	14.70	Tens	14.70	77P	1.892	NESC	Hea	21.421	13.600	16.875	12.868	9.899	1	1.000 0.875
ArmBr3	ArmBr3	SAU	3.5X2.5X0.25	33.0	82.15	Tens	82.15	78X	11.172	NESC	Hea	28.846	13.600	16.875	15.047	7.000	1	1.000 0.875
TTBr1	L2x2x3/16	SAE	2X2X0.1875	33.0	45.30	Comp	29.47	83Y	4.778	NESC	Hea	16.214	27.200	25.312	19.160	5.000	2	1.000 0.875
TTBr2	L3x3x3/16	SAE	3X3X0.1875	33.0	79.54	Comp	49.80	80P	11.671	NESC	Ext	27.500	27.200	25.312	23.437	7.810	2	1.000 0.875
TTBr3	L3x3x5/16	SAE	3X3X0.3125	33.0	40.78	Comp	36.90	84XY	15.055	NESC	Hea	44.745	40.800	63.281	45.410	6.727	3	1.000 0.875
MTBr1	L2x2x3/16	SAE	2X2X0.1875	33.0	13.20	Tens	13.20	87XY	2.140	NESC	Hea	16.214	27.200	25.312	19.301	5.000	2	1.000 0.875
MTBr2	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	48.77	Comp	46.77	89P	12.720	NESC	Ext	32.410	27.200	33.750	31.250	5.000	2	1.000 0.875
MTBr3	L4x3.5x1/4	SAU	4X3.5X0.25	33.0	70.89	Comp	57.37	86P	23.406	NESC	Ext	44.531	40.800	50.625	44.118	7.810	3	1.420 0.875
MTBr4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	61.09	Comp	48.37	88X	18.673	NESC	Ext	40.448	40.800	50.625	38.603	6.727	3	1.500 0.875
MTBr5	L4x4x1/4	SAE	4X4X0.25	33.0	55.95	Comp	53.16	90XY	25.310	NESC	Ext	47.613	54.400	67.500	58.823	6.727	4	1.540 0.875
BTBr1	L2x2x3/16	SAE	2X2X0.1875	33.0	13.66	Tens	13.66	93XY	2.216	NESC	Hea	16.214	27.200	25.312	19.301	5.000	2	1.000 0.875
BTBr2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	42.30	Comp	40.69	95P	16.602	NESC	Ext	43.696	40.800	50.625	42.516	5.000	3	1.000 0.875

BTBr3	L4x4x5/16	SAE	4X4X0.3125	33.0	65.17	Comp	57.39	92P	31.218	NESC	Hea	59.748	54.400	84.375	73.529	7.810	4	1.420
0.875																		
BTBr4	L4x4x1/4	SAE	4X4X0.25	33.0	65.11	Comp	49.47	94X	24.551	NESC	Ext	49.627	54.400	67.500	58.823	6.727	4	1.230
0.875																		
BTBr5	L4x4x3/8	SAE	4X4X0.375	33.0	47.11	Comp	46.68	96XY	31.647	NESC	Hea	67.790	68.000	126.562	110.294	6.727	5	1.760
0.875																		
TBC1	L2x2x3/16	SAE	2X2X0.1875	33.0	42.47	Tens	42.47	110X	3.479	NESC	Hea	16.214	13.600	12.656	8.191	9.220	1	1.000
0.875																		
TBC2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	33.0	46.54	Tens	46.54	111P	12.658	NESC	Hea	28.846	27.200	33.750	28.125	7.000	2	1.000
0.875																		
TBC3	L2x2x1/4	SAE	2X2X0.25	33.0	46.25	Tens	46.25	112X	5.051	NESC	Hea	21.421	13.600	16.875	10.922	8.322	1	1.000
0.875																		
TBC4	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	26.48	Comp	5.49	113X	1.158	NESC	Ext	21.917	27.200	25.312	21.094	7.000	2	1.000
0.875																		
TTC1	L2x2x3/16	SAE	2X2X0.1875	33.0	48.03	Comp	21.04	121X	1.546	NESC	Hea	16.214	13.600	12.656	7.348	7.000	1	1.000
0.875																		
TTC2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	3.77	Tens	3.77	122P	0.397	NESC	Hea	21.917	13.600	12.656	10.512	8.322	1	1.000
0.875																		
Horz3	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	15.04	Comp	11.02	142X	1.995	NESC	Ext	21.917	27.200	25.312	18.105	7.000	2	1.000
0.875																		
Horz4	L2x2x3/16	SAE	2X2X0.1875	33.0	19.47	Tens	19.47	146P	1.595	NESC	Hea	16.214	13.600	12.656	8.191	7.000	1	1.000
0.875																		
Horz5	L3.5x3.5x5/16	SAE	3.5X3.5X0.3125	33.0	9.24	Comp	2.28	147X	0.932	NESC	Ext	53.952	40.800	63.281	47.988	7.000	3	1.000
0.875																		
Horz6	L3.5x3x1/4	SAU	3.5X3X0.25	33.0	15.37	Tens	15.37	149P	4.181	NESC	Ext	39.835	27.200	33.750	28.125	12.744	2	1.000
0.875																		
BBr1	L2x2x3/16	SAE	2X2X0.1875	33.0	4.25	Comp	2.10	152X	0.332	NESC	Ext	16.214	27.200	25.312	15.785	5.091	2	1.000
0.875																		
BBr2	L4x4x3/8	SAE	4X4X0.375	33.0	42.02	Comp	38.41	151P	26.122	NESC	Hea	70.324	68.000	126.562	110.294	7.313	5	1.500
0.875																		
BBr3	L4x4x5/16	SAE	4X4X0.3125	33.0	45.09	Tens	45.09	154P	24.531	NESC	Hea	63.159	54.400	84.375	59.355	5.091	4	1.000
0.875																		
BBr4	L7x4x7/16	SAU	7X4X0.4375	33.0	8.10	Tens	8.10	155XY	8.349	NESC	Ext	103.105	149.600	324.843	300.781	6.789	11	3.000
0.875																		
BTC1	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	10.99	Tens	10.99	157P	2.983	NESC	Ext	43.696	27.200	33.750	27.141	10.750	2	1.000
0.875																		
BTC2	L2x2x3/16	SAE	2X2X0.1875	33.0	46.17	Comp	0.33	158P	0.054	NESC	Hea	16.214	27.200	25.312	19.301	15.027	2	1.000
0.875																		
BTC3	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	17.18	Tens	17.18	161X	4.930	NESC	Ext	28.698	40.800	50.625	32.016	5.375	3	1.000
0.875																		
BTC4	L2.5x1.5x1/4	SAU	2.5X1.5X0.25	33.0	21.41	Comp	0.00	163Y	0.000			21.421	40.800	50.625	41.016	7.010	3	1.000
0.875																		
BTC5	L2x2x1/4	SAE	2X2X0.25	33.0	15.18	Tens	15.18	164P	3.194	NESC	Ext	21.421	27.200	33.750	21.047	4.500	2	1.000
0.875																		
BBC1	L3x3x3/16	SAE	3X3X0.1875	33.0	4.03	Comp	0.00	165P	0.000			27.500	27.200	25.312	19.652	12.666	2	1.000
0.875																		
BBC2	L2x2x3/16	SAE	2X2X0.1875	33.0	27.99	Comp	14.03	166XY	1.150	NESC	Hea	16.214	13.600	12.656	8.191	16.452	1	1.000
0.875																		
BBC3	L3x3x1/4	SAE	3X3X0.25	33.0	2.83	Comp	0.15	168P	0.039	NESC	Hea	36.271	27.200	33.750	26.203	12.666	2	1.000
0.875																		

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case Maximum Element Element

	Usage %	Label	Type
NESC Heavy	82.15	78X	Angle
NESC Extreme	88.16	25Y	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
C1	Clamp	10.85	NESC Heavy	0.0
C2	Clamp	8.72	NESC Heavy	0.0
C3	Clamp	22.17	NESC Heavy	0.0
C4	Clamp	23.19	NESC Heavy	0.0
C5	Clamp	20.75	NESC Heavy	0.0
C6	Clamp	21.15	NESC Heavy	0.0
C7	Clamp	22.01	NESC Heavy	0.0
C8	Clamp	25.30	NESC Heavy	0.0
C9	Clamp	22.14	NESC Heavy	0.0
C10	Clamp	22.60	NESC Heavy	0.0
C11	Clamp	22.34	NESC Heavy	0.0
C12	Clamp	25.74	NESC Heavy	0.0
C13	Clamp	22.63	NESC Heavy	0.0
C14	Clamp	24.37	NESC Heavy	0.0
C15	Clamp	23.14	NESC Heavy	0.0
C16	Clamp	21.84	NESC Heavy	0.0
C17	Clamp	21.52	NESC Heavy	0.0
C18	Clamp	23.51	NESC Heavy	0.0
C19	Clamp	24.29	NESC Heavy	0.0
C20	Clamp	24.26	NESC Heavy	0.0
C21	Clamp	22.99	NESC Heavy	0.0
C22	Clamp	23.55	NESC Heavy	0.0
C23	Clamp	24.71	NESC Heavy	0.0
C24	Clamp	24.40	NESC Heavy	0.0
C25	Clamp	23.93	NESC Heavy	0.0
C26	Clamp	23.59	NESC Heavy	0.0
C27	Clamp	1.28	NESC Heavy	0.0
C28	Clamp	1.27	NESC Heavy	0.0
C29	Clamp	5.52	NESC Heavy	0.0
C30	Clamp	1.80	NESC Extreme	0.0
C31	Clamp	1.92	NESC Heavy	0.0
C32	Clamp	4.58	NESC Heavy	0.0
C34	Clamp	0.87	NESC Heavy	0.0
C35	Clamp	0.86	NESC Heavy	0.0
C36	Clamp	7.58	NESC Extreme	0.0
C37	Clamp	1.41	NESC Extreme	0.0
C38	Clamp	1.33	NESC Heavy	0.0
C39	Clamp	3.07	NESC Heavy	0.0
C41	Clamp	1.28	NESC Heavy	0.0
C42	Clamp	1.91	NESC Heavy	0.0
C43	Clamp	5.52	NESC Heavy	0.0
C44	Clamp	8.36	NESC Heavy	0.0
C45	Clamp	12.32	NESC Extreme	0.0
C46	Clamp	12.32	NESC Extreme	0.0
C47	Clamp	12.34	NESC Extreme	0.0
C48	Clamp	12.34	NESC Extreme	0.0
C49	Clamp	1.30	NESC Heavy	0.0

C50	Clamp	1.86	NESC Heavy	0.0
C51	Clamp	1.80	NESC Extreme	0.0
C52	Clamp	2.26	NESC Heavy	0.0
C53	Clamp	1.92	NESC Heavy	0.0
C54	Clamp	2.71	NESC Heavy	0.0
C55	Clamp	4.58	NESC Heavy	0.0
C56	Clamp	6.37	NESC Heavy	0.0

*** Weight of structure (lbs):

Weight of Angles*Section DLF:	30861.1
Total:	30861.1

*** End of Report

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*                                                                           *
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*                                                                           *
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Project Name : 18000.55 - Norwalk, CT
Project Notes: Structure # 1102 / AT&T 5046
Project File : J:\Jobs\1800000.WI\55_CT5046\04_Structural\Calcs\Pls-Tower\norwalk1102.tow
Date run     : 8:08:56 AM Wednesday, November 21, 2018
by           : Tower Version 12.50
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

Angle member '36P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '36X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '36XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '36Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '39P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '39X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '39XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '39Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '42P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '42X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
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Angle member '42Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '45P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '45X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '45XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '45Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '48P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '48X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '48XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '48Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '51P' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '51X' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '51XY' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Angle member '51Y' has an eccentricity code of 3 and a leg connect code of "Both", but should be "Short" or "Long"  ??
Member "5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "5XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "5Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "8P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "8X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "8XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "8Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "10P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "10X" 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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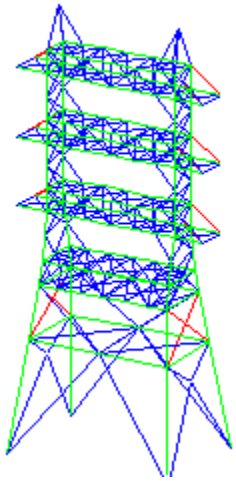
and spacing distances will be checked. ??
Member "10XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "10Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 247.53 exceeds maximum of 200.00 for member "26P" ??
KL/R value of 247.53 exceeds maximum of 200.00 for member "26X" ??
KL/R value of 247.53 exceeds maximum of 200.00 for member "26XY" ??
KL/R value of 247.53 exceeds maximum of 200.00 for member "26Y" ??
KL/R value of 244.21 exceeds maximum of 200.00 for member "27P" ??
KL/R value of 244.21 exceeds maximum of 200.00 for member "27X" ??
KL/R value of 244.21 exceeds maximum of 200.00 for member "27XY" ??
KL/R value of 244.21 exceeds maximum of 200.00 for member "27Y" ??
Member "30P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "30X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "30XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "30Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "31P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "31X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "31XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "31Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "32P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "32X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "32XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "32Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "33P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "33X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "33XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "33Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "44P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "44X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "44XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "44Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "47P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "47X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "47XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "47Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "53P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "53X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "53XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "53Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "56P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "56X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "56XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "56Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "59P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "59X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "59XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "59Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "62P" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "62Y" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "63P" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "63Y" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "64P" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "64Y" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "65P" ??
KL/R value of 359.76 exceeds maximum of 250.00 for member "65Y" ??
Member "68P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "68X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "68XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "68Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "69P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "69X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "69XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "69Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "86P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "86X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "86XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "86Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "88P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "88X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "88XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "88Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "90P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "90X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "90XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "90Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "92P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "92X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "92XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "92Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "94P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "94X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "94XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "94Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "96P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "96X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "96XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "96Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "97P" ??

KL/R value of 213.20 exceeds maximum of 200.00 for member "103P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "109P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "115P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "116P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "117P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "118P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "118X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "119P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "120P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "121P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "121X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "122P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "123P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "124P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "125P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "126P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "127P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "127X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "128P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "129P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "130P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "130X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "131P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "132P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "133P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "134P" ??
KL/R value of 223.50 exceeds maximum of 200.00 for member "135P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "136P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "136X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "137P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "138P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "139P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "139X" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "140P" ??
KL/R value of 201.74 exceeds maximum of 200.00 for member "141P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "144P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "144X" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "146P" ??
KL/R value of 213.20 exceeds maximum of 200.00 for member "146X" ??
Member "151P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "151X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "151XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "151Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "153P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "153X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "153XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "153Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "155P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "155X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "155XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "155Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "156P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "156X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "156XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "156Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 202.97 exceeds maximum of 200.00 for member "158P" ??
KL/R value of 202.97 exceeds maximum of 200.00 for member "158X" ??
KL/R value of 202.97 exceeds maximum of 200.00 for member "158XY" ??
KL/R value of 202.97 exceeds maximum of 200.00 for member "158Y" ??
KL/R value of 222.93 exceeds maximum of 200.00 for member "165P" ??
KL/R value of 250.54 exceeds maximum of 200.00 for member "166P" ??
KL/R value of 250.54 exceeds maximum of 200.00 for member "166X" ??
KL/R value of 250.54 exceeds maximum of 200.00 for member "166XY" ??
KL/R value of 250.54 exceeds maximum of 200.00 for member "166Y" ??
KL/R value of 205.25 exceeds maximum of 200.00 for member "169P" ??
KL/R value of 205.25 exceeds maximum of 200.00 for member "169X" ??
KL/R value of 205.25 exceeds maximum of 200.00 for member "169XY" ??
KL/R value of 205.25 exceeds maximum of 200.00 for member "169Y" ??
The model has 197 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	X-Symmetry	0	14	94	Free	Free	Free	Free	Free	Free
2P	XY-Symmetry	3.5	15	85	Free	Free	Free	Free	Free	Free
3P	XY-Symmetry	3.5	15	80	Free	Free	Free	Free	Free	Free
4P	XY-Symmetry	3.5	15	75	Free	Free	Free	Free	Free	Free
5P	XY-Symmetry	3.5	15	70	Free	Free	Free	Free	Free	Free
6P	XY-Symmetry	3.5	15	65	Free	Free	Free	Free	Free	Free
7P	XY-Symmetry	3.5	15	60	Free	Free	Free	Free	Free	Free
8P	XY-Symmetry	3.5	15	55	Free	Free	Free	Free	Free	Free
9P	XY-Symmetry	3.5	15	50	Free	Free	Free	Free	Free	Free
14P	XY-Symmetry	13.07	19.07	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
15P	XY-Symmetry	3.5	22	80	Free	Free	Free	Free	Free	Free
16P	XY-Symmetry	3.5	22	65	Free	Free	Free	Free	Free	Free
17P	XY-Symmetry	3.5	22	50	Free	Free	Free	Free	Free	Free
18P	Y-Symmetry	3.5	0	85	Free	Free	Free	Free	Free	Free
19P	XY-Symmetry	3.5	6	85	Free	Free	Free	Free	Free	Free
20P	XY-Symmetry	3.5	10.5	85	Free	Free	Free	Free	Free	Free
21P	Y-Symmetry	3.5	0	80	Free	Free	Free	Free	Free	Free
22P	XY-Symmetry	3.5	6	80	Free	Free	Free	Free	Free	Free
23P	XY-Symmetry	3.5	10.5	80	Free	Free	Free	Free	Free	Free
24P	Y-Symmetry	3.5	0	70	Free	Free	Free	Free	Free	Free
25P	XY-Symmetry	3.5	6	70	Free	Free	Free	Free	Free	Free
26P	XY-Symmetry	3.5	10.5	70	Free	Free	Free	Free	Free	Free
27P	Y-Symmetry	3.5	0	65	Free	Free	Free	Free	Free	Free
28P	XY-Symmetry	3.5	6	65	Free	Free	Free	Free	Free	Free
29P	XY-Symmetry	3.5	10.5	65	Free	Free	Free	Free	Free	Free
30P	Y-Symmetry	3.5	0	55	Free	Free	Free	Free	Free	Free
31P	XY-Symmetry	3.5	6	55	Free	Free	Free	Free	Free	Free
32P	XY-Symmetry	3.5	10.5	55	Free	Free	Free	Free	Free	Free
33P	Y-Symmetry	3.5	0	50	Free	Free	Free	Free	Free	Free
34P	XY-Symmetry	3.5	6	50	Free	Free	Free	Free	Free	Free
35P	XY-Symmetry	3.5	10.5	50	Free	Free	Free	Free	Free	Free
36P	Y-Symmetry	5.375	0	40	Free	Free	Free	Free	Free	Free
37P	XY-Symmetry	5.375	5.25	40	Free	Free	Free	Free	Free	Free
38P	XY-Symmetry	5.375	10.5	40	Free	Free	Free	Free	Free	Free
39P	Y-Symmetry	6.333	0	35	Free	Free	Free	Free	Free	Free
40P	XY-Symmetry	6.333	5.25	35	Free	Free	Free	Free	Free	Free
41P	XY-Symmetry	6.333	10.5	35	Free	Free	Free	Free	Free	Free
44P	X-Symmetry	0	17.01	17.75	Free	Free	Free	Free	Free	Free
45P	X-Symmetry	0	10.5	40	Free	Free	Free	Free	Free	Free
10P	XY-Symmetry	4.457	15	45	Free	Free	Free	Free	Free	Free
11P	XY-Symmetry	5.415	15	40	Free	Free	Free	Free	Free	Free
12P	XY-Symmetry	6.372	15	35	Free	Free	Free	Free	Free	Free
1X	X-Gen	0	-14	94	Free	Free	Free	Free	Free	Free
2X	X-GenXY	3.5	-15	85	Free	Free	Free	Free	Free	Free
2XY	XY-GenXY	-3.5	-15	85	Free	Free	Free	Free	Free	Free
2Y	Y-GenXY	-3.5	15	85	Free	Free	Free	Free	Free	Free
3X	X-GenXY	3.5	-15	80	Free	Free	Free	Free	Free	Free
3XY	XY-GenXY	-3.5	-15	80	Free	Free	Free	Free	Free	Free
3Y	Y-GenXY	-3.5	15	80	Free	Free	Free	Free	Free	Free
4X	X-GenXY	3.5	-15	75	Free	Free	Free	Free	Free	Free
4XY	XY-GenXY	-3.5	-15	75	Free	Free	Free	Free	Free	Free
4Y	Y-GenXY	-3.5	15	75	Free	Free	Free	Free	Free	Free

5X	X-GenXY	3.5	-15	70	Free	Free	Free	Free	Free	Free
5XY	XY-GenXY	-3.5	-15	70	Free	Free	Free	Free	Free	Free
5Y	Y-GenXY	-3.5	15	70	Free	Free	Free	Free	Free	Free
6X	X-GenXY	3.5	-15	65	Free	Free	Free	Free	Free	Free
6XY	XY-GenXY	-3.5	-15	65	Free	Free	Free	Free	Free	Free
6Y	Y-GenXY	-3.5	15	65	Free	Free	Free	Free	Free	Free
7X	X-GenXY	3.5	-15	60	Free	Free	Free	Free	Free	Free
7XY	XY-GenXY	-3.5	-15	60	Free	Free	Free	Free	Free	Free
7Y	Y-GenXY	-3.5	15	60	Free	Free	Free	Free	Free	Free
8X	X-GenXY	3.5	-15	55	Free	Free	Free	Free	Free	Free
8XY	XY-GenXY	-3.5	-15	55	Free	Free	Free	Free	Free	Free
8Y	Y-GenXY	-3.5	15	55	Free	Free	Free	Free	Free	Free
9X	X-GenXY	3.5	-15	50	Free	Free	Free	Free	Free	Free
9XY	XY-GenXY	-3.5	-15	50	Free	Free	Free	Free	Free	Free
9Y	Y-GenXY	-3.5	15	50	Free	Free	Free	Free	Free	Free
14X	X-GenXY	13.07	-19.07	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
14XY	XY-GenXY	-13.07	-19.07	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
14Y	Y-GenXY	-13.07	19.07	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
15X	X-GenXY	3.5	-22	80	Free	Free	Free	Free	Free	Free
15XY	XY-GenXY	-3.5	-22	80	Free	Free	Free	Free	Free	Free
15Y	Y-GenXY	-3.5	22	80	Free	Free	Free	Free	Free	Free
16X	X-GenXY	3.5	-22	65	Free	Free	Free	Free	Free	Free
16XY	XY-GenXY	-3.5	-22	65	Free	Free	Free	Free	Free	Free
16Y	Y-GenXY	-3.5	22	65	Free	Free	Free	Free	Free	Free
17X	X-GenXY	3.5	-22	50	Free	Free	Free	Free	Free	Free
17XY	XY-GenXY	-3.5	-22	50	Free	Free	Free	Free	Free	Free
17Y	Y-GenXY	-3.5	22	50	Free	Free	Free	Free	Free	Free
18Y	Y-Gen	-3.5	0	85	Free	Free	Free	Free	Free	Free
19X	X-GenXY	3.5	-6	85	Free	Free	Free	Free	Free	Free
19XY	XY-GenXY	-3.5	-6	85	Free	Free	Free	Free	Free	Free
19Y	Y-GenXY	-3.5	6	85	Free	Free	Free	Free	Free	Free
20X	X-GenXY	3.5	-10.5	85	Free	Free	Free	Free	Free	Free
20XY	XY-GenXY	-3.5	-10.5	85	Free	Free	Free	Free	Free	Free
20Y	Y-GenXY	-3.5	10.5	85	Free	Free	Free	Free	Free	Free
21Y	Y-Gen	-3.5	0	80	Free	Free	Free	Free	Free	Free
22X	X-GenXY	3.5	-6	80	Free	Free	Free	Free	Free	Free
22XY	XY-GenXY	-3.5	-6	80	Free	Free	Free	Free	Free	Free
22Y	Y-GenXY	-3.5	6	80	Free	Free	Free	Free	Free	Free
23X	X-GenXY	3.5	-10.5	80	Free	Free	Free	Free	Free	Free
23XY	XY-GenXY	-3.5	-10.5	80	Free	Free	Free	Free	Free	Free
23Y	Y-GenXY	-3.5	10.5	80	Free	Free	Free	Free	Free	Free
24Y	Y-Gen	-3.5	0	70	Free	Free	Free	Free	Free	Free
25X	X-GenXY	3.5	-6	70	Free	Free	Free	Free	Free	Free
25XY	XY-GenXY	-3.5	-6	70	Free	Free	Free	Free	Free	Free
25Y	Y-GenXY	-3.5	6	70	Free	Free	Free	Free	Free	Free
26X	X-GenXY	3.5	-10.5	70	Free	Free	Free	Free	Free	Free
26XY	XY-GenXY	-3.5	-10.5	70	Free	Free	Free	Free	Free	Free
26Y	Y-GenXY	-3.5	10.5	70	Free	Free	Free	Free	Free	Free
27Y	Y-Gen	-3.5	0	65	Free	Free	Free	Free	Free	Free
28X	X-GenXY	3.5	-6	65	Free	Free	Free	Free	Free	Free
28XY	XY-GenXY	-3.5	-6	65	Free	Free	Free	Free	Free	Free
28Y	Y-GenXY	-3.5	6	65	Free	Free	Free	Free	Free	Free
29X	X-GenXY	3.5	-10.5	65	Free	Free	Free	Free	Free	Free
29XY	XY-GenXY	-3.5	-10.5	65	Free	Free	Free	Free	Free	Free
29Y	Y-GenXY	-3.5	10.5	65	Free	Free	Free	Free	Free	Free
30Y	Y-Gen	-3.5	0	55	Free	Free	Free	Free	Free	Free
31X	X-GenXY	3.5	-6	55	Free	Free	Free	Free	Free	Free
31XY	XY-GenXY	-3.5	-6	55	Free	Free	Free	Free	Free	Free
31Y	Y-GenXY	-3.5	6	55	Free	Free	Free	Free	Free	Free

32X	X-GenXY	3.5	-10.5	55	Free	Free	Free	Free	Free	Free
32XY	XY-GenXY	-3.5	-10.5	55	Free	Free	Free	Free	Free	Free
32Y	Y-GenXY	-3.5	10.5	55	Free	Free	Free	Free	Free	Free
33Y	Y-Gen	-3.5	0	50	Free	Free	Free	Free	Free	Free
34X	X-GenXY	3.5	-6	50	Free	Free	Free	Free	Free	Free
34XY	XY-GenXY	-3.5	-6	50	Free	Free	Free	Free	Free	Free
34Y	Y-GenXY	-3.5	6	50	Free	Free	Free	Free	Free	Free
35X	X-GenXY	3.5	-10.5	50	Free	Free	Free	Free	Free	Free
35XY	XY-GenXY	-3.5	-10.5	50	Free	Free	Free	Free	Free	Free
35Y	Y-GenXY	-3.5	10.5	50	Free	Free	Free	Free	Free	Free
36Y	Y-Gen	-5.375	0	40	Free	Free	Free	Free	Free	Free
37X	X-GenXY	5.375	-5.25	40	Free	Free	Free	Free	Free	Free
37XY	XY-GenXY	-5.375	-5.25	40	Free	Free	Free	Free	Free	Free
37Y	Y-GenXY	-5.375	5.25	40	Free	Free	Free	Free	Free	Free
38X	X-GenXY	5.375	-10.5	40	Free	Free	Free	Free	Free	Free
38XY	XY-GenXY	-5.375	-10.5	40	Free	Free	Free	Free	Free	Free
38Y	Y-GenXY	-5.375	10.5	40	Free	Free	Free	Free	Free	Free
39Y	Y-Gen	-6.333	0	35	Free	Free	Free	Free	Free	Free
40X	X-GenXY	6.333	-5.25	35	Free	Free	Free	Free	Free	Free
40XY	XY-GenXY	-6.333	-5.25	35	Free	Free	Free	Free	Free	Free
40Y	Y-GenXY	-6.333	5.25	35	Free	Free	Free	Free	Free	Free
41X	X-GenXY	6.333	-10.5	35	Free	Free	Free	Free	Free	Free
41XY	XY-GenXY	-6.333	-10.5	35	Free	Free	Free	Free	Free	Free
41Y	Y-GenXY	-6.333	10.5	35	Free	Free	Free	Free	Free	Free
44X	X-Gen	0	-17.01	17.75	Free	Free	Free	Free	Free	Free
45X	X-Gen	0	-10.5	40	Free	Free	Free	Free	Free	Free
10X	X-GenXY	4.457	-15	45	Free	Free	Free	Free	Free	Free
10XY	XY-GenXY	-4.457	-15	45	Free	Free	Free	Free	Free	Free
10Y	Y-GenXY	-4.457	15	45	Free	Free	Free	Free	Free	Free
11X	X-GenXY	5.415	-15	40	Free	Free	Free	Free	Free	Free
11XY	XY-GenXY	-5.415	-15	40	Free	Free	Free	Free	Free	Free
11Y	Y-GenXY	-5.415	15	40	Free	Free	Free	Free	Free	Free
12X	X-GenXY	6.372	-15	35	Free	Free	Free	Free	Free	Free
12XY	XY-GenXY	-6.372	-15	35	Free	Free	Free	Free	Free	Free
12Y	Y-GenXY	-6.372	15	35	Free	Free	Free	Free	Free	Free

Secondary Joints:

Joint Label	Symmetry Code	Origin Joint	End Joint	Fraction	Elevation X (ft)	Disp. Y Rest.	Disp. Z Rest.	Disp. X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.
13S	XY-Symmetry	12P	14P	0	23.67	Free	Free	Free	Free	Free	Free
42S	Y-Symmetry	13X	13S	0.5	0	Free	Free	Free	Free	Free	Free
43S	X-Symmetry	11P	11Y	0.5	0	Free	Free	Free	Free	Free	Free
46S	None	13X	42Y	0.5	0	Free	Free	Free	Free	Free	Free
47S	None	13S	42Y	0.5	0	Free	Free	Free	Free	Free	Free
13X	X-GenXY	12P	14P	0	23.67	Free	Free	Free	Free	Free	Free
13XY	XY-GenXY	12P	14P	0	23.67	Free	Free	Free	Free	Free	Free
13Y	Y-GenXY	12P	14P	0	23.67	Free	Free	Free	Free	Free	Free
42Y	Y-Gen	13X	13S	0.5	0	Free	Free	Free	Free	Free	Free
43X	X-Gen	11P	11Y	0.5	0	Free	Free	Free	Free	Free	Free

The model contains 146 primary and 10 secondary joints for a total of 156 joints.

Steel Material Properties:

Steel Material	Modulus of	Yield Stress	Ultimate Stress	All.	Member Stress	All.	Member Stress	Member Rupture	Member Rupture	Member Bearing	Member Bearing

Label	Elasticity (ksi)	Fy (ksi)	Fu (ksi)	Hyp. 1 (ksi)	Hyp. 2 (ksi)	Hyp. 1 (ksi)	Hyp. 2 (ksi)	Hyp. 1 (ksi)	Hyp. 2 (ksi)
A7	2.9e+004	33	60	0	0	0	0	0	0

Bolt Properties:

Bolt Label	Bolt Diameter (in)	Hole Diameter (in)	Ultimate Shear Capacity (kips)	Default End Distance (in)	Default Bolt Spacing (in)	Shear Capacity Hyp. 1 (kips)	Shear Capacity Hyp. 2 (kips)
3/4 A394	0.75	0.875	13.6	1.35	1.8	0	0

Number Bolts Used By Type:

Bolt Type	Number Bolts
3/4 A394	1561

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	8X8X0.5	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	4X4X0.375	4	4	0.375	9.8	2.86	8.67	1.23	1.23	0.788	1	4	2	0	1.0000	0
SAE	4X4X0.3125	4	4	0.3125	8.2	2.4	10.6	1.24	1.24	0.791	1	4	2	0	1.0000	0
SAE	4X4X0.25	4	4	0.25	6.6	1.94	13.5	1.25	1.25	0.795	1	4	2	0	1.0000	0
SAE	3.5X3.5X0.3125	3.5	3.5	0.3125	7.2	2.09	9	1.08	1.08	0.69	1	3.5	1.75	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	3X3X0.3125	3	3	0.3125	6.1	1.78	7.6	0.922	0.922	0.589	1	3	1.5	0	1.0000	0
SAE	3X3X0.25	3	3	0.25	4.9	1.44	9.75	0.93	0.93	0.592	1	3	1.5	0	1.0000	0
SAE	3X3X0.1875	3	3	0.1875	3.71	1.09	13.33	0.939	0.939	0.596	1	3	1.5	0	1.0000	0
SAE	2.5X2.5X0.25	2.5	2.5	0.25	4.1	1.19	7.75	0.769	0.769	0.491	1	2.5	1.25	0	1.0000	0
SAE	2.5X2.5X0.1875	2.5	2.5	0.1875	3.07	0.902	10.67	0.778	0.778	0.495	1	2.5	1.25	0	1.0000	0
SAE	2X2X0.25	2	2	0.25	3.19	0.94	5	0.609	0.609	0.391	1	2	1	0	1.0000	0
SAE	2X2X0.1875	2	2	0.1875	2.44	0.71	8	0.617	0.617	0.394	1	2	1	0	1.0000	0
SAU	7X4X0.4375	7	4	0.4375	15.8	4.62	13.86	2.26	1.12	0.876	1	7	2	0	1.0000	0
SAU	4X3.5X0.25	4	3.5	0.25	6.2	1.81	13.25	1.27	1.07	0.734	1	4	1.75	0	1.0000	0
SAU	3.5X3X0.25	3.5	3	0.25	5.4	1.56	11.25	1.11	0.914	0.631	1	3.5	1.5	0	1.0000	0
SAU	3.5X2.5X0.25	3.5	2.5	0.25	4.9	1.44	11.25	1.12	0.735	0.544	1	3.5	1.25	0	1.0000	0
SAU	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
SAU	3X2X0.25	3	2	0.25	4.1	1.19	9.75	0.957	0.574	0.435	1	3	1	0	1.0000	0
SAU	2.5X2X0.1875	2.5	2	0.1875	2.75	0.81	10.67	0.793	0.6	0.427	1	2.5	1	0	1.0000	0
SAU	2.5X1.5X0.25	2.5	1.5	0.25	3.19	0.94	7.75	0.794	0.415	0.324	1	2.5	0.75	0	1.0000	0
DAS	4X3X0.4375	4	3	0.4375	19.6	5.74	7.14	0.871	1.95	0.871	2	4	1.5	0	1.0000	0
DAS	3.5X3X0.25	3.5	3	0.25	10.8	3.13	11.25	0.914	1.65	0.914	2	3.5	1.5	0	1.0000	0
BAR	2 x 0.1875	2	0.1875	0.1875	1.28	0.375	0	0.577	0.054	0.054	1	2	0	0	1.0000	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)
PeakPost	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A7	Truss		Other	None	0.000
Leg1	L5x5x3/8	SAE	5X5X0.375	A7	Beam		Leg	None	0.000
Leg2	L8x8x1/2	SAE	8X8X0.5	A7	Beam		Leg	None	0.000
Leg3	L8x8x1/2	SAE	8X8X0.5	A7	Beam		Leg	None	0.000
Leg4	L8x8x1/2	SAE	8X8X0.5	A7	Beam		Leg	None	0.000
Leg5	L8x8x1/2	SAE	8X8X0.5	A7	Beam		Leg	None	0.000
TTTC	L3x3x1/4	SAE	3X3X0.25	A7	Beam		Other	None	0.000
TTBC	L3x3x1/4	SAE	3X3X0.25	A7	Beam		Other	None	0.000
ARMTT	L4x4x1/4	SAE	4X4X0.25	A7	Beam		Other	None	0.000
MTTC	L4x4x1/4	SAE	4X4X0.25	A7	Beam		Other	None	0.000
MTBC	L4x4x1/4	SAE	4X4X0.25	A7	Beam		Other	None	0.000
ARMMT	L4x4x1/4	SAE	4X4X0.25	A7	Beam		Other	None	0.000
BTTC	L4x4x5/16	SAE	4X4X0.3125	A7	Beam		Other	None	0.000
BTBC	L4x4x5/16	SAE	4X4X0.3125	A7	Beam		Other	None	0.000
ARMBT	L4x4x1/4	SAE	4X4X0.25	A7	Beam		Other	None	0.000
BTC	8x8x1/2	SAE	8X8X0.5	A7	Beam		Other	None	0.000
BBC	6x6x1/2	SAE	6X6X0.5	A7	Beam		Other	None	0.000
Diag1	L2x2x3/16	SAE	2X2X0.1875	A7	Truss	Crossing	Diagonal	None	0.000
Diag2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	A7	Truss	Crossing	Diagonal	None	0.000
Diag3	L3x3x5/16	SAE	3X3X0.3125	A7	Truss	Crossing	Diagonal	None	0.000
Diag4	L3x3x3/16	SAE	3X3X0.1875	A7	Truss		Other	None	0.000
Diag5	L2.5x2x3/16	SAU	2.5X2X0.1875	A7	T-Only		Other	None	0.000
Diag6	L3x2x1/4	SAU	3X2X0.25	A7	Truss		Other	None	0.000
Diag7	L4x4x1/4	SAE	4X4X0.25	A7	Truss		Other	None	0.000
Diag8	L4x4x3/8	SAE	4X4X0.375	A7	Truss		Other	None	0.000
Diag9	L3.5x3x1/4	DAS	3.5X3X0.25	A7	Truss		Other	None	0.000
Diag10	L4x3x7/16	DAS	4X3X0.4375	A7	Truss		Other	None	0.000
Diag11	L3x3x5/16	SAE	3X3X0.3125	A7	Truss		Other	None	0.000
Diag12	L3x3x3/16	SAE	3X3X0.1875	A7	Truss		Other	None	0.000
Horz1	L3x3x3/16	SAE	3X3X0.1875	A7	Beam		Other	None	0.000
Horz2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	A7	Beam		Other	None	0.000
Br1	L2x2x3/16	SAE	2X2X0.1875	A7	Truss		Redundant	None	0.000
Br2	L3x3x3/16	SAE	3X3X0.1875	A7	Truss		Other	None	0.000
ArmBr1	Bar 2x3/16	BAR	2 x 0.1875	A7	T-Only		Other	None	0.000
ArmBr2	ArmBr2	SAE	2X2X0.25	A7	Truss		Other	None	0.000
ArmBr3	ArmBr3	SAU	3.5X2.5X0.25	A7	Truss		Other	None	0.000
TTBr1	L2x2x3/16	SAE	2X2X0.1875	A7	Truss		Other	None	0.000
TTBr2	L3x3x3/16	SAE	3X3X0.1875	A7	Truss		Other	None	0.000
TTBr3	L3x3x5/16	SAE	3X3X0.3125	A7	Truss		Other	None	0.000
MTBr1	L2x2x3/16	SAE	2X2X0.1875	A7	Truss		Other	None	0.000
MTBr2	L3x2.5x1/4	SAU	3X2.5X0.25	A7	Truss		Other	None	0.000
MTBr3	L4x3.5x1/4	SAU	4X3.5X0.25	A7	Truss		Other	None	0.000
MTBr4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	A7	Truss		Other	None	0.000
MTBr5	L4x4x1/4	SAE	4X4X0.25	A7	Truss		Other	None	0.000
BTBr1	L2x2x3/16	SAE	2X2X0.1875	A7	Truss		Other	None	0.000
BTBr2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	A7	Truss		Other	None	0.000
BTBr3	L4x4x5/16	SAE	4X4X0.3125	A7	Truss		Other	None	0.000
BTBr4	L4x4x1/4	SAE	4X4X0.25	A7	Truss		Other	None	0.000
BTBr5	L4x4x3/8	SAE	4X4X0.375	A7	Truss		Other	None	0.000
TBC1	L2x2x3/16	SAE	2X2X0.1875	A7	Truss		Other	None	0.000
TBC2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	A7	Truss		Other	None	0.000
TBC3	L2x2x1/4	SAE	2X2X0.25	A7	Truss		Other	None	0.000
TBC4	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A7	Truss		Other	None	0.000
TTC1	L2x2x3/16	SAE	2X2X0.1875	A7	Truss		Other	None	0.000
TTC2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A7	Truss		Other	None	0.000
Horz3	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A7	Beam		Other	None	0.000

Horz4	L2x2x3/16	SAE	2X2X0.1875	A7	Beam	Other	None	0.000
Horz5	L3.5x3.5x5/16	SAE	3.5X3.5X0.3125	A7	Beam	Other	None	0.000
Horz6	L3.5x3x1/4	SAU	3.5X3X0.25	A7	Beam	Other	None	0.000
BBr1	L2x2x3/16	SAE	2X2X0.1875	A7	Truss	Other	None	0.000
BBr2	L4x4x3/8	SAE	4X4X0.375	A7	Truss	Other	None	0.000
BBr3	L4x4x5/16	SAE	4X4X0.3125	A7	Truss	Other	None	0.000
BBr4	L7x4x7/16	SAU	7X4X0.4375	A7	Truss	Other	None	0.000
BTC1	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	A7	Truss	Other	None	0.000
BTC2	L2x2x3/16	SAE	2X2X0.1875	A7	Truss	Other	None	0.000
BTC3	L3x2.5x1/4	SAU	3X2.5X0.25	A7	Truss	Other	None	0.000
BTC4	L2.5x1.5x1/4	SAU	2.5X1.5X0.25	A7	Truss	Other	None	0.000
BTC5	L2x2x1/4	SAE	2X2X0.25	A7	Truss	Other	None	0.000
BBC1	L3x3x3/16	SAE	3X3X0.1875	A7	Truss	Other	None	0.000
BBC2	L2x2x3/16	SAE	2X2X0.1875	A7	Truss	Other	None	0.000
BBC3	L3x3x1/4	SAE	3X3X0.25	A7	Truss	Other	None	0.000

Aggregate Angle Information:

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

Angle Type	Angle Size	Material Type	Total Length (ft)	Total Surface Area (ft^2)	Total Weight (lbs)
SAE	2.5X2.5X0.1875	A7	319.10	265.91	979.62
SAE	5X5X0.375	A7	80.00	133.33	984.00
SAE	8X8X0.5	A7	324.56	865.50	8568.42
SAE	2X2X0.1875	A7	760.75	507.17	1856.23
SAE	2.5X2.5X0.25	A7	182.82	152.35	749.55
SAE	3X3X0.3125	A7	183.95	183.95	1122.09
SAE	3X3X0.1875	A7	300.93	300.93	1116.44
SAU	2.5X2X0.1875	A7	75.10	56.33	206.53
SAU	3X2X0.25	A7	41.66	34.72	170.81
SAE	4X4X0.25	A7	311.63	415.51	2056.75
SAE	4X4X0.375	A7	139.75	186.33	1369.51
DAS	3.5X3X0.25	A7	75.69	82.00	817.47
DAS	4X3X0.4375	A7	122.94	143.43	2409.55
SAE	3X3X0.25	A7	145.33	145.33	712.13
SAE	4X4X0.3125	A7	171.60	228.81	1407.16
SAE	6X6X0.5	A7	60.00	120.00	1176.01
SAE	3.5X3.5X0.25	A7	91.82	107.13	532.57
BAR	2 x 0.1875	A7	103.23	37.64	132.13
SAE	2X2X0.25	A7	327.51	218.34	1044.77
SAU	3.5X2.5X0.25	A7	42.00	42.00	205.80
SAU	4X3.5X0.25	A7	31.24	39.05	193.69
SAU	3X2.5X0.25	A7	41.50	38.04	186.75
SAE	3.5X3.5X0.3125	A7	14.00	16.33	100.80
SAU	3.5X3X0.25	A7	47.15	51.08	254.60
SAU	7X4X0.4375	A7	54.36	99.66	858.85
SAU	2.5X1.5X0.25	A7	56.20	37.47	179.29

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

Section Label	Joint Defining Section	Dead Load Adjust.	Transverse Drag x Area Factor	Longitudinal Drag x Area Factor	Transverse Area Factor (CD From	Longitudinal Area Factor (CD From	Af Flat For Face	Ar Round For Face	Transverse Drag x Area Factor	Longitudinal Drag x Area Factor	SAPS Angle Drag x Area Factor	SAPS Round Force Drag x Area Factor	Solid Face

	Bottom	Factor	For Face	For Face	Code)	Code)	EIA Only	EIA Only	For All	For All			
1	9P	1.050	3.200	3.200	1.050	1.000	0.000	0.000	0.000	0.000	0.000	0.000	None
2	14P	1.050	3.200	3.200	1.050	1.000	0.000	0.000	0.000	0.000	0.000	0.000	None

Angle Member Connectivity:

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ	Bolt Type	# Bolts	# Bolt Holes	# Shear Planes	Connect Leg	Short Edge Dist. (in)	Long Edge Dist. (in)	End Dist. (in)	Bolt Spacing (in)	Shear Path Coef.	Tension Path Length (in)	Rest. Length (in)
1P	PeakPost		XY-Symmetry	1P	2P	3	5	0.5	0.5	0.5	3/4 A394	2	1	1	Long only	0.875	0	2.25	2	0	0	0
1X	PeakPost		X-GenXY	1X	2X	3	5	0.5	0.5	0.5	3/4 A394	2	1	1	Long only	0.875	0	2.25	2	0	0	0
1XY	PeakPost		XY-GenXY	1X	2XY	3	5	0.5	0.5	0.5	3/4 A394	2	1	1	Long only	0.875	0	2.25	2	0	0	0
1Y	PeakPost		Y-GenXY	1P	2Y	3	5	0.5	0.5	0.5	3/4 A394	2	1	1	Long only	0.875	0	2.25	2	0	0	0
2P	Leg1		XY-Symmetry	2P	3P	1	6	1	1	1	3/4 A394	0	4	0		0	0	0	0	0	0	0
2X	Leg1		X-GenXY	2X	3X	1	6	1	1	1	3/4 A394	0	4	0		0	0	0	0	0	0	0
2XY	Leg1		XY-GenXY	2XY	3XY	1	6	1	1	1	3/4 A394	0	4	0		0	0	0	0	0	0	0
2Y	Leg1		Y-GenXY	2Y	3Y	1	6	1	1	1	3/4 A394	0	4	0		0	0	0	0	0	0	0
3P	Leg1		XY-Symmetry	3P	4P	1	6	1	1	1	3/4 A394	0	3.36	0		0	0	0	0	0	0	0
3X	Leg1		X-GenXY	3X	4X	1	6	1	1	1	3/4 A394	0	3.36	0		0	0	0	0	0	0	0
3XY	Leg1		XY-GenXY	3XY	4XY	1	6	1	1	1	3/4 A394	0	3.36	0		0	0	0	0	0	0	0
3Y	Leg1		Y-GenXY	3Y	4Y	1	6	1	1	1	3/4 A394	0	3.36	0		0	0	0	0	0	0	0
4P	Leg1		XY-Symmetry	4P	5P	1	6	1	1	1	3/4 A394	0	3.36	0		0	0	0	0	0	0	0
4X	Leg1		X-GenXY	4X	5X	1	6	1	1	1	3/4 A394	0	3.36	0		0	0	0	0	0	0	0
4XY	Leg1		XY-GenXY	4XY	5XY	1	6	1	1	1	3/4 A394	0	3.36	0		0	0	0	0	0	0	0
4Y	Leg1		Y-GenXY	4Y	5Y	1	6	1	1	1	3/4 A394	0	3.36	0		0	0	0	0	0	0	0
5P	Leg1		XY-Symmetry	5P	6P	1	6	1	1	1	3/4 A394	10	4	1	Both	1	3	1.25	5.5	0	0	0
5X	Leg1		X-GenXY	5X	6X	1	6	1	1	1	3/4 A394	10	4	1	Both	1	3	1.25	5.5	0	0	0
5XY	Leg1		XY-GenXY	5XY	6XY	1	6	1	1	1	3/4 A394	10	4	1	Both	1	3	1.25	5.5	0	0	0
5Y	Leg1		Y-GenXY	5Y	6Y	1	6	1	1	1	3/4 A394	10	4	1	Both	1	3	1.25	5.5	0	0	0
6P	Leg2		XY-Symmetry	6P	7P	1	6	1	1	1	3/4 A394	0	3.14	0		0	0	0	0	0	0	0

6X	Leg2	X-GenXY	6X	7X	1	6	1	1	1 3/4	A394	0	3.14	0		0	0	0	0	0	0	0	
6XY	Leg2	XY-GenXY	6XY	7XY	1	6	1	1	1 3/4	A394	0	3.14	0		0	0	0	0	0	0	0	
6Y	Leg2	Y-GenXY	6Y	7Y	1	6	1	1	1 3/4	A394	0	3.14	0		0	0	0	0	0	0	0	
7P	Leg2	XY-Symmetry	7P	8P	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
7X	Leg2	X-GenXY	7X	8X	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
7XY	Leg2	XY-GenXY	7XY	8XY	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
7Y	Leg2	Y-GenXY	7Y	8Y	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
8P	Leg2	XY-Symmetry	8P	9P	1	6	1	1	1 3/4	A394	10	4	1	Both	1.25	5.25	1.25	7.5	0	0	0	
8X	Leg2	X-GenXY	8X	9X	1	6	1	1	1 3/4	A394	10	4	1	Both	1.25	5.25	1.25	7.5	0	0	0	
8XY	Leg2	XY-GenXY	8XY	9XY	1	6	1	1	1 3/4	A394	10	4	1	Both	1.25	5.25	1.25	7.5	0	0	0	
8Y	Leg2	Y-GenXY	8Y	9Y	1	6	1	1	1 3/4	A394	10	4	1	Both	1.25	5.25	1.25	7.5	0	0	0	
9P	Leg3	XY-Symmetry	9P	10P	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
9X	Leg3	X-GenXY	9X	10X	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
9XY	Leg3	XY-GenXY	9XY	10XY	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
9Y	Leg3	Y-GenXY	9Y	10Y	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
10P	Leg3	XY-Symmetry	10P	11P	1	6	1	1	1 3/4	A394	28	4	1	Both	1.25	5.25	1.25	3.75	0	0	0	
10X	Leg3	X-GenXY	10X	11X	1	6	1	1	1 3/4	A394	28	4	1	Both	1.25	5.25	1.25	3.75	0	0	0	
10XY	Leg3	XY-GenXY	10XY	11XY	1	6	1	1	1 3/4	A394	28	4	1	Both	1.25	5.25	1.25	3.75	0	0	0	
10Y	Leg3	Y-GenXY	10Y	11Y	1	6	1	1	1 3/4	A394	28	4	1	Both	1.25	5.25	1.25	3.75	0	0	0	
11P	Leg4	XY-Symmetry	11P	12P	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
11X	Leg4	X-GenXY	11X	12X	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
11XY	Leg4	XY-GenXY	11XY	12XY	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
11Y	Leg4	Y-GenXY	11Y	12Y	1	6	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0	
12P	Leg4	XY-Symmetry	12P	13S	1	6	0.5	0.5	0.5 3/4	A394	28	4	1	Both	1.25	5.25	1.25	3.75	0	0	0	
12X	Leg4	X-GenXY	12X	13X	1	6	0.5	0.5	0.5 3/4	A394	28	4	1	Both	1.25	5.25	1.25	3.75	0	0	0	
12XY	Leg4	XY-GenXY	12XY	13XY	1	6	0.5	0.5	0.5 3/4	A394	28	4	1	Both	1.25	5.25	1.25	3.75	0	0	0	
12Y	Leg4	Y-GenXY	12Y	13Y	1	6	0.5	0.5	0.5 3/4	A394	28	4	1	Both	1.25	5.25	1.25	3.75	0	0	0	
13P	Leg5	XY-Symmetry	13S	14P	1	6	0.25	0.25	0.25 3/4	A394	28	4	1	Both	1.25	5.25	1.25	2.25	0	0	0	
13X	Leg5	X-GenXY	13X	14X	1	6	0.25	0.25	0.25 3/4	A394	28	4	1	Both	1.25	5.25	1.25	2.25	0	0	0	
13XY	Leg5	XY-GenXY	13XY	14XY	1	6	0.25	0.25	0.25 3/4	A394	28	4	1	Both	1.25	5.25	1.25	2.25				

0	0	0																		
	13Y	Leg5	Y-GenXY	13Y	14Y	1	6	0.25	0.25	0.25	3/4	A394	28	4	1	Both	1.25	5.25	1.25	2.25
0	0	0																		
	14P	PeakPost	XY-Symmetry	1P	20P	3	5	0.5	0.5	0.5	3/4	A394	2	1	1	Long only	0.875	0	2.25	2
0	0	0																		
	14X	PeakPost	X-GenXY	1X	20X	3	5	0.5	0.5	0.5	3/4	A394	2	1	1	Long only	0.875	0	2.25	2
0	0	0																		
	14XY	PeakPost	XY-GenXY	1X	20XY	3	5	0.5	0.5	0.5	3/4	A394	2	1	1	Long only	0.875	0	2.25	2
0	0	0																		
	14Y	PeakPost	Y-GenXY	1P	20Y	3	5	0.5	0.5	0.5	3/4	A394	2	1	1	Long only	0.875	0	2.25	2
0	0	0																		
	15P	Diag1	XY-Symmetry	2P	3Y	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.375
0	0	0																		
	15X	Diag1	X-GenXY	2X	3XY	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.375
0	0	0																		
	15XY	Diag1	XY-GenXY	2XY	3X	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.375
0	0	0																		
	15Y	Diag1	Y-GenXY	2Y	3P	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.375
0	0	0																		
	16P	Diag2	XY-Symmetry	3P	4Y	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.4375
0	0	0																		
	16X	Diag2	X-GenXY	3X	4XY	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.4375
0	0	0																		
	16XY	Diag2	XY-GenXY	3XY	4X	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.4375
0	0	0																		
	16Y	Diag2	Y-GenXY	3Y	4P	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.4375
0	0	0																		
	17P	Diag2	XY-Symmetry	4P	5Y	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.5
0	0	0																		
	17X	Diag2	X-GenXY	4X	5XY	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.5
0	0	0																		
	17XY	Diag2	XY-GenXY	4XY	5X	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.5
0	0	0																		
	17Y	Diag2	Y-GenXY	4Y	5P	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.5
0	0	0																		
	18P	Diag2	XY-Symmetry	5P	6Y	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.375
0	0	0																		
	18X	Diag2	X-GenXY	5X	6XY	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.375
0	0	0																		
	18XY	Diag2	XY-GenXY	5XY	6X	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.375
0	0	0																		
	18Y	Diag2	Y-GenXY	5Y	6P	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	1.25	0	1.3125	2.375
0	0	0																		
	19P	Diag3	XY-Symmetry	6P	7Y	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5
0	0	0																		
	19X	Diag3	X-GenXY	6X	7XY	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5
0	0	0																		
	19XY	Diag3	XY-GenXY	6XY	7X	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5
0	0	0																		
	19Y	Diag3	Y-GenXY	6Y	7P	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5
0	0	0																		
	20P	Diag3	XY-Symmetry	7P	8Y	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5
0	0	0																		
	20X	Diag3	X-GenXY	7X	8XY	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5
0	0	0																		
	20XY	Diag3	XY-GenXY	7XY	8X	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5
0	0	0																		
	20Y	Diag3	Y-GenXY	7Y	8P	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5
0	0	0																		

21P	Diag3	XY-Symmetry	8P	9Y	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short	only	1.5	0	1.3125	2.375	0	0	0
21X	Diag3	X-GenXY	8X	9XY	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short	only	1.5	0	1.3125	2.375	0	0	0
21XY	Diag3	XY-GenXY	8XY	9X	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short	only	1.5	0	1.3125	2.375	0	0	0
21Y	Diag3	Y-GenXY	8Y	9P	2	5	0.75	0.5	0.5	3/4	A394	3	1	1	Short	only	1.5	0	1.3125	2.375	0	0	0
22P	Diag2	XY-Symmetry	9P	10Y	2	5	0.78	0.56	0.56	3/4	A394	2	1	1	Short	only	1.375	0	1.3125	2.75	0	0	0
22X	Diag2	X-GenXY	9X	10XY	2	5	0.78	0.56	0.56	3/4	A394	2	1	1	Short	only	1.375	0	1.3125	2.75	0	0	0
22XY	Diag2	XY-GenXY	9XY	10X	2	5	0.78	0.56	0.56	3/4	A394	2	1	1	Short	only	1.375	0	1.3125	2.75	0	0	0
22Y	Diag2	Y-GenXY	9Y	10P	2	5	0.78	0.56	0.56	3/4	A394	2	1	1	Short	only	1.375	0	1.3125	2.75	0	0	0
23P	Diag4	XY-Symmetry	10Y	43S	2	5	1	1	1	3/4	A394	2	1	1	Short	only	1.5	0	1.25	2	0	0	0
23X	Diag4	X-GenXY	10XY	43X	2	5	1	1	1	3/4	A394	2	1	1	Short	only	1.5	0	1.25	2	0	0	0
23XY	Diag4	XY-GenXY	10X	43X	2	5	1	1	1	3/4	A394	2	1	1	Short	only	1.5	0	1.25	2	0	0	0
23Y	Diag4	Y-GenXY	10P	43S	2	5	1	1	1	3/4	A394	2	1	1	Short	only	1.5	0	1.25	2	0	0	0
24P	Diag4	XY-Symmetry	12Y	43S	2	5	1	1	1	3/4	A394	2	1	1	Short	only	1.5	0	1.3125	3	0	0	0
24X	Diag4	X-GenXY	12XY	43X	2	5	1	1	1	3/4	A394	2	1	1	Short	only	1.5	0	1.3125	3	0	0	0
24XY	Diag4	XY-GenXY	12X	43X	2	5	1	1	1	3/4	A394	2	1	1	Short	only	1.5	0	1.3125	3	0	0	0
24Y	Diag4	Y-GenXY	12P	43S	2	5	1	1	1	3/4	A394	2	1	1	Short	only	1.5	0	1.3125	3	0	0	0
25P	Diag5	XY-Symmetry	13S	12Y	2	5	0.57	0.78	0.57	3/4	A394	2	1	1	Long	only	1.25	0	1.3125	2.9375	0	0	0
25X	Diag5	X-GenXY	13X	12XY	2	5	0.57	0.78	0.57	3/4	A394	2	1	1	Long	only	1.25	0	1.3125	2.9375	0	0	0
25XY	Diag5	XY-GenXY	13XY	12X	2	5	0.57	0.78	0.57	3/4	A394	2	1	1	Long	only	1.25	0	1.3125	2.9375	0	0	0
25Y	Diag5	Y-GenXY	13Y	12P	2	5	0.57	0.78	0.57	3/4	A394	2	1	1	Long	only	1.25	0	1.3125	2.9375	0	0	0
26P	Diag6	XY-Symmetry	13S	44P	2	5	1	1	1	3/4	A394	3	1	1	Long	only	1.5	0	1.25	2	0	0	0
26X	Diag6	X-GenXY	13X	44X	2	5	1	1	1	3/4	A394	3	1	1	Long	only	1.5	0	1.25	2	0	0	0
26XY	Diag6	XY-GenXY	13XY	44X	2	5	1	1	1	3/4	A394	3	1	1	Long	only	1.5	0	1.25	2	0	0	0
26Y	Diag6	Y-GenXY	13Y	44P	2	5	1	1	1	3/4	A394	3	1	1	Long	only	1.5	0	1.25	2	0	0	0
27P	Diag12	XY-Symmetry	14P	44P	2	5	1	0.333	0.333	3/4	A394	3	1	1	Short	only	1.625	0	1.25	3.8125	0	0	0
27X	Diag12	X-GenXY	14X	44X	2	5	1	0.333	0.333	3/4	A394	3	1	1	Short	only	1.625	0	1.25	3.8125	0	0	0
27XY	Diag12	XY-GenXY	14XY	44X	2	5	1	0.333	0.333	3/4	A394	3	1	1	Short	only	1.625	0	1.25	3.8125	0	0	0
27Y	Diag12	Y-GenXY	14Y	44P	2	5	1	0.333	0.333	3/4	A394	3	1	1	Short	only	1.625	0	1.25	3.8125	0	0	0
28P	Diag11	XY-Symmetry	23P	4P	2	5	1	1	1	3/4	A394	3	1	1	Short	only	1.625	0	1.25	2	0	0	0
28X	Diag11	X-GenXY	23X	4X	2	5	1	1	1	3/4	A394	3	1	1	Short	only	1.625	0	1.25	2			

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0       0     0
   28XY   Diag11            XY-GenXY   23XY   4XY    2     5     1     1     1 3/4 A394     3      1       1 Short only 1.625     0    1.25       2
0       0     0
    28Y   Diag11             Y-GenXY    23Y    4Y    2     5     1     1     1 3/4 A394     3      1       1 Short only 1.625     0    1.25       2
0       0     0
    29P   Diag11          XY-Symmetry     4P   26P    2     5     1     1     1 3/4 A394     3      1       1  Long only 1.625     0    1.25       2
0       0     0
    29X   Diag11             X-GenXY     4X   26X    2     5     1     1     1 3/4 A394     3      1       1  Long only 1.625     0    1.25       2
0       0     0
   29XY   Diag11            XY-GenXY    4XY  26XY    2     5     1     1     1 3/4 A394     3      1       1  Long only 1.625     0    1.25       2
0       0     0
    29Y   Diag11             Y-GenXY     4Y   26Y    2     5     1     1     1 3/4 A394     3      1       1  Long only 1.625     0    1.25       2
0       0     0
    30P    Diag7          XY-Symmetry    29P    7P    2     5     1     1     1 3/4 A394     4   1.65       1  Long only     1   2.5    1.25   2.625
0       0     0
    30X    Diag7             X-GenXY    29X    7X    2     5     1     1     1 3/4 A394     4   1.65       1  Long only     1   2.5    1.25   2.625
0       0     0
   30XY    Diag7            XY-GenXY   29XY   7XY    2     5     1     1     1 3/4 A394     4   1.65       1  Long only     1   2.5    1.25   2.625
0       0     0
    30Y    Diag7             Y-GenXY    29Y    7Y    2     5     1     1     1 3/4 A394     4   1.65       1  Long only     1   2.5    1.25   2.625
0       0     0
    31P    Diag7          XY-Symmetry     7P   32P    2     5     1     1     1 3/4 A394     4   1.68       1  Long only     1   2.5    1.25    2.5
0       0     0
    31X    Diag7             X-GenXY     7X   32X    2     5     1     1     1 3/4 A394     4   1.68       1  Long only     1   2.5    1.25    2.5
0       0     0
   31XY    Diag7            XY-GenXY    7XY  32XY    2     5     1     1     1 3/4 A394     4   1.68       1  Long only     1   2.5    1.25    2.5
0       0     0
    31Y    Diag7             Y-GenXY     7Y   32Y    2     5     1     1     1 3/4 A394     4   1.68       1  Long only     1   2.5    1.25    2.5
0       0     0
    32P    Diag8          XY-Symmetry    35P   10P    2     5     1     1     1 3/4 A394     5   1.65       1  Long only     1   2.5    1.25   2.625
0       0     0
    32X    Diag8             X-GenXY    35X   10X    2     5     1     1     1 3/4 A394     5   1.65       1  Long only     1   2.5    1.25   2.625
0       0     0
   32XY    Diag8            XY-GenXY   35XY  10XY    2     5     1     1     1 3/4 A394     5   1.65       1  Long only     1   2.5    1.25   2.625
0       0     0
    32Y    Diag8             Y-GenXY    35Y   10Y    2     5     1     1     1 3/4 A394     5   1.65       1  Long only     1   2.5    1.25   2.625
0       0     0
    33P    Diag8          XY-Symmetry    10P   38P    2     5     1     1     1 3/4 A394     5   1.54       1  Long only     1   2.5    1.25       3
0       0     0
    33X    Diag8             X-GenXY    10X   38X    2     5     1     1     1 3/4 A394     5   1.54       1  Long only     1   2.5    1.25       3
0       0     0
   33XY    Diag8            XY-GenXY   10XY  38XY    2     5     1     1     1 3/4 A394     5   1.54       1  Long only     1   2.5    1.25       3
0       0     0
    33Y    Diag8             Y-GenXY    10Y   38Y    2     5     1     1     1 3/4 A394     5   1.54       1  Long only     1   2.5    1.25       3
0       0     0
    34P    Diag9          XY-Symmetry    42S   12P    2     5  0.54     1  0.54 3/4 A394     2      2       2 Short only  1.25     0    1.25       2
0       0     0
    34X    Diag9             X-GenXY    42S   12X    2     5  0.54     1  0.54 3/4 A394     2      2       2 Short only  1.25     0    1.25       2
0       0     0
   34XY    Diag9            XY-GenXY    42Y  12XY    2     5  0.54     1  0.54 3/4 A394     2      2       2 Short only  1.25     0    1.25       2
0       0     0
    34Y    Diag9             Y-GenXY    42Y   12Y    2     5  0.54     1  0.54 3/4 A394     2      2       2 Short only  1.25     0    1.25       2
0       0     0
    35P   Diag10          XY-Symmetry    14P   42S    2     5  0.25     1  0.25 3/4 A394     3      2       2 Short only 1.625     0    1.25   4.375
0       0     0
    35X   Diag10             X-GenXY    14X   42S    2     5  0.25     1  0.25 3/4 A394     3      2       2 Short only 1.625     0    1.25   4.375
0       0     0
   35XY   Diag10            XY-GenXY   14XY   42Y    2     5  0.25     1  0.25 3/4 A394     3      2       2 Short only 1.625     0    1.25   4.375
0       0     0
```

35Y	Diag10	Y-GenXY	14Y	42Y	2	5	0.25	1	0.25	3/4	A394	3	2	2	Short only	1.625	0	1.25	4.375	0	0	0	
36P	TTTC	XY-Symmetry	18P	19P	3	5	1	1	1	3/4	A394	4	2	1	Both	1.125	0	1.25	5.5	0	0	0	
36X	TTTC	X-GenXY	18P	19X	3	5	1	1	1	3/4	A394	4	2	1	Both	1.125	0	1.25	5.5	0	0	0	
36XY	TTTC	XY-GenXY	18Y	19XY	3	5	1	1	1	3/4	A394	4	2	1	Both	1.125	0	1.25	5.5	0	0	0	
36Y	TTTC	Y-GenXY	18Y	19Y	3	5	1	1	1	3/4	A394	4	2	1	Both	1.125	0	1.25	5.5	0	0	0	
37P	TTTC	XY-Symmetry	19P	20P	3	4	1	1	1	3/4	A394	0	2	0		0	0	0	0	0	0	0	
37X	TTTC	X-GenXY	19X	20X	3	4	1	1	1	3/4	A394	0	2	0		0	0	0	0	0	0	0	
37XY	TTTC	XY-GenXY	19XY	20XY	3	4	1	1	1	3/4	A394	0	2	0		0	0	0	0	0	0	0	
37Y	TTTC	Y-GenXY	19Y	20Y	3	4	1	1	1	3/4	A394	0	2	0		0	0	0	0	0	0	0	
38P	TTTC	XY-Symmetry	20P	2P	3	4	1	1	1	3/4	A394	2	1	1	Short only	1.125	0	1.25	2	0	0	0	
38X	TTTC	X-GenXY	20X	2X	3	4	1	1	1	3/4	A394	2	1	1	Short only	1.125	0	1.25	2	0	0	0	
38XY	TTTC	XY-GenXY	20XY	2XY	3	4	1	1	1	3/4	A394	2	1	1	Short only	1.125	0	1.25	2	0	0	0	
38Y	TTTC	Y-GenXY	20Y	2Y	3	4	1	1	1	3/4	A394	2	1	1	Short only	1.125	0	1.25	2	0	0	0	
39P	TTBC	XY-Symmetry	21P	22P	3	5	1	1	1	3/4	A394	4	2	1	Both	1.125	0	1.25	5.5	0	0	0	
39X	TTBC	X-GenXY	21P	22X	3	5	1	1	1	3/4	A394	4	2	1	Both	1.125	0	1.25	5.5	0	0	0	
39XY	TTBC	XY-GenXY	21Y	22XY	3	5	1	1	1	3/4	A394	4	2	1	Both	1.125	0	1.25	5.5	0	0	0	
39Y	TTBC	Y-GenXY	21Y	22Y	3	5	1	1	1	3/4	A394	4	2	1	Both	1.125	0	1.25	5.5	0	0	0	
40P	TTBC	XY-Symmetry	22P	23P	3	4	1	1	1	3/4	A394	0	2	0		0	0	0	0	0	0	0	
40X	TTBC	X-GenXY	22X	23X	3	4	1	1	1	3/4	A394	0	2	0		0	0	0	0	0	0	0	
40XY	TTBC	XY-GenXY	22XY	23XY	3	4	1	1	1	3/4	A394	0	2	0		0	0	0	0	0	0	0	
40Y	TTBC	Y-GenXY	22Y	23Y	3	4	1	1	1	3/4	A394	0	2	0		0	0	0	0	0	0	0	
41P	TTBC	XY-Symmetry	23P	3P	3	4	1	1	1	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.5	0	0	0	
41X	TTBC	X-GenXY	23X	3X	3	4	1	1	1	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.5	0	0	0	
41XY	TTBC	XY-GenXY	23XY	3XY	3	4	1	1	1	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.5	0	0	0	
41Y	TTBC	Y-GenXY	23Y	3Y	3	4	1	1	1	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.5	0	0	0	
42P	MTTC	XY-Symmetry	24P	25P	3	4	1	1	1	3/4	A394	4	2	1	Both	2.125	0	1.5	9	0	0	0	
42X	MTTC	X-GenXY	24P	25X	3	4	1	1	1	3/4	A394	4	2	1	Both	2.125	0	1.5	9	0	0	0	
42XY	MTTC	XY-GenXY	24Y	25XY	3	4	1	1	1	3/4	A394	4	2	1	Both	2.125	0	1.5	9	0	0	0	
42Y	MTTC	Y-GenXY	24Y	25Y	3	4	1	1	1	3/4	A394	4	2	1	Both	2.125	0	1.5	9	0	0	0	
43P	MTTC	XY-Symmetry	25P	26P	3	4	1	1	1	3/4	A394	0	2	0		0	0	0	0	0	0	0	

0	0	0																		
	43X	MTTC	X-GenXY	25X	26X	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	43XY	MTTC	XY-GenXY	25XY	26XY	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	43Y	MTTC	Y-GenXY	25Y	26Y	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	44P	MTTC	XY-Symmetry	26P	5P	3	4	1	1	1 3/4	A394	3	1.81	1	Short only	2.625	1	1.125	2	
0	0	0																		
	44X	MTTC	X-GenXY	26X	5X	3	4	1	1	1 3/4	A394	3	1.81	1	Short only	2.625	1	1.125	2	
0	0	0																		
	44XY	MTTC	XY-GenXY	26XY	5XY	3	4	1	1	1 3/4	A394	3	1.81	1	Short only	2.625	1	1.125	2	
0	0	0																		
	44Y	MTTC	Y-GenXY	26Y	5Y	3	4	1	1	1 3/4	A394	3	1.81	1	Short only	2.625	1	1.125	2	
0	0	0																		
	45P	MTBC	XY-Symmetry	27P	28P	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	
0	0	0																		
	45X	MTBC	X-GenXY	27P	28X	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	
0	0	0																		
	45XY	MTBC	XY-GenXY	27Y	28XY	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	
0	0	0																		
	45Y	MTBC	Y-GenXY	27Y	28Y	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	
0	0	0																		
	46P	MTBC	XY-Symmetry	28P	29P	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	46X	MTBC	X-GenXY	28X	29X	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	46XY	MTBC	XY-GenXY	28XY	29XY	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	46Y	MTBC	Y-GenXY	28Y	29Y	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	47P	MTBC	XY-Symmetry	29P	6P	3	4	1	1	1 3/4	A394	4	1	1	Short only	1	2.5	1.5	6	
0	0	0																		
	47X	MTBC	X-GenXY	29X	6X	3	4	1	1	1 3/4	A394	4	1	1	Short only	1	2.5	1.5	6	
0	0	0																		
	47XY	MTBC	XY-GenXY	29XY	6XY	3	4	1	1	1 3/4	A394	4	1	1	Short only	1	2.5	1.5	6	
0	0	0																		
	47Y	MTBC	Y-GenXY	29Y	6Y	3	4	1	1	1 3/4	A394	4	1	1	Short only	1	2.5	1.5	6	
0	0	0																		
	48P	BTTC	XY-Symmetry	30P	31P	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	
0	0	0																		
	48X	BTTC	X-GenXY	30P	31X	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	
0	0	0																		
	48XY	BTTC	XY-GenXY	30Y	31XY	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	
0	0	0																		
	48Y	BTTC	Y-GenXY	30Y	31Y	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	
0	0	0																		
	49P	BTTC	XY-Symmetry	31P	32P	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	49X	BTTC	X-GenXY	31X	32X	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	49XY	BTTC	XY-GenXY	31XY	32XY	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	49Y	BTTC	Y-GenXY	31Y	32Y	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	
0	0	0																		
	50P	BTTC	XY-Symmetry	32P	8P	3	4	1	1	1 3/4	A394	3	1	1	Short only	2	0	1.5	2	
0	0	0																		
	50X	BTTC	X-GenXY	32X	8X	3	4	1	1	1 3/4	A394	3	1	1	Short only	2	0	1.5	2	
0	0	0																		

50XY	BTTC	XY-GenXY	32XY	8XY	3	4	1	1	1 3/4	A394	3	1	1	Short only	2	0	1.5	2	0	0	0
50Y	BTTC	Y-GenXY	32Y	8Y	3	4	1	1	1 3/4	A394	3	1	1	Short only	2	0	1.5	2	0	0	0
51P	BTBC	XY-Symmetry	33P	34P	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	0	0	0
51X	BTBC	X-GenXY	33P	34X	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	0	0	0
51XY	BTBC	XY-GenXY	33Y	34XY	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	0	0	0
51Y	BTBC	Y-GenXY	33Y	34Y	3	4	1	1	1 3/4	A394	4	2	1	Both	2.125	0	1.5	9	0	0	0
52P	BTBC	XY-Symmetry	34P	35P	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	0	0	0
52X	BTBC	X-GenXY	34X	35X	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	0	0	0
52XY	BTBC	XY-GenXY	34XY	35XY	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	0	0	0
52Y	BTBC	Y-GenXY	34Y	35Y	3	4	1	1	1 3/4	A394	0	2	0		0	0	0	0	0	0	0
53P	BTBC	XY-Symmetry	35P	9P	3	4	1	1	1 3/4	A394	4	1	1	Short only	1	2.5	1.5	6	0	0	0
53X	BTBC	X-GenXY	35X	9X	3	4	1	1	1 3/4	A394	4	1	1	Short only	1	2.5	1.5	6	0	0	0
53XY	BTBC	XY-GenXY	35XY	9XY	3	4	1	1	1 3/4	A394	4	1	1	Short only	1	2.5	1.5	6	0	0	0
53Y	BTBC	Y-GenXY	35Y	9Y	3	4	1	1	1 3/4	A394	4	1	1	Short only	1	2.5	1.5	6	0	0	0
54P	BTC	XY-Symmetry	36P	37P	3	4	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0
54X	BTC	X-GenXY	36P	37X	3	4	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0
54XY	BTC	XY-GenXY	36Y	37XY	3	4	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0
54Y	BTC	Y-GenXY	36Y	37Y	3	4	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0
55P	BTC	XY-Symmetry	37P	38P	3	4	1	1	1 3/4	A394	0	5	0		0	0	0	0	0	0	0
55X	BTC	X-GenXY	37X	38X	3	4	1	1	1 3/4	A394	0	5	0		0	0	0	0	0	0	0
55XY	BTC	XY-GenXY	37XY	38XY	3	4	1	1	1 3/4	A394	0	5	0		0	0	0	0	0	0	0
55Y	BTC	Y-GenXY	37Y	38Y	3	4	1	1	1 3/4	A394	0	5	0		0	0	0	0	0	0	0
56P	BTC	XY-Symmetry	38P	11P	3	4	1	1	1 3/4	A394	8	3	1	Long only	1.25	5.25	1.5	2	0	0	0
56X	BTC	X-GenXY	38X	11X	3	4	1	1	1 3/4	A394	8	3	1	Long only	1.25	5.25	1.5	2	0	0	0
56XY	BTC	XY-GenXY	38XY	11XY	3	4	1	1	1 3/4	A394	8	3	1	Long only	1.25	5.25	1.5	2	0	0	0
56Y	BTC	Y-GenXY	38Y	11Y	3	4	1	1	1 3/4	A394	8	3	1	Long only	1.25	5.25	1.5	2	0	0	0
57P	BBC	XY-Symmetry	39P	40P	3	4	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0
57X	BBC	X-GenXY	39P	40X	3	4	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0
57XY	BBC	XY-GenXY	39Y	40XY	3	4	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0
57Y	BBC	Y-GenXY	39Y	40Y	3	4	1	1	1 3/4	A394	0	4	0		0	0	0	0	0	0	0

0	0	0																				
	58P	BBC	XY-Symmetry	40P	41P	3	4	1	1	1	3/4	A394	0	4	0		0	0	0	0		
0	0	0																				
	58X	BBC	X-GenXY	40X	41X	3	4	1	1	1	3/4	A394	0	4	0		0	0	0	0		
0	0	0																				
	58XY	BBC	XY-GenXY	40XY	41XY	3	4	1	1	1	3/4	A394	0	4	0		0	0	0	0		
0	0	0																				
	58Y	BBC	Y-GenXY	40Y	41Y	3	4	1	1	1	3/4	A394	0	4	0		0	0	0	0		
0	0	0																				
	59P	BBC	XY-Symmetry	41P	12P	3	4	1	1	1	3/4	A394	9	3	1	Long only	1.25	5.25	1.5	2		
0	0	0																				
	59X	BBC	X-GenXY	41X	12X	3	4	1	1	1	3/4	A394	9	3	1	Long only	1.25	5.25	1.5	2		
0	0	0																				
	59XY	BBC	XY-GenXY	41XY	12XY	3	4	1	1	1	3/4	A394	9	3	1	Long only	1.25	5.25	1.5	2		
0	0	0																				
	59Y	BBC	Y-GenXY	41Y	12Y	3	4	1	1	1	3/4	A394	9	3	1	Long only	1.25	5.25	1.5	2		
0	0	0																				
	60P	Horz1	XY-Symmetry	42S	13S	3	5	0.5	0.5	0.5	3/4	A394	3	1	1	Short only	1.375	0	1.25	2		
0	0	0																				
	60X	Horz1	X-GenXY	42S	13X	3	5	0.5	0.5	0.5	3/4	A394	3	1	1	Short only	1.375	0	1.25	2		
0	0	0																				
	60XY	Horz1	XY-GenXY	42Y	13XY	3	5	0.5	0.5	0.5	3/4	A394	3	1	1	Short only	1.375	0	1.25	2		
0	0	0																				
	60Y	Horz1	Y-GenXY	42Y	13Y	3	5	0.5	0.5	0.5	3/4	A394	3	1	1	Short only	1.375	0	1.25	2		
0	0	0																				
	61P	Horz2	X-Symmetry	13S	13Y	3	5	0.5	0.5	0.5	3/4	A394	3	1	1	Short only	1.375	0	1.25	2.0625		
0	0	0																				
	61X	Horz2	X-Gen	13X	13XY	3	5	0.5	0.5	0.5	3/4	A394	3	1	1	Short only	1.375	0	1.25	2.0625		
0	0	0																				
	62P	Br1	Y-Symmetry	47S	13Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	62Y	Br1	Y-Gen	47S	13S	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	63P	Br1	Y-Symmetry	42Y	47S	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	63Y	Br1	Y-Gen	42S	47S	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	64P	Br1	Y-Symmetry	46S	13X	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	64Y	Br1	Y-Gen	46S	13XY	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	65P	Br1	Y-Symmetry	42Y	46S	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	65Y	Br1	Y-Gen	42S	46S	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	66P	Br2	None	42S	42Y	3	4	0.75	0.5	0.5	3/4	A394	1	1	1	Long only	1.125	0	1.28125	0		
0	0	0																				
	67P	ARMTT	XY-Symmetry	3P	15P	3	5	1	1	1	3/4	A394	2	1	1	Long only	2.125	0	13.5	2		
0	0	0																				
	67X	ARMTT	X-GenXY	3X	15X	3	5	1	1	1	3/4	A394	2	1	1	Long only	2.125	0	13.5	2		
0	0	0																				
	67XY	ARMTT	XY-GenXY	3XY	15XY	3	5	1	1	1	3/4	A394	2	1	1	Long only	2.125	0	13.5	2		
0	0	0																				
	67Y	ARMTT	Y-GenXY	3Y	15Y	3	5	1	1	1	3/4	A394	2	1	1	Long only	2.125	0	13.5	2		
0	0	0																				
	68P	ARMMT	XY-Symmetry	6P	16P	3	5	1	1	1	3/4	A394	3	1.18	1	Long only	1	2.5	13.75	4		
0	0	0																				
	68X	ARMMT	X-GenXY	6X	16X	3	5	1	1	1	3/4	A394	3	1.18	1	Long only	1	2.5	13.75	4		
0	0	0																				

68XY	ARMMT	XY-GenXY	6XY	16XY	3	5	1	1	1 3/4	A394	3	1.18	1	Long only	1	2.5	13.75	4	0	0	0	
68Y	ARMMT	Y-GenXY	6Y	16Y	3	5	1	1	1 3/4	A394	3	1.18	1	Long only	1	2.5	13.75	4	0	0	0	
69P	ARMBT	XY-Symmetry	9P	17P	3	5	1	1	1 3/4	A394	3	1.18	1	Long only	1	2.5	13.75	4	0	0	0	
69X	ARMBT	X-GenXY	9X	17X	3	5	1	1	1 3/4	A394	3	1.18	1	Long only	1	2.5	13.75	4	0	0	0	
69XY	ARMBT	XY-GenXY	9XY	17XY	3	5	1	1	1 3/4	A394	3	1.18	1	Long only	1	2.5	13.75	4	0	0	0	
69Y	ARMBT	Y-GenXY	9Y	17Y	3	5	1	1	1 3/4	A394	3	1.18	1	Long only	1	2.5	13.75	4	0	0	0	
70P	ArmBr1	XY-Symmetry	2P	15P	3	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
70X	ArmBr1	X-GenXY	2X	15X	3	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
70XY	ArmBr1	XY-GenXY	2XY	15XY	3	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
70Y	ArmBr1	Y-GenXY	2Y	15Y	3	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
71P	ArmBr1	XY-Symmetry	5P	16P	3	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
71X	ArmBr1	X-GenXY	5X	16X	3	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
71XY	ArmBr1	XY-GenXY	5XY	16XY	3	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
71Y	ArmBr1	Y-GenXY	5Y	16Y	3	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
72P	ArmBr1	XY-Symmetry	8P	17P	2	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
72X	ArmBr1	X-GenXY	8X	17X	2	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
72XY	ArmBr1	XY-GenXY	8XY	17XY	2	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
72Y	ArmBr1	Y-GenXY	8Y	17Y	2	4	1	1	1 3/4	A394	2	1	1	Long only	1	0	1.25	2.1875	0	0	0	
73P	ArmBr2	XY-Symmetry	3P	15Y	3	4	0.75	0.5	0.5	3/4 A394	1	1	1	Short only	0.875	0	1.5	0	0	0	0	
73X	ArmBr2	X-GenXY	3X	15XY	3	4	0.75	0.5	0.5	3/4 A394	1	1	1	Short only	0.875	0	1.5	0	0	0	0	
73XY	ArmBr2	XY-GenXY	3XY	15X	3	4	0.75	0.5	0.5	3/4 A394	1	1	1	Short only	0.875	0	1.5	0	0	0	0	
73Y	ArmBr2	Y-GenXY	3Y	15P	3	4	0.75	0.5	0.5	3/4 A394	1	1	1	Short only	0.875	0	1.5	0	0	0	0	
74P	ArmBr3	X-Symmetry	15P	15Y	3	4	1	1	1	3/4 A394	1	1	1	Short only	1.375	0	1.25	0	0	0	0	
74X	ArmBr3	X-Gen	15X	15XY	3	4	1	1	1	3/4 A394	1	1	1	Short only	1.375	0	1.25	0	0	0	0	
75P	ArmBr2	XY-Symmetry	6P	16Y	3	4	0.75	0.5	0.5	3/4 A394	1	1	1	Short only	0.875	0	1.5	0	0	0	0	
75X	ArmBr2	X-GenXY	6X	16XY	3	4	0.75	0.5	0.5	3/4 A394	1	1	1	Short only	0.875	0	1.5	0	0	0	0	
75XY	ArmBr2	XY-GenXY	6XY	16X	3	4	0.75	0.5	0.5	3/4 A394	1	1	1	Short only	0.875	0	1.5	0	0	0	0	
75Y	ArmBr2	Y-GenXY	6Y	16P	3	4	0.75	0.5	0.5	3/4 A394	1	1	1	Short only	0.875	0	1.5	0	0	0	0	
76P	ArmBr3	X-Symmetry	16P	16Y	3	4	1	1	1	3/4 A394	1	1	1	Short only	1.375	0	1.25	0	0	0	0	
76X	ArmBr3	X-Gen	16X	16XY	3	4	1	1	1	3/4 A394	1	1	1	Short only	1.375	0	1.25	0				

0	0	0																			
	77P	ArmBr2	XY-Symmetry	9P	17Y	3	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.5	0	
0	0	0																			
	77X	ArmBr2	X-GenXY	9X	17XY	3	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.5	0	
0	0	0																			
	77XY	ArmBr2	XY-GenXY	9XY	17X	3	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.5	0	
0	0	0																			
	77Y	ArmBr2	Y-GenXY	9Y	17P	3	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.5	0	
0	0	0																			
	78P	ArmBr3	X-Symmetry	17P	17Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.375	0	1.25	0	
0	0	0																			
	78X	ArmBr3	X-Gen	17X	17XY	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.375	0	1.25	0	
0	0	0																			
	79P	TTBr1	Y-Symmetry	18P	21P	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.5	
0	0	0																			
	79Y	TTBr1	Y-Gen	18Y	21Y	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.5	
0	0	0																			
	80P	TTBr2	XY-Symmetry	21P	19P	2	5	1	1	1	3/4	A394	2	1	1	Short only	1.375	0	1.25	3.9375	
0	0	0																			
	80X	TTBr2	X-GenXY	21P	19X	2	5	1	1	1	3/4	A394	2	1	1	Short only	1.375	0	1.25	3.9375	
0	0	0																			
	80XY	TTBr2	XY-GenXY	21Y	19XY	2	5	1	1	1	3/4	A394	2	1	1	Short only	1.375	0	1.25	3.9375	
0	0	0																			
	80Y	TTBr2	Y-GenXY	21Y	19Y	2	5	1	1	1	3/4	A394	2	1	1	Short only	1.375	0	1.25	3.9375	
0	0	0																			
	81P	TTBr1	XY-Symmetry	19P	22P	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.5	
0	0	0																			
	81X	TTBr1	X-GenXY	19X	22X	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.5	
0	0	0																			
	81XY	TTBr1	XY-GenXY	19XY	22XY	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.5	
0	0	0																			
	81Y	TTBr1	Y-GenXY	19Y	22Y	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.5	
0	0	0																			
	82P	TTBr2	XY-Symmetry	19P	23P	2	5	1	1	1	3/4	A394	2	1	1	Short only	1.375	0	1.25	2	
0	0	0																			
	82X	TTBr2	X-GenXY	19X	23X	2	5	1	1	1	3/4	A394	2	1	1	Short only	1.375	0	1.25	2	
0	0	0																			
	82XY	TTBr2	XY-GenXY	19XY	23XY	2	5	1	1	1	3/4	A394	2	1	1	Short only	1.375	0	1.25	2	
0	0	0																			
	82Y	TTBr2	Y-GenXY	19Y	23Y	2	5	1	1	1	3/4	A394	2	1	1	Short only	1.375	0	1.25	2	
0	0	0																			
	83P	TTBr1	XY-Symmetry	20P	23P	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.5	
0	0	0																			
	83X	TTBr1	X-GenXY	20X	23X	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.5	
0	0	0																			
	83XY	TTBr1	XY-GenXY	20XY	23XY	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.5	
0	0	0																			
	83Y	TTBr1	Y-GenXY	20Y	23Y	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.5	
0	0	0																			
	84P	TTBr3	XY-Symmetry	23P	2P	2	5	1	1	1	3/4	A394	3	1	1	Short only	1.5	0	1.25	2	
0	0	0																			
	84X	TTBr3	X-GenXY	23X	2X	2	5	1	1	1	3/4	A394	3	1	1	Short only	1.5	0	1.25	2	
0	0	0																			
	84XY	TTBr3	XY-GenXY	23XY	2XY	2	5	1	1	1	3/4	A394	3	1	1	Short only	1.5	0	1.25	2	
0	0	0																			
	84Y	TTBr3	Y-GenXY	23Y	2Y	2	5	1	1	1	3/4	A394	3	1	1	Short only	1.5	0	1.25	2	
0	0	0																			
	85P	MTBr1	Y-Symmetry	24P	27P	1	5	1	1	1	3/4	A394	2	1	1	Short only	0.875	0	1.25	3.25	
0	0	0																			

85Y	MTBr1	Y-Gen	24Y	27Y	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	3.25	0	0	0
86P	MTBr3	XY-Symmetry	27P	25P	2	5	1	1	1 3/4	A394	3	1.42	1	Long only	1	2.5	1.5	2.25	0	0	0
86X	MTBr3	X-GenXY	27P	25X	2	5	1	1	1 3/4	A394	3	1.42	1	Long only	1	2.5	1.5	2.25	0	0	0
86XY	MTBr3	XY-GenXY	27Y	25XY	2	5	1	1	1 3/4	A394	3	1.42	1	Long only	1	2.5	1.5	2.25	0	0	0
86Y	MTBr3	Y-GenXY	27Y	25Y	2	5	1	1	1 3/4	A394	3	1.42	1	Long only	1	2.5	1.5	2.25	0	0	0
87P	MTBr1	XY-Symmetry	25P	28P	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	3.25	0	0	0
87X	MTBr1	X-GenXY	25X	28X	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	3.25	0	0	0
87XY	MTBr1	XY-GenXY	25XY	28XY	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	3.25	0	0	0
87Y	MTBr1	Y-GenXY	25Y	28Y	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	3.25	0	0	0
88P	MTBr4	XY-Symmetry	25P	29P	2	5	1	1	1 3/4	A394	3	1.5	1	Short only	0.875	2.25	1.25	3	0	0	0
88X	MTBr4	X-GenXY	25X	29X	2	5	1	1	1 3/4	A394	3	1.5	1	Short only	0.875	2.25	1.25	3	0	0	0
88XY	MTBr4	XY-GenXY	25XY	29XY	2	5	1	1	1 3/4	A394	3	1.5	1	Short only	0.875	2.25	1.25	3	0	0	0
88Y	MTBr4	Y-GenXY	25Y	29Y	2	5	1	1	1 3/4	A394	3	1.5	1	Short only	0.875	2.25	1.25	3	0	0	0
89P	MTBr2	XY-Symmetry	26P	29P	1	5	1	1	1 3/4	A394	2	1	1	Long only	1.25	0	1.25	3.25	0	0	0
89X	MTBr2	X-GenXY	26X	29X	1	5	1	1	1 3/4	A394	2	1	1	Long only	1.25	0	1.25	3.25	0	0	0
89XY	MTBr2	XY-GenXY	26XY	29XY	1	5	1	1	1 3/4	A394	2	1	1	Long only	1.25	0	1.25	3.25	0	0	0
89Y	MTBr2	Y-GenXY	26Y	29Y	1	5	1	1	1 3/4	A394	2	1	1	Long only	1.25	0	1.25	3.25	0	0	0
90P	MTBr5	XY-Symmetry	29P	5P	2	5	1	1	1 3/4	A394	4	1.54	1	Short only	1	2.5	1.25	3	0	0	0
90X	MTBr5	X-GenXY	29X	5X	2	5	1	1	1 3/4	A394	4	1.54	1	Short only	1	2.5	1.25	3	0	0	0
90XY	MTBr5	XY-GenXY	29XY	5XY	2	5	1	1	1 3/4	A394	4	1.54	1	Short only	1	2.5	1.25	3	0	0	0
90Y	MTBr5	Y-GenXY	29Y	5Y	2	5	1	1	1 3/4	A394	4	1.54	1	Short only	1	2.5	1.25	3	0	0	0
91P	BTBr1	Y-Symmetry	30P	33P	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	3.5	0	0	0
91Y	BTBr1	Y-Gen	30Y	33Y	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	3.5	0	0	0
92P	BTBr3	XY-Symmetry	33P	31P	2	5	1	1	1 3/4	A394	4	1.42	1	Short only	1	2.5	1.25	2.25	0	0	0
92X	BTBr3	X-GenXY	33P	31X	2	5	1	1	1 3/4	A394	4	1.42	1	Short only	1	2.5	1.25	2.25	0	0	0
92XY	BTBr3	XY-GenXY	33Y	31XY	2	5	1	1	1 3/4	A394	4	1.42	1	Short only	1	2.5	1.25	2.25	0	0	0
92Y	BTBr3	Y-GenXY	33Y	31Y	2	5	1	1	1 3/4	A394	4	1.42	1	Short only	1	2.5	1.25	2.25	0	0	0
93P	BTBr1	XY-Symmetry	31P	34P	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	3.5	0	0	0
93X	BTBr1	X-GenXY	31X	34X	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	3.5	0	0	0
93XY	BTBr1	XY-GenXY	31XY	34XY	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	3.5			

0	0	0																			
	93Y	BTBr1	Y-GenXY	31Y	34Y	1	5	1	1	1	3/4	A394	2	1	1	Short	only	0.875	0	1.25	3.5
0	0	0																			
	94P	BTBr4	XY-Symmetry	31P	35P	2	5	1	1	1	3/4	A394	4	1.23	1	Short	only	1	2.5	1.25	2.5
0	0	0																			
	94X	BTBr4	X-GenXY	31X	35X	2	5	1	1	1	3/4	A394	4	1.23	1	Short	only	1	2.5	1.25	2.5
0	0	0																			
	94XY	BTBr4	XY-GenXY	31XY	35XY	2	5	1	1	1	3/4	A394	4	1.23	1	Short	only	1	2.5	1.25	2.5
0	0	0																			
	94Y	BTBr4	Y-GenXY	31Y	35Y	2	5	1	1	1	3/4	A394	4	1.23	1	Short	only	1	2.5	1.25	2.5
0	0	0																			
	95P	BTBr2	XY-Symmetry	32P	35P	1	5	1	1	1	3/4	A394	3	1	1	Short	only	2.25	0	1.25	2
0	0	0																			
	95X	BTBr2	X-GenXY	32X	35X	1	5	1	1	1	3/4	A394	3	1	1	Short	only	2.25	0	1.25	2
0	0	0																			
	95XY	BTBr2	XY-GenXY	32XY	35XY	1	5	1	1	1	3/4	A394	3	1	1	Short	only	2.25	0	1.25	2
0	0	0																			
	95Y	BTBr2	Y-GenXY	32Y	35Y	1	5	1	1	1	3/4	A394	3	1	1	Short	only	2.25	0	1.25	2
0	0	0																			
	96P	BTBr5	XY-Symmetry	35P	8P	2	5	1	1	1	3/4	A394	5	1.76	1	Short	only	1	2.5	1.25	3.25
0	0	0																			
	96X	BTBr5	X-GenXY	35X	8X	2	5	1	1	1	3/4	A394	5	1.76	1	Short	only	1	2.5	1.25	3.25
0	0	0																			
	96XY	BTBr5	XY-GenXY	35XY	8XY	2	5	1	1	1	3/4	A394	5	1.76	1	Short	only	1	2.5	1.25	3.25
0	0	0																			
	96Y	BTBr5	Y-GenXY	35Y	8Y	2	5	1	1	1	3/4	A394	5	1.76	1	Short	only	1	2.5	1.25	3.25
0	0	0																			
	97P	TBC1	None	21P	21Y	3	4	1	1	1	3/4	A394	1	1	1	Short	only	0.875	0	1.125	0
0	0	0																			
	98P	TBC1	XY-Symmetry	21P	22Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			
	98X	TBC1	X-GenXY	21P	22XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			
	98XY	TBC1	XY-GenXY	21Y	22X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			
	98Y	TBC1	Y-GenXY	21Y	22P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			
	99P	TBC2	X-Symmetry	22P	22Y	3	5	1	1	1	3/4	A394	2	1	1	Short	only	1.25	0	1.125	3.625
0	0	0																			
	99X	TBC2	X-Gen	22X	22XY	3	5	1	1	1	3/4	A394	2	1	1	Short	only	1.25	0	1.125	3.625
0	0	0																			
	100P	TBC3	XY-Symmetry	22P	23Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			
	100X	TBC3	X-GenXY	22X	23XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			
	100XY	TBC3	XY-GenXY	22XY	23X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			
	100Y	TBC3	Y-GenXY	22Y	23P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			
	101P	TBC4	X-Symmetry	23P	23Y	3	5	1	1	1	3/4	A394	2	1	1	Short	only	1.25	0	1.125	3.625
0	0	0																			
	101X	TBC4	X-Gen	23X	23XY	3	5	1	1	1	3/4	A394	2	1	1	Short	only	1.25	0	1.125	3.625
0	0	0																			
	102P	TBC3	XY-Symmetry	23P	3Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			
	102X	TBC3	X-GenXY	23X	3XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			
	102XY	TBC3	XY-GenXY	23XY	3X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0
0	0	0																			

102Y	TBC3	Y-GenXY	23Y	3P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
103P	TBC1	None	27P	27Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0	0
104P	TBC1	XY-Symmetry	27P	28Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
104X	TBC1	X-GenXY	27P	28XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
104XY	TBC1	XY-GenXY	27Y	28X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
104Y	TBC1	Y-GenXY	27Y	28P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
105P	TBC2	X-Symmetry	28P	28Y	3	6	1	1	1	3/4	A394	2	1	1	Short only	1.25	0	1.125	3.625	0
105X	TBC2	X-Gen	28X	28XY	3	6	1	1	1	3/4	A394	2	1	1	Short only	1.25	0	1.125	3.625	0
106P	TBC3	XY-Symmetry	28P	29Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
106X	TBC3	X-GenXY	28X	29XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
106XY	TBC3	XY-GenXY	28XY	29X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
106Y	TBC3	Y-GenXY	28Y	29P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
107P	TBC4	X-Symmetry	29P	29Y	3	6	1	1	1	3/4	A394	2	1	1	Short only	1.25	0	1.125	3.625	0
107X	TBC4	X-Gen	29X	29XY	3	6	1	1	1	3/4	A394	2	1	1	Short only	1.25	0	1.125	3.625	0
108P	TBC3	XY-Symmetry	29P	6Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
108X	TBC3	X-GenXY	29X	6XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
108XY	TBC3	XY-GenXY	29XY	6X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
108Y	TBC3	Y-GenXY	29Y	6P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
109P	TBC1	None	33P	33Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0	0
110P	TBC1	XY-Symmetry	33P	34Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
110X	TBC1	X-GenXY	33P	34XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
110XY	TBC1	XY-GenXY	33Y	34X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
110Y	TBC1	Y-GenXY	33Y	34P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
111P	TBC2	X-Symmetry	34P	34Y	3	6	1	1	1	3/4	A394	2	1	1	Short only	1.25	0	1.125	3.625	0
111X	TBC2	X-Gen	34X	34XY	3	6	1	1	1	3/4	A394	2	1	1	Short only	1.25	0	1.125	3.625	0
112P	TBC3	XY-Symmetry	34P	35Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
112X	TBC3	X-GenXY	34X	35XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
112XY	TBC3	XY-GenXY	34XY	35X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
112Y	TBC3	Y-GenXY	34Y	35P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0
113P	TBC4	X-Symmetry	35P	35Y	3	6	1	1	1	3/4	A394	2	1	1	Short only	1.25	0	1.125	3.625	0

0	0	0																				
	113X	TBC4	X-Gen	35X	35XY	3	6	1	1	1	3/4	A394	2	1	1	Short only	1.25	0	1.125	3.625		
0	0	0																				
	114P	TBC3	XY-Symmetry	35P	9Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	114X	TBC3	X-GenXY	35X	9XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	114XY	TBC3	XY-GenXY	35XY	9X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	114Y	TBC3	Y-GenXY	35Y	9P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0		
0	0	0																				
	115P	TTC1	None	18P	18Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	116P	TTC2	None	18P	19Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	117P	TTC2	None	19X	18Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	118P	TTC1	X-Symmetry	19P	19Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	118X	TTC1	X-Gen	19X	19XY	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	119P	TTC2	None	19P	20Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	120P	TTC2	None	20X	19XY	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	121P	TTC1	X-Symmetry	20P	20Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	121X	TTC1	X-Gen	20X	20XY	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	122P	TTC2	None	20P	2Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	123P	TTC2	None	2X	20XY	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	124P	TTC1	None	24P	24Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	125P	TTC2	None	24P	25Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	126P	TTC2	None	25X	24Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	127P	TTC1	X-Symmetry	25P	25Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	127X	TTC1	X-Gen	25X	25XY	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	128P	TTC2	None	25P	26Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	129P	TTC2	None	26X	25XY	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	130P	TTC1	X-Symmetry	26P	26Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	130X	TTC1	X-Gen	26X	26XY	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	131P	TTC2	None	26P	5Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	132P	TTC2	None	5X	26XY	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				
	133P	TTC1	None	30P	30Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	0.875	0	1.125	0		
0	0	0																				
	134P	TTC2	None	30P	31Y	3	4	1	1	1	3/4	A394	1	1	1	Short only	1.25	0	1.25	0		
0	0	0																				

135P	TTC2	None	31X	30Y	3	4	1	1	1	3/4	A394	1	1	1	Short	only	1.25	0	1.25	0	0	0
136P	TTC1	X-Symmetry	31P	31Y	3	4	1	1	1	3/4	A394	1	1	1	Short	only	0.875	0	1.125	0	0	0
136X	TTC1	X-Gen	31X	31XY	3	4	1	1	1	3/4	A394	1	1	1	Short	only	0.875	0	1.125	0	0	0
137P	TTC2	None	31P	32Y	3	4	1	1	1	3/4	A394	1	1	1	Short	only	1.25	0	1.25	0	0	0
138P	TTC2	None	32X	31XY	3	4	1	1	1	3/4	A394	1	1	1	Short	only	1.25	0	1.25	0	0	0
139P	TTC1	X-Symmetry	32P	32Y	3	4	1	1	1	3/4	A394	1	1	1	Short	only	0.875	0	1.125	0	0	0
139X	TTC1	X-Gen	32X	32XY	3	4	1	1	1	3/4	A394	1	1	1	Short	only	0.875	0	1.125	0	0	0
140P	TTC2	None	32P	8Y	3	4	1	1	1	3/4	A394	1	1	1	Short	only	1.25	0	1.25	0	0	0
141P	TTC2	None	8X	32XY	3	4	1	1	1	3/4	A394	1	1	1	Short	only	1.25	0	1.25	0	0	0
142P	Horz3	X-Symmetry	2P	2Y	3	5	1	1	1	3/4	A394	2	1	1	Short	only	1.25	0	1.25	2	0	0
142X	Horz3	X-Gen	2X	2XY	3	5	1	1	1	3/4	A394	2	1	1	Short	only	1.25	0	1.25	2	0	0
143P	Horz3	X-Symmetry	3P	3Y	3	5	1	1	1	3/4	A394	2	1	1	Short	only	1.25	0	1.25	2	0	0
143X	Horz3	X-Gen	3X	3XY	3	5	1	1	1	3/4	A394	2	1	1	Short	only	1.25	0	1.25	2	0	0
144P	Horz4	X-Symmetry	5P	5Y	3	4	1	1	1	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0	0	0
144X	Horz4	X-Gen	5X	5XY	3	4	1	1	1	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0	0	0
145P	Horz3	X-Symmetry	6P	6Y	3	5	1	1	1	3/4	A394	2	1	1	Short	only	1.25	0	1.25	2	0	0
145X	Horz3	X-Gen	6X	6XY	3	5	1	1	1	3/4	A394	2	1	1	Short	only	1.25	0	1.25	2	0	0
146P	Horz4	X-Symmetry	8P	8Y	3	4	1	1	1	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0	0	0
146X	Horz4	X-Gen	8X	8XY	3	4	1	1	1	3/4	A394	1	1	1	Short	only	0.875	0	1.25	0	0	0
147P	Horz5	X-Symmetry	9P	9Y	3	5	1	1	1	3/4	A394	3	1	1	Short	only	1.75	0	1.25	2	0	0
147X	Horz5	X-Gen	9X	9XY	3	5	1	1	1	3/4	A394	3	1	1	Short	only	1.75	0	1.25	2	0	0
148P	Horz6	XY-Symmetry	43S	11P	3	5	1	1	1	3/4	A394	3	1	1	Long	only	1.75	0	1.25	2.5	0	0
148X	Horz6	X-GenXY	43X	11X	3	5	1	1	1	3/4	A394	3	1	1	Long	only	1.75	0	1.25	2.5	0	0
148XY	Horz6	XY-GenXY	43X	11XY	3	5	1	1	1	3/4	A394	3	1	1	Long	only	1.75	0	1.25	2.5	0	0
148Y	Horz6	Y-GenXY	43S	11Y	3	5	1	1	1	3/4	A394	3	1	1	Long	only	1.75	0	1.25	2.5	0	0
149P	Horz6	X-Symmetry	12P	12Y	3	5	0.5	0.5	0.5	3/4	A394	2	1	1	Long	only	1.75	0	1.125	2.5	0	0
149X	Horz6	X-Gen	12X	12XY	3	5	0.5	0.5	0.5	3/4	A394	2	1	1	Long	only	1.75	0	1.125	2.5	0	0
150P	BBr1	Y-Symmetry	36P	39P	1	5	1	1	1	3/4	A394	2	1	1	Short	only	0.875	0	1.25	2	0	0
150Y	BBr1	Y-Gen	36Y	39Y	1	5	1	1	1	3/4	A394	2	1	1	Short	only	0.875	0	1.25	2	0	0
151P	BBr2	XY-Symmetry	39P	37P	2	5	1	1	1	3/4	A394	5	1.5	1	Short	only	1	2.625	1.25	3.125		

0	0	0																			
	151X	BBr2	X-GenXY	39P	37X	2	5	1	1	1 3/4	A394	5	1.5	1	Short only	1	2.625	1.25	3.125		
0	0	0																			
	151XY	BBr2	XY-GenXY	39Y	37XY	2	5	1	1	1 3/4	A394	5	1.5	1	Short only	1	2.625	1.25	3.125		
0	0	0																			
	151Y	BBr2	Y-GenXY	39Y	37Y	2	5	1	1	1 3/4	A394	5	1.5	1	Short only	1	2.625	1.25	3.125		
0	0	0																			
	152P	BBr1	XY-Symmetry	37P	40P	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	2		
0	0	0																			
	152X	BBr1	X-GenXY	37X	40X	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	2		
0	0	0																			
	152XY	BBr1	XY-GenXY	37XY	40XY	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	2		
0	0	0																			
	152Y	BBr1	Y-GenXY	37Y	40Y	1	5	1	1	1 3/4	A394	2	1	1	Short only	0.875	0	1.25	2		
0	0	0																			
	153P	BBr2	XY-Symmetry	37P	41P	2	5	1	1	1 3/4	A394	5	1.64	1	Short only	1	2.625	1.25	2.75		
0	0	0																			
	153X	BBr2	X-GenXY	37X	41X	2	5	1	1	1 3/4	A394	5	1.64	1	Short only	1	2.625	1.25	2.75		
0	0	0																			
	153XY	BBr2	XY-GenXY	37XY	41XY	2	5	1	1	1 3/4	A394	5	1.64	1	Short only	1	2.625	1.25	2.75		
0	0	0																			
	153Y	BBr2	Y-GenXY	37Y	41Y	2	5	1	1	1 3/4	A394	5	1.64	1	Short only	1	2.625	1.25	2.75		
0	0	0																			
	154P	BBr3	XY-Symmetry	38P	41P	1	5	1	1	1 3/4	A394	4	1	1	Short only	1.625	0	1.25	2		
0	0	0																			
	154X	BBr3	X-GenXY	38X	41X	1	5	1	1	1 3/4	A394	4	1	1	Short only	1.625	0	1.25	2		
0	0	0																			
	154XY	BBr3	XY-GenXY	38XY	41XY	1	5	1	1	1 3/4	A394	4	1	1	Short only	1.625	0	1.25	2		
0	0	0																			
	154Y	BBr3	Y-GenXY	38Y	41Y	1	5	1	1	1 3/4	A394	4	1	1	Short only	1.625	0	1.25	2		
0	0	0																			
	155P	BBr4	XY-Symmetry	41P	11P	2	5	0.5	0.75	0.5	3/4	A394	11	3	1	Long only	1.25	3.25	1.25	2.75	
0	0	0																			
	155X	BBr4	X-GenXY	41X	11X	2	5	0.5	0.75	0.5	3/4	A394	11	3	1	Long only	1.25	3.25	1.25	2.75	
0	0	0																			
	155XY	BBr4	XY-GenXY	41XY	11XY	2	5	0.5	0.75	0.5	3/4	A394	11	3	1	Long only	1.25	3.25	1.25	2.75	
0	0	0																			
	155Y	BBr4	Y-GenXY	41Y	11Y	2	5	0.5	0.75	0.5	3/4	A394	11	3	1	Long only	1.25	3.25	1.25	2.75	
0	0	0																			
	156P	BBr4	XY-Symmetry	38P	12P	2	5	0.5	0.75	0.5	3/4	A394	11	3	1	Long only	1.25	3.25	1.25	2.75	
0	0	0																			
	156X	BBr4	X-GenXY	38X	12X	2	5	0.5	0.75	0.5	3/4	A394	11	3	1	Long only	1.25	3.25	1.25	2.75	
0	0	0																			
	156XY	BBr4	XY-GenXY	38XY	12XY	2	5	0.5	0.75	0.5	3/4	A394	11	3	1	Long only	1.25	3.25	1.25	2.75	
0	0	0																			
	156Y	BBr4	Y-GenXY	38Y	12Y	2	5	0.5	0.75	0.5	3/4	A394	11	3	1	Long only	1.25	3.25	1.25	2.75	
0	0	0																			
	157P	BTC1	None	36P	36Y	3	5	1	1	1 3/4	A394	2	1	1	Short only	1.75	0	1.25	1.875		
0	0	0																			
	158P	BTC2	XY-Symmetry	36P	38Y	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.625	
0	0	0																			
	158X	BTC2	X-GenXY	36P	38XY	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.625	
0	0	0																			
	158XY	BTC2	XY-GenXY	36Y	38X	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.625	
0	0	0																			
	158Y	BTC2	Y-GenXY	36Y	38P	2	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	0.875	0	1.25	2.625	
0	0	0																			
	159P	BTC2	X-Symmetry	37P	37Y	3	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	0.875	0	1.25	1.875	
0	0	0																			

159X	BTC2	X-Gen	37X	37XY	3	5	0.75	0.5	0.5	3/4	A394	2	1	1	Short only	0.875	0	1.25	1.875	0	0	0
160P	BTC3	X-Symmetry	38P	45P	3	5	1	1	1	3/4	A394	3	1	1	Short only	1.25	0	1.25	1.875	0	0	0
160X	BTC3	X-Gen	38X	45X	3	5	1	1	1	3/4	A394	3	1	1	Short only	1.25	0	1.25	1.875	0	0	0
161P	BTC3	X-Symmetry	45P	38Y	3	5	1	1	1	3/4	A394	3	1	1	Short only	1.25	0	1.25	1.875	0	0	0
161X	BTC3	X-Gen	45X	38XY	3	5	1	1	1	3/4	A394	3	1	1	Short only	1.25	0	1.25	1.875	0	0	0
162P	BTC4	XY-Symmetry	45P	11Y	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.25	0	1.25	2.375	0	0	0
162X	BTC4	X-GenXY	45X	11XY	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.25	0	1.25	2.375	0	0	0
162XY	BTC4	XY-GenXY	45X	11X	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.25	0	1.25	2.375	0	0	0
162Y	BTC4	Y-GenXY	45P	11P	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.25	0	1.25	2.375	0	0	0
163P	BTC4	XY-Symmetry	38P	43S	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.25	0	1.25	2.375	0	0	0
163X	BTC4	X-GenXY	38X	43X	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.25	0	1.25	2.375	0	0	0
163XY	BTC4	XY-GenXY	38XY	43X	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.25	0	1.25	2.375	0	0	0
163Y	BTC4	Y-GenXY	38Y	43S	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.25	0	1.25	2.375	0	0	0
164P	BTC5	X-Symmetry	45P	43S	3	5	1	1	1	3/4	A394	2	1	1	Long only	0.875	0	1.25	2	0	0	0
164X	BTC5	X-Gen	45X	43X	3	5	1	1	1	3/4	A394	2	1	1	Long only	0.875	0	1.25	2	0	0	0
165P	BBC1	None	39P	39Y	3	5	1	1	1	3/4	A394	2	1	1	Short only	1.5	0	1.25	2	0	0	0
166P	BBC2	XY-Symmetry	39P	41Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0	0	0
166X	BBC2	X-GenXY	39P	41XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0	0	0
166XY	BBC2	XY-GenXY	39Y	41X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0	0	0
166Y	BBC2	Y-GenXY	39Y	41P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0	0	0
167P	BBC2	X-Symmetry	40P	40Y	3	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0	0	0
167X	BBC2	X-Gen	40X	40XY	3	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0	0	0
168P	BBC3	X-Symmetry	41P	41Y	3	5	1	0.5	0.5	3/4	A394	2	1	1	Short only	1.5	0	1.25	2	0	0	0
168X	BBC3	X-Gen	41X	41XY	3	5	1	0.5	0.5	3/4	A394	2	1	1	Short only	1.5	0	1.25	2	0	0	0
169P	BBC2	XY-Symmetry	41P	12Y	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0	0	0
169X	BBC2	X-GenXY	41X	12XY	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0	0	0
169XY	BBC2	XY-GenXY	41XY	12X	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0	0	0
169Y	BBC2	Y-GenXY	41Y	12P	2	4	0.75	0.5	0.5	3/4	A394	1	1	1	Short only	0.875	0	1.25	0	0	0	0

Member Capacities and Overrides:

Member Label	Group Label	Design Comp.	Comp. Control	Design Tension	Tension Control	L/r Length		L/r Comp.	Connection Shear	Connection Bearing	Net Section	Rupture Tension	RTE End Dist.	RTE Edge Dist.	Override Comp.	Override Warnings or Errors
		Capacity	Criterion	Capacity	Criterion			Capacity	Capacity	Capacity	Tension Capacity	Capacity	Tension Capacity	Tension Capacity	Capacity	
		(kips)		(kips)			(ft)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	
1P	PeakPost	17.649	L/r	19.301	Rupture	118	9.71	17.649	27.200	25.312	21.917	19.301	0.000	0.000	0.000	
0.000		0.000	Automatic													
1X	PeakPost	17.649	L/r	19.301	Rupture	118	9.71	17.649	27.200	25.312	21.917	19.301	0.000	0.000	0.000	
0.000		0.000	Automatic													
1XY	PeakPost	17.649	L/r	19.301	Rupture	118	9.71	17.649	27.200	25.312	21.917	19.301	0.000	0.000	0.000	
0.000		0.000	Automatic													
1Y	PeakPost	17.649	L/r	19.301	Rupture	118	9.71	17.649	27.200	25.312	21.917	19.301	0.000	0.000	0.000	
0.000		0.000	Automatic													
2P	Leg1	106.517	L/r	75.817	Net Sect	61	5.00	106.517	0.000	0.000	75.817	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
2X	Leg1	106.517	L/r	75.817	Net Sect	61	5.00	106.517	0.000	0.000	75.817	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
2XY	Leg1	106.517	L/r	75.817	Net Sect	61	5.00	106.517	0.000	0.000	75.817	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
2Y	Leg1	106.517	L/r	75.817	Net Sect	61	5.00	106.517	0.000	0.000	75.817	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
3P	Leg1	106.517	L/r	82.747	Net Sect	61	5.00	106.517	0.000	0.000	82.747	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
3X	Leg1	106.517	L/r	82.747	Net Sect	61	5.00	106.517	0.000	0.000	82.747	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
3XY	Leg1	106.517	L/r	82.747	Net Sect	61	5.00	106.517	0.000	0.000	82.747	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
3Y	Leg1	106.517	L/r	82.747	Net Sect	61	5.00	106.517	0.000	0.000	82.747	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
4P	Leg1	106.517	L/r	82.747	Net Sect	61	5.00	106.517	0.000	0.000	82.747	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
4X	Leg1	106.517	L/r	82.747	Net Sect	61	5.00	106.517	0.000	0.000	82.747	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
4XY	Leg1	106.517	L/r	82.747	Net Sect	61	5.00	106.517	0.000	0.000	82.747	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
4Y	Leg1	106.517	L/r	82.747	Net Sect	61	5.00	106.517	0.000	0.000	82.747	0.000	0.000	0.000	0.000	
0.000		0.000	Automatic													
5P	**Leg1**	**106.517**	**L/r**	**75.817**	**Net Sect**	**61**	**5.00**	**106.517**	**136.000**	**253.125**	**75.817**	**220.588**	**0.000**	**0.000**	**0.000**	
0.000		**0.000**	**Automatic**													**Member "5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
5X	**Leg1**	**106.517**	**L/r**	**75.817**	**Net Sect**	**61**	**5.00**	**106.517**	**136.000**	**253.125**	**75.817**	**220.588**	**0.000**	**0.000**	**0.000**	
0.000		**0.000**	**Automatic**													**Member "5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
5XY	**Leg1**	**106.517**	**L/r**	**75.817**	**Net Sect**	**61**	**5.00**	**106.517**	**136.000**	**253.125**	**75.817**	**220.588**	**0.000**	**0.000**	**0.000**	
0.000		**0.000**	**Automatic**													**Member "5XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
5Y	**Leg1**	**106.517**	**L/r**	**75.817**	**Net Sect**	**61**	**5.00**	**106.517**	**136.000**	**253.125**	**75.817**	**220.588**	**0.000**	**0.000**	**0.000**	
0.000		**0.000**	**Automatic**													**Member "5Y" will not be checked for block shear since more than one gage line exists (long edge**

distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

6P	Leg2	245.252	L/r	210.416	Net Sect	38	5.00	245.252	0.000	0.000	210.416	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
6X	Leg2	245.252	L/r	210.416	Net Sect	38	5.00	245.252	0.000	0.000	210.416	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
6XY	Leg2	245.252	L/r	210.416	Net Sect	38	5.00	245.252	0.000	0.000	210.416	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
6Y	Leg2	245.252	L/r	210.416	Net Sect	38	5.00	245.252	0.000	0.000	210.416	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
7P	Leg2	245.252	L/r	198.000	Net Sect	38	5.00	245.252	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
7X	Leg2	245.252	L/r	198.000	Net Sect	38	5.00	245.252	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
7XY	Leg2	245.252	L/r	198.000	Net Sect	38	5.00	245.252	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
7Y	Leg2	245.252	L/r	198.000	Net Sect	38	5.00	245.252	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
8P	**Leg2**	**136.000**	**Shear**	**136.000**	**Shear**	**38**	**5.00**	**245.252**	**136.000**	**337.499**	**198.000**	**312.500**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "8P" will not be checked for block shear since more than one gage line exists (long edge**										
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
8X	**Leg2**	**136.000**	**Shear**	**136.000**	**Shear**	**38**	**5.00**	**245.252**	**136.000**	**337.499**	**198.000**	**312.500**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "8X" will not be checked for block shear since more than one gage line exists (long edge**										
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
8XY	**Leg2**	**136.000**	**Shear**	**136.000**	**Shear**	**38**	**5.00**	**245.252**	**136.000**	**337.499**	**198.000**	**312.500**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "8XY" will not be checked for block shear since more than one gage line exists (long edge**										
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
8Y	**Leg2**	**136.000**	**Shear**	**136.000**	**Shear**	**38**	**5.00**	**245.252**	**136.000**	**337.499**	**198.000**	**312.500**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "8Y" will not be checked for block shear since more than one gage line exists (long edge**										
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
9P	Leg3	244.868	L/r	198.000	Net Sect	38	5.09	244.868	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
9X	Leg3	244.868	L/r	198.000	Net Sect	38	5.09	244.868	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
9XY	Leg3	244.868	L/r	198.000	Net Sect	38	5.09	244.868	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
9Y	Leg3	244.868	L/r	198.000	Net Sect	38	5.09	244.868	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
10P	**Leg3**	**244.867**	**L/r**	**198.000**	**Net Sect**	**38**	**5.09**	**244.867**	**380.800**	**944.999**	**198.000**	**874.999**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "10P" will not be checked for block shear since more than one gage line exists (long edge**										
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
10X	**Leg3**	**244.867**	**L/r**	**198.000**	**Net Sect**	**38**	**5.09**	**244.867**	**380.800**	**944.999**	**198.000**	**874.999**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "10X" will not be checked for block shear since more than one gage line exists (long edge**										
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
10XY	**Leg3**	**244.867**	**L/r**	**198.000**	**Net Sect**	**38**	**5.09**	**244.867**	**380.800**	**944.999**	**198.000**	**874.999**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "10XY" will not be checked for block shear since more than one gage line exists (long edge**										
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
10Y	**Leg3**	**244.867**	**L/r**	**198.000**	**Net Sect**	**38**	**5.09**	**244.867**	**380.800**	**944.999**	**198.000**	**874.999**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "10Y" will not be checked for block shear since more than one gage line exists (long edge**										
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
11P	Leg4	244.868	L/r	198.000	Net Sect	38	5.09	244.868	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
11X	Leg4	244.868	L/r	198.000	Net Sect	38	5.09	244.868	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
11XY	Leg4	244.868	L/r	198.000	Net Sect	38	5.09	244.868	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
11Y	Leg4	244.868	L/r	198.000	Net Sect	38	5.09	244.868	0.000	0.000	198.000	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
12P	**Leg4**	**241.598**	**L/r**	**198.000**	**Net Sect**	**44**	**11.61**	**241.598**	**380.800**	**944.999**	**198.000**	**874.999**	**0.000**	**0.000**	**0.000**

0.000 0.000 Automatic Member "12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
12X Leg4 241.598 L/r 198.000 Net Sect 44 11.61 241.598 380.800 944.999 198.000 874.999 0.000 0.000 0.000
0.000 0.000 Automatic Member "12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
12XY Leg4 241.598 L/r 198.000 Net Sect 44 11.61 241.598 380.800 944.999 198.000 874.999 0.000 0.000 0.000
0.000 0.000 Automatic Member "12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
12Y Leg4 241.598 L/r 198.000 Net Sect 44 11.61 241.598 380.800 944.999 198.000 874.999 0.000 0.000 0.000
0.000 0.000 Automatic Member "12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
13P Leg5 240.308 L/r 198.000 Net Sect 46 24.26 240.308 380.800 944.999 198.000 874.999 0.000 0.000 0.000
0.000 0.000 Automatic Member "13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
13X Leg5 240.308 L/r 198.000 Net Sect 46 24.26 240.308 380.800 944.999 198.000 874.999 0.000 0.000 0.000
0.000 0.000 Automatic Member "13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
13XY Leg5 240.308 L/r 198.000 Net Sect 46 24.26 240.308 380.800 944.999 198.000 874.999 0.000 0.000 0.000
0.000 0.000 Automatic Member "13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
13Y Leg5 240.308 L/r 198.000 Net Sect 46 24.26 240.308 380.800 944.999 198.000 874.999 0.000 0.000 0.000
0.000 0.000 Automatic Member "13Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
14P PeakPost 16.686 L/r 19.301 Rupture 125 10.27 16.686 27.200 25.312 21.917 19.301 0.000 0.000 0.000
0.000 0.000 Automatic
14X PeakPost 16.686 L/r 19.301 Rupture 125 10.27 16.686 27.200 25.312 21.917 19.301 0.000 0.000 0.000
0.000 0.000 Automatic
14XY PeakPost 16.686 L/r 19.301 Rupture 125 10.27 16.686 27.200 25.312 21.917 19.301 0.000 0.000 0.000
0.000 0.000 Automatic
14Y PeakPost 16.686 L/r 19.301 Rupture 125 10.27 16.686 27.200 25.312 21.917 19.301 0.000 0.000 0.000
0.000 0.000 Automatic
15P Diag1 12.292 L/r 16.214 Net Sect 131 8.60 12.292 27.200 25.312 16.214 18.316 0.000 0.000 0.000
0.000 0.000 Automatic
15X Diag1 12.292 L/r 16.214 Net Sect 131 8.60 12.292 27.200 25.312 16.214 18.316 0.000 0.000 0.000
0.000 0.000 Automatic
15XY Diag1 12.292 L/r 16.214 Net Sect 131 8.60 12.292 27.200 25.312 16.214 18.316 0.000 0.000 0.000
0.000 0.000 Automatic
15Y Diag1 12.292 L/r 16.214 Net Sect 131 8.60 12.292 27.200 25.312 16.214 18.316 0.000 0.000 0.000
0.000 0.000 Automatic
16P Diag2 25.861 L/r 27.200 Shear 105 8.60 25.861 27.200 33.750 28.846 28.641 0.000 0.000 0.000
0.000 0.000 Automatic
16X Diag2 25.861 L/r 27.200 Shear 105 8.60 25.861 27.200 33.750 28.846 28.641 0.000 0.000 0.000
0.000 0.000 Automatic
16XY Diag2 25.861 L/r 27.200 Shear 105 8.60 25.861 27.200 33.750 28.846 28.641 0.000 0.000 0.000
0.000 0.000 Automatic
16Y Diag2 25.861 L/r 27.200 Shear 105 8.60 25.861 27.200 33.750 28.846 28.641 0.000 0.000 0.000
0.000 0.000 Automatic
17P Diag2 25.861 L/r 27.200 Shear 105 8.60 25.861 27.200 33.750 28.846 29.203 0.000 0.000 0.000
0.000 0.000 Automatic
17X Diag2 25.861 L/r 27.200 Shear 105 8.60 25.861 27.200 33.750 28.846 29.203 0.000 0.000 0.000
0.000 0.000 Automatic
17XY Diag2 25.861 L/r 27.200 Shear 105 8.60 25.861 27.200 33.750 28.846 29.203 0.000 0.000 0.000
0.000 0.000 Automatic
17Y Diag2 25.861 L/r 27.200 Shear 105 8.60 25.861 27.200 33.750 28.846 29.203 0.000 0.000 0.000
0.000 0.000 Automatic
18P Diag2 25.861 L/r 27.200 Shear 105 8.60 25.861 27.200 33.750 28.846 28.078 0.000 0.000 0.000
0.000 0.000 Automatic
18X Diag2 25.861 L/r 27.200 Shear 105 8.60 25.861 27.200 33.750 28.846 28.078 0.000 0.000 0.000
0.000 0.000 Automatic

18XY	Diag2	25.861	L/r	27.200	Shear	105	8.60	25.861	27.200	33.750	28.846	28.078	0.000	0.000	0.000
0.000		0.000		Automatic											
18Y	Diag2	25.861	L/r	27.200	Shear	105	8.60	25.861	27.200	33.750	28.846	28.078	0.000	0.000	0.000
0.000		0.000		Automatic											
19P	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	56.660	0.000	0.000	0.000
0.000		0.000		Automatic											
19X	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	56.660	0.000	0.000	0.000
0.000		0.000		Automatic											
19XY	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	56.660	0.000	0.000	0.000
0.000		0.000		Automatic											
19Y	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	56.660	0.000	0.000	0.000
0.000		0.000		Automatic											
20P	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	56.660	0.000	0.000	0.000
0.000		0.000		Automatic											
20X	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	56.660	0.000	0.000	0.000
0.000		0.000		Automatic											
20XY	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	56.660	0.000	0.000	0.000
0.000		0.000		Automatic											
20Y	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	56.660	0.000	0.000	0.000
0.000		0.000		Automatic											
21P	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	54.551	0.000	0.000	0.000
0.000		0.000		Automatic											
21X	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	54.551	0.000	0.000	0.000
0.000		0.000		Automatic											
21XY	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	54.551	0.000	0.000	0.000
0.000		0.000		Automatic											
21Y	Diag3	40.800	Shear	40.800	Shear	88	8.60	43.226	40.800	63.281	44.745	54.551	0.000	0.000	0.000
0.000		0.000		Automatic											
22P	Diag2	21.126	L/r	27.200	Shear	129	9.40	21.126	27.200	33.750	28.846	32.484	0.000	0.000	0.000
0.000		0.000		Automatic											
22X	Diag2	21.126	L/r	27.200	Shear	129	9.40	21.126	27.200	33.750	28.846	32.484	0.000	0.000	0.000
0.000		0.000		Automatic											
22XY	Diag2	21.126	L/r	27.200	Shear	129	9.40	21.126	27.200	33.750	28.846	32.484	0.000	0.000	0.000
0.000		0.000		Automatic											
22Y	Diag2	21.126	L/r	27.200	Shear	129	9.40	21.126	27.200	33.750	28.846	32.484	0.000	0.000	0.000
0.000		0.000		Automatic											
23P	Diag4	18.078	L/r	19.652	Rupture	135	6.70	18.078	27.200	25.312	27.500	19.652	0.000	0.000	0.000
0.000		0.000		Automatic											
23X	Diag4	18.078	L/r	19.652	Rupture	135	6.70	18.078	27.200	25.312	27.500	19.652	0.000	0.000	0.000
0.000		0.000		Automatic											
23XY	Diag4	18.078	L/r	19.652	Rupture	135	6.70	18.078	27.200	25.312	27.500	19.652	0.000	0.000	0.000
0.000		0.000		Automatic											
23Y	Diag4	18.078	L/r	19.652	Rupture	135	6.70	18.078	27.200	25.312	27.500	19.652	0.000	0.000	0.000
0.000		0.000		Automatic											
24P	Diag4	13.351	L/r	24.609	Rupture	163	8.10	13.351	27.200	25.312	27.500	24.609	0.000	0.000	0.000
0.000		0.000		Automatic											
24X	Diag4	13.351	L/r	24.609	Rupture	163	8.10	13.351	27.200	25.312	27.500	24.609	0.000	0.000	0.000
0.000		0.000		Automatic											
24XY	Diag4	13.351	L/r	24.609	Rupture	163	8.10	13.351	27.200	25.312	27.500	24.609	0.000	0.000	0.000
0.000		0.000		Automatic											
24Y	Diag4	13.351	L/r	24.609	Rupture	163	8.10	13.351	27.200	25.312	27.500	24.609	0.000	0.000	0.000
0.000		0.000		Automatic											
25P	Diag5	3.489	L/r	19.184	Net Sect	301	18.78	3.489	27.200	25.312	19.184	24.609	0.000	0.000	0.000
0.000		0.000		Automatic											
25X	Diag5	3.489	L/r	19.184	Net Sect	301	18.78	3.489	27.200	25.312	19.184	24.609	0.000	0.000	0.000
0.000		0.000		Automatic											
25XY	Diag5	3.489	L/r	19.184	Net Sect	301	18.78	3.489	27.200	25.312	19.184	24.609	0.000	0.000	0.000
0.000		0.000		Automatic											
25Y	Diag5	3.489	L/r	19.184	Net Sect	301	18.78	3.489	27.200	25.312	19.184	24.609	0.000	0.000	0.000

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0.000             0.000          Automatic
    26P    Diag6    5.559       L/r   28.846  Net Sect  287  10.42    5.559     40.800     50.625   28.846   36.328    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 247.53 exceeds maximum of 200.00 for member "26P"  ??
    26X    Diag6    5.559       L/r   28.846  Net Sect  287  10.42    5.559     40.800     50.625   28.846   36.328    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 247.53 exceeds maximum of 200.00 for member "26X"  ??
   26XY    Diag6    5.559       L/r   28.846  Net Sect  287  10.42    5.559     40.800     50.625   28.846   36.328    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 247.53 exceeds maximum of 200.00 for member "26XY"  ??
    26Y    Diag6    5.559       L/r   28.846  Net Sect  287  10.42    5.559     40.800     50.625   28.846   36.328    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 247.53 exceeds maximum of 200.00 for member "26Y"  ??
    27P   Diag12    5.231       L/r   27.500  Net Sect  283  22.14    5.231     40.800     37.969   27.500   35.156    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 244.21 exceeds maximum of 200.00 for member "27P"  ??
    27X   Diag12    5.231       L/r   27.500  Net Sect  283  22.14    5.231     40.800     37.969   27.500   35.156    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 244.21 exceeds maximum of 200.00 for member "27X"  ??
   27XY   Diag12    5.231       L/r   27.500  Net Sect  283  22.14    5.231     40.800     37.969   27.500   35.156    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 244.21 exceeds maximum of 200.00 for member "27XY"  ??
    27Y   Diag12    5.231       L/r   27.500  Net Sect  283  22.14    5.231     40.800     37.969   27.500   35.156    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 244.21 exceeds maximum of 200.00 for member "27Y"  ??
    28P   Diag11   28.788       L/r   40.800     Shear  137   6.73   28.788     40.800     63.281   44.745   46.699    0.000    0.000    0.000
0.000             0.000          Automatic
    28X   Diag11   28.788       L/r   40.800     Shear  137   6.73   28.788     40.800     63.281   44.745   46.699    0.000    0.000    0.000
0.000             0.000          Automatic
   28XY   Diag11   28.788       L/r   40.800     Shear  137   6.73   28.788     40.800     63.281   44.745   46.699    0.000    0.000    0.000
0.000             0.000          Automatic
    28Y   Diag11   28.788       L/r   40.800     Shear  137   6.73   28.788     40.800     63.281   44.745   46.699    0.000    0.000    0.000
0.000             0.000          Automatic
    29P   Diag11   28.788       L/r   40.800     Shear  137   6.73   28.788     40.800     63.281   44.745   46.699    0.000    0.000    0.000
0.000             0.000          Automatic
    29X   Diag11   28.788       L/r   40.800     Shear  137   6.73   28.788     40.800     63.281   44.745   46.699    0.000    0.000    0.000
0.000             0.000          Automatic
   29XY   Diag11   28.788       L/r   40.800     Shear  137   6.73   28.788     40.800     63.281   44.745   46.699    0.000    0.000    0.000
0.000             0.000          Automatic
    29Y   Diag11   28.788       L/r   40.800     Shear  137   6.73   28.788     40.800     63.281   44.745   46.699    0.000    0.000    0.000
0.000             0.000          Automatic
    30P    Diag7   43.226       L/r   46.898  Net Sect  102   6.73   43.226     54.400     67.500   46.898   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "30P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    30X    Diag7   43.226       L/r   46.898  Net Sect  102   6.73   43.226     54.400     67.500   46.898   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "30X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   30XY    Diag7   43.226       L/r   46.898  Net Sect  102   6.73   43.226     54.400     67.500   46.898   58.823    0.000    0.000    0.000
0.000             0.000          Automatic  Member "30XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    30Y    Diag7   43.226       L/r   46.898  Net Sect  102   6.73   43.226     54.400     67.500   46.898   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "30Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    31P    Diag7   43.226       L/r   46.703  Net Sect  102   6.73   43.226     54.400     67.500   46.703   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "31P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    31X    Diag7   43.226       L/r   46.703  Net Sect  102   6.73   43.226     54.400     67.500   46.703   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "31X" will not be checked for block shear since more than one gage line exists (long edge
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distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
31XY Diag7 43.226 L/r 46.703 Net Sect 102 6.73 43.226 54.400 67.500 46.703 58.823 0.000 0.000 0.000
0.000 0.000 Automatic Member "31XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
31Y Diag7 43.226 L/r 46.703 Net Sect 102 6.73 43.226 54.400 67.500 46.703 58.823 0.000 0.000 0.000
0.000 0.000 Automatic Member "31Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
32P Diag8 62.882 L/r 68.000 Shear 103 6.79 62.882 68.000 126.562 68.862 110.294 0.000 0.000 0.000
0.000 0.000 Automatic Member "32P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
32X Diag8 62.882 L/r 68.000 Shear 103 6.79 62.882 68.000 126.562 68.862 110.294 0.000 0.000 0.000
0.000 0.000 Automatic Member "32X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
32XY Diag8 62.882 L/r 68.000 Shear 103 6.79 62.882 68.000 126.562 68.862 110.294 0.000 0.000 0.000
0.000 0.000 Automatic Member "32XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
32Y Diag8 62.882 L/r 68.000 Shear 103 6.79 62.882 68.000 126.562 68.862 110.294 0.000 0.000 0.000
0.000 0.000 Automatic Member "32Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
33P Diag8 62.918 L/r 68.000 Shear 103 6.79 62.918 68.000 126.562 69.934 110.294 0.000 0.000 0.000
0.000 0.000 Automatic Member "33P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
33X Diag8 62.918 L/r 68.000 Shear 103 6.79 62.918 68.000 126.562 69.934 110.294 0.000 0.000 0.000
0.000 0.000 Automatic Member "33X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
33XY Diag8 62.918 L/r 68.000 Shear 103 6.79 62.918 68.000 126.562 69.934 110.294 0.000 0.000 0.000
0.000 0.000 Automatic Member "33XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
33Y Diag8 62.918 L/r 68.000 Shear 103 6.79 62.918 68.000 126.562 69.934 110.294 0.000 0.000 0.000
0.000 0.000 Automatic Member "33Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
34P Diag9 50.291 L/r 48.281 Rupture 138 18.92 50.291 54.400 67.500 72.542 48.281 0.000 0.000 0.000
0.000 0.000 Automatic
34X Diag9 50.291 L/r 48.281 Rupture 138 18.92 50.291 54.400 67.500 72.542 48.281 0.000 0.000 0.000
0.000 0.000 Automatic
34XY Diag9 50.291 L/r 48.281 Rupture 138 18.92 50.291 54.400 67.500 72.542 48.281 0.000 0.000 0.000
0.000 0.000 Automatic
34Y Diag9 50.291 L/r 48.281 Rupture 138 18.92 50.291 54.400 67.500 72.542 48.281 0.000 0.000 0.000
0.000 0.000 Automatic
35P Diag10 55.072 L/r 81.600 Shear 189 30.73 55.072 81.600 177.187 121.751 164.062 0.000 0.000 0.000
0.000 0.000 Automatic
35X Diag10 55.072 L/r 81.600 Shear 189 30.73 55.072 81.600 177.187 121.751 164.062 0.000 0.000 0.000
0.000 0.000 Automatic
35XY Diag10 55.072 L/r 81.600 Shear 189 30.73 55.072 81.600 177.187 121.751 164.062 0.000 0.000 0.000
0.000 0.000 Automatic
35Y Diag10 55.072 L/r 81.600 Shear 189 30.73 55.072 81.600 177.187 121.751 164.062 0.000 0.000 0.000
0.000 0.000 Automatic
36P TTTC 27.374 L/r 33.082 Net Sect 122 6.00 27.374 54.400 67.500 33.082 62.500 0.000 0.000 0.000
0.000 0.000 Automatic
36X TTTC 27.374 L/r 33.082 Net Sect 122 6.00 27.374 54.400 67.500 33.082 62.500 0.000 0.000 0.000
0.000 0.000 Automatic
36XY TTTC 27.374 L/r 33.082 Net Sect 122 6.00 27.374 54.400 67.500 33.082 62.500 0.000 0.000 0.000
0.000 0.000 Automatic
36Y TTTC 27.374 L/r 33.082 Net Sect 122 6.00 27.374 54.400 67.500 33.082 62.500 0.000 0.000 0.000
0.000 0.000 Automatic
37P TTTC 32.243 L/r 29.774 Net Sect 91 4.50 32.243 0.000 0.000 29.774 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
37X TTTC 32.243 L/r 29.774 Net Sect 91 4.50 32.243 0.000 0.000 29.774 0.000 0.000 0.000 0.000

0.000		0.000		Automatic											
37XY	TTTC	32.243	L/r	29.774	Net Sect	91	4.50	32.243	0.000	0.000	29.774	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
37Y	TTTC	32.243	L/r	29.774	Net Sect	91	4.50	32.243	0.000	0.000	29.774	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
38P	TTTC	27.200	Shear	23.109	Rupture	91	4.50	32.243	27.200	33.750	36.271	23.109	0.000	0.000	0.000
0.000		0.000		Automatic											
38X	TTTC	27.200	Shear	23.109	Rupture	91	4.50	32.243	27.200	33.750	36.271	23.109	0.000	0.000	0.000
0.000		0.000		Automatic											
38XY	TTTC	27.200	Shear	23.109	Rupture	91	4.50	32.243	27.200	33.750	36.271	23.109	0.000	0.000	0.000
0.000		0.000		Automatic											
38Y	TTTC	27.200	Shear	23.109	Rupture	91	4.50	32.243	27.200	33.750	36.271	23.109	0.000	0.000	0.000
0.000		0.000		Automatic											
39P	TTBC	27.374	L/r	33.082	Net Sect	122	6.00	27.374	54.400	67.500	33.082	62.500	0.000	0.000	0.000
0.000		0.000		Automatic											
39X	TTBC	27.374	L/r	33.082	Net Sect	122	6.00	27.374	54.400	67.500	33.082	62.500	0.000	0.000	0.000
0.000		0.000		Automatic											
39XY	TTBC	27.374	L/r	33.082	Net Sect	122	6.00	27.374	54.400	67.500	33.082	62.500	0.000	0.000	0.000
0.000		0.000		Automatic											
39Y	TTBC	27.374	L/r	33.082	Net Sect	122	6.00	27.374	54.400	67.500	33.082	62.500	0.000	0.000	0.000
0.000		0.000		Automatic											
40P	TTBC	32.243	L/r	29.774	Net Sect	91	4.50	32.243	0.000	0.000	29.774	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
40X	TTBC	32.243	L/r	29.774	Net Sect	91	4.50	32.243	0.000	0.000	29.774	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
40XY	TTBC	32.243	L/r	29.774	Net Sect	91	4.50	32.243	0.000	0.000	29.774	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
40Y	TTBC	32.243	L/r	29.774	Net Sect	91	4.50	32.243	0.000	0.000	29.774	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
41P	TTBC	32.243	L/r	36.271	Net Sect	91	4.50	32.243	54.400	67.500	36.271	56.859	0.000	0.000	0.000
0.000		0.000		Automatic											
41X	TTBC	32.243	L/r	36.271	Net Sect	91	4.50	32.243	54.400	67.500	36.271	56.859	0.000	0.000	0.000
0.000		0.000		Automatic											
41XY	TTBC	32.243	L/r	36.271	Net Sect	91	4.50	32.243	54.400	67.500	36.271	56.859	0.000	0.000	0.000
0.000		0.000		Automatic											
41Y	TTBC	32.243	L/r	36.271	Net Sect	91	4.50	32.243	54.400	67.500	36.271	56.859	0.000	0.000	0.000
0.000		0.000		Automatic											
42P	MTTC	43.565	L/r	49.582	Net Sect	91	6.00	43.565	54.400	67.500	49.582	75.000	0.000	0.000	0.000
0.000		0.000		Automatic											
42X	MTTC	43.565	L/r	49.582	Net Sect	91	6.00	43.565	54.400	67.500	49.582	75.000	0.000	0.000	0.000
0.000		0.000		Automatic											
42XY	MTTC	43.565	L/r	49.582	Net Sect	91	6.00	43.565	54.400	67.500	49.582	75.000	0.000	0.000	0.000
0.000		0.000		Automatic											
42Y	MTTC	43.565	L/r	49.582	Net Sect	91	6.00	43.565	54.400	67.500	49.582	75.000	0.000	0.000	0.000
0.000		0.000		Automatic											
43P	MTTC	47.728	L/r	44.624	Net Sect	68	4.50	47.728	0.000	0.000	44.624	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
43X	MTTC	47.728	L/r	44.624	Net Sect	68	4.50	47.728	0.000	0.000	44.624	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
43XY	MTTC	47.728	L/r	44.624	Net Sect	68	4.50	47.728	0.000	0.000	44.624	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
43Y	MTTC	47.728	L/r	44.624	Net Sect	68	4.50	47.728	0.000	0.000	44.624	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
44P	**MTTC**	**40.800**	**Shear**	**40.800**	**Shear**	**68**	**4.50**	**47.728**	**40.800**	**50.625**	**45.859**	**42.187**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "44P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
44X	**MTTC**	**40.800**	**Shear**	**40.800**	**Shear**	**68**	**4.50**	**47.728**	**40.800**	**50.625**	**45.859**	**42.187**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "44X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										

44XY	**MTTC**	**40.800**	**Shear**	**40.800**	**Shear**	**68**	**4.50**	**47.728**	**40.800**	**50.625**	**45.859**	**42.187**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**	**Member "44XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
44Y	**MTTC**	**40.800**	**Shear**	**40.800**	**Shear**	**68**	**4.50**	**47.728**	**40.800**	**50.625**	**45.859**	**42.187**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**	**Member "44Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
45P	MTBC	43.565	L/r	49.582	Net Sect	91	6.00	43.565	54.400	67.500	49.582	75.000	0.000	0.000	0.000	0.000	0.000	Automatic	
45X	MTBC	43.565	L/r	49.582	Net Sect	91	6.00	43.565	54.400	67.500	49.582	75.000	0.000	0.000	0.000	0.000	0.000	Automatic	
45XY	MTBC	43.565	L/r	49.582	Net Sect	91	6.00	43.565	54.400	67.500	49.582	75.000	0.000	0.000	0.000	0.000	0.000	Automatic	
45Y	MTBC	43.565	L/r	49.582	Net Sect	91	6.00	43.565	54.400	67.500	49.582	75.000	0.000	0.000	0.000	0.000	0.000	Automatic	
46P	MTBC	47.728	L/r	44.624	Net Sect	68	4.50	47.728	0.000	0.000	44.624	0.000	0.000	0.000	0.000	0.000	0.000	Automatic	
46X	MTBC	47.728	L/r	44.624	Net Sect	68	4.50	47.728	0.000	0.000	44.624	0.000	0.000	0.000	0.000	0.000	0.000	Automatic	
46XY	MTBC	47.728	L/r	44.624	Net Sect	68	4.50	47.728	0.000	0.000	44.624	0.000	0.000	0.000	0.000	0.000	0.000	Automatic	
46Y	MTBC	47.728	L/r	44.624	Net Sect	68	4.50	47.728	0.000	0.000	44.624	0.000	0.000	0.000	0.000	0.000	0.000	Automatic	
47P	**MTBC**	**47.728**	**L/r**	**51.121**	**Net Sect**	**68**	**4.50**	**47.728**	**54.400**	**67.500**	**51.121**	**58.823**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**	**Member "47P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
47X	**MTBC**	**47.728**	**L/r**	**51.121**	**Net Sect**	**68**	**4.50**	**47.728**	**54.400**	**67.500**	**51.121**	**58.823**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**	**Member "47X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
47XY	**MTBC**	**47.728**	**L/r**	**51.121**	**Net Sect**	**68**	**4.50**	**47.728**	**54.400**	**67.500**	**51.121**	**58.823**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**	**Member "47XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
47Y	**MTBC**	**47.728**	**L/r**	**51.121**	**Net Sect**	**68**	**4.50**	**47.728**	**54.400**	**67.500**	**51.121**	**58.823**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**	**Member "47Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
48P	BTTC	53.785	L/r	54.400	Shear	91	6.00	53.785	54.400	84.375	61.153	93.750	0.000	0.000	0.000	0.000	0.000	Automatic	
48X	BTTC	53.785	L/r	54.400	Shear	91	6.00	53.785	54.400	84.375	61.153	93.750	0.000	0.000	0.000	0.000	0.000	Automatic	
48XY	BTTC	53.785	L/r	54.400	Shear	91	6.00	53.785	54.400	84.375	61.153	93.750	0.000	0.000	0.000	0.000	0.000	Automatic	
48Y	BTTC	53.785	L/r	54.400	Shear	91	6.00	53.785	54.400	84.375	61.153	93.750	0.000	0.000	0.000	0.000	0.000	Automatic	
49P	BTTC	58.971	L/r	55.038	Net Sect	68	4.50	58.971	0.000	0.000	55.038	0.000	0.000	0.000	0.000	0.000	0.000	Automatic	
49X	BTTC	58.971	L/r	55.038	Net Sect	68	4.50	58.971	0.000	0.000	55.038	0.000	0.000	0.000	0.000	0.000	0.000	Automatic	
49XY	BTTC	58.971	L/r	55.038	Net Sect	68	4.50	58.971	0.000	0.000	55.038	0.000	0.000	0.000	0.000	0.000	0.000	Automatic	
49Y	BTTC	58.971	L/r	55.038	Net Sect	68	4.50	58.971	0.000	0.000	55.038	0.000	0.000	0.000	0.000	0.000	0.000	Automatic	
50P	BTTC	40.800	Shear	40.800	Shear	68	4.50	58.971	40.800	63.281	63.159	53.379	0.000	0.000	0.000	0.000	0.000	Automatic	
50X	BTTC	40.800	Shear	40.800	Shear	68	4.50	58.971	40.800	63.281	63.159	53.379	0.000	0.000	0.000	0.000	0.000	Automatic	
50XY	BTTC	40.800	Shear	40.800	Shear	68	4.50	58.971	40.800	63.281	63.159	53.379	0.000	0.000	0.000	0.000	0.000	Automatic	
50Y	BTTC	40.800	Shear	40.800	Shear	68	4.50	58.971	40.800	63.281	63.159	53.379	0.000	0.000	0.000	0.000	0.000	Automatic	
51P	BTBC	53.785	L/r	54.400	Shear	91	6.00	53.785	54.400	84.375	61.153	93.750	0.000	0.000	0.000	0.000			

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0.000              0.000           Automatic
    51X     BTBC   53.785       L/r   54.400     Shear   91   6.00   53.785     54.400     84.375   61.153   93.750    0.000    0.000    0.000
0.000              0.000           Automatic
   51XY     BTBC   53.785       L/r   54.400     Shear   91   6.00   53.785     54.400     84.375   61.153   93.750    0.000    0.000    0.000
0.000              0.000           Automatic
    51Y     BTBC   53.785       L/r   54.400     Shear   91   6.00   53.785     54.400     84.375   61.153   93.750    0.000    0.000    0.000
0.000              0.000           Automatic
    52P     BTBC   58.971       L/r   55.038   Net Sect   68   4.50   58.971      0.000      0.000   55.038    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    52X     BTBC   58.971       L/r   55.038   Net Sect   68   4.50   58.971      0.000      0.000   55.038    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   52XY     BTBC   58.971       L/r   55.038   Net Sect   68   4.50   58.971      0.000      0.000   55.038    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    52Y     BTBC   58.971       L/r   55.038   Net Sect   68   4.50   58.971      0.000      0.000   55.038    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    53P     BTBC   54.400     Shear   54.400     Shear   68   4.50   58.971     54.400     84.375   63.159   73.529    0.000    0.000    0.000
0.000              0.000           Automatic   Member "53P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    53X     BTBC   54.400     Shear   54.400     Shear   68   4.50   58.971     54.400     84.375   63.159   73.529    0.000    0.000    0.000
0.000              0.000           Automatic   Member "53X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   53XY     BTBC   54.400     Shear   54.400     Shear   68   4.50   58.971     54.400     84.375   63.159   73.529    0.000    0.000    0.000
0.000              0.000           Automatic   Member "53XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    53Y     BTBC   54.400     Shear   54.400     Shear   68   4.50   58.971     54.400     84.375   63.159   73.529    0.000    0.000    0.000
0.000              0.000           Automatic   Member "53Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    54P      BTC  208.793       L/r  178.200   Net Sect   40   5.25  208.793      0.000      0.000  178.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    54X      BTC  208.793       L/r  178.200   Net Sect   40   5.25  208.793      0.000      0.000  178.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   54XY      BTC  208.793       L/r  178.200   Net Sect   40   5.25  208.793      0.000      0.000  178.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    54Y      BTC  208.793       L/r  178.200   Net Sect   40   5.25  208.793      0.000      0.000  178.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    55P      BTC  208.793       L/r  165.206   Net Sect   40   5.25  208.793      0.000      0.000  165.206    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    55X      BTC  208.793       L/r  165.206   Net Sect   40   5.25  208.793      0.000      0.000  165.206    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   55XY      BTC  208.793       L/r  165.206   Net Sect   40   5.25  208.793      0.000      0.000  165.206    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    55Y      BTC  208.793       L/r  165.206   Net Sect   40   5.25  208.793      0.000      0.000  165.206    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    56P      BTC  108.800     Shear  108.800     Shear   34   4.50  212.063    108.800    270.000  191.193  294.117    0.000    0.000    0.000
0.000              0.000           Automatic   Member "56P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    56X      BTC  108.800     Shear  108.800     Shear   34   4.50  212.063    108.800    270.000  191.193  294.117    0.000    0.000    0.000
0.000              0.000           Automatic   Member "56X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   56XY      BTC  108.800     Shear  108.800     Shear   34   4.50  212.063    108.800    270.000  191.193  294.117    0.000    0.000    0.000
0.000              0.000           Automatic   Member "56XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    56Y      BTC  108.800     Shear  108.800     Shear   34   4.50  212.063    108.800    270.000  191.193  294.117    0.000    0.000    0.000
0.000              0.000           Automatic   Member "56Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    57P      BBC  148.642       L/r  118.800   Net Sect   53   5.25  148.642      0.000      0.000  118.800    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    57X      BBC  148.642       L/r  118.800   Net Sect   53   5.25  148.642      0.000      0.000  118.800    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
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57XY	BBC	148.642	L/r	118.800	Net Sect	53	5.25	148.642	0.000	0.000	118.800	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
57Y	BBC	148.642	L/r	118.800	Net Sect	53	5.25	148.642	0.000	0.000	118.800	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
58P	BBC	148.642	L/r	118.800	Net Sect	53	5.25	148.642	0.000	0.000	118.800	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
58X	BBC	148.642	L/r	118.800	Net Sect	53	5.25	148.642	0.000	0.000	118.800	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
58XY	BBC	148.642	L/r	118.800	Net Sect	53	5.25	148.642	0.000	0.000	118.800	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
58Y	BBC	148.642	L/r	118.800	Net Sect	53	5.25	148.642	0.000	0.000	118.800	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
59P	**BBC**	**122.400**	**Shear**	**122.400**	**Shear**	**46**	**4.50**	**152.178**	**122.400**	**303.750**	**131.794**	**330.882**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
59X	**BBC**	**122.400**	**Shear**	**122.400**	**Shear**	**46**	**4.50**	**152.178**	**122.400**	**303.750**	**131.794**	**330.882**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
59XY	**BBC**	**122.400**	**Shear**	**122.400**	**Shear**	**46**	**4.50**	**152.178**	**122.400**	**303.750**	**131.794**	**330.882**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
59Y	**BBC**	**122.400**	**Shear**	**122.400**	**Shear**	**46**	**4.50**	**152.178**	**122.400**	**303.750**	**131.794**	**330.882**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
60P	Horz1	13.192	L/r	26.473	Rupture	164	16.32	13.192	40.800	37.969	27.500	26.473	0.000	0.000	0.000	0.000	0.000	Automatic
60X	Horz1	13.192	L/r	26.473	Rupture	164	16.32	13.192	40.800	37.969	27.500	26.473	0.000	0.000	0.000	0.000	0.000	Automatic
60XY	Horz1	13.192	L/r	26.473	Rupture	164	16.32	13.192	40.800	37.969	27.500	26.473	0.000	0.000	0.000	0.000	0.000	Automatic
60Y	Horz1	13.192	L/r	26.473	Rupture	164	16.32	13.192	40.800	37.969	27.500	26.473	0.000	0.000	0.000	0.000	0.000	Automatic
61P	Horz2	24.283	L/r	36.422	Rupture	148	17.08	24.283	40.800	50.625	43.696	36.422	0.000	0.000	0.000	0.000	0.000	Automatic
61X	Horz2	24.283	L/r	36.422	Rupture	148	17.08	24.283	40.800	50.625	43.696	36.422	0.000	0.000	0.000	0.000	0.000	Automatic
62P	**Br1**	**1.570**	**L/r**	**8.191**	**Rupture**	**360**	**11.81**	**1.570**	**13.600**	**12.656**	**16.214**	**8.191**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 359.76 exceeds maximum of 250.00 for member "62P" ??																		
62Y	**Br1**	**1.570**	**L/r**	**8.191**	**Rupture**	**360**	**11.81**	**1.570**	**13.600**	**12.656**	**16.214**	**8.191**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 359.76 exceeds maximum of 250.00 for member "62Y" ??																		
63P	**Br1**	**1.570**	**L/r**	**8.191**	**Rupture**	**360**	**11.81**	**1.570**	**13.600**	**12.656**	**16.214**	**8.191**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 359.76 exceeds maximum of 250.00 for member "63P" ??																		
63Y	**Br1**	**1.570**	**L/r**	**8.191**	**Rupture**	**360**	**11.81**	**1.570**	**13.600**	**12.656**	**16.214**	**8.191**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 359.76 exceeds maximum of 250.00 for member "63Y" ??																		
64P	**Br1**	**1.570**	**L/r**	**8.191**	**Rupture**	**360**	**11.81**	**1.570**	**13.600**	**12.656**	**16.214**	**8.191**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 359.76 exceeds maximum of 250.00 for member "64P" ??																		
64Y	**Br1**	**1.570**	**L/r**	**8.191**	**Rupture**	**360**	**11.81**	**1.570**	**13.600**	**12.656**	**16.214**	**8.191**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 359.76 exceeds maximum of 250.00 for member "64Y" ??																		
65P	**Br1**	**1.570**	**L/r**	**8.191**	**Rupture**	**360**	**11.81**	**1.570**	**13.600**	**12.656**	**16.214**	**8.191**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 359.76 exceeds maximum of 250.00 for member "65P" ??																		
65Y	**Br1**	**1.570**	**L/r**	**8.191**	**Rupture**	**360**	**11.81**	**1.570**	**13.600**	**12.656**	**16.214**	**8.191**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**

0.000 0.000 Automatic
KL/R value of 359.76 exceeds maximum of 250.00 for member "65Y" ??
66P Br2 10.549 L/r 9.949 Rupture 172 17.08 10.549 13.600 12.656 27.500 9.949 0.000 0.000 0.000
0.000 0.000 Automatic
67P ARMTT 27.200 Shear 27.200 Shear 106 7.00 40.528 27.200 33.750 51.121 38.750 0.000 0.000 0.000
0.000 0.000 Automatic
67X ARMTT 27.200 Shear 27.200 Shear 106 7.00 40.528 27.200 33.750 51.121 38.750 0.000 0.000 0.000
0.000 0.000 Automatic
67XY ARMTT 27.200 Shear 27.200 Shear 106 7.00 40.528 27.200 33.750 51.121 38.750 0.000 0.000 0.000
0.000 0.000 Automatic
67Y ARMTT 27.200 Shear 27.200 Shear 106 7.00 40.528 27.200 33.750 51.121 38.750 0.000 0.000 0.000
0.000 0.000 Automatic
68P ARMMT 40.528 L/r 40.800 Shear 106 7.00 40.528 40.800 50.625 49.952 44.118 0.000 0.000 0.000
0.000 0.000 Automatic Member "68P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
68X ARMMT 40.528 L/r 40.800 Shear 106 7.00 40.528 40.800 50.625 49.952 44.118 0.000 0.000 0.000
0.000 0.000 Automatic Member "68X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
68XY ARMMT 40.528 L/r 40.800 Shear 106 7.00 40.528 40.800 50.625 49.952 44.118 0.000 0.000 0.000
0.000 0.000 Automatic Member "68XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
68Y ARMMT 40.528 L/r 40.800 Shear 106 7.00 40.528 40.800 50.625 49.952 44.118 0.000 0.000 0.000
0.000 0.000 Automatic Member "68Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
69P ARMBT 40.528 L/r 40.800 Shear 106 7.00 40.528 40.800 50.625 49.952 44.118 0.000 0.000 0.000
0.000 0.000 Automatic Member "69P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
69X ARMBT 40.528 L/r 40.800 Shear 106 7.00 40.528 40.800 50.625 49.952 44.118 0.000 0.000 0.000
0.000 0.000 Automatic Member "69X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
69XY ARMBT 40.528 L/r 40.800 Shear 106 7.00 40.528 40.800 50.625 49.952 44.118 0.000 0.000 0.000
0.000 0.000 Automatic Member "69XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
69Y ARMBT 40.528 L/r 40.800 Shear 106 7.00 40.528 40.800 50.625 49.952 44.118 0.000 0.000 0.000
0.000 0.000 Automatic Member "69Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
70P ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
70X ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
70XY ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
70Y ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
71P ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
71X ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
71XY ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
71Y ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
72P ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
72X ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
72XY ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000
0.000 0.000 Automatic
72Y ArmBr1 0.029 L/r 6.265 Net Sect 1912 8.60 0.029 27.200 25.312 6.265 17.824 0.000 0.000 0.000

0.000		0.000		Automatic											
73P	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
73X	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
73XY	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
73Y	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
74P	ArmBr3	13.600	Shear	13.600	Shear	154	7.00	17.286	13.600	16.875	28.846	15.047	0.000	0.000	0.000
0.000		0.000		Automatic											
74X	ArmBr3	13.600	Shear	13.600	Shear	154	7.00	17.286	13.600	16.875	28.846	15.047	0.000	0.000	0.000
0.000		0.000		Automatic											
75P	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
75X	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
75XY	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
75Y	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
76P	ArmBr3	13.600	Shear	13.600	Shear	154	7.00	17.286	13.600	16.875	28.846	15.047	0.000	0.000	0.000
0.000		0.000		Automatic											
76X	ArmBr3	13.600	Shear	13.600	Shear	154	7.00	17.286	13.600	16.875	28.846	15.047	0.000	0.000	0.000
0.000		0.000		Automatic											
77P	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
77X	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
77XY	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
77Y	ArmBr2	11.659	L/r	12.868	Rupture	152	9.90	11.659	13.600	16.875	21.421	12.868	0.000	0.000	0.000
0.000		0.000		Automatic											
78P	ArmBr3	13.600	Shear	13.600	Shear	154	7.00	17.286	13.600	16.875	28.846	15.047	0.000	0.000	0.000
0.000		0.000		Automatic											
78X	ArmBr3	13.600	Shear	13.600	Shear	154	7.00	17.286	13.600	16.875	28.846	15.047	0.000	0.000	0.000
0.000		0.000		Automatic											
79P	TTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.160	0.000	0.000	0.000
0.000		0.000		Automatic											
79Y	TTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.160	0.000	0.000	0.000
0.000		0.000		Automatic											
80P	TTBr2	14.161	L/r	23.437	Rupture	157	7.81	14.161	27.200	25.312	27.500	23.437	0.000	0.000	0.000
0.000		0.000		Automatic											
80X	TTBr2	14.161	L/r	23.437	Rupture	157	7.81	14.161	27.200	25.312	27.500	23.437	0.000	0.000	0.000
0.000		0.000		Automatic											
80XY	TTBr2	14.161	L/r	23.437	Rupture	157	7.81	14.161	27.200	25.312	27.500	23.437	0.000	0.000	0.000
0.000		0.000		Automatic											
80Y	TTBr2	14.161	L/r	23.437	Rupture	157	7.81	14.161	27.200	25.312	27.500	23.437	0.000	0.000	0.000
0.000		0.000		Automatic											
81P	TTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.160	0.000	0.000	0.000
0.000		0.000		Automatic											
81X	TTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.160	0.000	0.000	0.000
0.000		0.000		Automatic											
81XY	TTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.160	0.000	0.000	0.000
0.000		0.000		Automatic											
81Y	TTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.160	0.000	0.000	0.000
0.000		0.000		Automatic											
82P	TTBr2	17.958	L/r	18.879	Rupture	135	6.73	17.958	27.200	25.312	27.500	18.879	0.000	0.000	0.000
0.000		0.000		Automatic											

82X	TTBr2	17.958	L/r	18.879	Rupture	135	6.73	17.958	27.200	25.312	27.500	18.879	0.000	0.000	0.000
0.000		0.000		Automatic											
82XY	TTBr2	17.958	L/r	18.879	Rupture	135	6.73	17.958	27.200	25.312	27.500	18.879	0.000	0.000	0.000
0.000		0.000		Automatic											
82Y	TTBr2	17.958	L/r	18.879	Rupture	135	6.73	17.958	27.200	25.312	27.500	18.879	0.000	0.000	0.000
0.000		0.000		Automatic											
83P	TTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.160	0.000	0.000	0.000
0.000		0.000		Automatic											
83X	TTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.160	0.000	0.000	0.000
0.000		0.000		Automatic											
83XY	TTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.160	0.000	0.000	0.000
0.000		0.000		Automatic											
83Y	TTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.160	0.000	0.000	0.000
0.000		0.000		Automatic											
84P	TTBr3	28.788	L/r	40.800	Shear	137	6.73	28.788	40.800	63.281	44.745	45.410	0.000	0.000	0.000
0.000		0.000		Automatic											
84X	TTBr3	28.788	L/r	40.800	Shear	137	6.73	28.788	40.800	63.281	44.745	45.410	0.000	0.000	0.000
0.000		0.000		Automatic											
84XY	TTBr3	28.788	L/r	40.800	Shear	137	6.73	28.788	40.800	63.281	44.745	45.410	0.000	0.000	0.000
0.000		0.000		Automatic											
84Y	TTBr3	28.788	L/r	40.800	Shear	137	6.73	28.788	40.800	63.281	44.745	45.410	0.000	0.000	0.000
0.000		0.000		Automatic											
85P	MTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.301	0.000	0.000	0.000
0.000		0.000		Automatic											
85Y	MTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.301	0.000	0.000	0.000
0.000		0.000		Automatic											
86P	**MTBr3**	**32.441**	**L/r**	**40.800**	**Shear**	**128**	**7.81**	**32.441**	**40.800**	**50.625**	**44.531**	**44.118**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "86P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
86X	**MTBr3**	**32.441**	**L/r**	**40.800**	**Shear**	**128**	**7.81**	**32.441**	**40.800**	**50.625**	**44.531**	**44.118**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "86X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
86XY	**MTBr3**	**32.441**	**L/r**	**40.800**	**Shear**	**128**	**7.81**	**32.441**	**40.800**	**50.625**	**44.531**	**44.118**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "86XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
86Y	**MTBr3**	**32.441**	**L/r**	**40.800**	**Shear**	**128**	**7.81**	**32.441**	**40.800**	**50.625**	**44.531**	**44.118**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "86Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
87P	MTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.301	0.000	0.000	0.000
0.000		0.000		Automatic											
87X	MTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.301	0.000	0.000	0.000
0.000		0.000		Automatic											
87XY	MTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.301	0.000	0.000	0.000
0.000		0.000		Automatic											
87Y	MTBr1	9.713	L/r	16.214	Net Sect	152	5.00	9.713	27.200	25.312	16.214	19.301	0.000	0.000	0.000
0.000		0.000		Automatic											
88P	**MTBr4**	**33.676**	**L/r**	**38.603**	**Rupture**	**116**	**6.73**	**33.676**	**40.800**	**50.625**	**40.448**	**38.603**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "88P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
88X	**MTBr4**	**33.676**	**L/r**	**38.603**	**Rupture**	**116**	**6.73**	**33.676**	**40.800**	**50.625**	**40.448**	**38.603**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "88X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
88XY	**MTBr4**	**33.676**	**L/r**	**38.603**	**Rupture**	**116**	**6.73**	**33.676**	**40.800**	**50.625**	**40.448**	**38.603**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "88XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
88Y	**MTBr4**	**33.676**	**L/r**	**38.603**	**Rupture**	**116**	**6.73**	**33.676**	**40.800**	**50.625**	**40.448**	**38.603**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "88Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
89P	MTBr2	27.139	L/r	27.200	Shear	114	5.00	27.139	27.200	33.750	32.410	31.250	0.000	0.000	0.000

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0.000             0.000          Automatic
    89X    MTBr2   27.139      L/r   27.200     Shear  114   5.00   27.139     27.200     33.750   32.410   31.250    0.000    0.000    0.000
0.000             0.000          Automatic
   89XY    MTBr2   27.139      L/r   27.200     Shear  114   5.00   27.139     27.200     33.750   32.410   31.250    0.000    0.000    0.000
0.000             0.000          Automatic
    89Y    MTBr2   27.139      L/r   27.200     Shear  114   5.00   27.139     27.200     33.750   32.410   31.250    0.000    0.000    0.000
0.000             0.000          Automatic
    90P    MTBr5   43.226      L/r   47.613  Net Sect  102   6.73   43.226     54.400     67.500   47.613   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "90P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    90X    MTBr5   43.226      L/r   47.613  Net Sect  102   6.73   43.226     54.400     67.500   47.613   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "90X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   90XY    MTBr5   43.226      L/r   47.613  Net Sect  102   6.73   43.226     54.400     67.500   47.613   58.823    0.000    0.000    0.000
0.000             0.000          Automatic  Member "90XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    90Y    MTBr5   43.226      L/r   47.613  Net Sect  102   6.73   43.226     54.400     67.500   47.613   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "90Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    91P    BTBr1    9.713      L/r   16.214  Net Sect  152   5.00    9.713     27.200     25.312   16.214   19.301    0.000    0.000    0.000
0.000             0.000          Automatic
    91Y    BTBr1    9.713      L/r   16.214  Net Sect  152   5.00    9.713     27.200     25.312   16.214   19.301    0.000    0.000    0.000
0.000             0.000          Automatic
    92P    BTBr3   46.945      L/r   54.400     Shear  118   7.81   46.945     54.400     84.375   59.748   73.529    0.000    0.000    0.000
0.000             0.000          Automatic   Member "92P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    92X    BTBr3   46.945      L/r   54.400     Shear  118   7.81   46.945     54.400     84.375   59.748   73.529    0.000    0.000    0.000
0.000             0.000          Automatic   Member "92X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   92XY    BTBr3   46.945      L/r   54.400     Shear  118   7.81   46.945     54.400     84.375   59.748   73.529    0.000    0.000    0.000
0.000             0.000          Automatic  Member "92XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    92Y    BTBr3   46.945      L/r   54.400     Shear  118   7.81   46.945     54.400     84.375   59.748   73.529    0.000    0.000    0.000
0.000             0.000          Automatic   Member "92Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    93P    BTBr1    9.713      L/r   16.214  Net Sect  152   5.00    9.713     27.200     25.312   16.214   19.301    0.000    0.000    0.000
0.000             0.000          Automatic
    93X    BTBr1    9.713      L/r   16.214  Net Sect  152   5.00    9.713     27.200     25.312   16.214   19.301    0.000    0.000    0.000
0.000             0.000          Automatic
   93XY    BTBr1    9.713      L/r   16.214  Net Sect  152   5.00    9.713     27.200     25.312   16.214   19.301    0.000    0.000    0.000
0.000             0.000          Automatic
    93Y    BTBr1    9.713      L/r   16.214  Net Sect  152   5.00    9.713     27.200     25.312   16.214   19.301    0.000    0.000    0.000
0.000             0.000          Automatic
    94P    BTBr4   43.226      L/r   49.627  Net Sect  102   6.73   43.226     54.400     67.500   49.627   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "94P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    94X    BTBr4   43.226      L/r   49.627  Net Sect  102   6.73   43.226     54.400     67.500   49.627   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "94X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   94XY    BTBr4   43.226      L/r   49.627  Net Sect  102   6.73   43.226     54.400     67.500   49.627   58.823    0.000    0.000    0.000
0.000             0.000          Automatic  Member "94XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    94Y    BTBr4   43.226      L/r   49.627  Net Sect  102   6.73   43.226     54.400     67.500   49.627   58.823    0.000    0.000    0.000
0.000             0.000          Automatic   Member "94Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    95P    BTBr2   40.800     Shear   40.800     Shear   86   5.00   43.754     40.800     50.625   43.696   42.516    0.000    0.000    0.000
0.000             0.000          Automatic
    95X    BTBr2   40.800     Shear   40.800     Shear   86   5.00   43.754     40.800     50.625   43.696   42.516    0.000    0.000    0.000
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0.000             0.000          Automatic
   95XY    BTBr2   40.800     Shear   40.800     Shear   86   5.00   43.754     40.800     50.625   43.696   42.516    0.000    0.000    0.000
0.000             0.000          Automatic
    95Y    BTBr2   40.800     Shear   40.800     Shear   86   5.00   43.754     40.800     50.625   43.696   42.516    0.000    0.000    0.000
0.000             0.000          Automatic
    96P    BTBr5   63.333       L/r   67.790  Net Sect  102   6.73   63.333     68.000    126.562   67.790  110.294    0.000    0.000    0.000
0.000             0.000          Automatic   Member "96P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    96X    BTBr5   63.333       L/r   67.790  Net Sect  102   6.73   63.333     68.000    126.562   67.790  110.294    0.000    0.000    0.000
0.000             0.000          Automatic   Member "96X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   96XY    BTBr5   63.333       L/r   67.790  Net Sect  102   6.73   63.333     68.000    126.562   67.790  110.294    0.000    0.000    0.000
0.000             0.000          Automatic  Member "96XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    96Y    BTBr5   63.333       L/r   67.790  Net Sect  102   6.73   63.333     68.000    126.562   67.790  110.294    0.000    0.000    0.000
0.000             0.000          Automatic   Member "96Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    97P     TBC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "97P"  ??
    98P     TBC1   10.309       L/r    8.191   Rupture  140   9.22   10.309     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000             0.000          Automatic
    98X     TBC1   10.309       L/r    8.191   Rupture  140   9.22   10.309     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000             0.000          Automatic
   98XY     TBC1   10.309       L/r    8.191   Rupture  140   9.22   10.309     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000             0.000          Automatic
    98Y     TBC1   10.309       L/r    8.191   Rupture  140   9.22   10.309     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000             0.000          Automatic
    99P     TBC2   13.479       L/r   27.200     Shear  171   7.00   13.479     27.200     33.750   28.846   28.125    0.000    0.000    0.000
0.000             0.000          Automatic
    99X     TBC2   13.479       L/r   27.200     Shear  171   7.00   13.479     27.200     33.750   28.846   28.125    0.000    0.000    0.000
0.000             0.000          Automatic
   100P     TBC3   13.600     Shear   10.922   Rupture  128   8.32   16.440     13.600     16.875   21.421   10.922    0.000    0.000    0.000
0.000             0.000          Automatic
   100X     TBC3   13.600     Shear   10.922   Rupture  128   8.32   16.440     13.600     16.875   21.421   10.922    0.000    0.000    0.000
0.000             0.000          Automatic
  100XY     TBC3   13.600     Shear   10.922   Rupture  128   8.32   16.440     13.600     16.875   21.421   10.922    0.000    0.000    0.000
0.000             0.000          Automatic
   100Y     TBC3   13.600     Shear   10.922   Rupture  128   8.32   16.440     13.600     16.875   21.421   10.922    0.000    0.000    0.000
0.000             0.000          Automatic
   101P     TBC4   10.354       L/r   21.094   Rupture  170   7.00   10.354     27.200     25.312   21.917   21.094    0.000    0.000    0.000
0.000             0.000          Automatic
   101X     TBC4   10.354       L/r   21.094   Rupture  170   7.00   10.354     27.200     25.312   21.917   21.094    0.000    0.000    0.000
0.000             0.000          Automatic
   102P     TBC3   13.600     Shear   10.922   Rupture  128   8.32   16.440     13.600     16.875   21.421   10.922    0.000    0.000    0.000
0.000             0.000          Automatic
   102X     TBC3   13.600     Shear   10.922   Rupture  128   8.32   16.440     13.600     16.875   21.421   10.922    0.000    0.000    0.000
0.000             0.000          Automatic
  102XY     TBC3   13.600     Shear   10.922   Rupture  128   8.32   16.440     13.600     16.875   21.421   10.922    0.000    0.000    0.000
0.000             0.000          Automatic
   102Y     TBC3   13.600     Shear   10.922   Rupture  128   8.32   16.440     13.600     16.875   21.421   10.922    0.000    0.000    0.000
0.000             0.000          Automatic
   103P     TBC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "103P"  ??
   104P     TBC1   10.309       L/r    8.191   Rupture  140   9.22   10.309     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000             0.000          Automatic
   104X     TBC1   10.309       L/r    8.191   Rupture  140   9.22   10.309     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000             0.000          Automatic
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104XY	TBC1	10.309	L/r	8.191	Rupture	140	9.22	10.309	13.600	12.656	16.214	8.191	0.000	0.000	0.000
0.000		0.000		Automatic											
104Y	TBC1	10.309	L/r	8.191	Rupture	140	9.22	10.309	13.600	12.656	16.214	8.191	0.000	0.000	0.000
0.000		0.000		Automatic											
105P	TBC2	14.856	L/r	27.200	Shear	171	7.00	14.856	27.200	33.750	28.846	28.125	0.000	0.000	0.000
0.000		0.000		Automatic											
105X	TBC2	14.856	L/r	27.200	Shear	171	7.00	14.856	27.200	33.750	28.846	28.125	0.000	0.000	0.000
0.000		0.000		Automatic											
106P	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
106X	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
106XY	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
106Y	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
107P	TBC4	11.388	L/r	21.094	Rupture	170	7.00	11.388	27.200	25.312	21.917	21.094	0.000	0.000	0.000
0.000		0.000		Automatic											
107X	TBC4	11.388	L/r	21.094	Rupture	170	7.00	11.388	27.200	25.312	21.917	21.094	0.000	0.000	0.000
0.000		0.000		Automatic											
108P	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
108X	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
108XY	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
108Y	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
109P	**TBC1**	**4.471**	**L/r**	**7.348**	**Rupture**	**213**	**7.00**	**4.471**	**13.600**	**12.656**	**16.214**	**7.348**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
110P	TBC1	10.309	L/r	8.191	Rupture	140	9.22	10.309	13.600	12.656	16.214	8.191	0.000	0.000	0.000
0.000		0.000		Automatic											
110X	TBC1	10.309	L/r	8.191	Rupture	140	9.22	10.309	13.600	12.656	16.214	8.191	0.000	0.000	0.000
0.000		0.000		Automatic											
110XY	TBC1	10.309	L/r	8.191	Rupture	140	9.22	10.309	13.600	12.656	16.214	8.191	0.000	0.000	0.000
0.000		0.000		Automatic											
110Y	TBC1	10.309	L/r	8.191	Rupture	140	9.22	10.309	13.600	12.656	16.214	8.191	0.000	0.000	0.000
0.000		0.000		Automatic											
111P	TBC2	14.856	L/r	27.200	Shear	171	7.00	14.856	27.200	33.750	28.846	28.125	0.000	0.000	0.000
0.000		0.000		Automatic											
111X	TBC2	14.856	L/r	27.200	Shear	171	7.00	14.856	27.200	33.750	28.846	28.125	0.000	0.000	0.000
0.000		0.000		Automatic											
112P	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
112X	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
112XY	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
112Y	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
113P	TBC4	11.388	L/r	21.094	Rupture	170	7.00	11.388	27.200	25.312	21.917	21.094	0.000	0.000	0.000
0.000		0.000		Automatic											
113X	TBC4	11.388	L/r	21.094	Rupture	170	7.00	11.388	27.200	25.312	21.917	21.094	0.000	0.000	0.000
0.000		0.000		Automatic											
114P	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											
114X	TBC3	13.600	Shear	10.922	Rupture	128	8.32	16.440	13.600	16.875	21.421	10.922	0.000	0.000	0.000
0.000		0.000		Automatic											

KL/R value of 213.20 exceeds maximum of 200.00 for member "109P" ??

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  114XY     TBC3   13.600     Shear   10.922   Rupture  128   8.32   16.440     13.600     16.875   21.421   10.922    0.000    0.000    0.000
0.000               0.000           Automatic
   114Y     TBC3   13.600     Shear   10.922   Rupture  128   8.32   16.440     13.600     16.875   21.421   10.922    0.000    0.000    0.000
0.000               0.000           Automatic
   115P     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "115P"  ??
   116P     TTC2    5.168       L/r   10.512   Rupture  224   9.22    5.168     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 223.50 exceeds maximum of 200.00 for member "116P"  ??
   117P     TTC2    5.168       L/r   10.512   Rupture  224   9.22    5.168     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 223.50 exceeds maximum of 200.00 for member "117P"  ??
   118P     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "118P"  ??
   118X     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "118X"  ??
   119P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "119P"  ??
   120P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "120P"  ??
   121P     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "121P"  ??
   121X     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "121X"  ??
   122P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "122P"  ??
   123P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "123P"  ??
   124P     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "124P"  ??
   125P     TTC2    5.168       L/r   10.512   Rupture  224   9.22    5.168     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 223.50 exceeds maximum of 200.00 for member "125P"  ??
   126P     TTC2    5.168       L/r   10.512   Rupture  224   9.22    5.168     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 223.50 exceeds maximum of 200.00 for member "126P"  ??
   127P     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "127P"  ??
   127X     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "127X"  ??
   128P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "128P"  ??
   129P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000               0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "129P"  ??
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   130P     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "130P"  ??
   130X     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "130X"  ??
   131P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "131P"  ??
   132P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "132P"  ??
   133P     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "133P"  ??
   134P     TTC2    5.168       L/r   10.512   Rupture  224   9.22    5.168     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 223.50 exceeds maximum of 200.00 for member "134P"  ??
   135P     TTC2    5.168       L/r   10.512   Rupture  224   9.22    5.168     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 223.50 exceeds maximum of 200.00 for member "135P"  ??
   136P     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "136P"  ??
   136X     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "136X"  ??
   137P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "137P"  ??
   138P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "138P"  ??
   139P     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "139P"  ??
   139X     TTC1    4.471       L/r    7.348   Rupture  213   7.00    4.471     13.600     12.656   16.214    7.348    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "139X"  ??
   140P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "140P"  ??
   141P     TTC2    6.344       L/r   10.512   Rupture  202   8.32    6.344     13.600     12.656   21.917   10.512    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 201.74 exceeds maximum of 200.00 for member "141P"  ??
   142P    Horz3   10.354       L/r   18.105   Rupture  170   7.00   10.354     27.200     25.312   21.917   18.105    0.000    0.000    0.000
0.000              0.000           Automatic
   142X    Horz3   10.354       L/r   18.105   Rupture  170   7.00   10.354     27.200     25.312   21.917   18.105    0.000    0.000    0.000
0.000              0.000           Automatic
   143P    Horz3   10.354       L/r   18.105   Rupture  170   7.00   10.354     27.200     25.312   21.917   18.105    0.000    0.000    0.000
0.000              0.000           Automatic
   143X    Horz3   10.354       L/r   18.105   Rupture  170   7.00   10.354     27.200     25.312   21.917   18.105    0.000    0.000    0.000
0.000              0.000           Automatic
   144P    Horz4    4.471       L/r    8.191   Rupture  213   7.00    4.471     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 213.20 exceeds maximum of 200.00 for member "144P"  ??
   144X    Horz4    4.471       L/r    8.191   Rupture  213   7.00    4.471     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
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KL/R value of 213.20 exceeds maximum of 200.00 for member "144X" ??

145P	Horz3	10.354	L/r	18.105	Rupture	170	7.00	10.354	27.200	25.312	21.917	18.105	0.000	0.000	0.000
0.000		0.000		Automatic											
145X	Horz3	10.354	L/r	18.105	Rupture	170	7.00	10.354	27.200	25.312	21.917	18.105	0.000	0.000	0.000
0.000		0.000		Automatic											
146P	**Horz4**	**4.471**	**L/r**	**8.191**	**Rupture**	**213**	**7.00**	**4.471**	**13.600**	**12.656**	**16.214**	**8.191**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											

KL/R value of 213.20 exceeds maximum of 200.00 for member "146P" ??

146X	**Horz4**	**4.471**	**L/r**	**8.191**	**Rupture**	**213**	**7.00**	**4.471**	**13.600**	**12.656**	**16.214**	**8.191**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											

KL/R value of 213.20 exceeds maximum of 200.00 for member "146X" ??

147P	Horz5	39.688	L/r	40.800	Shear	122	7.00	39.688	40.800	63.281	53.952	47.988	0.000	0.000	0.000
0.000		0.000		Automatic											
147X	Horz5	39.688	L/r	40.800	Shear	122	7.00	39.688	40.800	63.281	53.952	47.988	0.000	0.000	0.000
0.000		0.000		Automatic											
148P	Horz6	33.036	L/r	39.835	Net Sect	103	5.42	33.036	40.800	50.625	39.835	46.875	0.000	0.000	0.000
0.000		0.000		Automatic											
148X	Horz6	33.036	L/r	39.835	Net Sect	103	5.42	33.036	40.800	50.625	39.835	46.875	0.000	0.000	0.000
0.000		0.000		Automatic											
148XY	Horz6	33.036	L/r	39.835	Net Sect	103	5.42	33.036	40.800	50.625	39.835	46.875	0.000	0.000	0.000
0.000		0.000		Automatic											
148Y	Horz6	33.036	L/r	39.835	Net Sect	103	5.42	33.036	40.800	50.625	39.835	46.875	0.000	0.000	0.000
0.000		0.000		Automatic											
149P	Horz6	27.200	Shear	27.200	Shear	121	12.74	29.777	27.200	33.750	39.835	28.125	0.000	0.000	0.000
0.000		0.000		Automatic											
149X	Horz6	27.200	Shear	27.200	Shear	121	12.74	29.777	27.200	33.750	39.835	28.125	0.000	0.000	0.000
0.000		0.000		Automatic											
150P	BBr1	9.436	L/r	15.785	Rupture	155	5.09	9.436	27.200	25.312	16.214	15.785	0.000	0.000	0.000
0.000		0.000		Automatic											
150Y	BBr1	9.436	L/r	15.785	Rupture	155	5.09	9.436	27.200	25.312	16.214	15.785	0.000	0.000	0.000
0.000		0.000		Automatic											
151P	**BBr2**	**59.320**	**L/r**	**68.000**	**Shear**	**111**	**7.31**	**59.320**	**68.000**	**126.562**	**70.324**	**110.294**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "151P" will not be checked for block shear since more than one gage line exists (long edge**										

distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

151X	**BBr2**	**59.320**	**L/r**	**68.000**	**Shear**	**111**	**7.31**	**59.320**	**68.000**	**126.562**	**70.324**	**110.294**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "151X" will not be checked for block shear since more than one gage line exists (long edge**										

distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

151XY	**BBr2**	**59.320**	**L/r**	**68.000**	**Shear**	**111**	**7.31**	**59.320**	**68.000**	**126.562**	**70.324**	**110.294**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "151XY" will not be checked for block shear since more than one gage line exists (long edge**										

distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

151Y	**BBr2**	**59.320**	**L/r**	**68.000**	**Shear**	**111**	**7.31**	**59.320**	**68.000**	**126.562**	**70.324**	**110.294**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "151Y" will not be checked for block shear since more than one gage line exists (long edge**										

distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

152P	BBr1	9.436	L/r	15.785	Rupture	155	5.09	9.436	27.200	25.312	16.214	15.785	0.000	0.000	0.000
0.000		0.000		Automatic											
152X	BBr1	9.436	L/r	15.785	Rupture	155	5.09	9.436	27.200	25.312	16.214	15.785	0.000	0.000	0.000
0.000		0.000		Automatic											
152XY	BBr1	9.436	L/r	15.785	Rupture	155	5.09	9.436	27.200	25.312	16.214	15.785	0.000	0.000	0.000
0.000		0.000		Automatic											
152Y	BBr1	9.436	L/r	15.785	Rupture	155	5.09	9.436	27.200	25.312	16.214	15.785	0.000	0.000	0.000
0.000		0.000		Automatic											
153P	**BBr2**	**59.320**	**L/r**	**68.000**	**Shear**	**111**	**7.31**	**59.320**	**68.000**	**126.562**	**68.960**	**110.294**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "153P" will not be checked for block shear since more than one gage line exists (long edge**										

distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

153X	**BBr2**	**59.320**	**L/r**	**68.000**	**Shear**	**111**	**7.31**	**59.320**	**68.000**	**126.562**	**68.960**	**110.294**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "153X" will not be checked for block shear since more than one gage line exists (long edge**										

distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

153XY	**BBr2**	**59.320**	**L/r**	**68.000**	**Shear**	**111**	**7.31**	**59.320**	**68.000**	**126.562**	**68.960**	**110.294**	**0.000**	**0.000**	**0.000**

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0.000             0.000          Automatic Member "153XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   153Y     BBr2   59.320       L/r   68.000     Shear  111   7.31   59.320     68.000    126.562   68.960  110.294    0.000    0.000    0.000
0.000             0.000          Automatic  Member "153Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   154P     BBr3   54.400     Shear   54.400     Shear   77   5.09   65.583     54.400     84.375   63.159   59.355    0.000    0.000    0.000
0.000             0.000          Automatic
   154X     BBr3   54.400     Shear   54.400     Shear   77   5.09   65.583     54.400     84.375   63.159   59.355    0.000    0.000    0.000
0.000             0.000          Automatic
  154XY     BBr3   54.400     Shear   54.400     Shear   77   5.09   65.583     54.400     84.375   63.159   59.355    0.000    0.000    0.000
0.000             0.000          Automatic
   154Y     BBr3   54.400     Shear   54.400     Shear   77   5.09   65.583     54.400     84.375   63.159   59.355    0.000    0.000    0.000
0.000             0.000          Automatic
   155P     BBr4  130.359       L/r  103.105  Net Sect   55   6.79  130.359    149.600    324.843  103.105  300.781    0.000    0.000    0.000
0.000             0.000          Automatic  Member "155P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   155X     BBr4  130.359       L/r  103.105  Net Sect   55   6.79  130.359    149.600    324.843  103.105  300.781    0.000    0.000    0.000
0.000             0.000          Automatic  Member "155X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  155XY     BBr4  130.359       L/r  103.105  Net Sect   55   6.79  130.359    149.600    324.843  103.105  300.781    0.000    0.000    0.000
0.000             0.000          Automatic Member "155XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   155Y     BBr4  130.359       L/r  103.105  Net Sect   55   6.79  130.359    149.600    324.843  103.105  300.781    0.000    0.000    0.000
0.000             0.000          Automatic  Member "155Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   156P     BBr4  130.317       L/r  103.105  Net Sect   55   6.80  130.317    149.600    324.843  103.105  300.781    0.000    0.000    0.000
0.000             0.000          Automatic  Member "156P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   156X     BBr4  130.317       L/r  103.105  Net Sect   55   6.80  130.317    149.600    324.843  103.105  300.781    0.000    0.000    0.000
0.000             0.000          Automatic  Member "156X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  156XY     BBr4  130.317       L/r  103.105  Net Sect   55   6.80  130.317    149.600    324.843  103.105  300.781    0.000    0.000    0.000
0.000             0.000          Automatic Member "156XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   156Y     BBr4  130.317       L/r  103.105  Net Sect   55   6.80  130.317    149.600    324.843  103.105  300.781    0.000    0.000    0.000
0.000             0.000          Automatic  Member "156Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   157P     BTC1   16.690       L/r   27.141   Rupture  186  10.75   16.690     27.200     33.750   43.696   27.141    0.000    0.000    0.000
0.000             0.000          Automatic
   158P     BTC2    4.933       L/r   16.214  Net Sect  229  15.03    4.933     27.200     25.312   16.214   19.301    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 202.97 exceeds maximum of 200.00 for member "158P"  ??
   158X     BTC2    4.933       L/r   16.214  Net Sect  229  15.03    4.933     27.200     25.312   16.214   19.301    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 202.97 exceeds maximum of 200.00 for member "158X"  ??
  158XY     BTC2    4.933       L/r   16.214  Net Sect  229  15.03    4.933     27.200     25.312   16.214   19.301    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 202.97 exceeds maximum of 200.00 for member "158XY"  ??
   158Y     BTC2    4.933       L/r   16.214  Net Sect  229  15.03    4.933     27.200     25.312   16.214   19.301    0.000    0.000    0.000
0.000             0.000          Automatic
KL/R value of 202.97 exceeds maximum of 200.00 for member "158Y"  ??
   159P     BTC2    8.642       L/r   14.941   Rupture  164  10.75    8.642     27.200     25.312   16.214   14.941    0.000    0.000    0.000
0.000             0.000          Automatic
   159X     BTC2    8.642       L/r   14.941   Rupture  164  10.75    8.642     27.200     25.312   16.214   14.941    0.000    0.000    0.000
0.000             0.000          Automatic
   160P     BTC3   24.779       L/r   28.698  Net Sect  122   5.38   24.779     40.800     50.625   28.698   32.016    0.000    0.000    0.000
0.000             0.000          Automatic
   160X     BTC3   24.779       L/r   28.698  Net Sect  122   5.38   24.779     40.800     50.625   28.698   32.016    0.000    0.000    0.000
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0.000              0.000           Automatic
   161P     BTC3   24.779       L/r   28.698  Net Sect  122   5.38   24.779     40.800     50.625   28.698   32.016    0.000    0.000    0.000
0.000              0.000           Automatic
   161X     BTC3   24.779       L/r   28.698  Net Sect  122   5.38   24.779     40.800     50.625   28.698   32.016    0.000    0.000    0.000
0.000              0.000           Automatic
   162P     BTC4   12.805       L/r   21.421  Net Sect  153   7.04   12.805     40.800     50.625   21.421   41.016    0.000    0.000    0.000
0.000              0.000           Automatic
   162X     BTC4   12.805       L/r   21.421  Net Sect  153   7.04   12.805     40.800     50.625   21.421   41.016    0.000    0.000    0.000
0.000              0.000           Automatic
  162XY     BTC4   12.805       L/r   21.421  Net Sect  153   7.04   12.805     40.800     50.625   21.421   41.016    0.000    0.000    0.000
0.000              0.000           Automatic
   162Y     BTC4   12.805       L/r   21.421  Net Sect  153   7.04   12.805     40.800     50.625   21.421   41.016    0.000    0.000    0.000
0.000              0.000           Automatic
   163P     BTC4   12.895       L/r   21.421  Net Sect  152   7.01   12.895     40.800     50.625   21.421   41.016    0.000    0.000    0.000
0.000              0.000           Automatic
   163X     BTC4   12.895       L/r   21.421  Net Sect  152   7.01   12.895     40.800     50.625   21.421   41.016    0.000    0.000    0.000
0.000              0.000           Automatic
  163XY     BTC4   12.895       L/r   21.421  Net Sect  152   7.01   12.895     40.800     50.625   21.421   41.016    0.000    0.000    0.000
0.000              0.000           Automatic
   163Y     BTC4   12.895       L/r   21.421  Net Sect  152   7.01   12.895     40.800     50.625   21.421   41.016    0.000    0.000    0.000
0.000              0.000           Automatic
   164P     BTC5   15.020       L/r   21.047   Rupture  138   4.50   15.020     27.200     33.750   21.421   21.047    0.000    0.000    0.000
0.000              0.000           Automatic
   164X     BTC5   15.020       L/r   21.047   Rupture  138   4.50   15.020     27.200     33.750   21.421   21.047    0.000    0.000    0.000
0.000              0.000           Automatic
   165P     BBC1    6.278       L/r   19.652   Rupture  255  12.67    6.278     27.200     25.312   27.500   19.652    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 222.93 exceeds maximum of 200.00 for member "165P"  ??
   166P     BBC2    3.237       L/r    8.191   Rupture  251  16.45    3.237     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 250.54 exceeds maximum of 200.00 for member "166P"  ??
   166X     BBC2    3.237       L/r    8.191   Rupture  251  16.45    3.237     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 250.54 exceeds maximum of 200.00 for member "166X"  ??
  166XY     BBC2    3.237       L/r    8.191   Rupture  251  16.45    3.237     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 250.54 exceeds maximum of 200.00 for member "166XY"  ??
   166Y     BBC2    3.237       L/r    8.191   Rupture  251  16.45    3.237     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 250.54 exceeds maximum of 200.00 for member "166Y"  ??
   167P     BBC2    5.462       L/r    8.191   Rupture  193  12.67    5.462     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
   167X     BBC2    5.462       L/r    8.191   Rupture  193  12.67    5.462     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
   168P     BBC3   17.576       L/r   26.203   Rupture  163  12.67   17.576     27.200     33.750   36.271   26.203    0.000    0.000    0.000
0.000              0.000           Automatic
   168X     BBC3   17.576       L/r   26.203   Rupture  163  12.67   17.576     27.200     33.750   36.271   26.203    0.000    0.000    0.000
0.000              0.000           Automatic
   169P     BBC2    4.824       L/r    8.191   Rupture  205  13.48    4.824     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 205.25 exceeds maximum of 200.00 for member "169P"  ??
   169X     BBC2    4.824       L/r    8.191   Rupture  205  13.48    4.824     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 205.25 exceeds maximum of 200.00 for member "169X"  ??
  169XY     BBC2    4.824       L/r    8.191   Rupture  205  13.48    4.824     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 205.25 exceeds maximum of 200.00 for member "169XY"  ??
   169Y     BBC2    4.824       L/r    8.191   Rupture  205  13.48    4.824     13.600     12.656   16.214    8.191    0.000    0.000    0.000
0.000              0.000           Automatic
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KL/R value of 205.25 exceeds maximum of 200.00 for member "169Y" ??

The model contains 521 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	0.0613	3.898	4.024
2P	0.104	4.522	4.535
3P	0.164	5.708	5.592
4P	0.138	4.807	5.125
5P	0.148	5.713	5.709
6P	0.218	6.729	6.576
7P	0.229	6.826	7.151
8P	0.25	7.171	7.317
9P	0.275	7.354	7.605
14P	0.662	15.243	14.806
15P	0.0615	2.467	2.021
16P	0.0615	2.467	2.021
17P	0.0615	2.467	2.021
18P	0.0582	2.542	1.729
19P	0.0801	4.015	2.979
20P	0.0652	3.016	2.735
21P	0.0955	4.869	3.417
22P	0.0707	2.604	2.313
23P	0.119	4.814	4.188
24P	0.0684	3.042	1.729
25P	0.106	4.918	3.292
26P	0.0828	3.435	2.562
27P	0.125	6.020	3.833
28P	0.0796	3.042	2.312
29P	0.142	6.098	4.917
30P	0.078	3.042	1.729
31P	0.125	5.058	3.396
32P	0.0949	3.819	2.875
33P	0.15	6.020	3.833
34P	0.088	3.042	2.312
35P	0.177	6.343	5.140
36P	0.213	5.667	3.784
37P	0.23	6.333	3.017
38P	0.278	8.510	5.324
39P	0.244	7.208	5.815
40P	0.125	3.042	1.480
41P	0.273	7.691	6.887
44P	0.125	5.957	8.109
45P	0.0538	1.313	2.472
10P	0.233	6.721	6.906
11P	0.273	7.264	6.244
12P	0.512	13.485	14.602
1X	0.0613	3.898	4.024
2X	0.117	4.991	5.264
2XY	0.104	4.522	4.535
2Y	0.117	4.991	5.264
3X	0.164	5.708	5.592
3XY	0.164	5.708	5.592
3Y	0.164	5.708	5.592

4X	0.138	4.807	5.125
4XY	0.138	4.807	5.125
4Y	0.138	4.807	5.125
5X	0.161	6.182	6.438
5XY	0.148	5.713	5.709
5Y	0.161	6.182	6.438
6X	0.218	6.729	6.576
6XY	0.218	6.729	6.576
6Y	0.218	6.729	6.576
7X	0.229	6.826	7.151
7XY	0.229	6.826	7.151
7Y	0.229	6.826	7.151
8X	0.263	7.640	8.046
8XY	0.25	7.171	7.317
8Y	0.263	7.640	8.046
9X	0.275	7.354	7.605
9XY	0.275	7.354	7.605
9Y	0.275	7.354	7.605
14X	0.662	15.243	14.806
14XY	0.662	15.243	14.806
14Y	0.662	15.243	14.806
15X	0.0615	2.467	2.021
15XY	0.0615	2.467	2.021
15Y	0.0615	2.467	2.021
16X	0.0615	2.467	2.021
16XY	0.0615	2.467	2.021
16Y	0.0615	2.467	2.021
17X	0.0615	2.467	2.021
17XY	0.0615	2.467	2.021
17Y	0.0615	2.467	2.021
18Y	0.0582	2.542	1.729
19X	0.0815	4.171	2.979
19XY	0.0801	4.015	2.979
19Y	0.0815	4.171	2.979
20X	0.0652	3.016	2.735
20XY	0.0652	3.016	2.735
20Y	0.0652	3.016	2.735
21Y	0.0955	4.869	3.417
22X	0.0707	2.604	2.313
22XY	0.0707	2.604	2.313
22Y	0.0707	2.604	2.313
23X	0.119	4.814	4.188
23XY	0.119	4.814	4.188
23Y	0.119	4.814	4.188
24Y	0.0684	3.042	1.729
25X	0.107	5.074	3.292
25XY	0.106	4.918	3.292
25Y	0.107	5.074	3.292
26X	0.0828	3.435	2.562
26XY	0.0828	3.435	2.562
26Y	0.0828	3.435	2.562
27Y	0.125	6.020	3.833
28X	0.0796	3.042	2.312
28XY	0.0796	3.042	2.312
28Y	0.0796	3.042	2.312
29X	0.142	6.098	4.917
29XY	0.142	6.098	4.917
29Y	0.142	6.098	4.917
30Y	0.078	3.042	1.729

31X	0.126	5.215	3.396
31XY	0.125	5.058	3.396
31Y	0.126	5.215	3.396
32X	0.0949	3.819	2.875
32XY	0.0949	3.819	2.875
32Y	0.0949	3.819	2.875
33Y	0.15	6.020	3.833
34X	0.088	3.042	2.312
34XY	0.088	3.042	2.312
34Y	0.088	3.042	2.312
35X	0.177	6.343	5.140
35XY	0.177	6.343	5.140
35Y	0.177	6.343	5.140
36Y	0.213	5.667	3.784
37X	0.23	6.333	3.017
37XY	0.23	6.333	3.017
37Y	0.23	6.333	3.017
38X	0.278	8.510	5.324
38XY	0.278	8.510	5.324
38Y	0.278	8.510	5.324
39Y	0.244	7.208	5.815
40X	0.125	3.042	1.480
40XY	0.125	3.042	1.480
40Y	0.125	3.042	1.480
41X	0.273	7.691	6.887
41XY	0.273	7.691	6.887
41Y	0.273	7.691	6.887
44X	0.125	5.957	8.109
45X	0.0538	1.313	2.472
10X	0.233	6.721	6.906
10XY	0.233	6.721	6.906
10Y	0.233	6.721	6.906
11X	0.273	7.264	6.244
11XY	0.273	7.264	6.244
11Y	0.273	7.264	6.244
12X	0.512	13.485	14.602
12XY	0.512	13.485	14.602
12Y	0.512	13.485	14.602
13S	0.615	16.398	18.331
42S	0.928	21.055	14.957
43S	0.114	3.812	6.399
46S	0.0576	2.720	2.847
47S	0.0576	2.720	2.847
13X	0.615	16.398	18.331
13XY	0.615	16.398	18.331
13Y	0.615	16.398	18.331
42Y	0.928	21.055	14.957
43X	0.114	3.812	6.399
Total	29.4	922.574	822.888

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	12.638	475.119	409.642	190.768	67.131
2	16.753	447.454	413.246	181.537	133.734
Total	29.392	922.574	822.888	372.305	200.865

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	12.638	13.270	2388.520	2507.946
2	16.753	17.591	2119.786	2225.775
Total	29.392	30.861	4508.306	4733.721

Section Joint Information:

Section Label	Joint Label	Joint Elevation (ft)
1	1P	94.000
1	2P	85.000
1	1X	94.000
1	2X	85.000
1	2XY	85.000
1	2Y	85.000
1	3P	80.000
1	3X	80.000
1	3XY	80.000
1	3Y	80.000
1	4P	75.000
1	4X	75.000
1	4XY	75.000
1	4Y	75.000
1	5P	70.000
1	5X	70.000
1	5XY	70.000
1	5Y	70.000
1	6P	65.000
1	6X	65.000
1	6XY	65.000
1	6Y	65.000
1	7P	60.000
1	7X	60.000
1	7XY	60.000
1	7Y	60.000
1	8P	55.000
1	8X	55.000
1	8XY	55.000
1	8Y	55.000
1	9P	50.000
1	9X	50.000
1	9XY	50.000
1	9Y	50.000
1	20P	85.000
1	20X	85.000
1	20XY	85.000
1	20Y	85.000
1	23P	80.000
1	23X	80.000
1	23XY	80.000
1	23Y	80.000

1	26P	70.000
1	26X	70.000
1	26XY	70.000
1	26Y	70.000
1	29P	65.000
1	29X	65.000
1	29XY	65.000
1	29Y	65.000
1	32P	55.000
1	32X	55.000
1	32XY	55.000
1	32Y	55.000
1	18P	85.000
1	19P	85.000
1	19X	85.000
1	18Y	85.000
1	19XY	85.000
1	19Y	85.000
1	21P	80.000
1	22P	80.000
1	22X	80.000
1	21Y	80.000
1	22XY	80.000
1	22Y	80.000
1	24P	70.000
1	25P	70.000
1	25X	70.000
1	24Y	70.000
1	25XY	70.000
1	25Y	70.000
1	27P	65.000
1	28P	65.000
1	28X	65.000
1	27Y	65.000
1	28XY	65.000
1	28Y	65.000
1	30P	55.000
1	31P	55.000
1	31X	55.000
1	30Y	55.000
1	31XY	55.000
1	31Y	55.000
1	33P	50.000
1	34P	50.000
1	34X	50.000
1	33Y	50.000
1	34XY	50.000
1	34Y	50.000
1	35P	50.000
1	35X	50.000
1	35XY	50.000
1	35Y	50.000
1	15P	80.000
1	15X	80.000
1	15XY	80.000
1	15Y	80.000
1	16P	65.000
1	16X	65.000
1	16XY	65.000

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1   16Y    65.000
1   17P    50.000
1   17X    50.000
1  17XY    50.000
1   17Y    50.000
2    9P    50.000
2   10P    45.000
2    9X    50.000
2   10X    45.000
2   9XY    50.000
2  10XY    45.000
2    9Y    50.000
2   10Y    45.000
2   11P    40.000
2   11X    40.000
2  11XY    40.000
2   11Y    40.000
2   12P    35.000
2   12X    35.000
2  12XY    35.000
2   12Y    35.000
2   13S    23.670
2   13X    23.670
2  13XY    23.670
2   13Y    23.670
2   14P     0.000
2   14X     0.000
2  14XY     0.000
2   14Y     0.000
2   43S    40.000
2   43X    40.000
2   44P    17.750
2   44X    17.750
2   35P    50.000
2   35X    50.000
2  35XY    50.000
2   35Y    50.000
2   38P    40.000
2   38X    40.000
2  38XY    40.000
2   38Y    40.000
2   42S    23.670
2   42Y    23.670
2   36P    40.000
2   37P    40.000
2   37X    40.000
2   36Y    40.000
2  37XY    40.000
2   37Y    40.000
2   39P    35.000
2   40P    35.000
2   40X    35.000
2   39Y    35.000
2  40XY    35.000
2   40Y    35.000
2   41P    35.000
2   41X    35.000
2  41XY    35.000
2   41Y    35.000
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2	47S	23.670
2	46S	23.670
2	45P	40.000
2	45X	40.000

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	94.000	50.000	106	356	0.00	7.00	276.500	28.00	44.00	1416.000
2	50.000	0.000	58	165	7.00	26.15	828.655	30.00	38.15	1642.555

*** 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)
C1	1P	C-EX1	No Limit
C2	1X	C-EX1	No Limit
C3	15P	C-EX1	No Limit
C4	15X	C-EX1	No Limit
C5	15XY	C-EX1	No Limit
C6	15Y	C-EX1	No Limit
C7	16P	C-EX1	No Limit
C8	16X	C-EX1	No Limit
C9	16XY	C-EX1	No Limit
C10	16Y	C-EX1	No Limit
C11	17P	C-EX1	No Limit
C12	17X	C-EX1	No Limit
C13	17XY	C-EX1	No Limit
C14	17Y	C-EX1	No Limit
C15	22P	C-EX1	No Limit
C16	22X	C-EX1	No Limit
C17	22XY	C-EX1	No Limit
C18	22Y	C-EX1	No Limit
C19	28P	C-EX1	No Limit
C20	28X	C-EX1	No Limit
C21	28XY	C-EX1	No Limit
C22	28Y	C-EX1	No Limit
C23	34P	C-EX1	No Limit
C24	34X	C-EX1	No Limit
C25	34XY	C-EX1	No Limit
C26	34Y	C-EX1	No Limit
C27	3XY	C-EX1	No Limit
C28	5XY	C-EX1	No Limit

C29	7XY	C-EX1	No Limit
C30	9XY	C-EX1	No Limit
C31	11XY	C-EX1	No Limit
C32	13XY	C-EX1	No Limit
C34	3Y	C-EX1	No Limit
C35	5Y	C-EX1	No Limit
C36	7Y	C-EX1	No Limit
C37	9Y	C-EX1	No Limit
C38	11Y	C-EX1	No Limit
C39	13Y	C-EX1	No Limit
C41	3X	C-EX1	No Limit
C42	3P	C-EX1	No Limit
C43	7X	C-EX1	No Limit
C44	7P	C-EX1	No Limit
C45	2X	C-EX1	No Limit
C46	2XY	C-EX1	No Limit
C47	2Y	C-EX1	No Limit
C48	2P	C-EX1	No Limit
C49	5X	C-EX1	No Limit
C50	5P	C-EX1	No Limit
C51	9X	C-EX1	No Limit
C52	9P	C-EX1	No Limit
C53	11X	C-EX1	No Limit
C54	11P	C-EX1	No Limit
C55	13X	C-EX1	No Limit
C56	13S	C-EX1	No Limit

*** Loads Data

Loads from file: j:\jobs\1800000.wi\55_ct5046\04_structural\calcs\pls-tower\norwalk1102.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)	94.00 (ft)	
Structure height	94.00 (ft)	
Structure height above ground	94.00 (ft)	
Tower Shape	Rectangular	

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

Vector Load Cases:

Load Case Description	Dead Load Factor	Wind Area Factor	SF for Steel Poles and Tubular Arms and Towers	SF for Guys and Cables	SF for Insuls.	SF For Found.	Point Loads	Wind/Ice Model	Trans. Wind Pressure (psf)	Longit. Wind Pressure (psf)	Ice Thick. (in)	Ice Density (lbs/ft^3)	Temperature (deg F)	Joint Displ.
NESC Heavy	1.5000	2.5000	1.00000	1.0000	1.0000	1.0000	58 loads	Wind on Face	4	0	0.000	0.000	0.0	
NESC Extreme	1.0000	1.0000	1.00000	1.0000	1.0000	1.0000	58 loads	NESC 2012	31	0	0.000	0.000	0.0	

Point Loads for Load Case "NESC Heavy":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
1X	1331.2	4056.2	7.2	0.438 Comp Shield Wire
1P	1756.8	5097.8	7.7	OPGW-120 Shield Wire
15P	1145.4	3221.8	10534.3	TERN 795 Conductor Wire (Ahead)
15X	1099.7	3315.4	11032	TERN 795 Conductor Wire (Ahead)
15XY	1944.2	3043.1	-9691.1	TERN 795 Conductor Wire (Back)
15Y	1941.3	3106.4	-9901.4	TERN 795 Conductor Wire (Back)
22P	1138.8	3319.1	11011.9	TERN 795 Conductor Wire (Ahead)
22X	1116.1	3173.8	10377.7	TERN 795 Conductor Wire (Ahead)
22XY	1957.2	3140.1	-10080	TERN 795 Conductor Wire (Back)
22Y	1994.1	3368.5	-11065.8	TERN 795 Conductor Wire (Back)
16P	1155.4	3199.6	10453	TERN 795 Conductor Wire (Ahead)
16X	1063.5	3558.5	12071.7	TERN 795 Conductor Wire (Ahead)
16XY	1968.5	3206.3	-10377.9	TERN 795 Conductor Wire (Back)
16Y	1955.5	3264.4	-10621.4	TERN 795 Conductor Wire (Back)
28P	1131.6	3457.1	11574.2	TERN 795 Conductor Wire (Ahead)
28X	1073.1	3451.9	11568.3	TERN 795 Conductor Wire (Ahead)
28XY	1985.9	3312.7	-10800.6	TERN 795 Conductor Wire (Back)
28Y	1984.9	3375.7	-11080	TERN 795 Conductor Wire (Back)
17P	1141.4	3245.6	10617.2	TERN 795 Conductor Wire (Ahead)
17X	1056.3	3606.6	12288.9	TERN 795 Conductor Wire (Ahead)

17XY	1976.9	3261.3	-10618	TERN 795 Conductor Wire (Back)
17Y	2000.7	3474.2	-11491.3	TERN 795 Conductor Wire (Back)
34P	1108.3	3503.6	11780.8	TERN 795 Conductor Wire (Ahead)
34X	1072.5	3470.6	11631.3	TERN 795 Conductor Wire (Ahead)
34XY	2005.2	3421.6	-11265.1	TERN 795 Conductor Wire (Back)
34Y	1993.3	3384.9	-11094.3	TERN 795 Conductor Wire (Back)
2P	2197	1834	-1135	South Mast Top Connection
2Y	2197	1834	1135	South Mast Top Connection
7P	2999	-984	620	South Mast Bottom Connection
7Y	2999	-984	-620	South Mast Bottom Connection
2X	2841	782	480	North Mast Top Connection
2XY	2841	782	-480	North Mast Top Connection
7X	2031	68	35	North Mast Bottom Connection
7XY	2031	68	-35	North Mast Bottom Connection
3X	344	137	0	Coax Cable - NW Leg - AT&T Existing
5X	344	137	0	Coax Cable - NW Leg - AT&T Existing
7X	344	137	0	Coax Cable - NW Leg - AT&T Existing
9X	344	137	0	Coax Cable - NW Leg - AT&T Existing
11X	456	182	0	Coax Cable - NW Leg - AT&T Existing
13X	1093	436	0	Coax Cable - NW Leg - AT&T Existing
3XY	344	137	0	Coax Cable - NE Leg - T-Mobile Existing
5XY	344	137	0	Coax Cable - NE Leg - T-Mobile Existing
7XY	344	137	0	Coax Cable - NE Leg - T-Mobile Existing
9XY	344	137	0	Coax Cable - NE Leg - T-Mobile Existing
11XY	456	182	0	Coax Cable - NE Leg - T-Mobile Existing
13XY	1093	436	0	Coax Cable - NE Leg - T-Mobile Existing
3Y	172	75	0	Coax Cable - SE Leg - AT&T Proposed
5Y	172	75	0	Coax Cable - SE Leg - AT&T Proposed
7Y	172	75	0	Coax Cable - SE Leg - AT&T Proposed
9Y	172	75	0	Coax Cable - SE Leg - AT&T Proposed
11Y	228	100	0	Coax Cable - SE Leg - AT&T Proposed
13Y	546	239	0	Coax Cable - SE Leg - AT&T Proposed
3P	688	137	0	Coax Cable - SW Leg - T-Mobile Existing
5P	688	137	0	Coax Cable - SW Leg - T-Mobile Existing
7P	688	137	0	Coax Cable - SW Leg - T-Mobile Existing
9P	688	137	0	Coax Cable - SW Leg - T-Mobile Existing
11P	912	182	0	Coax Cable - SW Leg - T-Mobile Existing
13S	2186	436	0	Coax Cable - SW Leg - T-Mobile Existing

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	94.00	50.00	72.00	10.00	10.00	3.200	2148.2	0.00	3.200	0.0	0	19905
2	50.00	0.00	25.00	10.00	10.00	3.200	4279.5	0.00	3.200	0.0	0	26387

Point Loads for Load Case "NESC Extreme":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
1X	395.7	2145.9	6.5	0.438 Comp Shield Wire
1P	511.8	3531.4	10.1	OPGW-120 Shield Wire
15P	327.5	2504.1	6115.7	TERN 795 Conductor Wire (Ahead)

15X	292.6	2560.4	6389	TERN 795 Conductor Wire (Ahead)
15XY	906.1	2456.5	-5733.9	TERN 795 Conductor Wire (Back)
15Y	909.7	2484.7	-5841.5	TERN 795 Conductor Wire (Back)
22P	324.5	2549.5	6351.9	TERN 795 Conductor Wire (Ahead)
22X	302.9	2490.2	6059.7	TERN 795 Conductor Wire (Ahead)
22XY	916.6	2505.5	-5936.2	TERN 795 Conductor Wire (Back)
22Y	943.3	2620.1	-6442.6	TERN 795 Conductor Wire (Back)
16P	341.5	2414.4	5907.2	TERN 795 Conductor Wire (Ahead)
16X	277.5	2601.2	6725.9	TERN 795 Conductor Wire (Ahead)
16XY	915.5	2464.9	-5935	TERN 795 Conductor Wire (Back)
16Y	911.1	2485.2	-6049.3	TERN 795 Conductor Wire (Back)
28P	323.8	2545.3	6464.3	TERN 795 Conductor Wire (Ahead)
28X	284	2549.2	6481	TERN 795 Conductor Wire (Ahead)
28XY	927.2	2517.6	-6145.3	TERN 795 Conductor Wire (Back)
28Y	927.3	2545.7	-6282	TERN 795 Conductor Wire (Back)
17P	339.2	2342.2	5782.2	TERN 795 Conductor Wire (Ahead)
17X	286	2520	6600.7	TERN 795 Conductor Wire (Ahead)
17XY	909.5	2401.4	-5862.5	TERN 795 Conductor Wire (Back)
17Y	930.1	2494.5	-6275.2	TERN 795 Conductor Wire (Back)
34P	317	2469.4	6347.7	TERN 795 Conductor Wire (Ahead)
34X	294.5	2460.7	6297.6	TERN 795 Conductor Wire (Ahead)
34XY	929.9	2475.8	-6173.12	TERN 795 Conductor Wire (Back)
34Y	920.7	2462.3	-6096.4	TERN 795 Conductor Wire (Back)
2P	-345	5194	-3214	South Mast Top Connection
2Y	-345	5194	3214	South Mast Top Connection
7P	2875	-2110	1335	South Mast Bottom Connection
7Y	2875	-2110	-1335	South Mast Bottom Connection
2X	2785	4572	2826	North Mast Top Connection
2XY	2785	4572	-2826	North Mast Top Connection
7X	-317	-1509	-960	North Mast Bottom Connection
7XY	-317	-1509	960	North Mast Bottom Connection
3X	79	434	0	Coax Cable - NW Leg - AT&T Existing
5X	79	434	0	Coax Cable - NW Leg - AT&T Existing
7X	79	434	0	Coax Cable - NW Leg - AT&T Existing
9X	79	434	0	Coax Cable - NW Leg - AT&T Existing
11X	105	575	0	Coax Cable - NW Leg - AT&T Existing
13X	251	1378	0	Coax Cable - NW Leg - AT&T Existing
3XY	79	434	0	Coax Cable - NE Leg - T-Mobile Existing
5XY	79	434	0	Coax Cable - NE Leg - T-Mobile Existing
7XY	79	434	0	Coax Cable - NE Leg - T-Mobile Existing
9XY	79	434	0	Coax Cable - NE Leg - T-Mobile Existing
11XY	105	575	0	Coax Cable - NE Leg - T-Mobile Existing
13XY	251	1378	0	Coax Cable - NE Leg - T-Mobile Existing
3Y	40	217	0	Coax Cable - SE Leg - AT&T Proposed
5Y	40	217	0	Coax Cable - SE Leg - AT&T Proposed
7Y	40	217	0	Coax Cable - SE Leg - AT&T Proposed
9Y	40	217	0	Coax Cable - SE Leg - AT&T Proposed
11Y	52	288	0	Coax Cable - SE Leg - AT&T Proposed
13Y	126	689	0	Coax Cable - SE Leg - AT&T Proposed
3P	158	434	0	Coax Cable - SW Leg - T-Mobile Existing
5P	158	434	0	Coax Cable - SW Leg - T-Mobile Existing
7P	158	434	0	Coax Cable - SW Leg - T-Mobile Existing
9P	158	434	0	Coax Cable - SW Leg - T-Mobile Existing
11P	210	575	0	Coax Cable - SW Leg - T-Mobile Existing
13S	503	1378	0	Coax Cable - SW Leg - T-Mobile Existing

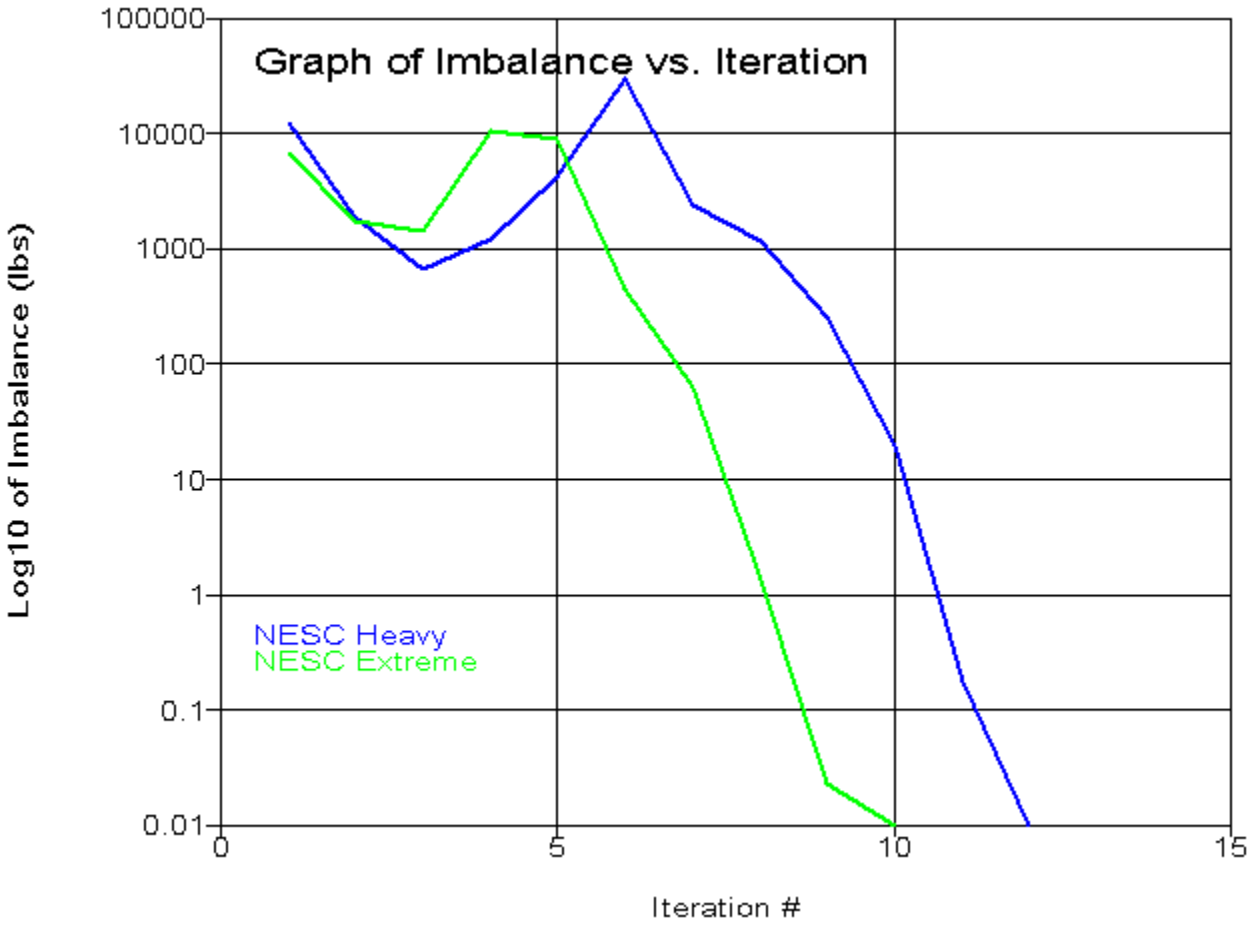
Section Load Case Information (Code) for "NESC Extreme":

Section	Z	Z	Ave.	Res.	Tran	Tran	Tran	Tran	Tran	Tran	Long	Long	Long	Long	Long	Long	Ice	Total

Label	of Top (ft)	of Bottom (ft)	Elev. Above Ground (ft)	Adj. Wind Pres. (psf)	Adj. Wind Pres. (psf)	Angle Face Area (ft^2)	Gross Area (ft^2)	Soli- dity Ratio	Angle Drag Coef	Wind Load (lbs)	Adj. Wind Pres. (psf)	Angle Face Area (ft^2)	Gross Area (ft^2)	Soli- dity Ratio	Angle Drag Coef	Wind Load (lbs)	Weight (lbs)	Weight (lbs)
1	94.00	50.00	72.00	31.14	31.14	70.49	276.50	0.255	3.200	7024.8	0.00	190.77	1416.00	0.135	3.200	0.0	0	13270
2	50.00	0.00	25.00	31.14	31.14	140.42	828.65	0.169	3.200	13994.3	0.00	181.54	1642.56	0.111	3.200	0.0	0	17591

*** Analysis Results:

Maximum element usage is 88.16% for Angle "25Y" in load case "NESC Extreme"
Maximum insulator usage is 25.74% for Clamp "C12" in load case "NESC Heavy"



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

Group Label	Angle Label	Max. Usage For All LC %	Max. Tens. For All LC (kips)	Max. Comp. For All LC (kips)	LC 1 (kips)	LC 2 (kips)
PeakPost	1P	34.41	0.000	-6.074	-6.074	-3.987
PeakPost	1X	20.85	4.024	0.000	4.024	2.326
PeakPost	1XY	19.11	3.689	0.000	3.689	2.019
PeakPost	1Y	36.70	0.000	-6.477	-6.477	-4.301

Leg1	2P	6.69	5.074	-0.750	-0.750	5.074
Leg1	2X	10.68	0.000	-11.375	-11.375	-10.851
Leg1	2XY	11.83	0.000	-12.605	-12.605	-11.863
Leg1	2Y	5.43	4.114	-1.996	-1.996	4.114
Leg1	3P	4.82	3.988	-2.364	-2.364	3.988
Leg1	3X	11.68	0.000	-12.446	-12.446	-10.746
Leg1	3XY	11.85	0.000	-12.619	-12.619	-11.295
Leg1	3Y	4.11	3.400	-2.529	-2.529	3.400
Leg1	4P	23.94	0.000	-25.501	-25.501	-22.475
Leg1	4X	17.83	14.750	0.000	8.048	14.750
Leg1	4XY	17.13	14.176	0.000	8.342	14.176
Leg1	4Y	22.97	0.000	-24.463	-24.463	-22.349
Leg1	5P	10.77	0.000	-11.468	-11.468	-5.416
Leg1	5X	11.44	0.000	-12.189	-12.189	-4.599
Leg1	5XY	9.87	0.000	-10.512	-10.512	-4.811
Leg1	5Y	9.93	0.000	-10.580	-10.580	-5.867
Leg2	6P	5.38	0.000	-13.205	-13.205	-6.593
Leg2	6X	6.09	0.000	-14.933	-14.933	-5.379
Leg2	6XY	3.66	0.000	-8.972	-8.972	-3.617
Leg2	6Y	4.65	0.000	-11.403	-11.403	-6.786
Leg2	7P	22.27	0.000	-54.618	-54.618	-47.180
Leg2	7X	14.81	29.331	0.000	14.322	29.331
Leg2	7XY	16.63	32.921	0.000	25.038	32.921
Leg2	7Y	20.62	0.000	-50.568	-50.568	-46.578
Leg2	8P	24.28	0.000	-33.025	-33.025	-24.732
Leg2	8X	9.84	4.522	-13.387	-13.387	4.522
Leg2	8XY	7.69	10.458	0.000	2.790	10.458
Leg2	8Y	22.62	0.000	-30.758	-30.758	-25.642
Leg3	9P	14.73	0.000	-36.057	-36.057	-26.695
Leg3	9X	6.99	3.270	-17.108	-17.108	3.270
Leg3	9XY	6.00	11.875	0.000	4.605	11.875
Leg3	9Y	13.63	0.000	-33.364	-33.364	-27.645
Leg3	10P	36.59	0.000	-89.606	-89.606	-77.974
Leg3	10X	25.44	50.370	0.000	30.978	50.370
Leg3	10XY	30.01	59.417	0.000	54.168	59.417
Leg3	10Y	34.77	0.000	-85.137	-85.137	-77.626
Leg4	11P	33.86	0.000	-82.901	-82.901	-71.431
Leg4	11X	21.74	43.054	0.000	24.303	43.054
Leg4	11XY	26.02	51.514	0.000	45.983	51.514
Leg4	11Y	31.81	0.000	-77.900	-77.900	-70.879
Leg4	12P	39.42	0.000	-95.229	-95.229	-82.727
Leg4	12X	28.19	55.815	0.000	36.785	55.815
Leg4	12XY	32.47	64.299	0.000	56.785	64.299
Leg4	12Y	36.85	0.000	-89.025	-89.025	-81.797
Leg5	13P	40.92	0.000	-98.333	-98.333	-86.740
Leg5	13X	25.97	51.428	0.000	30.820	51.428
Leg5	13XY	30.83	61.037	0.000	52.324	61.037
Leg5	13Y	37.72	0.000	-90.636	-90.636	-85.697
PeakPost	14P	27.79	5.363	0.000	5.363	3.846
PeakPost	14X	30.44	0.000	-5.080	-5.080	-2.766
PeakPost	14XY	28.14	0.000	-4.695	-4.695	-2.419
PeakPost	14Y	30.15	5.819	0.000	5.819	4.210
Diag1	15P	3.07	0.022	-0.281	0.022	-0.281
Diag1	15X	6.89	0.000	-0.629	-0.629	-0.004
Diag1	15XY	4.95	0.122	-0.452	-0.452	0.122
Diag1	15Y	4.91	0.000	-0.449	-0.214	-0.449
Diag2	16P	3.93	1.068	0.000	1.037	1.068
Diag2	16X	2.74	0.195	-0.563	0.195	-0.563
Diag2	16XY	8.80	0.000	-1.805	-1.805	-1.489

Diag2	16Y	2.90	0.789	0.000	0.289	0.789
Diag2	17P	3.97	0.000	-0.813	-0.356	-0.813
Diag2	17X	6.74	1.834	0.000	1.834	1.488
Diag2	17XY	2.01	0.547	-0.190	-0.190	0.547
Diag2	17Y	5.40	0.000	-1.108	-1.108	-1.088
Diag2	18P	2.03	0.000	-0.417	-0.417	-0.293
Diag2	18X	0.67	0.182	0.000	0.182	0.107
Diag2	18XY	8.35	0.000	-1.711	-1.711	-0.746
Diag2	18Y	6.42	0.000	-1.316	-1.316	-0.662
Diag3	19P	3.54	1.444	0.000	1.332	1.444
Diag3	19X	5.17	2.107	0.000	2.107	0.059
Diag3	19XY	8.23	0.000	-3.360	-3.360	-2.481
Diag3	19Y	3.32	1.356	0.000	0.648	1.356
Diag3	20P	0.03	0.000	-0.010	-0.007	-0.010
Diag3	20X	8.78	3.583	0.000	3.583	1.594
Diag3	20XY	4.76	0.000	-1.942	-1.942	-0.968
Diag3	20Y	1.96	0.000	-0.704	-0.704	-0.094
Diag3	21P	5.09	0.000	-1.832	-1.832	-1.638
Diag3	21X	4.96	2.025	0.000	2.025	1.601
Diag3	21XY	8.24	0.000	-3.360	-3.360	-0.875
Diag3	21Y	7.05	0.000	-2.537	-2.537	-1.786
Diag2	22P	1.58	0.430	0.000	0.380	0.430
Diag2	22X	2.53	0.689	-0.083	0.689	-0.083
Diag2	22XY	14.41	0.000	-3.043	-3.043	-2.064
Diag2	22Y	4.95	1.346	0.000	1.346	0.822
Diag4	23P	12.97	0.000	-2.344	-2.344	-1.981
Diag4	23X	5.50	1.081	-0.057	-0.057	1.081
Diag4	23XY	16.32	3.208	0.000	3.208	2.865
Diag4	23Y	18.24	0.000	-3.298	-3.298	-2.365
Diag4	24P	29.10	0.000	-3.885	-3.885	-3.005
Diag4	24X	11.58	2.849	0.000	2.849	2.701
Diag4	24XY	5.69	1.401	0.000	0.615	1.401
Diag4	24Y	24.52	0.000	-3.273	-3.273	-2.928
Diag5	25P	84.82	0.000	-2.959	-0.341	-2.959
Diag5	25X	2.22	0.292	-0.078	-0.078	0.292
Diag5	25XY	6.59	1.264	0.000	1.117	1.264
Diag5	25Y	88.16	0.000	-3.076	0.000	-3.076
Diag6	26P	11.18	2.253	-0.621	-0.621	2.253
Diag6	26X	23.36	6.739	0.000	6.498	6.739
Diag6	26XY	20.20	5.828	0.000	5.162	5.828
Diag6	26Y	9.06	2.613	0.000	0.122	2.613
Diag12	27P	6.43	1.769	0.000	0.218	1.769
Diag12	27X	13.29	3.654	0.000	3.104	3.654
Diag12	27XY	18.04	4.960	0.000	4.960	4.919
Diag12	27Y	15.56	1.269	-0.814	-0.814	1.269
Diag11	28P	64.54	0.000	-18.580	-15.995	-18.580
Diag11	28X	45.47	18.552	0.000	15.360	18.552
Diag11	28XY	43.60	17.790	0.000	14.087	17.790
Diag11	28Y	63.64	0.000	-18.321	-15.771	-18.321
Diag11	29P	44.43	18.126	0.000	15.360	18.126
Diag11	29X	63.32	0.000	-18.229	-15.338	-18.229
Diag11	29XY	60.79	0.000	-17.499	-14.095	-17.499
Diag11	29Y	43.76	17.855	0.000	15.141	17.855
Diag7	30P	64.57	0.000	-27.911	-27.513	-27.911
Diag7	30X	56.16	26.338	0.000	24.745	26.338
Diag7	30XY	54.55	25.581	0.000	23.763	25.581
Diag7	30Y	63.90	0.000	-27.621	-26.793	-27.621
Diag7	31P	50.36	23.518	0.000	23.288	23.518
Diag7	31X	54.86	0.000	-23.713	-23.713	-23.394

Diag7	31XY	52.33	0.000	-22.619	-22.495	-22.619
Diag7	31Y	49.31	23.029	0.000	22.753	23.029
Diag8	32P	59.07	0.000	-37.144	-37.144	-34.617
Diag8	32X	48.48	32.967	0.000	32.967	32.275
Diag8	32XY	46.35	31.519	0.000	31.519	31.180
Diag8	32Y	55.92	0.000	-35.165	-35.165	-33.524
Diag8	33P	55.53	37.760	0.000	37.760	36.105
Diag8	33X	59.00	0.000	-37.123	-37.123	-35.234
Diag8	33XY	54.81	0.000	-34.485	-34.485	-33.663
Diag8	33Y	52.52	35.714	0.000	35.714	34.796
Diag9	34P	40.25	19.435	0.000	15.969	19.435
Diag9	34X	64.55	0.000	-32.466	-32.466	-27.607
Diag9	34XY	47.29	0.000	-23.783	-22.858	-23.783
Diag9	34Y	38.10	18.393	0.000	14.074	18.393
Diag10	35P	70.59	0.000	-38.873	-38.873	-36.392
Diag10	35X	36.05	29.421	0.000	24.064	29.421
Diag10	35XY	33.65	27.457	0.000	21.027	27.457
Diag10	35Y	58.58	0.000	-32.263	-29.833	-32.263
TTTC	36P	1.91	0.000	-0.522	-0.522	-0.058
TTTC	36X	1.38	0.105	-0.378	-0.378	0.105
TTTC	36XY	0.88	0.156	-0.242	-0.242	0.156
TTTC	36Y	0.61	0.201	-0.089	-0.089	0.201
TTTC	37P	53.36	15.888	0.000	13.922	15.888
TTTC	37X	44.34	0.000	-14.295	-11.839	-14.295
TTTC	37XY	41.10	0.000	-13.251	-10.311	-13.251
TTTC	37Y	54.61	16.260	0.000	14.490	16.260
TTTC	38P	62.08	14.347	0.000	11.870	14.347
TTTC	38X	48.59	0.000	-13.216	-10.005	-13.216
TTTC	38XY	45.47	0.000	-12.368	-8.746	-12.368
TTTC	38Y	64.22	14.842	0.000	12.614	14.842
TTBC	39P	30.41	0.000	-8.325	-7.452	-8.325
TTBC	39X	23.06	7.629	0.000	6.132	7.629
TTBC	39XY	23.81	7.877	0.000	6.856	7.877
TTBC	39Y	27.48	0.000	-7.522	-5.976	-7.522
TTBC	40P	34.85	0.000	-11.237	-11.067	-11.237
TTBC	40X	33.76	10.053	0.000	8.803	10.053
TTBC	40XY	35.41	10.544	0.000	9.940	10.544
TTBC	40Y	33.22	0.000	-10.710	-9.926	-10.710
TTBC	41P	5.21	1.890	0.000	0.988	1.890
TTBC	41X	17.06	0.000	-5.500	-5.500	-3.598
TTBC	41XY	12.56	0.000	-4.048	-4.048	-3.174
TTBC	41Y	4.27	1.549	0.000	1.141	1.549
MTTC	42P	1.91	0.000	-0.834	-0.834	-0.609
MTTC	42X	1.74	0.000	-0.760	-0.760	-0.516
MTTC	42XY	1.27	0.000	-0.552	-0.552	-0.536
MTTC	42Y	1.17	0.000	-0.511	-0.422	-0.511
MTTC	43P	69.21	30.887	0.000	28.111	30.887
MTTC	43X	63.96	0.000	-30.528	-26.572	-30.528
MTTC	43XY	60.82	0.000	-29.029	-24.187	-29.029
MTTC	43Y	68.53	30.582	0.000	27.935	30.582
MTTC	44P	45.60	18.606	0.000	17.721	18.606
MTTC	44X	44.77	0.000	-18.266	-16.270	-18.266
MTTC	44XY	42.50	0.000	-17.340	-14.865	-17.340
MTTC	44Y	45.66	18.630	0.000	17.898	18.630
MTBC	45P	38.73	0.000	-16.872	-15.406	-16.872
MTBC	45X	32.19	15.963	0.000	13.573	15.963
MTBC	45XY	31.32	15.528	0.000	13.094	15.528
MTBC	45Y	38.04	0.000	-16.572	-14.987	-16.572
MTBC	46P	41.98	0.000	-20.035	-19.371	-20.035

MTBC	46X	41.52	18.528	0.000	16.348	18.528
MTBC	46XY	41.92	18.705	0.000	17.009	18.705
MTBC	46Y	42.00	0.000	-20.044	-19.335	-20.044
MTBC	47P	2.08	1.064	0.000	1.064	0.912
MTBC	47X	9.95	0.000	-4.748	-4.748	-2.168
MTBC	47XY	6.86	0.000	-3.272	-3.272	-1.770
MTBC	47Y	0.51	0.039	-0.244	-0.244	0.039
BTTC	48P	1.59	0.000	-0.856	-0.856	-0.493
BTTC	48X	1.54	0.000	-0.826	-0.826	-0.408
BTTC	48XY	2.18	0.000	-1.173	-1.173	-0.661
BTTC	48Y	1.98	0.000	-1.063	-1.063	-0.630
BTTC	49P	76.01	41.832	0.000	41.832	40.288
BTTC	49X	68.25	0.000	-40.246	-40.246	-39.716
BTTC	49XY	64.55	0.000	-38.068	-37.820	-38.068
BTTC	49Y	73.55	40.479	0.000	40.479	39.355
BTTC	50P	64.03	26.126	0.000	26.126	24.379
BTTC	50X	59.75	0.000	-24.380	-24.380	-24.008
BTTC	50XY	56.26	0.000	-22.953	-22.865	-22.953
BTTC	50Y	62.08	25.328	0.000	25.328	23.943
BTBC	51P	42.81	0.000	-23.026	-23.026	-22.172
BTBC	51X	39.23	21.342	0.000	21.252	21.342
BTBC	51XY	38.06	20.702	0.000	20.600	20.702
BTBC	51Y	41.36	0.000	-22.248	-22.248	-21.625
BTBC	52P	45.26	0.000	-26.691	-26.691	-24.817
BTBC	52X	43.18	23.763	0.000	23.763	23.449
BTBC	52XY	43.90	24.161	0.000	24.161	23.337
BTBC	52Y	44.46	0.000	-26.219	-26.219	-24.533
BTBC	53P	0.56	0.000	-0.303	-0.303	-0.134
BTBC	53X	2.88	0.000	-1.565	-1.565	-0.172
BTBC	53XY	1.07	0.000	-0.581	-0.581	-0.096
BTBC	53Y	4.82	0.000	-2.621	-2.621	-1.583
BTC	54P	0.93	0.000	-1.949	-1.949	-1.055
BTC	54X	0.36	0.000	-0.748	-0.748	-0.095
BTC	54XY	0.62	0.000	-1.299	-1.299	-0.364
BTC	54Y	0.65	0.000	-1.350	-1.350	-0.884
BTC	55P	20.85	34.442	0.000	34.442	34.109
BTC	55X	16.53	0.000	-34.517	-34.517	-32.607
BTC	55XY	15.27	0.000	-31.892	-31.892	-31.102
BTC	55Y	19.68	32.512	0.000	31.882	32.512
BTC	56P	8.36	9.100	0.000	8.681	9.100
BTC	56X	4.87	0.000	-5.294	-4.251	-5.294
BTC	56XY	5.44	0.000	-5.914	-5.855	-5.914
BTC	56Y	8.12	8.831	0.000	8.111	8.831
BBC	57P	9.36	0.000	-13.911	-13.075	-13.911
BBC	57X	19.19	22.797	0.000	22.797	20.813
BBC	57XY	16.23	19.287	0.000	19.239	19.287
BBC	57Y	9.21	0.000	-13.695	-12.853	-13.695
BBC	58P	9.52	0.000	-14.153	-13.075	-14.153
BBC	58X	19.19	22.797	0.000	22.797	21.054
BBC	58XY	16.44	19.528	0.000	19.239	19.528
BBC	58Y	9.38	0.000	-13.937	-12.853	-13.937
BBC	59P	22.15	0.000	-27.113	-25.406	-27.113
BBC	59X	28.99	35.487	0.000	35.487	32.182
BBC	59XY	23.94	29.298	0.000	28.614	29.298
BBC	59Y	21.26	0.000	-26.025	-23.421	-26.025
Horz1	60P	8.45	0.000	-1.115	-1.115	-0.770
Horz1	60X	29.43	0.000	-3.883	-2.036	-3.883
Horz1	60XY	30.75	0.000	-4.057	-2.438	-4.057
Horz1	60Y	9.23	0.000	-1.217	-0.706	-1.217

Horz2	61P	11.13	0.000	-2.703	-1.141	-2.703
Horz2	61X	36.00	0.000	-8.742	-7.062	-8.742
Br1	62P	39.77	3.258	0.000	1.214	3.258
Br1	62Y	42.90	3.514	0.000	1.812	3.514
Br1	63P	45.03	3.689	0.000	1.812	3.689
Br1	63Y	41.90	3.432	0.000	1.214	3.432
Br1	64P	37.49	3.071	0.000	1.006	3.071
Br1	64Y	40.52	3.319	0.000	1.583	3.319
Br1	65P	35.36	2.896	0.000	1.006	2.896
Br1	65Y	38.38	3.144	0.000	1.583	3.144
Br2	66P	45.97	0.000	-4.849	-2.324	-4.849
ARMTT	67P	4.37	1.189	0.000	0.284	1.189
ARMTT	67X	22.23	0.000	-6.048	-6.048	-3.722
ARMTT	67XY	20.68	0.000	-5.624	-5.624	-3.815
ARMTT	67Y	2.40	0.652	-0.281	-0.281	0.652
ARMMT	68P	3.09	1.259	0.000	0.535	1.259
ARMMT	68X	15.78	0.000	-6.395	-6.395	-3.798
ARMMT	68XY	13.89	0.000	-5.630	-5.630	-3.760
ARMMT	68Y	1.59	0.420	-0.643	-0.643	0.420
ARMBT	69P	3.52	1.436	0.000	1.052	1.436
ARMBT	69X	15.50	0.000	-6.280	-6.280	-3.635
ARMBT	69XY	13.74	0.000	-5.567	-5.567	-3.649
ARMBT	69Y	1.85	0.297	-0.749	-0.749	0.297
ArmBr1	70P	33.91	2.124	0.000	2.124	0.798
ArmBr1	70X	31.48	1.972	0.000	1.972	0.657
ArmBr1	70XY	54.58	3.420	0.000	3.420	1.700
ArmBr1	70Y	55.47	3.475	0.000	3.475	1.781
ArmBr1	71P	34.79	2.180	0.000	2.180	0.865
ArmBr1	71X	29.56	1.852	0.000	1.852	0.578
ArmBr1	71XY	54.37	3.406	0.000	3.406	1.665
ArmBr1	71Y	56.36	3.531	0.000	3.531	1.824
ArmBr1	72P	33.65	2.108	0.000	2.108	0.801
ArmBr1	72X	30.24	1.894	0.000	1.894	0.653
ArmBr1	72XY	55.50	3.477	0.000	3.477	1.717
ArmBr1	72Y	56.80	3.558	0.000	3.558	1.796
ArmBr2	73P	6.25	0.804	0.000	0.804	0.641
ArmBr2	73X	3.10	0.000	-0.361	-0.361	-0.133
ArmBr2	73XY	11.94	1.537	0.000	1.537	0.795
ArmBr2	73Y	13.26	1.706	0.000	1.706	1.034
ArmBr3	74P	68.60	9.329	0.000	9.329	5.385
ArmBr3	74X	73.13	9.945	0.000	9.945	5.827
ArmBr2	75P	11.48	1.477	0.000	1.477	0.920
ArmBr2	75X	4.87	0.000	-0.568	-0.568	-0.182
ArmBr2	75XY	14.16	1.822	0.000	1.822	0.935
ArmBr2	75Y	9.77	1.257	0.000	1.257	0.731
ArmBr3	76P	70.40	9.574	0.000	9.574	5.400
ArmBr3	76X	79.23	10.775	0.000	10.775	6.061
ArmBr2	77P	14.70	1.892	0.000	1.892	1.140
ArmBr2	77X	6.99	0.000	-0.815	-0.815	-0.309
ArmBr2	77XY	11.97	1.540	0.000	1.540	0.733
ArmBr2	77Y	5.24	0.674	0.000	0.674	0.454
ArmBr3	78P	74.74	10.165	0.000	10.165	5.490
ArmBr3	78X	82.15	11.172	0.000	11.172	6.065
TTBr1	79P	1.30	0.000	-0.126	-0.093	-0.126
TTBr1	79Y	1.36	0.000	-0.132	-0.102	-0.132
TTBr2	80P	49.80	11.671	0.000	9.996	11.671
TTBr2	80X	79.54	0.000	-11.264	-9.594	-11.264
TTBr2	80XY	76.16	0.000	-10.785	-8.907	-10.785
TTBr2	80Y	47.85	11.215	0.000	9.344	11.215

TTBr1	81P	7.39	1.198	0.000	1.198	0.402
TTBr1	81X	7.64	1.239	0.000	1.239	0.453
TTBr1	81XY	12.74	2.066	0.000	2.066	1.054
TTBr1	81Y	12.61	2.044	0.000	2.044	1.012
TTBr2	82P	59.43	0.000	-10.673	-10.293	-10.673
TTBr2	82X	46.88	8.850	0.000	6.338	8.850
TTBr2	82XY	40.46	7.639	0.000	4.654	7.639
TTBr2	82Y	61.74	0.000	-11.088	-10.853	-11.088
TTBr1	83P	27.10	4.394	0.000	4.394	3.044
TTBr1	83X	45.30	0.000	-4.400	-4.400	-2.417
TTBr1	83XY	41.99	0.000	-4.079	-4.079	-2.123
TTBr1	83Y	29.47	4.778	0.000	4.778	3.353
TTBr3	84P	40.78	0.000	-11.741	-11.265	-11.741
TTBr3	84X	36.89	15.051	0.000	15.051	12.952
TTBr3	84XY	36.90	15.055	0.000	15.055	13.023
TTBr3	84Y	39.85	0.000	-11.473	-10.981	-11.473
MTBr1	85P	1.23	0.000	-0.120	-0.104	-0.120
MTBr1	85Y	1.29	0.000	-0.125	-0.114	-0.125
MTBr3	86P	57.37	23.406	0.000	20.896	23.406
MTBr3	86X	70.89	0.000	-22.996	-20.379	-22.996
MTBr3	86XY	68.38	0.000	-22.185	-19.192	-22.185
MTBr3	86Y	55.46	22.626	0.000	19.760	22.626
MTBr1	87P	6.96	1.128	0.000	1.128	0.327
MTBr1	87X	7.74	1.256	0.000	1.256	0.493
MTBr1	87XY	13.20	2.140	0.000	2.140	1.114
MTBr1	87Y	12.12	1.966	0.000	1.966	0.917
MTBr4	88P	60.73	0.000	-20.452	-19.456	-20.452
MTBr4	88X	48.37	18.673	0.000	15.364	18.673
MTBr4	88XY	44.44	17.154	0.000	13.184	17.154
MTBr4	88Y	61.09	0.000	-20.573	-19.601	-20.573
MTBr2	89P	46.77	12.720	0.000	10.734	12.720
MTBr2	89X	48.77	0.000	-13.237	-11.110	-13.237
MTBr2	89XY	46.83	0.000	-12.708	-10.215	-12.708
MTBr2	89Y	46.06	12.527	0.000	10.578	12.527
MTBr5	90P	55.95	0.000	-24.186	-21.972	-24.186
MTBr5	90X	52.98	25.226	0.000	24.281	25.226
MTBr5	90XY	53.16	25.310	0.000	24.322	25.310
MTBr5	90Y	54.38	0.000	-23.505	-20.878	-23.505
BTBr1	91P	1.24	0.000	-0.121	-0.119	-0.121
BTBr1	91Y	1.31	0.000	-0.127	-0.127	-0.125
BTBr3	92P	57.39	31.218	0.000	31.218	30.404
BTBr3	92X	65.17	0.000	-30.596	-30.596	-29.982
BTBr3	92XY	61.78	0.000	-29.002	-29.002	-28.873
BTBr3	92Y	54.55	29.676	0.000	29.676	29.327
BTBr1	93P	6.42	1.041	0.000	1.041	0.262
BTBr1	93X	8.17	1.324	0.000	1.324	0.551
BTBr1	93XY	13.66	2.216	0.000	2.216	1.158
BTBr1	93Y	11.79	1.912	0.000	1.912	0.854
BTBr4	94P	65.11	0.000	-28.144	-28.144	-26.311
BTBr4	94X	49.47	24.551	0.000	23.933	24.551
BTBr4	94XY	45.94	22.797	0.000	21.397	22.797
BTBr4	94Y	64.77	0.000	-27.996	-27.996	-26.186
BTBr2	95P	40.69	16.602	0.000	16.387	16.602
BTBr2	95X	42.30	0.000	-17.257	-17.257	-17.014
BTBr2	95XY	40.34	0.000	-16.459	-16.392	-16.459
BTBr2	95Y	39.85	16.260	0.000	16.019	16.260
BTBr5	96P	47.11	0.000	-29.834	-29.834	-29.281
BTBr5	96X	46.66	31.628	0.000	31.628	30.204
BTBr5	96XY	46.68	31.647	0.000	31.647	30.177

BTBr5	96Y	43.99	0.000	-27.860	-27.522	-27.860
TBC1	97P	32.68	0.000	-1.461	-1.461	-0.848
TBC1	98P	7.37	0.000	-0.760	-0.143	-0.760
TBC1	98X	25.74	2.108	0.000	2.108	1.900
TBC1	98XY	23.15	1.897	0.000	1.897	1.775
TBC1	98Y	6.14	0.070	-0.633	0.070	-0.633
TBC2	99P	38.20	10.390	0.000	10.390	6.994
TBC2	99X	22.82	6.207	0.000	6.207	2.692
TBC3	100P	5.87	0.641	-0.211	0.641	-0.211
TBC3	100X	29.34	3.204	0.000	3.204	2.378
TBC3	100XY	24.30	2.654	0.000	2.654	2.116
TBC3	100Y	8.16	0.891	0.000	0.891	0.007
TBC4	101P	3.52	0.103	-0.365	-0.365	0.103
TBC4	101X	15.57	0.000	-1.612	-1.612	-1.278
TBC3	102P	3.21	0.000	-0.437	-0.437	-0.118
TBC3	102X	5.14	0.000	-0.699	-0.699	-0.576
TBC3	102XY	9.12	0.000	-1.241	-1.241	-0.829
TBC3	102Y	1.34	0.103	-0.182	-0.182	0.103
TBC1	103P	31.24	0.000	-1.397	-1.397	-0.794
TBC1	104P	16.09	0.000	-1.659	-1.123	-1.659
TBC1	104X	37.48	3.070	0.000	3.070	2.763
TBC1	104XY	29.17	2.389	0.000	2.388	2.389
TBC1	104Y	12.46	0.000	-1.284	-0.443	-1.284
TBC2	105P	42.23	11.486	0.000	11.486	7.843
TBC2	105X	22.76	6.192	0.000	6.192	2.117
TBC3	106P	3.86	0.414	-0.524	0.414	-0.524
TBC3	106X	37.71	4.118	0.000	4.118	2.967
TBC3	106XY	23.74	2.593	0.000	2.593	2.231
TBC3	106Y	3.98	0.435	-0.409	0.435	-0.409
TBC4	107P	2.32	0.489	-0.118	-0.118	0.489
TBC4	107X	17.56	0.000	-2.000	-2.000	-1.711
TBC3	108P	1.94	0.000	-0.264	-0.264	-0.184
TBC3	108X	0.92	0.000	-0.125	-0.092	-0.125
TBC3	108XY	11.75	0.000	-1.599	-1.599	-0.837
TBC3	108Y	1.63	0.000	-0.222	-0.222	-0.053
TBC1	109P	32.24	0.000	-1.442	-1.442	-0.793
TBC1	110P	16.53	0.000	-1.704	-1.451	-1.704
TBC1	110X	42.47	3.479	0.000	3.479	2.815
TBC1	110XY	33.28	2.727	0.000	2.727	2.438
TBC1	110Y	12.86	0.000	-1.326	-0.699	-1.326
TBC2	111P	46.54	12.658	0.000	12.658	8.474
TBC2	111X	19.16	5.211	0.000	5.211	1.284
TBC3	112P	10.24	0.000	-1.393	-0.536	-1.393
TBC3	112X	46.25	5.051	0.000	5.051	3.710
TBC3	112XY	36.05	3.938	0.000	3.938	3.220
TBC3	112Y	9.94	0.000	-1.352	-0.672	-1.352
TBC4	113P	26.48	0.000	-3.016	-3.016	-2.482
TBC4	113X	5.49	1.158	0.000	0.796	1.158
TBC3	114P	14.43	0.000	-1.962	-1.962	-1.564
TBC3	114X	8.07	0.882	0.000	0.802	0.882
TBC3	114XY	3.92	0.238	-0.534	-0.534	0.238
TBC3	114Y	12.97	0.000	-1.764	-1.764	-1.337
TTC1	115P	3.86	0.000	-0.173	-0.173	-0.120
TTC2	116P	2.09	0.220	0.000	0.220	0.147
TTC2	117P	2.23	0.235	0.000	0.235	0.171
TTC1	118P	4.11	0.000	-0.184	-0.184	-0.130
TTC1	118X	3.76	0.000	-0.168	-0.168	-0.121
TTC2	119P	2.06	0.217	0.000	0.217	0.164
TTC2	120P	1.94	0.204	0.000	0.204	0.136

TTC1	121P	48.03	0.000	-2.147	-2.147	-1.560
TTC1	121X	21.04	1.546	0.000	1.546	0.821
TTC2	122P	3.77	0.397	0.000	0.397	0.293
TTC2	123P	0.49	0.052	0.000	0.052	0.009
TTC1	124P	2.66	0.000	-0.119	-0.119	-0.069
TTC2	125P	1.08	0.114	0.000	0.114	0.042
TTC2	126P	1.91	0.200	0.000	0.200	0.140
TTC1	127P	2.97	0.000	-0.133	-0.133	-0.085
TTC1	127X	2.80	0.000	-0.125	-0.125	-0.075
TTC2	128P	1.99	0.209	0.000	0.209	0.162
TTC2	129P	1.10	0.116	0.000	0.116	0.054
TTC1	130P	3.61	0.000	-0.162	-0.162	-0.116
TTC1	130X	2.58	0.000	-0.115	-0.115	-0.068
TTC2	131P	1.62	0.171	0.000	0.171	0.110
TTC2	132P	1.56	0.164	0.000	0.164	0.106
TTC1	133P	1.83	0.000	-0.082	-0.082	-0.069
TTC2	134P	0.45	0.047	0.000	0.047	0.028
TTC2	135P	1.62	0.170	0.000	0.170	0.149
TTC1	136P	1.99	0.000	-0.089	-0.089	-0.071
TTC1	136X	2.36	0.000	-0.105	-0.105	-0.084
TTC2	137P	1.84	0.193	0.000	0.193	0.176
TTC2	138P	0.67	0.070	0.000	0.070	0.051
TTC1	139P	4.60	0.000	-0.206	-0.206	-0.201
TTC1	139X	0.47	0.000	-0.021	-0.019	-0.021
TTC2	140P	1.58	0.166	0.000	0.166	0.136
TTC2	141P	1.06	0.112	0.000	0.112	0.090
Horz3	142P	15.04	1.009	-1.557	1.009	-1.557
Horz3	142X	11.02	1.995	-0.472	-0.472	1.995
Horz3	143P	9.91	0.000	-1.026	-1.026	-1.014
Horz3	143X	8.03	1.453	0.000	1.453	1.126
Horz4	144P	14.65	1.200	0.000	1.200	1.054
Horz4	144X	12.22	0.000	-0.546	-0.083	-0.546
Horz3	145P	9.60	0.000	-0.994	-0.698	-0.994
Horz3	145X	6.90	1.249	0.000	1.249	1.162
Horz4	146P	19.47	1.595	0.000	1.595	1.225
Horz4	146X	12.96	0.000	-0.580	-0.231	-0.580
Horz5	147P	9.24	0.000	-3.667	-3.667	-2.747
Horz5	147X	2.28	0.932	-0.230	-0.230	0.932
Horz6	148P	5.10	2.033	0.000	1.272	2.033
Horz6	148X	0.91	0.000	-0.301	-0.301	-0.020
Horz6	148XY	0.71	0.005	-0.236	-0.236	0.005
Horz6	148Y	4.98	1.982	0.000	1.450	1.982
Horz6	149P	15.37	4.181	0.000	2.169	4.181
Horz6	149X	7.54	0.000	-2.052	-1.906	-2.052
BBr1	150P	4.25	0.000	-0.401	-0.401	-0.294
BBr1	150Y	3.68	0.000	-0.347	-0.347	-0.274
BBr2	151P	38.41	26.122	0.000	26.122	25.270
BBr2	151X	42.02	0.000	-24.924	-24.924	-24.308
BBr2	151XY	38.87	0.000	-23.057	-22.707	-23.057
BBr2	151Y	35.27	23.986	0.000	23.823	23.986
BBr1	152P	1.22	0.193	0.000	0.110	0.193
BBr1	152X	2.10	0.332	0.000	0.273	0.332
BBr1	152XY	2.01	0.318	0.000	0.245	0.318
BBr1	152Y	1.28	0.202	0.000	0.116	0.202
BBr2	153P	41.42	0.000	-24.572	-24.572	-24.051
BBr2	153X	32.51	22.109	0.000	22.109	21.310
BBr2	153XY	29.55	20.092	0.000	19.902	20.092
BBr2	153Y	38.56	0.000	-22.873	-22.471	-22.873
BBr3	154P	45.09	24.531	0.000	24.531	23.154

BBr3	154X	37.71	0.000	-20.513	-19.980	-20.513
BBr3	154XY	37.20	0.000	-20.235	-19.895	-20.235
BBr3	154Y	42.18	22.946	0.000	22.946	22.412
BBr4	155P	6.92	0.000	-9.024	-9.024	-7.785
BBr4	155X	7.30	7.528	0.000	6.107	7.528
BBr4	155XY	8.10	8.349	0.000	8.171	8.349
BBr4	155Y	6.79	0.000	-8.857	-8.857	-7.912
BBr4	156P	1.64	1.694	0.000	1.078	1.694
BBr4	156X	6.26	0.000	-8.155	-8.155	-5.330
BBr4	156XY	4.39	0.000	-5.716	-5.716	-4.198
BBr4	156Y	1.47	1.517	0.000	1.423	1.517
BTC1	157P	10.99	2.983	0.000	1.305	2.983
BTC2	158P	25.32	0.054	-1.249	0.054	-1.249
BTC2	158X	46.17	0.000	-2.277	-1.664	-2.277
BTC2	158XY	39.82	0.000	-1.964	-0.847	-1.964
BTC2	158Y	31.73	0.000	-1.565	-0.774	-1.565
BTC2	159P	13.37	0.000	-1.156	-0.466	-1.156
BTC2	159X	13.70	0.000	-1.184	-0.603	-1.184
BTC3	160P	16.09	4.618	0.000	1.942	4.618
BTC3	160X	16.77	4.812	0.000	2.092	4.812
BTC3	161P	15.77	4.525	0.000	1.664	4.525
BTC3	161X	17.18	4.930	0.000	2.391	4.930
BTC4	162P	20.47	0.000	-2.621	-0.921	-2.621
BTC4	162X	16.27	0.000	-2.083	-1.043	-2.083
BTC4	162XY	15.07	0.000	-1.930	-0.654	-1.930
BTC4	162Y	21.41	0.000	-2.742	-1.283	-2.742
BTC4	163P	17.06	0.000	-2.199	-0.877	-2.199
BTC4	163X	19.21	0.000	-2.478	-1.215	-2.478
BTC4	163XY	17.81	0.000	-2.296	-0.758	-2.296
BTC4	163Y	18.51	0.000	-2.387	-1.311	-2.387
BTC5	164P	15.18	3.194	0.000	1.411	3.194
BTC5	164X	13.36	2.813	0.000	1.086	2.813
BBC1	165P	4.03	0.000	-0.253	-0.253	-0.170
BBC2	166P	24.67	0.000	-0.799	-0.484	-0.799
BBC2	166X	11.46	0.939	0.000	0.727	0.939
BBC2	166XY	14.03	1.150	0.000	1.150	0.879
BBC2	166Y	27.99	0.000	-0.906	-0.906	-0.737
BBC2	167P	1.32	0.000	-0.072	-0.045	-0.072
BBC2	167X	0.60	0.000	-0.033	-0.033	-0.020
BBC3	168P	1.34	0.039	-0.235	0.039	-0.235
BBC3	168X	2.83	0.000	-0.497	-0.476	-0.497
BBC2	169P	4.87	0.399	0.000	0.252	0.399
BBC2	169X	3.94	0.000	-0.190	-0.190	-0.068
BBC2	169XY	2.77	0.093	-0.134	0.093	-0.134
BBC2	169Y	5.58	0.457	-0.030	-0.030	0.457

*** Analysis Results for Load Case No. 1 "NESC Heavy" - Number of iterations in SAPS 12

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	0.009929	0.1885	-0.02103	0.0000	0.0000	0.0000	0.009929	14.19	93.98
2P	0.007839	0.1592	-0.02262	-0.0968	0.0190	0.0177	3.508	15.16	84.98
3P	0.006403	0.1507	-0.02257	-0.1192	0.0110	0.0186	3.506	15.15	79.98
4P	0.005725	0.1368	-0.02244	-0.2056	0.0104	0.0146	3.506	15.14	74.98
5P	0.004283	0.1188	-0.02119	-0.1537	0.0212	0.0106	3.504	15.12	69.98
6P	0.002769	0.1093	-0.02063	-0.1691	0.0067	0.0067	3.503	15.11	64.98
7P	0.002239	0.09165	-0.02031	-0.2370	0.0089	-0.0013	3.502	15.09	59.98
8P	0.0009494	0.07165	-0.01905	-0.1721	0.0215	-0.0094	3.501	15.07	54.98
9P	-0.0005563	0.06091	-0.01831	-0.1418	0.0010	-0.0218	3.499	15.06	49.98
14P	0	0	0	0.0000	0.0000	0.0000	13.07	19.07	0
15P	0.004125	0.1507	-0.03737	-0.1221	0.0110	0.0187	3.504	22.15	79.96
16P	0.0003287	0.1093	-0.03739	-0.1212	0.0068	0.0265	3.5	22.11	64.96
17P	-0.002318	0.06102	-0.03676	-0.1556	0.0011	0.0324	3.498	22.06	49.96
18P	0.01453	0.1565	-0.01015	-0.0130	0.0176	0.0300	3.515	0.1565	84.99
19P	0.01123	0.1564	-0.01057	0.0133	0.0182	0.0311	3.511	6.156	84.99
20P	0.009114	0.1579	-0.01181	-0.0941	0.0185	0.0201	3.509	10.66	84.99
21P	0.01367	0.1528	-0.01013	-0.0050	0.0174	0.0272	3.514	0.1528	79.99
22P	0.01192	0.1518	-0.01085	-0.0023	0.0149	0.0292	3.512	6.152	79.99
23P	0.008632	0.1506	-0.01287	-0.0815	0.0129	0.0407	3.509	10.65	79.99
24P	0.008293	0.1152	-0.008823	0.0043	0.0217	0.0265	3.508	0.1152	69.99
25P	0.005563	0.1151	-0.007244	0.0340	0.0215	0.0162	3.506	6.115	69.99
26P	0.004948	0.1174	-0.007594	-0.1030	0.0213	0.0055	3.505	10.62	69.99
27P	0.009109	0.1124	-0.008796	0.0153	0.0187	0.0205	3.509	0.1124	64.99
28P	0.008036	0.1107	-0.007515	0.0127	0.0140	0.0247	3.508	6.111	64.99
29P	0.004867	0.1092	-0.009	-0.0862	0.0104	0.0423	3.505	10.61	64.99
30P	0.002861	0.06735	-0.007344	0.0092	0.0226	0.0202	3.503	0.06735	54.99
31P	0.0008225	0.06728	-0.00498	0.0469	0.0222	0.0074	3.501	6.067	55
32P	0.0009188	0.06998	-0.004479	-0.1029	0.0219	-0.0008	3.501	10.57	55
33P	0.004109	0.06466	-0.007314	0.0207	0.0127	0.0100	3.504	0.06466	49.99
34P	0.003878	0.06268	-0.005229	0.0254	0.0082	0.0218	3.504	6.063	49.99
35P	0.0007112	0.06095	-0.006143	-0.0956	0.0047	0.0422	3.501	10.56	49.99
36P	0.001813	0.02783	-0.006462	-0.0191	0.0152	0.0122	5.377	0.02783	39.99
37P	0.0002925	0.02778	-0.007475	0.0045	0.0150	0.0256	5.375	5.278	39.99
38P	-0.002041	0.02858	-0.007985	-0.0509	0.0147	0.0108	5.373	10.53	39.99
39P	0.0007949	0.02379	-0.006554	-0.0105	0.0060	0.0119	6.334	0.02379	34.99
40P	-0.000281	0.02338	-0.007611	-0.0135	0.0017	0.0122	6.333	5.273	34.99
41P	-0.001417	0.02296	-0.009689	-0.0386	-0.0026	0.0116	6.332	10.52	34.99
44P	-0.0006125	0.3073	0.03282	0.0000	0.0000	0.0000	-0.0006125	17.31	17.78
45P	-0.0008493	0.02988	-0.1336	0.0000	0.0000	0.0000	-0.0008493	10.53	39.87
10P	8.076e-005	0.04402	-0.01732	-0.2030	0.0010	-0.0310	4.457	15.04	44.98
11P	-0.001625	0.02875	-0.01556	-0.1181	0.0135	-0.0124	5.413	15.03	39.98
12P	-0.002082	0.02228	-0.01373	-0.0580	-0.0066	0.0036	6.37	15.02	34.99
1X	0.02657	0.1854	0.003222	0.0000	0.0000	0.0000	0.02657	-13.81	94
2X	0.02384	0.1589	0.003533	-0.0783	0.0161	0.0348	3.524	-14.84	85
2XY	0.02397	0.155	0.006196	-0.0809	0.0250	0.0357	-3.476	-14.85	85.01
2Y	0.00757	0.1557	-0.0211	-0.0961	0.0072	0.0320	-3.492	15.16	84.98
3X	0.02222	0.1516	0.004082	-0.1190	0.0237	0.0385	3.522	-14.85	80
3XY	0.02184	0.1475	0.006804	-0.1171	0.0237	0.0311	-3.478	-14.85	80.01
3Y	0.006679	0.1473	-0.02099	-0.1195	0.0169	0.0313	-3.493	15.15	79.98
4X	0.01977	0.1359	0.004701	-0.2185	0.0292	0.0352	3.52	-14.86	75

4XY	0.0198	0.1321	0.00743	-0.2128	0.0241	0.0320	-3.48	-14.87	75.01
4Y	0.004878	0.1336	-0.02085	-0.2019	0.0183	0.0281	-3.495	15.13	74.98
5X	0.01753	0.1187	0.004347	-0.1350	0.0221	0.0317	3.518	-14.88	70
5XY	0.01755	0.1154	0.00706	-0.1331	0.0276	0.0327	-3.482	-14.88	70.01
5Y	0.003875	0.1158	-0.01965	-0.1542	0.0072	0.0249	-3.496	15.12	69.98
6X	0.01551	0.11	0.004937	-0.1868	0.0304	0.0218	3.516	-14.89	65
6XY	0.01518	0.1068	0.00757	-0.1784	0.0241	0.0290	-3.485	-14.89	65.01
6Y	0.002957	0.106	-0.01914	-0.1696	0.0197	0.0340	-3.497	15.11	64.98
7X	0.01285	0.09075	0.005307	-0.2433	0.0285	0.0131	3.513	-14.91	60.01
7XY	0.01307	0.08821	0.007805	-0.2380	0.0256	0.0343	-3.487	-14.91	60.01
7Y	0.001256	0.08867	-0.01885	-0.2307	0.0162	0.0366	-3.499	15.09	59.98
8X	0.01066	0.07163	0.005026	-0.1558	0.0233	0.0042	3.511	-14.93	55.01
8XY	0.01074	0.06917	0.007285	-0.1579	0.0263	0.0395	-3.489	-14.93	55.01
8Y	0.0004077	0.06926	-0.01769	-0.1689	0.0033	0.0392	-3.5	15.07	54.98
9X	0.008656	0.06142	0.005334	-0.1560	0.0239	-0.0142	3.509	-14.94	50.01
9XY	0.008684	0.05904	0.007233	-0.1458	0.0195	0.0484	-3.491	-14.94	50.01
9Y	-0.0001323	0.05852	-0.017	-0.1404	0.0193	0.0525	-3.5	15.06	49.98
14X	0	0	0	0.0000	0.0000	0.0000	13.07	-19.07	0
14XY	0	0	0	0.0000	0.0000	0.0000	-13.07	-19.07	0
14Y	0	0	0	0.0000	0.0000	0.0000	-13.07	19.07	0
15X	0.0275	0.1524	0.01002	-0.0136	0.0238	0.0455	3.528	-21.85	80.01
15XY	0.02584	0.1482	0.01101	0.0067	0.0238	0.0335	-3.474	-21.85	80.01
15Y	0.002563	0.1472	-0.03771	-0.1455	0.0169	0.0348	-3.497	22.15	79.96
16X	0.02018	0.1108	0.01294	-0.0052	0.0305	0.0463	3.52	-21.89	65.01
16XY	0.01837	0.1075	0.01355	0.0154	0.0242	0.0247	-3.482	-21.89	65.01
16Y	-0.001275	0.1059	-0.0382	-0.1493	0.0197	0.0349	-3.501	22.11	64.96
17X	0.01264	0.06221	0.01566	-0.0490	0.0240	0.0558	3.513	-21.94	50.02
17XY	0.01077	0.05973	0.01578	-0.0323	0.0194	0.0014	-3.489	-21.94	50.02
17Y	-0.004022	0.05839	-0.0377	-0.1840	0.0192	0.0215	-3.504	22.06	49.96
18Y	0.01459	0.1528	-0.008598	-0.0169	0.0161	0.0341	-3.485	0.1528	84.99
19X	0.01787	0.1566	-0.009378	0.0049	0.0170	0.0392	3.518	-5.843	84.99
19XY	0.01793	0.1529	-0.00747	-0.0043	0.0197	0.0313	-3.482	-5.847	84.99
19Y	0.01129	0.1528	-0.00945	0.0150	0.0125	0.0225	-3.489	6.153	84.99
20X	0.02118	0.1578	-0.007278	-0.1048	0.0165	0.0384	3.521	-10.34	84.99
20XY	0.02066	0.154	-0.004538	-0.1091	0.0223	0.0408	-3.479	-10.35	85
20Y	0.009845	0.1544	-0.01028	-0.0908	0.0098	0.0219	-3.49	10.65	84.99
21Y	0.01417	0.1491	-0.008572	-0.0089	0.0203	0.0328	-3.486	0.1491	79.99
22X	0.01774	0.152	-0.009677	-0.0115	0.0199	0.0289	3.518	-5.848	79.99
22XY	0.01648	0.1481	-0.007969	-0.0197	0.0217	0.0326	-3.484	-5.852	79.99
22Y	0.009813	0.1482	-0.009944	-0.0015	0.0189	0.0272	-3.49	6.148	79.99
23X	0.01931	0.151	-0.006205	-0.0987	0.0218	0.0260	3.519	-10.35	79.99
23XY	0.01974	0.147	-0.003543	-0.1068	0.0227	0.0351	-3.48	-10.35	80
23Y	0.008731	0.1472	-0.01144	-0.0752	0.0179	0.0153	-3.491	10.65	79.99
24Y	0.008334	0.1122	-0.006821	0.0010	0.0175	0.0266	-3.492	0.1122	69.99
25X	0.01109	0.1153	-0.01002	0.0288	0.0219	0.0360	3.511	-5.885	69.99
25XY	0.01113	0.1123	-0.007627	0.0209	0.0216	0.0361	-3.489	-5.888	69.99
25Y	0.005609	0.1121	-0.0057	0.0305	0.0133	0.0158	-3.494	6.112	69.99
26X	0.0145	0.1174	-0.009217	-0.1105	0.0220	0.0444	3.515	-10.38	69.99
26XY	0.01454	0.1142	-0.006209	-0.1120	0.0246	0.0440	-3.485	-10.39	69.99
26Y	0.005004	0.1144	-0.006148	-0.1021	0.0103	0.0064	-3.495	10.61	69.99
27Y	0.009585	0.1092	-0.006792	0.0116	0.0219	0.0270	-3.49	0.1092	64.99
28X	0.01245	0.1109	-0.01033	0.0065	0.0234	0.0199	3.512	-5.889	64.99
28XY	0.01119	0.1078	-0.008145	-0.0001	0.0228	0.0257	-3.489	-5.892	64.99
28Y	0.005707	0.1076	-0.006176	0.0102	0.0210	0.0235	-3.494	6.108	64.99
29X	0.01328	0.1096	-0.007749	-0.1007	0.0269	0.0188	3.513	-10.39	64.99
29XY	0.01382	0.1065	-0.004859	-0.1054	0.0234	0.0243	-3.486	-10.39	65
29Y	0.004899	0.1061	-0.007534	-0.0839	0.0203	0.0119	-3.495	10.61	64.99
30Y	0.00289	0.06512	-0.00594	0.0060	0.0147	0.0192	-3.497	0.06512	54.99
31X	0.004938	0.06742	-0.009365	0.0422	0.0231	0.0296	3.505	-5.933	54.99

31XY	0.004974	0.06523	-0.0075	0.0338	0.0194	0.0321	-3.495	-5.935	54.99	
31Y	0.0008532	0.06503	-0.003966	0.0436	0.0100	0.0091	-3.499	6.065	55	
32X	0.008084	0.07003	-0.009464	-0.1089	0.0233	0.0461	3.508	-10.43	54.99	
32XY	0.008091	0.06767	-0.006996	-0.1100	0.0228	0.0371	-3.492	-10.43	54.99	
32Y	0.0009891	0.06765	-0.00353	-0.0995	0.0066	-0.0077	-3.499	10.57	55	
33Y	0.004599	0.06232	-0.005908	0.0172	0.0192	0.0233	-3.495	0.06232	49.99	
34X	0.006648	0.06283	-0.009684	0.0193	0.0173	0.0176	3.507	-5.937	49.99	
34XY	0.005591	0.06054	-0.008036	0.0115	0.0193	0.0158	-3.494	-5.939	49.99	
34Y	0.001311	0.0604	-0.004428	0.0230	0.0191	0.0137	-3.499	6.06	50	
35X	0.007505	0.0613	-0.007696	-0.1091	0.0207	0.0182	3.508	-10.44	49.99	
35XY	0.007293	0.05898	-0.005316	-0.1121	0.0193	0.0135	-3.493	-10.44	49.99	
35Y	0.001519	0.0587	-0.005156	-0.0905	0.0191	-0.0027	-3.498	10.56	49.99	
36Y	0.001527	0.02574	-0.004394	-0.0215	0.0101	0.0154	-5.373	0.02574	40	
37X	0.002782	0.02784	-0.00513	-0.0041	0.0154	0.0071	5.378	-5.222	39.99	
37XY	0.003098	0.02577	-0.00285	-0.0057	0.0123	0.0202	-5.372	-5.224	40	
37Y	0.0005359	0.02571	-0.005666	0.0005	0.0079	0.0016	-5.374	5.276	39.99	
38X	0.003504	0.02865	-0.003567	-0.0612	0.0156	0.0150	5.379	-10.47	40	
38XY	0.00479	0.02652	-0.001265	-0.0600	0.0145	0.0101	-5.37	-10.47	40	
38Y	0.0004179	0.02645	-0.006509	-0.0514	0.0057	0.0150	-5.375	10.53	39.99	
39Y	0.0008968	0.02131	-0.004184	-0.0138	0.0065	0.0122	-6.332	0.02131	35	
40X	0.001936	0.02307	-0.005359	-0.0185	0.0102	0.0127	6.335	-5.227	34.99	
40XY	0.001956	0.0207	-0.00269	-0.0215	0.0061	0.0113	-6.331	-5.229	35	
40Y	-0.0002527	0.0209	-0.005541	-0.0166	0.0070	0.0124	-6.333	5.271	34.99	
41X	0.002956	0.02235	-0.00218	-0.0592	0.0145	0.0080	6.336	-10.48	35	
41XY	0.003101	0.0201	0.0005445	-0.0552	0.0057	0.0149	-6.33	-10.48	35	
41Y	-0.001429	0.0205	-0.00786	-0.0402	0.0074	0.0143	-6.334	10.52	34.99	
44X	0.001101	0.1946	-0.02021	0.0000	0.0000	0.0000	0.001101	-16.81	17.73	
45X	0.004147	0.02606	-0.104	0.0000	0.0000	0.0000	0.004147	-10.47	39.9	
10X	0.006506	0.04256	0.005353	-0.2094	0.0209	-0.0118	4.464	-14.96	45.01	
10XY	0.007127	0.04098	0.007458	-0.2013	0.0198	0.0409	-4.45	-14.96	45.01	
10Y	-0.002233	0.04169	-0.0158	-0.1946	0.0142	0.0575	-4.459	15.04	44.98	
11X	0.005082	0.02876	0.004385	-0.1169	0.0167	0.0185	5.42	-14.97	40	
11XY	0.005147	0.02664	0.006609	-0.1169	0.0155	0.0066	-5.41	-14.97	40.01	
11Y	-0.001951	0.02659	-0.01386	-0.1143	0.0047	0.0367	-5.417	15.03	39.99	
12X	0.003628	0.0214	0.003552	-0.0724	0.0187	0.0136	6.376	-14.98	35	
12XY	0.004165	0.01932	0.005742	-0.0652	0.0049	0.0077	-6.368	-14.98	35.01	
12Y	-0.002693	0.01985	-0.01192	-0.0565	0.0080	0.0177	-6.375	15.02	34.99	
13S	-0.000577	0.008784	-0.009966	-0.0554	-0.0127	-0.0015	8.541	16.33	23.66	
42S	0.0001308	0.009362	-0.001751	-0.0073	0.0004	0.0015	8.541	0.009362	23.67	
43S	-0.001778	0.02854	-0.01471	-0.1162	0.0089	0.0111	-0.001778	15.03	39.99	
46S	0.001383	0.009297	-0.2061	0.0000	0.0000	0.0000	0.001383	-8.15	23.46	
47S	0.0001335	0.008365	-0.1828	0.0000	0.0000	0.0000	0.0001335	8.168	23.49	
13X	0.0007038	0.01041	0.002329	-0.0449	0.0135	0.0089	8.542	-16.31	23.67	
13XY	0.003165	0.008826	0.004153	-0.0383	0.0039	0.0042	-8.538	-16.31	23.67	
13Y	-0.0001793	0.007199	-0.009153	-0.0469	-0.0108	0.0111	-8.541	16.33	23.66	
42Y	0.001387	0.007566	-0.001322	-0.0138	-0.0034	0.0050	-8.54	0.007566	23.67	
43X	0.005118	0.02722	0.005703	-0.1169	0.0096	0.0106	0.005118	-14.97	40.01	

Joint Support Reactions for Load Case "NESC Heavy":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
14P	-23.99	0.0	-35.20	0.0	0.0	-126.77	0.0	0.0	133.74	0.0	0.00	0.0	0.1	0.0	0.0	-0.05	0.0	0.0
14X	11.15	0.0	-19.12	0.0	0.0	50.04	0.0	0.0	54.72	0.0	0.42	0.0	0.0	0.0	0.0	-0.03	0.0	0.0
14XY	-15.82	0.0	-19.86	0.0	0.0	70.17	0.0	0.0	74.63	0.0	0.28	0.0	-0.2	0.0	0.0	-0.02	0.0	0.0
14Y	21.79	0.0	-28.81	0.0	0.0	-113.13	0.0	0.0	118.76	0.0	-0.07	0.0	-0.3	0.0	0.0	-0.04	0.0	0.0

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

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
1P	0.0077	5.0978	-1.8534	-0.0077	-5.0978	1.8534	0.0099	0.1885	-0.0210
2P	-1.1350	1.8340	-2.3607	1.1350	-1.8340	2.3607	0.0078	0.1592	-0.0226
3P	0.0000	0.1370	-0.9456	-0.0000	-0.1370	0.9456	0.0064	0.1507	-0.0226
4P	0.0000	0.0000	-0.2170	0.0000	-0.0000	0.2170	0.0057	0.1368	-0.0224
5P	0.0000	0.1370	-0.9209	-0.0000	-0.1370	0.9209	0.0043	0.1188	-0.0212
6P	0.0000	0.0000	-0.3439	-0.0000	-0.0000	0.3439	0.0028	0.1093	-0.0206
7P	0.6200	-0.8470	-4.0475	-0.6200	0.8470	4.0475	0.0022	0.0917	-0.0203
8P	0.0000	0.0000	-0.3936	-0.0000	-0.0000	0.3936	0.0009	0.0716	-0.0191
9P	0.0000	0.1370	-1.1204	0.0000	-0.1370	1.1204	-0.0006	0.0609	-0.0183
14P	0.0000	0.0000	-1.0434	23.9863	35.2037	-125.7265	0.0000	0.0000	0.0000
15P	10.5343	3.2218	-1.2423	-10.5343	-3.2218	1.2423	0.0041	0.1507	-0.0374
16P	10.4530	3.1996	-1.2523	-10.4530	-3.1996	1.2523	0.0003	0.1093	-0.0374
17P	10.6172	3.2456	-1.2383	-10.6172	-3.2456	1.2383	-0.0023	0.0610	-0.0368
18P	0.0000	0.0000	-0.0917	-0.0000	-0.0000	0.0917	0.0145	0.1565	-0.0102
19P	0.0000	0.0000	-0.1262	-0.0000	-0.0000	0.1262	0.0112	0.1564	-0.0106
20P	0.0000	0.0000	-0.1027	-0.0000	-0.0000	0.1027	0.0091	0.1579	-0.0118
21P	0.0000	0.0000	-0.1504	-0.0000	-0.0000	0.1504	0.0137	0.1528	-0.0101
22P	11.0119	3.3191	-1.2501	-11.0119	-3.3191	1.2501	0.0119	0.1518	-0.0109
23P	0.0000	0.0000	-0.1874	-0.0000	-0.0000	0.1874	0.0086	0.1506	-0.0129
24P	0.0000	0.0000	-0.1077	-0.0000	-0.0000	0.1077	0.0083	0.1152	-0.0088
25P	0.0000	0.0000	-0.1666	-0.0000	-0.0000	0.1666	0.0056	0.1151	-0.0072
26P	0.0000	0.0000	-0.1304	0.0000	-0.0000	0.1304	0.0049	0.1174	-0.0076
27P	0.0000	0.0000	-0.1971	0.0000	-0.0000	0.1971	0.0091	0.1124	-0.0088
28P	11.5742	3.4571	-1.2570	-11.5742	-3.4571	1.2570	0.0080	0.1107	-0.0075
29P	0.0000	0.0000	-0.2239	0.0000	-0.0000	0.2239	0.0049	0.1092	-0.0090
30P	0.0000	0.0000	-0.1228	0.0000	-0.0000	0.1228	0.0029	0.0674	-0.0073
31P	0.0000	0.0000	-0.1964	0.0000	-0.0000	0.1964	0.0008	0.0673	-0.0050
32P	0.0000	0.0000	-0.1495	0.0000	-0.0000	0.1495	0.0009	0.0700	-0.0045
33P	0.0000	0.0000	-0.2368	0.0000	-0.0000	0.2368	0.0041	0.0647	-0.0073
34P	11.7808	3.5036	-1.2469	-11.7808	-3.5036	1.2469	0.0039	0.0627	-0.0052
35P	0.0000	0.0000	-0.2790	0.0000	-0.0000	0.2790	0.0007	0.0610	-0.0061
36P	0.0000	0.0000	-0.3349	0.0000	-0.0000	0.3349	0.0018	0.0278	-0.0065
37P	0.0000	0.0000	-0.3616	0.0000	-0.0000	0.3616	0.0003	0.0278	-0.0075
38P	0.0000	0.0000	-0.4381	0.0000	0.0000	0.4381	-0.0020	0.0286	-0.0080
39P	0.0000	0.0000	-0.3850	0.0000	-0.0000	0.3850	0.0008	0.0238	-0.0066
40P	0.0000	0.0000	-0.1962	0.0000	-0.0000	0.1962	-0.0003	0.0234	-0.0076
41P	0.0000	0.0000	-0.4307	0.0000	-0.0000	0.4307	-0.0014	0.0230	-0.0097
44P	0.0000	0.0000	-0.1966	-0.0000	-0.0000	0.1966	-0.0006	0.3073	0.0328
45P	0.0000	0.0000	-0.0848	0.0000	-0.0000	0.0848	-0.0008	0.0299	-0.1336
10P	0.0000	0.0000	-0.3664	0.0000	-0.0000	0.3664	0.0001	0.0440	-0.0173
11P	0.0000	0.1820	-1.3424	-0.0000	-0.1820	1.3424	-0.0016	0.0287	-0.0156
12P	0.0000	0.0000	-0.8067	0.0000	0.0000	0.8067	-0.0021	0.0223	-0.0137
1X	0.0072	4.1206	-1.4278	-0.0072	-4.1206	1.4278	0.0266	0.1854	0.0032
2X	0.4800	0.8738	-3.0248	-0.4800	-0.8738	3.0248	0.0238	0.1589	0.0035
2XY	-0.4800	0.8738	-3.0047	0.4800	-0.8738	3.0047	0.0240	0.1550	0.0062
2Y	1.1350	1.8340	-2.3808	-1.1350	-1.8340	2.3808	0.0076	0.1557	-0.0211
3X	0.0000	0.2219	-0.6016	-0.0000	-0.2219	0.6016	0.0222	0.1516	0.0041
3XY	0.0000	0.2219	-0.6016	-0.0000	-0.2219	0.6016	0.0218	0.1475	0.0068
3Y	0.0000	0.0750	-0.4296	-0.0000	-0.0750	0.4296	0.0067	0.1473	-0.0210
4X	0.0000	0.1240	-0.2170	0.0000	-0.1240	0.2170	0.0198	0.1359	0.0047
4XY	0.0000	0.1240	-0.2170	0.0000	-0.1240	0.2170	0.0198	0.1321	0.0074
4Y	0.0000	0.0000	-0.2170	0.0000	-0.0000	0.2170	0.0049	0.1336	-0.0209

5X	0.0000	0.2597	-0.5970	-0.0000	-0.2597	0.5970	0.0175	0.1187	0.0043
5XY	0.0000	0.2597	-0.5769	-0.0000	-0.2597	0.5769	0.0176	0.1154	0.0071
5Y	0.0000	0.0750	-0.4250	-0.0000	-0.0750	0.4250	0.0039	0.1158	-0.0197
6X	0.0000	0.1164	-0.3439	-0.0000	-0.1164	0.3439	0.0155	0.1100	0.0049
6XY	0.0000	0.1164	-0.3439	-0.0000	-0.1164	0.3439	0.0152	0.1068	0.0076
6Y	0.0000	0.0000	-0.3439	-0.0000	-0.0000	0.3439	0.0030	0.1060	-0.0191
7X	0.0350	0.3805	-2.7355	-0.0350	-0.3805	2.7355	0.0129	0.0908	0.0053
7XY	-0.0350	0.3805	-2.7355	0.0350	-0.3805	2.7355	0.0131	0.0882	0.0078
7Y	-0.6200	-0.9090	-3.5315	0.6200	0.9090	3.5315	0.0013	0.0887	-0.0189
8X	0.0000	0.1542	-0.4138	-0.0000	-0.1542	0.4138	0.0107	0.0716	0.0050
8XY	0.0000	0.1542	-0.3936	-0.0000	-0.1542	0.3936	0.0107	0.0692	0.0073
8Y	0.0000	0.0000	-0.4138	-0.0000	-0.0000	0.4138	0.0004	0.0693	-0.0177
9X	0.0000	0.2570	-0.7764	0.0000	-0.2570	0.7764	0.0087	0.0614	0.0053
9XY	0.0000	0.2570	-0.7764	0.0000	-0.2570	0.7764	0.0087	0.0590	0.0072
9Y	0.0000	0.0750	-0.6044	0.0000	-0.0750	0.6044	-0.0001	0.0585	-0.0170
14X	0.0000	0.3452	-1.0434	-11.1463	18.7774	51.0841	0.0000	0.0000	0.0000
14XY	0.0000	0.3452	-1.0434	15.8207	19.5191	71.2150	0.0000	0.0000	0.0000
14Y	0.0000	0.0000	-1.0434	-21.7914	28.8108	-112.0866	0.0000	0.0000	0.0000
15X	11.0320	3.3614	-1.1966	-11.0320	-3.3614	1.1966	0.0275	0.1524	0.0100
15XY	-9.6911	3.0891	-2.0411	9.6911	-3.0891	2.0411	0.0258	0.1482	0.0110
15Y	-9.9014	3.1064	-2.0382	9.9014	-3.1064	2.0382	0.0026	0.1472	-0.0377
16X	12.0717	3.6045	-1.1604	-12.0717	-3.6045	1.1604	0.0202	0.1108	0.0129
16XY	-10.3779	3.2523	-2.0654	10.3779	-3.2523	2.0654	0.0184	0.1075	0.0135
16Y	-10.6214	3.2644	-2.0524	10.6214	-3.2644	2.0524	-0.0013	0.1059	-0.0382
17X	12.2889	3.6526	-1.1532	-12.2889	-3.6526	1.1532	0.0126	0.0622	0.0157
17XY	-10.6180	3.3073	-2.0738	10.6180	-3.3073	2.0738	0.0108	0.0597	0.0158
17Y	-11.4913	3.4742	-2.0976	11.4913	-3.4742	2.0976	-0.0040	0.0584	-0.0377
18Y	0.0000	0.0000	-0.0917	-0.0000	-0.0000	0.0917	0.0146	0.1528	-0.0086
19X	0.0000	0.0000	-0.1283	-0.0000	-0.0000	0.1283	0.0179	0.1566	-0.0094
19XY	0.0000	0.0000	-0.1262	-0.0000	-0.0000	0.1262	0.0179	0.1529	-0.0075
19Y	0.0000	0.0000	-0.1283	-0.0000	-0.0000	0.1283	0.0113	0.1528	-0.0095
20X	0.0000	0.0000	-0.1027	-0.0000	-0.0000	0.1027	0.0212	0.1578	-0.0073
20XY	0.0000	0.0000	-0.1027	-0.0000	-0.0000	0.1027	0.0207	0.1540	-0.0045
20Y	0.0000	0.0000	-0.1027	-0.0000	-0.0000	0.1027	0.0098	0.1544	-0.0103
21Y	0.0000	0.0000	-0.1504	-0.0000	-0.0000	0.1504	0.0142	0.1491	-0.0086
22X	10.3777	3.1738	-1.2274	-10.3777	-3.1738	1.2274	0.0177	0.1520	-0.0097
22XY	-10.0800	3.1401	-2.0685	10.0800	-3.1401	2.0685	0.0165	0.1481	-0.0080
22Y	-11.0658	3.3685	-2.1054	11.0658	-3.3685	2.1054	0.0098	0.1482	-0.0099
23X	0.0000	0.0000	-0.1874	-0.0000	-0.0000	0.1874	0.0193	0.1510	-0.0062
23XY	0.0000	0.0000	-0.1874	-0.0000	-0.0000	0.1874	0.0197	0.1470	-0.0035
23Y	0.0000	0.0000	-0.1874	-0.0000	-0.0000	0.1874	0.0087	0.1472	-0.0114
24Y	0.0000	0.0000	-0.1077	-0.0000	-0.0000	0.1077	0.0083	0.1122	-0.0068
25X	0.0000	0.0000	-0.1688	0.0000	-0.0000	0.1688	0.0111	0.1153	-0.0100
25XY	0.0000	0.0000	-0.1666	0.0000	-0.0000	0.1666	0.0111	0.1123	-0.0076
25Y	0.0000	0.0000	-0.1688	-0.0000	-0.0000	0.1688	0.0056	0.1121	-0.0057
26X	0.0000	0.0000	-0.1304	-0.0000	-0.0000	0.1304	0.0145	0.1174	-0.0092
26XY	0.0000	0.0000	-0.1304	-0.0000	-0.0000	0.1304	0.0145	0.1142	-0.0062
26Y	0.0000	0.0000	-0.1304	0.0000	-0.0000	0.1304	0.0050	0.1144	-0.0061
27Y	0.0000	0.0000	-0.1971	0.0000	-0.0000	0.1971	0.0096	0.1092	-0.0068
28X	11.5683	3.4519	-1.1985	-11.5683	-3.4519	1.1985	0.0124	0.1109	-0.0103
28XY	-10.8006	3.3127	-2.1113	10.8006	-3.3127	2.1113	0.0112	0.1078	-0.0081
28Y	-11.0800	3.3757	-2.1103	11.0800	-3.3757	2.1103	0.0057	0.1076	-0.0062
29X	0.0000	0.0000	-0.2239	-0.0000	-0.0000	0.2239	0.0133	0.1096	-0.0077
29XY	0.0000	0.0000	-0.2239	-0.0000	-0.0000	0.2239	0.0138	0.1065	-0.0049
29Y	0.0000	0.0000	-0.2239	0.0000	-0.0000	0.2239	0.0049	0.1061	-0.0075
30Y	0.0000	0.0000	-0.1228	0.0000	-0.0000	0.1228	0.0029	0.0651	-0.0059
31X	0.0000	0.0000	-0.1985	0.0000	-0.0000	0.1985	0.0049	0.0674	-0.0094
31XY	0.0000	0.0000	-0.1964	0.0000	-0.0000	0.1964	0.0050	0.0652	-0.0075
31Y	0.0000	0.0000	-0.1985	0.0000	-0.0000	0.1985	0.0009	0.0650	-0.0040

32X	0.0000	0.0000	-0.1495	0.0000	-0.0000	0.1495	0.0081	0.0700	-0.0095
32XY	0.0000	0.0000	-0.1495	0.0000	-0.0000	0.1495	0.0081	0.0677	-0.0070
32Y	0.0000	0.0000	-0.1495	0.0000	-0.0000	0.1495	0.0010	0.0676	-0.0035
33Y	0.0000	0.0000	-0.2368	0.0000	-0.0000	0.2368	0.0046	0.0623	-0.0059
34X	11.6313	3.4706	-1.2111	-11.6313	-3.4706	1.2111	0.0066	0.0628	-0.0097
34XY	-11.2651	3.4216	-2.1438	11.2651	-3.4216	2.1438	0.0056	0.0605	-0.0080
34Y	-11.0943	3.3849	-2.1319	11.0943	-3.3849	2.1319	0.0013	0.0604	-0.0044
35X	0.0000	0.0000	-0.2790	-0.0000	-0.0000	0.2790	0.0075	0.0613	-0.0077
35XY	0.0000	0.0000	-0.2790	-0.0000	-0.0000	0.2790	0.0073	0.0590	-0.0053
35Y	0.0000	0.0000	-0.2790	0.0000	-0.0000	0.2790	0.0015	0.0587	-0.0052
36Y	0.0000	0.0000	-0.3349	0.0000	-0.0000	0.3349	0.0015	0.0257	-0.0044
37X	0.0000	0.0000	-0.3616	0.0000	0.0000	0.3616	0.0028	0.0278	-0.0051
37XY	0.0000	0.0000	-0.3616	0.0000	0.0000	0.3616	0.0031	0.0258	-0.0028
37Y	0.0000	0.0000	-0.3616	0.0000	-0.0000	0.3616	0.0005	0.0257	-0.0057
38X	0.0000	0.1018	-0.4381	0.0000	-0.1018	0.4381	0.0035	0.0287	-0.0036
38XY	0.0000	0.1018	-0.4381	-0.0000	-0.1018	0.4381	0.0048	0.0265	-0.0013
38Y	0.0000	0.0000	-0.4381	0.0000	0.0000	0.4381	0.0004	0.0265	-0.0065
39Y	0.0000	0.0000	-0.3850	0.0000	-0.0000	0.3850	0.0009	0.0213	-0.0042
40X	0.0000	0.0000	-0.1962	0.0000	-0.0000	0.1962	0.0019	0.0231	-0.0054
40XY	0.0000	0.0000	-0.1962	0.0000	-0.0000	0.1962	0.0020	0.0207	-0.0027
40Y	0.0000	0.0000	-0.1962	0.0000	-0.0000	0.1962	-0.0003	0.0209	-0.0055
41X	0.0000	0.0746	-0.4307	0.0000	-0.0746	0.4307	0.0030	0.0224	-0.0022
41XY	0.0000	0.0746	-0.4307	0.0000	-0.0746	0.4307	0.0031	0.0201	0.0005
41Y	0.0000	0.0000	-0.4307	0.0000	-0.0000	0.4307	-0.0014	0.0205	-0.0079
44X	0.0000	0.2595	-0.1966	0.0000	-0.2595	0.1966	0.0011	0.1946	-0.0202
45X	0.0000	0.0000	-0.0848	0.0000	-0.0000	0.0848	0.0041	0.0261	-0.1040
10X	0.0000	0.1938	-0.3664	0.0000	-0.1938	0.3664	0.0065	0.0426	0.0054
10XY	0.0000	0.1938	-0.3664	0.0000	-0.1938	0.3664	0.0071	0.0410	0.0075
10Y	0.0000	0.0000	-0.3664	0.0000	-0.0000	0.3664	-0.0022	0.0417	-0.0158
11X	0.0000	0.3633	-0.8864	-0.0000	-0.3633	0.8864	0.0051	0.0288	0.0044
11XY	0.0000	0.3633	-0.8864	-0.0000	-0.3633	0.8864	0.0051	0.0266	0.0066
11Y	0.0000	0.1000	-0.6584	0.0000	-0.1000	0.6584	-0.0020	0.0266	-0.0139
12X	0.0000	0.3792	-0.8067	-0.0000	-0.3792	0.8067	0.0036	0.0214	0.0036
12XY	0.0000	0.3792	-0.8067	0.0000	-0.3792	0.8067	0.0042	0.0193	0.0057
12Y	0.0000	0.0000	-0.8067	-0.0000	0.0000	0.8067	-0.0027	0.0199	-0.0119
13S	0.0000	0.4360	-3.1544	-0.0000	-0.4360	3.1544	-0.0006	0.0088	-0.0100
42S	0.0000	0.0000	-1.4613	-0.0000	0.0000	1.4613	0.0001	0.0094	-0.0018
43S	0.0000	0.0000	-0.1790	0.0000	-0.0000	0.1790	-0.0018	0.0285	-0.0147
46S	0.0000	0.0000	-0.0908	0.0000	0.0000	0.0908	0.0014	0.0093	-0.2061
47S	0.0000	0.0000	-0.0908	0.0000	0.0000	0.0908	0.0001	0.0084	-0.1828
13X	0.0000	0.9998	-2.0614	-0.0000	-0.9998	2.0614	0.0007	0.0104	0.0023
13XY	0.0000	0.9998	-2.0614	-0.0000	-0.9998	2.0614	0.0032	0.0088	0.0042
13Y	0.0000	0.2390	-1.5144	0.0000	-0.2390	1.5144	-0.0002	0.0072	-0.0092
42Y	0.0000	0.0000	-1.4613	0.0000	0.0000	1.4613	0.0014	0.0076	-0.0013
43X	0.0000	0.1689	-0.1790	0.0000	-0.1689	0.1790	0.0051	0.0272	0.0057

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	L/R	KL/R	Curve No.	Alternate Unsupported L/R Cap. (kips)	RLOUT	L/R	KL/R	Curve No.
15X	15XY	Short only	-0.63	-0.45	12.29	0.750	0.500	0.500	131.00	128.42	5	9.14	1.000	167.31	149.09	6
15XY	15X	Short only	-0.45	-0.63	12.29	0.750	0.500	0.500	131.00	128.42	5	9.14	1.000	167.31	149.09	6
15Y	15P	Short only	-0.21	0.02	12.29	0.750	0.500	0.500	131.00	128.42	5	9.14	1.000	167.31	149.09	6
16XY	16X	Short only	-1.80	0.19	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
17P	17Y	Short only	-0.36	-1.11	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6

17Y	17P	Short only	-1.11	-0.36	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
18P	18Y	Short only	-0.42	-1.32	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
18XY	18X	Short only	-1.71	0.18	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
18Y	18P	Short only	-1.32	-0.42	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
20P	20Y	Short only	-0.01	-0.70	43.23	0.750	0.500	0.500	87.63	95.72	2	35.96	1.000	111.96	115.98	3
20Y	20P	Short only	-0.70	-0.01	43.23	0.750	0.500	0.500	87.63	95.72	2	35.96	1.000	111.96	115.98	3
21P	21Y	Short only	-1.83	-2.54	43.23	0.750	0.500	0.500	87.63	95.72	2	35.96	1.000	111.96	115.98	3
21Y	21P	Short only	-2.54	-1.83	43.23	0.750	0.500	0.500	87.63	95.72	2	35.96	1.000	111.96	115.98	3

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
C1	5.424	50.00	50.00	10.85
C2	4.361	50.00	50.00	8.72
C3	11.086	50.00	50.00	22.17
C4	11.595	50.00	50.00	23.19
C5	10.374	50.00	50.00	20.75
C6	10.576	50.00	50.00	21.15
C7	11.003	50.00	50.00	22.01
C8	12.652	50.00	50.00	25.30
C9	11.070	50.00	50.00	22.14
C10	11.300	50.00	50.00	22.60
C11	11.171	50.00	50.00	22.34
C12	12.872	50.00	50.00	25.74
C13	11.313	50.00	50.00	22.63
C14	12.187	50.00	50.00	24.37
C15	11.569	50.00	50.00	23.14
C16	10.921	50.00	50.00	21.84
C17	10.759	50.00	50.00	21.52
C18	11.757	50.00	50.00	23.51
C19	12.145	50.00	50.00	24.29
C20	12.132	50.00	50.00	24.26
C21	11.493	50.00	50.00	22.99
C22	11.773	50.00	50.00	23.55
C23	12.354	50.00	50.00	24.71
C24	12.198	50.00	50.00	24.40
C25	11.967	50.00	50.00	23.93
C26	11.793	50.00	50.00	23.59
C27	0.641	50.00	50.00	1.28
C28	0.633	50.00	50.00	1.27
C29	2.762	50.00	50.00	5.52
C30	0.818	50.00	50.00	1.64
C31	0.958	50.00	50.00	1.92
C32	2.291	50.00	50.00	4.58
C34	0.436	50.00	50.00	0.87
C35	0.432	50.00	50.00	0.86
C36	3.699	50.00	50.00	7.40
C37	0.609	50.00	50.00	1.22
C38	0.666	50.00	50.00	1.33
C39	1.533	50.00	50.00	3.07
C41	0.641	50.00	50.00	1.28
C42	0.955	50.00	50.00	1.91
C43	2.762	50.00	50.00	5.52

C44	4.181	50.00	50.00	8.36
C45	3.185	50.00	50.00	6.37
C46	3.166	50.00	50.00	6.33
C47	3.212	50.00	50.00	6.42
C48	3.198	50.00	50.00	6.40
C49	0.651	50.00	50.00	1.30
C50	0.931	50.00	50.00	1.86
C51	0.818	50.00	50.00	1.64
C52	1.129	50.00	50.00	2.26
C53	0.958	50.00	50.00	1.92
C54	1.355	50.00	50.00	2.71
C55	2.291	50.00	50.00	4.58
C56	3.184	50.00	50.00	6.37

*** Analysis Results for Load Case No. 2 "NESC Extreme" - Number of iterations in SAPS 10

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	0.0004966	0.1942	-0.01676	0.0000	0.0000	0.0000	0.0004966	14.19	93.98
2P	0.0001938	0.1665	-0.01832	-0.1037	0.0010	0.0106	3.5	15.17	84.98
3P	0.0002119	0.1572	-0.01855	-0.1355	-0.0026	0.0101	3.5	15.16	79.98
4P	0.000563	0.141	-0.01871	-0.2331	-0.0023	0.0051	3.501	15.14	74.98
5P	0.0003631	0.1213	-0.0176	-0.1641	0.0076	0.0001	3.5	15.12	69.98
6P	-5.619e-005	0.111	-0.01733	-0.1892	-0.0068	-0.0039	3.5	15.11	64.98
7P	0.000536	0.0918	-0.01715	-0.2455	-0.0022	-0.0128	3.501	15.09	59.98
8P	0.0001555	0.07199	-0.01606	-0.1673	0.0092	-0.0217	3.5	15.07	54.98
9P	-0.0002847	0.0614	-0.0155	-0.1415	-0.0066	-0.0368	3.5	15.06	49.98
14P	0	0	0	0.0000	0.0000	0.0000	13.07	19.07	0
15P	-0.001072	0.1573	-0.03232	-0.1013	-0.0026	0.0107	3.499	22.16	79.97
16P	-0.001274	0.1112	-0.03288	-0.0964	-0.0067	0.0169	3.499	22.11	64.97
17P	-0.001078	0.06156	-0.03172	-0.1285	-0.0065	0.0280	3.499	22.06	49.97
18P	0.003475	0.1633	-0.00482	-0.0070	0.0039	0.0165	3.503	0.1633	85
19P	0.001667	0.1633	-0.004988	0.0091	0.0027	0.0133	3.502	6.163	85
20P	0.000934	0.165	-0.006891	-0.1035	0.0019	0.0081	3.501	10.67	84.99
21P	0.004289	0.1594	-0.004788	-0.0016	0.0035	0.0136	3.504	0.1594	80
22P	0.003452	0.1582	-0.005083	-0.0025	0.0011	0.0159	3.503	6.158	79.99
23P	0.001556	0.157	-0.007624	-0.0941	-0.0008	0.0244	3.502	10.66	79.99
24P	0.001078	0.1174	-0.00442	0.0066	0.0061	0.0139	3.501	0.1174	70
25P	-0.0003627	0.1173	-0.00249	0.0393	0.0067	0.0030	3.5	6.117	70
26P	0.0001066	0.1198	-0.00276	-0.1128	0.0072	-0.0077	3.5	10.62	70
27P	0.00332	0.1144	-0.004389	0.0195	0.0047	0.0090	3.503	0.1144	65
28P	0.002949	0.1126	-0.002566	0.0142	0.0002	0.0119	3.503	6.113	65
29P	0.001191	0.111	-0.004426	-0.0972	-0.0032	0.0266	3.501	10.61	65
30P	-0.0003512	0.06788	-0.00368	0.0053	0.0070	0.0099	3.5	0.06788	55
31P	-0.001322	0.06783	-0.001794	0.0416	0.0079	-0.0029	3.499	6.068	55
32P	-0.0004934	0.07044	-0.001641	-0.1046	0.0086	-0.0080	3.5	10.57	55
33P	0.001947	0.06494	-0.00365	0.0168	0.0036	0.0016	3.502	0.06494	50
34P	0.002099	0.06303	-0.001854	0.0195	-0.0003	0.0109	3.502	6.063	50
35P	0.0002197	0.06142	-0.003327	-0.0997	-0.0034	0.0291	3.5	10.56	50
36P	0.001595	0.02866	-0.003402	-0.0205	0.0025	0.0038	5.377	0.02866	40
37P	0.0004626	0.02863	-0.004691	-0.0013	0.0020	0.0300	5.375	5.279	40
38P	-0.002231	0.02943	-0.005716	-0.0518	0.0015	0.0001	5.373	10.53	39.99
39P	0.0009909	0.02444	-0.003442	-0.0122	0.0045	0.0043	6.334	0.02444	35
40P	0.0005832	0.024	-0.004714	-0.0156	0.0009	0.0052	6.334	5.274	35
41P	0.0001518	0.02355	-0.00698	-0.0414	-0.0027	0.0024	6.333	10.52	34.99
44P	-0.0002966	0.3428	0.03788	0.0000	0.0000	0.0000	-0.0002966	17.35	17.79
45P	0.0002611	0.03398	-0.1895	0.0000	0.0000	0.0000	0.0002611	10.53	39.81
10P	0.000752	0.04439	-0.01466	-0.1957	-0.0057	-0.0516	4.458	15.04	44.99
11P	0.0001144	0.02958	-0.01296	-0.1116	0.0001	-0.0399	5.415	15.03	39.99
12P	0.0004316	0.02282	-0.01124	-0.0593	-0.0061	-0.0123	6.372	15.02	34.99
1X	0.009954	0.19	0.007299	0.0000	0.0000	0.0000	0.009954	-13.81	94.01
2X	0.009688	0.1663	0.008929	-0.0930	0.0067	0.0222	3.51	-14.83	85.01
2XY	0.009154	0.164	0.009719	-0.0931	0.0049	0.0180	-3.491	-14.84	85.01
2Y	0.0006108	0.1647	-0.01832	-0.1046	0.0000	0.0159	-3.499	15.16	84.98
3X	0.009025	0.1576	0.009455	-0.1331	0.0096	0.0222	3.509	-14.84	80.01
3XY	0.008724	0.1554	0.01029	-0.1313	0.0052	0.0165	-3.491	-14.84	80.01
3Y	0.0004835	0.1552	-0.01851	-0.1361	0.0044	0.0169	-3.5	15.16	79.98
4X	0.008041	0.1409	0.009996	-0.2379	0.0117	0.0207	3.508	-14.86	75.01

4XY	0.008219	0.1388	0.01086	-0.2351	0.0065	0.0190	-3.492	-14.86	75.01
4Y	-2.486e-005	0.1392	-0.01864	-0.2299	0.0045	0.0147	-3.5	15.14	74.98
5X	0.007271	0.1214	0.009329	-0.1582	0.0045	0.0191	3.507	-14.88	70.01
5XY	0.007457	0.1196	0.01022	-0.1561	0.0126	0.0215	-3.493	-14.88	70.01
5Y	4.866e-006	0.1197	-0.01754	-0.1645	-0.0052	0.0126	-3.5	15.12	69.98
6X	0.006751	0.1114	0.009559	-0.1969	0.0159	0.0110	3.507	-14.89	65.01
6XY	0.00644	0.1097	0.01046	-0.1933	0.0042	0.0172	-3.494	-14.89	65.01
6Y	0.0002099	0.1093	-0.01725	-0.1885	0.0086	0.0224	-3.5	15.11	64.98
7X	0.005379	0.09146	0.009719	-0.2478	0.0121	0.0052	3.505	-14.91	60.01
7XY	0.006043	0.09011	0.01058	-0.2448	0.0081	0.0215	-3.494	-14.91	60.01
7Y	-0.0005157	0.09031	-0.01706	-0.2412	0.0037	0.0274	-3.501	15.09	59.98
8X	0.004768	0.07206	0.009104	-0.1602	0.0044	-0.0006	3.505	-14.93	55.01
8XY	0.004965	0.07087	0.009883	-0.1598	0.0141	0.0257	-3.495	-14.93	55.01
8Y	-0.0002608	0.07086	-0.01599	-0.1659	-0.0074	0.0323	-3.5	15.07	54.98
9X	0.004159	0.06161	0.009014	-0.1502	0.0134	-0.0140	3.504	-14.94	50.01
9XY	0.004051	0.06053	0.009661	-0.1450	0.0035	0.0315	-3.496	-14.94	50.01
9Y	3.266e-005	0.06023	-0.0154	-0.1400	0.0076	0.0490	-3.5	15.06	49.98
14X	0	0	0	0.0000	0.0000	0.0000	13.07	-19.07	0
14XY	0	0	0	0.0000	0.0000	0.0000	-13.07	-19.07	0
14Y	0	0	0	0.0000	0.0000	0.0000	-13.07	19.07	0
15X	0.0118	0.1581	0.01953	-0.0573	0.0096	0.0230	3.512	-21.84	80.02
15XY	0.01083	0.1559	0.01887	-0.0398	0.0053	0.0176	-3.489	-21.84	80.02
15Y	-0.001974	0.1553	-0.03384	-0.1202	0.0044	0.0217	-3.502	22.16	79.97
16X	0.009058	0.1119	0.02187	-0.0530	0.0160	0.0228	3.509	-21.89	65.02
16XY	0.008043	0.1102	0.02116	-0.0349	0.0042	0.0111	-3.492	-21.89	65.02
16Y	-0.002179	0.1094	-0.03443	-0.1169	0.0086	0.0181	-3.502	22.11	64.97
17X	0.005962	0.06208	0.02221	-0.0871	0.0135	0.0290	3.506	-21.94	50.02
17XY	0.004945	0.061	0.02139	-0.0716	0.0034	-0.0047	-3.495	-21.94	50.02
17Y	-0.001998	0.06025	-0.03324	-0.1490	0.0075	0.0005	-3.502	22.06	49.97
18Y	0.003516	0.1613	-0.004729	-0.0097	0.0025	0.0183	-3.496	0.1613	85
19X	0.005302	0.1633	-0.00444	0.0033	0.0050	0.0251	3.505	-5.837	85
19XY	0.005344	0.1613	-0.004091	-0.0030	0.0035	0.0222	-3.495	-5.839	85
19Y	0.001711	0.1613	-0.005197	0.0101	0.0015	0.0086	-3.498	6.161	84.99
20X	0.00768	0.1648	-0.002079	-0.1051	0.0058	0.0300	3.508	-10.34	85
20XY	0.007401	0.1627	-0.001179	-0.1078	0.0042	0.0263	-3.493	-10.34	85
20Y	0.001465	0.1631	-0.006844	-0.1015	0.0007	0.0044	-3.499	10.66	84.99
21Y	0.004577	0.1573	-0.004695	-0.0043	0.0048	0.0195	-3.495	0.1573	80
22X	0.006462	0.1583	-0.004547	-0.0064	0.0060	0.0158	3.506	-5.842	80
22XY	0.005916	0.1562	-0.004345	-0.0119	0.0050	0.0181	-3.494	-5.844	80
22Y	0.002033	0.1562	-0.00544	-0.0022	0.0046	0.0150	-3.498	6.156	79.99
23X	0.007344	0.1572	-0.001487	-0.0988	0.0078	0.0150	3.507	-10.34	80
23XY	0.007686	0.155	-0.0006581	-0.1039	0.0051	0.0181	-3.492	-10.34	80
23Y	0.001528	0.1551	-0.007652	-0.0902	0.0045	0.0068	-3.498	10.66	79.99
24Y	0.001102	0.1158	-0.00407	0.0041	0.0037	0.0141	-3.499	0.1158	70
25X	0.002559	0.1175	-0.00605	0.0366	0.0056	0.0250	3.503	-5.883	69.99
25XY	0.002585	0.1159	-0.005395	0.0312	0.0073	0.0247	-3.497	-5.884	69.99
25Y	-0.0003335	0.1158	-0.002446	0.0369	0.0001	0.0026	-3.5	6.116	70
26X	0.005182	0.1199	-0.005615	-0.1163	0.0050	0.0339	3.505	-10.38	69.99
26XY	0.005205	0.1182	-0.004552	-0.1177	0.0099	0.0349	-3.495	-10.38	70
26Y	0.0001462	0.1182	-0.002786	-0.1120	-0.0026	-0.0070	-3.5	10.62	70
27Y	0.00359	0.1127	-0.004038	0.0167	0.0064	0.0160	-3.496	0.1127	65
28X	0.004967	0.1127	-0.006167	0.0110	0.0092	0.0100	3.505	-5.887	64.99
28XY	0.004538	0.1111	-0.005663	0.0063	0.0055	0.0142	-3.495	-5.889	64.99
28Y	0.001358	0.1109	-0.002666	0.0126	0.0072	0.0129	-3.499	6.111	65
29X	0.005435	0.1112	-0.003865	-0.1036	0.0126	0.0118	3.505	-10.39	65
29XY	0.005893	0.1096	-0.002871	-0.1071	0.0048	0.0103	-3.494	-10.39	65
29Y	0.00106	0.1093	-0.004426	-0.0952	0.0079	0.0022	-3.499	10.61	65
30Y	-0.0003278	0.06684	-0.003479	0.0027	0.0032	0.0090	-3.5	0.06684	55
31X	0.0006587	0.06791	-0.005339	0.0393	0.0061	0.0199	3.501	-5.932	54.99

31XY	0.0006874	0.0669	-0.004793	0.0337	0.0076	0.0214	-3.499	-5.933	55
31Y	-0.001298	0.06679	-0.001889	0.0389	-0.0012	-0.0004	-3.501	6.067	55
32X	0.003008	0.07048	-0.005333	-0.1075	0.0053	0.0343	3.503	-10.43	54.99
32XY	0.003015	0.06936	-0.004392	-0.1085	0.0108	0.0290	-3.497	-10.43	55
32Y	-0.0004251	0.06933	-0.001814	-0.1027	-0.0044	-0.0177	-3.5	10.57	55
33Y	0.002217	0.0638	-0.003447	0.0141	0.0053	0.0144	-3.498	0.0638	50
34X	0.003053	0.0631	-0.00547	0.0167	0.0076	0.0100	3.503	-5.937	49.99
34XY	0.002793	0.06202	-0.005071	0.0115	0.0045	0.0060	-3.497	-5.938	49.99
34Y	0.0003797	0.06194	-0.002094	0.0176	0.0061	0.0056	-3.5	6.062	50
35X	0.003683	0.06158	-0.00359	-0.1048	0.0106	0.0115	3.504	-10.44	50
35XY	0.003373	0.06051	-0.002705	-0.1071	0.0039	0.0027	-3.497	-10.44	50
35Y	0.0008839	0.06035	-0.003465	-0.0964	0.0068	-0.0102	-3.499	10.56	50
36Y	0.000941	0.02782	-0.002908	-0.0226	0.0044	0.0072	-5.374	0.02782	40
37X	0.001467	0.02866	-0.002053	-0.0022	0.0030	-0.0121	5.376	-5.221	40
37XY	0.002085	0.02783	-0.001365	-0.0042	0.0061	0.0231	-5.373	-5.222	40
37Y	0.001066	0.0278	-0.004404	-0.0041	0.0028	-0.0190	-5.374	5.278	40
38X	0.000505	0.02942	-0.0006965	-0.0613	0.0036	0.0100	5.376	-10.47	40
38XY	0.004022	0.02855	0.000113	-0.0615	0.0078	0.0002	-5.371	-10.47	40
38Y	0.002769	0.02855	-0.005662	-0.0527	0.0011	0.0103	-5.372	10.53	39.99
39Y	0.001059	0.02338	-0.002859	-0.0148	0.0012	0.0048	-6.332	0.02338	35
40X	0.001432	0.02378	-0.002141	-0.0200	0.0081	0.0054	6.334	-5.226	35
40XY	0.001444	0.02277	-0.00132	-0.0226	-0.0006	0.0035	-6.332	-5.227	35
40Y	0.0006277	0.02295	-0.004369	-0.0183	0.0031	0.0040	-6.332	5.273	35
41X	0.001754	0.02312	0.001075	-0.0560	0.0117	-0.0012	6.335	-10.48	35
41XY	0.001905	0.02216	0.00203	-0.0553	-0.0025	0.0091	-6.331	-10.48	35
41Y	0.0002232	0.02251	-0.006839	-0.0427	0.0050	0.0065	-6.333	10.52	34.99
44X	0.0007505	0.1793	-0.01804	0.0000	0.0000	0.0000	0.0007505	-16.83	17.73
45X	0.00226	0.02509	-0.1625	0.0000	0.0000	0.0000	0.00226	-10.47	39.84
10X	0.002769	0.04379	0.008705	-0.2058	0.0101	-0.0062	4.46	-14.96	45.01
10XY	0.00394	0.04309	0.009439	-0.2013	0.0067	0.0198	-4.453	-14.96	45.01
10Y	-0.001005	0.04345	-0.01454	-0.1910	0.0054	0.0620	-4.458	15.04	44.99
11X	0.002656	0.02955	0.007542	-0.1231	0.0050	0.0281	5.418	-14.97	40.01
11XY	0.002658	0.02869	0.008335	-0.1230	0.0082	-0.0177	-5.412	-14.97	40.01
11Y	-0.0003655	0.0287	-0.01285	-0.1104	0.0005	0.0498	-5.415	15.03	39.99
12X	0.001845	0.02226	0.006399	-0.0683	0.0152	0.0122	6.374	-14.98	35.01
12XY	0.002423	0.02137	0.007198	-0.0661	-0.0045	-0.0043	-6.37	-14.98	35.01
12Y	-0.000746	0.0218	-0.01114	-0.0594	0.0069	0.0211	-6.373	15.02	34.99
13S	-0.0007367	0.009391	-0.008644	-0.0533	0.0025	-0.0091	8.54	16.33	23.66
42S	-0.0008038	0.00979	-0.0009908	-0.0096	0.0068	0.0013	8.54	0.00979	23.67
43S	-0.0001287	0.03105	-0.01318	-0.1110	0.0007	0.0046	-0.0001287	15.03	39.99
46S	0.0008399	0.01045	-0.2863	0.0000	0.0000	0.0000	0.0008399	-8.149	23.38
47S	0.0001744	0.00947	-0.2626	0.0000	0.0000	0.0000	0.0001744	8.169	23.41
13X	-0.0003797	0.0118	0.00424	-0.0441	0.0111	0.0078	8.541	-16.31	23.67
13XY	0.002667	0.01098	0.00496	-0.0417	-0.0017	-0.0029	-8.539	-16.31	23.67
13Y	0.0002056	0.008253	-0.008559	-0.0510	-0.0033	0.0147	-8.541	16.33	23.66
42Y	0.001817	0.008884	-0.000925	-0.0124	-0.0025	0.0035	-8.539	0.008884	23.67
43X	0.002659	0.02785	0.008014	-0.1230	0.0030	0.0043	0.002659	-14.97	40.01

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 %
14P	-20.51	0.0	-32.48	0.0	0.0	-111.56	0.0	0.0	117.99	0.0	0.07	0.0	0.3	0.0	0.0	0.04	0.0	0.0
14X	16.11	0.0	-24.76	0.0	0.0	75.45	0.0	0.0	81.03	0.0	0.54	0.0	0.1	0.0	0.0	-0.00	0.0	0.0
14XY	-18.37	0.0	-24.76	0.0	0.0	84.33	0.0	0.0	89.79	0.0	0.46	0.0	-0.2	0.0	0.0	-0.01	0.0	0.0
14Y	20.01	0.0	-29.83	0.0	0.0	-107.77	0.0	0.0	113.60	0.0	-0.03	0.0	-0.2	0.0	0.0	-0.05	0.0	0.0

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

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
1P	0.0101	3.5977	-0.6370	-0.0101	-3.5977	0.6370	0.0005	0.1942	-0.0168
2P	-3.2140	5.2603	0.2198	3.2140	-5.2603	-0.2198	0.0002	0.1665	-0.0183
3P	0.0000	0.5003	-0.2832	0.0000	-0.5003	0.2832	0.0002	0.1572	-0.0185
4P	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0006	0.1410	-0.0187
5P	0.0000	0.5003	-0.2832	0.0000	-0.5003	0.2832	0.0004	0.1213	-0.0176
6P	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	-0.0001	0.1110	-0.0173
7P	1.3350	-1.6097	-3.1582	-1.3350	1.6097	3.1582	0.0005	0.0918	-0.0171
8P	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0002	0.0720	-0.0161
9P	0.0000	0.7416	-0.5865	-0.0000	-0.7416	0.5865	-0.0003	0.0614	-0.0155
14P	0.0000	0.2413	-0.3033	20.5149	32.2350	-111.2615	0.0000	0.0000	0.0000
15P	6.1157	2.5704	-0.4527	-6.1157	-2.5704	0.4527	-0.0011	0.1573	-0.0323
16P	5.9072	2.4807	-0.4667	-5.9072	-2.4807	0.4667	-0.0013	0.1112	-0.0329
17P	5.7822	2.4085	-0.4644	-5.7822	-2.4085	0.4644	-0.0011	0.0616	-0.0317
18P	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0035	0.1633	-0.0048
19P	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0017	0.1633	-0.0050
20P	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0009	0.1650	-0.0069
21P	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0043	0.1594	-0.0048
22P	6.3519	2.6158	-0.4497	-6.3519	-2.6158	0.4497	0.0035	0.1582	-0.0051
23P	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0016	0.1570	-0.0076
24P	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0011	0.1174	-0.0044
25P	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	-0.0004	0.1173	-0.0025
26P	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0001	0.1198	-0.0028
27P	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0033	0.1144	-0.0044
28P	6.4643	2.6116	-0.4490	-6.4643	-2.6116	0.4490	0.0029	0.1126	-0.0026
29P	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0012	0.1110	-0.0044
30P	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	-0.0004	0.0679	-0.0037
31P	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	-0.0013	0.0678	-0.0018
32P	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	-0.0005	0.0704	-0.0016
33P	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0019	0.0649	-0.0036
34P	6.3477	2.5357	-0.4422	-6.3477	-2.5357	0.4422	0.0021	0.0630	-0.0019
35P	0.0000	0.3076	-0.4285	-0.0000	-0.3076	0.4285	0.0002	0.0614	-0.0033
36P	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0016	0.0287	-0.0034
37P	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0005	0.0286	-0.0047
38P	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	-0.0022	0.0294	-0.0057
39P	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0010	0.0244	-0.0034
40P	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0006	0.0240	-0.0047
41P	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0002	0.0236	-0.0070
44P	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	-0.0003	0.3428	0.0379
45P	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0003	0.0340	-0.1895
10P	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0008	0.0444	-0.0147
11P	0.0000	0.8163	-0.5133	0.0000	-0.8163	0.5133	0.0001	0.0296	-0.0130
12P	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0004	0.0228	-0.0112
1X	0.0065	2.2122	-0.5209	-0.0065	-2.2122	0.5209	0.0100	0.1900	0.0073
2X	2.8260	4.6383	-2.9102	-2.8260	-4.6383	2.9102	0.0097	0.1663	0.0089
2XY	-2.8260	4.6383	-2.9102	2.8260	-4.6383	2.9102	0.0092	0.1640	0.0097
2Y	3.2140	5.2603	0.2198	-3.2140	-5.2603	-0.2198	0.0006	0.1647	-0.0183
3X	0.0000	0.5003	-0.2042	-0.0000	-0.5003	0.2042	0.0090	0.1576	0.0095
3XY	0.0000	0.5003	-0.2042	-0.0000	-0.5003	0.2042	0.0087	0.1554	0.0103
3Y	0.0000	0.2833	-0.1652	0.0000	-0.2833	0.1652	0.0005	0.1552	-0.0185
4X	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0080	0.1409	0.0100
4XY	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0082	0.1388	0.0109
4Y	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	-0.0000	0.1392	-0.0186

5X	0.0000	0.5003	-0.2042	0.0000	-0.5003	0.2042	0.0073	0.1214	0.0093
5XY	0.0000	0.5003	-0.2042	-0.0000	-0.5003	0.2042	0.0075	0.1196	0.0102
5Y	0.0000	0.2833	-0.1652	0.0000	-0.2833	0.1652	0.0000	0.1197	-0.0175
6X	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0068	0.1114	0.0096
6XY	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0064	0.1097	0.0105
6Y	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0002	0.1093	-0.0172
7X	-0.9600	-1.0087	0.1128	0.9600	1.0087	-0.1128	0.0054	0.0915	0.0097
7XY	0.9600	-1.0087	0.1128	-0.9600	1.0087	-0.1128	0.0060	0.0901	0.0106
7Y	-1.3350	-1.8267	-3.0402	1.3350	1.8267	3.0402	-0.0005	0.0903	-0.0171
8X	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0048	0.0721	0.0091
8XY	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0050	0.0709	0.0099
8Y	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	-0.0003	0.0709	-0.0160
9X	0.0000	0.7416	-0.5075	0.0000	-0.7416	0.5075	0.0042	0.0616	0.0090
9XY	0.0000	0.7416	-0.5075	-0.0000	-0.7416	0.5075	0.0041	0.0605	0.0097
9Y	0.0000	0.5246	-0.4685	0.0000	-0.5246	0.4685	0.0000	0.0602	-0.0154
14X	0.0000	0.2413	-0.3033	-16.1139	24.5175	75.7563	0.0000	0.0000	0.0000
14XY	0.0000	0.2413	-0.3033	18.3749	24.5141	84.6336	0.0000	0.0000	0.0000
14Y	0.0000	0.2413	-0.3033	-20.0095	29.5914	-107.4647	0.0000	0.0000	0.0000
15X	6.3890	2.6267	-0.4178	-6.3890	-2.6267	0.4178	0.0118	0.1581	0.0195
15XY	-5.7339	2.5228	-1.0313	5.7339	-2.5228	1.0313	0.0108	0.1559	0.0189
15Y	-5.8415	2.5510	-1.0349	5.8415	-2.5510	1.0349	-0.0020	0.1553	-0.0338
16X	6.7259	2.6675	-0.4027	-6.7259	-2.6675	0.4027	0.0091	0.1119	0.0219
16XY	-5.9350	2.5312	-1.0407	5.9350	-2.5312	1.0407	0.0080	0.1102	0.0212
16Y	-6.0493	2.5515	-1.0363	6.0493	-2.5515	1.0363	-0.0022	0.1094	-0.0344
17X	6.6007	2.5863	-0.4112	-6.6007	-2.5863	0.4112	0.0060	0.0621	0.0222
17XY	-5.8625	2.4677	-1.0347	5.8625	-2.4677	1.0347	0.0049	0.0610	0.0214
17Y	-6.2752	2.5608	-1.0553	6.2752	-2.5608	1.0553	-0.0020	0.0602	-0.0332
18Y	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0035	0.1613	-0.0047
19X	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0053	0.1633	-0.0044
19XY	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0053	0.1613	-0.0041
19Y	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0017	0.1613	-0.0052
20X	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0077	0.1648	-0.0021
20XY	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0074	0.1627	-0.0012
20Y	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0015	0.1631	-0.0068
21Y	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0046	0.1573	-0.0047
22X	6.0597	2.5565	-0.4281	-6.0597	-2.5565	0.4281	0.0065	0.1583	-0.0045
22XY	-5.9362	2.5718	-1.0418	5.9362	-2.5718	1.0418	0.0059	0.1562	-0.0043
22Y	-6.4426	2.6864	-1.0685	6.4426	-2.6864	1.0685	0.0020	0.1562	-0.0054
23X	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0073	0.1572	-0.0015
23XY	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0077	0.1550	-0.0007
23Y	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0015	0.1551	-0.0077
24Y	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0011	0.1158	-0.0041
25X	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0026	0.1175	-0.0060
25XY	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0026	0.1159	-0.0054
25Y	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	-0.0003	0.1158	-0.0024
26X	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0052	0.1199	-0.0056
26XY	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0052	0.1182	-0.0046
26Y	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0001	0.1182	-0.0028
27Y	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0036	0.1127	-0.0040
28X	6.4810	2.6155	-0.4092	-6.4810	-2.6155	0.4092	0.0050	0.1127	-0.0062
28XY	-6.1453	2.5839	-1.0524	6.1453	-2.5839	1.0524	0.0045	0.1111	-0.0057
28Y	-6.2820	2.6120	-1.0525	6.2820	-2.6120	1.0525	0.0014	0.1109	-0.0027
29X	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0054	0.1112	-0.0039
29XY	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0059	0.1096	-0.0029
29Y	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0011	0.1093	-0.0044
30Y	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	-0.0003	0.0668	-0.0035
31X	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0007	0.0679	-0.0053
31XY	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0007	0.0669	-0.0048
31Y	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	-0.0013	0.0668	-0.0019

32X	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0030	0.0705	-0.0053
32XY	0.0000	0.0663	-0.1252	0.0000	-0.0663	0.1252	0.0030	0.0694	-0.0044
32Y	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	-0.0004	0.0693	-0.0018
33Y	0.0000	0.0663	-0.1252	-0.0000	-0.0663	0.1252	0.0022	0.0638	-0.0034
34X	6.2976	2.5270	-0.4197	-6.2976	-2.5270	0.4197	0.0031	0.0631	-0.0055
34XY	-6.1731	2.5421	-1.0551	6.1731	-2.5421	1.0551	0.0028	0.0620	-0.0051
34Y	-6.0964	2.5286	-1.0459	6.0964	-2.5286	1.0459	0.0004	0.0619	-0.0021
35X	0.0000	0.3076	-0.4285	0.0000	-0.3076	0.4285	0.0037	0.0616	-0.0036
35XY	0.0000	0.3076	-0.4285	0.0000	-0.3076	0.4285	0.0034	0.0605	-0.0027
35Y	0.0000	0.3076	-0.4285	-0.0000	-0.3076	0.4285	0.0009	0.0604	-0.0035
36Y	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0009	0.0278	-0.0029
37X	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0015	0.0287	-0.0021
37XY	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0021	0.0278	-0.0014
37Y	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0011	0.0278	-0.0044
38X	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0005	0.0294	-0.0007
38XY	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0040	0.0286	0.0001
38Y	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0028	0.0286	-0.0057
39Y	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0011	0.0234	-0.0029
40X	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0014	0.0238	-0.0021
40XY	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0014	0.0228	-0.0013
40Y	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0006	0.0229	-0.0044
41X	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0018	0.0231	0.0011
41XY	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0019	0.0222	0.0020
41Y	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0002	0.0225	-0.0068
44X	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0008	0.1793	-0.0180
45X	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0023	0.0251	-0.1625
10X	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0028	0.0438	0.0087
10XY	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0039	0.0431	0.0094
10Y	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	-0.0010	0.0435	-0.0145
11X	0.0000	0.8163	-0.4083	-0.0000	-0.8163	0.4083	0.0027	0.0296	0.0075
11XY	0.0000	0.8163	-0.4083	0.0000	-0.8163	0.4083	0.0027	0.0287	0.0083
11Y	0.0000	0.5293	-0.3553	-0.0000	-0.5293	0.3553	-0.0004	0.0287	-0.0129
12X	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0018	0.0223	0.0064
12XY	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0024	0.0214	0.0072
12Y	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	-0.0007	0.0218	-0.0111
13S	0.0000	1.6193	-0.8063	-0.0000	-1.6193	0.8063	-0.0007	0.0094	-0.0086
42S	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	-0.0008	0.0098	-0.0010
43S	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	-0.0001	0.0311	-0.0132
46S	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0008	0.0104	-0.2863
47S	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0002	0.0095	-0.2626
13X	0.0000	1.6193	-0.5543	-0.0000	-1.6193	0.5543	-0.0004	0.0118	0.0042
13XY	0.0000	1.6193	-0.5543	0.0000	-1.6193	0.5543	0.0027	0.0110	0.0050
13Y	0.0000	0.9303	-0.4293	0.0000	-0.9303	0.4293	0.0002	0.0083	-0.0086
42Y	0.0000	0.2413	-0.3033	-0.0000	-0.2413	0.3033	0.0018	0.0089	-0.0009
43X	0.0000	0.2413	-0.3033	0.0000	-0.2413	0.3033	0.0027	0.0279	0.0080

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 RLOUT Cap. (kips)	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
15P	15Y	Short only	-0.28	-0.45	12.29	0.750	0.500	0.500	131.00	128.42	5	9.14	1.000	167.31	149.09	6
15Y	15P	Short only	-0.45	-0.28	12.29	0.750	0.500	0.500	131.00	128.42	5	9.14	1.000	167.31	149.09	6
16X	16XY	Short only	-0.56	-1.49	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
16XY	16X	Short only	-1.49	-0.56	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
17P	17Y	Short only	-0.81	-1.09	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6

17Y	17P	Short only	-1.09	-0.81	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
18P	18Y	Short only	-0.29	-0.66	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
18XY	18X	Short only	-0.75	0.11	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
18Y	18P	Short only	-0.66	-0.29	25.86	0.750	0.500	0.500	105.12	108.84	2	20.50	1.000	134.24	128.76	6
19XY	19X	Short only	-2.48	0.06	43.23	0.750	0.500	0.500	87.63	95.72	2	35.96	1.000	111.96	115.98	3
20P	20Y	Short only	-0.01	-0.09	43.23	0.750	0.500	0.500	87.63	95.72	2	35.96	1.000	111.96	115.98	3
20Y	20P	Short only	-0.09	-0.01	43.23	0.750	0.500	0.500	87.63	95.72	2	35.96	1.000	111.96	115.98	3
21P	21Y	Short only	-1.64	-1.79	43.23	0.750	0.500	0.500	87.63	95.72	2	35.96	1.000	111.96	115.98	3
21Y	21P	Short only	-1.79	-1.64	43.23	0.750	0.500	0.500	87.63	95.72	2	35.96	1.000	111.96	115.98	3
22X	22XY	Short only	-0.08	-2.06	21.13	0.780	0.560	0.560	128.62	126.61	5	18.31	1.000	146.65	136.39	6
22XY	22X	Short only	-2.06	-0.08	21.13	0.780	0.560	0.560	128.62	126.61	5	18.31	1.000	146.65	136.39	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 %
C1	3.654	50.00	50.00	7.31
C2	2.273	50.00	50.00	4.55
C3	6.649	50.00	50.00	13.30
C4	6.920	50.00	50.00	13.84
C5	6.349	50.00	50.00	12.70
C6	6.458	50.00	50.00	12.92
C7	6.424	50.00	50.00	12.85
C8	7.247	50.00	50.00	14.49
C9	6.536	50.00	50.00	13.07
C10	6.647	50.00	50.00	13.29
C11	6.281	50.00	50.00	12.56
C12	7.101	50.00	50.00	14.20
C13	6.444	50.00	50.00	12.89
C14	6.859	50.00	50.00	13.72
C15	6.884	50.00	50.00	13.77
C16	6.591	50.00	50.00	13.18
C17	6.553	50.00	50.00	13.11
C18	7.062	50.00	50.00	14.12
C19	6.986	50.00	50.00	13.97
C20	7.001	50.00	50.00	14.00
C21	6.749	50.00	50.00	13.50
C22	6.884	50.00	50.00	13.77
C23	6.850	50.00	50.00	13.70
C24	6.799	50.00	50.00	13.60
C25	6.759	50.00	50.00	13.52
C26	6.682	50.00	50.00	13.36
C27	0.540	50.00	50.00	1.08
C28	0.540	50.00	50.00	1.08
C29	1.397	50.00	50.00	2.79
C30	0.899	50.00	50.00	1.80
C31	0.913	50.00	50.00	1.83
C32	1.712	50.00	50.00	3.42
C34	0.328	50.00	50.00	0.66
C35	0.328	50.00	50.00	0.66
C36	3.790	50.00	50.00	7.58
C37	0.703	50.00	50.00	1.41
C38	0.637	50.00	50.00	1.27
C39	1.025	50.00	50.00	2.05

C41	0.540	50.00	50.00	1.08
C42	0.575	50.00	50.00	1.15
C43	1.397	50.00	50.00	2.79
C44	3.788	50.00	50.00	7.58
C45	6.162	50.00	50.00	12.32
C46	6.162	50.00	50.00	12.32
C47	6.168	50.00	50.00	12.34
C48	6.168	50.00	50.00	12.34
C49	0.540	50.00	50.00	1.08
C50	0.575	50.00	50.00	1.15
C51	0.899	50.00	50.00	1.80
C52	0.945	50.00	50.00	1.89
C53	0.913	50.00	50.00	1.83
C54	0.964	50.00	50.00	1.93
C55	1.712	50.00	50.00	3.42
C56	1.809	50.00	50.00	3.62

*** 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 Comp.	KL/R No. Of Member	Length Bolts Comp.	Curve (ft)
PeakPost	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	36.70	Comp	36.70	1Y	-6.477	NESC Hea	17.649	27.200	25.312	0.500	0.500	0.500	117.68	118.84	9.708	3	2
Leg1	L5x5x3/8	SAE	5X5X0.375	33.0	23.94	Comp	23.94	4P	-25.501	NESC Hea	106.517	0.000	0.000	1.000	1.000	1.000	60.61	60.61	5.000	1	0
Leg2	L8x8x1/2	SAE	8X8X0.5	33.0	24.28	Comp	24.28	8P	-33.025	NESC Hea	245.252	136.000	337.499	1.000	1.000	1.000	37.74	37.74	5.000	1	10
Leg3	L8x8x1/2	SAE	8X8X0.5	33.0	36.59	Comp	36.59	10P	-89.606	NESC Hea	244.867	380.800	944.999	1.000	1.000	1.000	38.42	38.42	5.091	1	28
Leg4	L8x8x1/2	SAE	8X8X0.5	33.0	39.42	Comp	39.42	12P	-95.229	NESC Hea	241.598	380.800	944.999	0.500	0.500	0.500	43.81	43.81	11.611	1	28
Leg5	L8x8x1/2	SAE	8X8X0.5	33.0	40.92	Comp	40.92	13P	-98.333	NESC Hea	240.308	380.800	944.999	0.250	0.250	0.250	45.77	45.77	24.257	1	28
TTTC	L3x3x1/4	SAE	3X3X0.25	33.0	64.22	Tens	48.59	38X	-13.216	NESC Ext	32.243	27.200	33.750	1.000	1.000	1.000	91.22	105.61	4.500	3	2
TTBC	L3x3x1/4	SAE	3X3X0.25	33.0	35.41	Tens	34.85	40P	-11.237	NESC Ext	32.243	0.000	0.000	1.000	1.000	1.000	91.22	105.61	4.500	3	0
ARMTT	L4x4x1/4	SAE	4X4X0.25	33.0	22.23	Comp	22.23	67X	-6.048	NESC Hea	40.528	27.200	33.750	1.000	1.000	1.000	105.66	112.83	7.000	3	2
MTTC	L4x4x1/4	SAE	4X4X0.25	33.0	69.21	Tens	63.96	43X	-30.528	NESC Ext	47.728	0.000	0.000	1.000	1.000	1.000	67.92	93.96	4.500	3	0
MTBC	L4x4x1/4	SAE	4X4X0.25	33.0	42.00	Comp	42.00	46Y	-20.044	NESC Ext	47.728	0.000	0.000	1.000	1.000	1.000	67.92	93.96	4.500	3	0
ARMMT	L4x4x1/4	SAE	4X4X0.25	33.0	15.78	Comp	15.78	68X	-6.395	NESC Hea	40.528	40.800	50.625	1.000	1.000	1.000	105.66	112.83	7.000	3	3
BTTC	L4x4x5/16	SAE	4X4X0.3125	33.0	76.01	Tens	68.25	49X	-40.246	NESC Hea	58.971	0.000	0.000	1.000	1.000	1.000	68.27	94.13	4.500	3	0
BTBC	L4x4x5/16	SAE	4X4X0.3125	33.0	45.26	Comp	45.26	52P	-26.691	NESC Hea	58.971	0.000	0.000	1.000	1.000	1.000	68.27	94.13	4.500	3	0
ARMBT	L4x4x1/4	SAE	4X4X0.25	33.0	15.50	Comp	15.50	69X	-6.280	NESC Hea	40.528	40.800	50.625	1.000	1.000	1.000	105.66	112.83	7.000	3	3
BTC	8x8x1/2	SAE	8X8X0.5	33.0	20.85	Tens	16.53	55X	-34.517	NESC Hea	208.793	0.000	0.000	1.000	1.000	1.000	39.62	79.81	5.250	3	0
BBC	6x6x1/2	SAE	6X6X0.5	33.0	28.99	Tens	22.15	59P	-27.113	NESC Ext	152.178	122.400	303.750	1.000	1.000	1.000	45.76	82.88	4.500	3	9
Diag1	L2x2x3/16	SAE	2X2X0.1875	33.0	6.89	Cross	6.89	15X	-0.629	NESC Hea	9.142	27.200	25.312	1.000	0.500	0.500	167.31	149.09	8.602	6	2
Diag2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	33.0	14.41	Comp	14.41	22XY	-3.043	NESC Hea	21.126	27.200	33.750	0.780	0.560	0.560	128.62				

126.61 9.398 5 2
Diag3 L3x3x5/16 SAE 3X3X0.3125 33.0 8.78 Tens 8.24 21XY -3.360NESC Hea 43.226 40.800 63.281 0.750 0.500 0.500 87.63
95.72 8.602 2 3
Diag4 L3x3x3/16 SAE 3X3X0.1875 33.0 29.10 Comp 29.10 24P -3.885NESC Hea 13.351 27.200 25.312 1.000 1.000 1.000 163.08
152.87 8.100 5 2
Diag5 L2.5x2x3/16 SAU 2.5X2X0.1875 33.0 88.16 Comp 88.16 25Y -3.076NESC Ext 3.489 27.200 25.312 0.570 0.780 0.570 300.76
257.78 18.775 5 2
Diag6 L3x2x1/4 SAU 3X2X0.25 33.0 23.36 Tens 11.18 26P -0.621NESC Hea 5.559 40.800 50.625 1.000 1.000 1.000 287.31
247.53 10.415 5 3
Diag7 L4x4x1/4 SAE 4X4X0.25 33.0 64.57 Comp 64.57 30P -27.911NESC Ext 43.226 54.400 67.500 1.000 1.000 1.000 101.54
106.15 6.727 2 4
Diag8 L4x4x3/8 SAE 4X4X0.375 33.0 59.07 Comp 59.07 32P -37.144NESC Hea 62.882 68.000 126.562 1.000 1.000 1.000 103.47
107.60 6.795 2 5
Diag9 L3.5x3x1/4 DAS 3.5X3X0.25 33.0 64.55 Comp 64.55 34X -32.466NESC Hea 50.291 54.400 67.500 0.540 1.000 0.540 137.62
133.47 18.923 5 2
Diag10 L4x3x7/16 DAS 4X3X0.4375 33.0 70.59 Comp 70.59 35P -38.873NESC Hea 55.072 81.600 177.187 0.250 1.000 0.250 189.13
172.72 30.734 5 3
Diag11 L3x3x5/16 SAE 3X3X0.3125 33.0 64.54 Comp 64.54 28P -18.580NESC Ext 28.788 40.800 63.281 1.000 1.000 1.000 137.05
133.03 6.727 5 3
Diag12 L3x3x3/16 SAE 3X3X0.1875 33.0 18.04 Tens 15.56 27Y -0.814NESC Hea 5.231 40.800 37.969 1.000 0.333 0.333 282.96
244.21 22.141 5 3
Horz1 L3x3x3/16 SAE 3X3X0.1875 33.0 30.75 Comp 30.75 60XY -4.057NESC Ext 13.192 40.800 37.969 0.500 0.500 0.500 164.28
153.78 16.318 5 3
Horz2 L3.5x3.5x1/4 SAE 3.5X3.5X0.25 33.0 36.00 Comp 36.00 61X -8.742NESC Ext 24.283 40.800 50.625 0.500 0.500 0.500 147.69
141.14 17.082 5 3
Br1 L2x2x3/16 SAE 2X2X0.1875 33.0 45.03 Tens 0.00 65Y 0.000 1.570 13.600 12.656 1.000 1.000 1.000 359.76
359.76 11.812 4 1
Br2 L3x3x3/16 SAE 3X3X0.1875 33.0 45.97 Comp 45.97 66P -4.849NESC Ext 10.549 13.600 12.656 0.750 0.500 0.500 171.97
171.97 17.082 4 1
ArmBr1 Bar 2x3/16 BAR 2 x 0.1875 33.0 56.80 Tens 0.00 72Y 0.000 0.029 27.200 25.312 1.000 1.000 1.000 1911.63
1911.63 8.602 4 2
ArmBr2 ArmBr2 SAE 2X2X0.25 33.0 14.70 Tens 6.99 77X -0.815NESC Hea 11.659 13.600 16.875 0.750 0.500 0.500 151.91
151.91 9.899 4 1
ArmBr3 ArmBr3 SAU 3.5X2.5X0.25 33.0 82.15 Tens 0.00 78X 0.000 17.286 13.600 16.875 1.000 1.000 1.000 154.41
154.41 7.000 4 1
TTBr1 L2x2x3/16 SAE 2X2X0.1875 33.0 45.30 Comp 45.30 83X -4.400NESC Hea 9.713 27.200 25.312 1.000 1.000 1.000 152.28
144.64 5.000 5 2
TTBr2 L3x3x3/16 SAE 3X3X0.1875 33.0 79.54 Comp 79.54 80X -11.264NESC Ext 14.161 27.200 25.312 1.000 1.000 1.000 157.25
148.43 7.810 5 2
TTBr3 L3x3x5/16 SAE 3X3X0.3125 33.0 40.78 Comp 40.78 84P -11.741NESC Ext 28.788 40.800 63.281 1.000 1.000 1.000 137.05
133.03 6.727 5 3
MTBr1 L2x2x3/16 SAE 2X2X0.1875 33.0 13.20 Tens 1.29 85Y -0.125NESC Ext 9.713 27.200 25.312 1.000 1.000 1.000 152.28
144.64 5.000 5 2
MTBr2 L3x2.5x1/4 SAU 3X2.5X0.25 33.0 48.77 Comp 48.77 89X -13.237NESC Ext 27.139 27.200 33.750 1.000 1.000 1.000 113.64
113.64 5.000 1 2
MTBr3 L4x3.5x1/4 SAU 4X3.5X0.25 33.0 70.89 Comp 70.89 86X -22.996NESC Ext 32.441 40.800 50.625 1.000 1.000 1.000 127.69
125.90 7.810 5 3
MTBr4 L3.5x3.5x1/4 SAE 3.5X3.5X0.25 33.0 61.09 Comp 61.09 88Y -20.573NESC Ext 33.676 40.800 50.625 1.000 1.000 1.000 116.31
117.24 6.727 2 3
MTBr5 L4x4x1/4 SAE 4X4X0.25 33.0 55.95 Comp 55.95 90P -24.186NESC Ext 43.226 54.400 67.500 1.000 1.000 1.000 101.54
106.15 6.727 2 4
BTBr1 L2x2x3/16 SAE 2X2X0.1875 33.0 13.66 Tens 1.31 91Y -0.127NESC Hea 9.713 27.200 25.312 1.000 1.000 1.000 152.28
144.64 5.000 5 2
BTBr2 L3.5x3.5x1/4 SAE 3.5X3.5X0.25 33.0 42.30 Comp 42.30 95X -17.257NESC Hea 43.754 40.800 50.625 1.000 1.000 1.000 86.46
86.46 5.000 1 3
BTBr3 L4x4x5/16 SAE 4X4X0.3125 33.0 65.17 Comp 65.17 92X -30.596NESC Hea 46.945 54.400 84.375 1.000 1.000 1.000 118.49
118.87 7.810 2 4
BTBr4 L4x4x1/4 SAE 4X4X0.25 33.0 65.11 Comp 65.11 94P -28.144NESC Hea 43.226 54.400 67.500 1.000 1.000 1.000 101.54
106.15 6.727 2 4

BTBr5	L4x4x3/8	SAE	4X4X0.375	33.0	47.11	Comp	47.11	96P	-29.834	NESC Hea	63.333	68.000	126.562	1.000	1.000	1.000	102.44	106.83	6.727	2	5
TBC1	L2x2x3/16	SAE	2X2X0.1875	33.0	42.47	Tens	32.68	97P	-1.461	NESC Hea	4.471	13.600	12.656	1.000	1.000	1.000	213.20	213.20	7.000	4	1
TBC2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	33.0	46.54	Tens	0.00	111X	0.000		14.856	27.200	33.750	1.000	1.000	1.000	171.08	151.41	7.000	6	2
TBC3	L2x2x1/4	SAE	2X2X0.25	33.0	46.25	Tens	14.43	114P	-1.962	NESC Hea	16.440	13.600	16.875	0.750	0.500	0.500	127.70	127.70	8.322	4	1
TBC4	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	26.48	Comp	26.48	113P	-3.016	NESC Hea	11.388	27.200	25.312	1.000	1.000	1.000	169.70	150.56	7.000	6	2
TTC1	L2x2x3/16	SAE	2X2X0.1875	33.0	48.03	Comp	48.03	121P	-2.147	NESC Hea	4.471	13.600	12.656	1.000	1.000	1.000	213.20	213.20	7.000	4	1
TTC2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	3.77	Tens	0.00	141P	0.000		6.344	13.600	12.656	1.000	1.000	1.000	201.74	201.74	8.322	4	1
Horz3	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	15.04	Comp	15.04	142P	-1.557	NESC Ext	10.354	27.200	25.312	1.000	1.000	1.000	169.70	157.91	7.000	5	2
Horz4	L2x2x3/16	SAE	2X2X0.1875	33.0	19.47	Tens	12.96	146X	-0.580	NESC Ext	4.471	13.600	12.656	1.000	1.000	1.000	213.20	213.20	7.000	4	1
Horz5	L3.5x3.5x5/16	SAE	3.5X3.5X0.3125	33.0	9.24	Comp	9.24	147P	-3.667	NESC Hea	39.688	40.800	63.281	1.000	1.000	1.000	121.74	121.37	7.000	5	3
Horz6	L3.5x3x1/4	SAU	3.5X3X0.25	33.0	15.37	Tens	7.54	149X	-2.052	NESC Ext	29.777	27.200	33.750	0.500	0.500	0.500	121.18	120.94	12.744	5	2
BBr1	L2x2x3/16	SAE	2X2X0.1875	33.0	4.25	Comp	4.25	150P	-0.401	NESC Hea	9.436	27.200	25.312	1.000	1.000	1.000	155.05	146.75	5.091	5	2
BBr2	L4x4x3/8	SAE	4X4X0.375	33.0	42.02	Comp	42.02	151X	-24.924	NESC Hea	59.320	68.000	126.562	1.000	1.000	1.000	111.37	113.52	7.313	2	5
BBr3	L4x4x5/16	SAE	4X4X0.3125	33.0	45.09	Tens	37.71	154X	-20.513	NESC Ext	65.583	54.400	84.375	1.000	1.000	1.000	77.23	77.23	5.091	1	4
BBr4	L7x4x7/16	SAU	7X4X0.4375	33.0	8.10	Tens	6.92	155P	-9.024	NESC Hea	130.359	149.600	324.843	0.500	0.750	0.500	54.56	70.92	6.789	2	11
BTC1	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	10.99	Tens	0.00	157P	0.000		16.690	27.200	33.750	1.000	1.000	1.000	185.88	170.24	10.750	5	2
BTC2	L2x2x3/16	SAE	2X2X0.1875	33.0	46.17	Comp	46.17	158X	-2.277	NESC Ext	4.933	27.200	25.312	0.750	0.500	0.500	228.84	202.97	15.027	5	2
BTC3	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	17.18	Tens	0.00	161X	0.000		24.779	40.800	50.625	1.000	1.000	1.000	122.16	121.69	5.375	5	3
BTC4	L2.5x1.5x1/4	SAU	2.5X1.5X0.25	33.0	21.41	Comp	21.41	162Y	-2.742	NESC Ext	12.805	40.800	50.625	0.500	0.750	0.500	152.69	144.95	7.041	5	3
BTC5	L2x2x1/4	SAE	2X2X0.25	33.0	15.18	Tens	0.00	164X	0.000		15.020	27.200	33.750	1.000	1.000	1.000	138.11	133.84	4.500	5	2
BBC1	L3x3x3/16	SAE	3X3X0.1875	33.0	4.03	Comp	4.03	165P	-0.253	NESC Hea	6.278	27.200	25.312	1.000	1.000	1.000	255.02	222.93	12.666	5	2
BBC2	L2x2x3/16	SAE	2X2X0.1875	33.0	27.99	Comp	27.99	166Y	-0.906	NESC Hea	3.237	13.600	12.656	0.750	0.500	0.500	250.54	250.54	16.452	4	1
BBC3	L3x3x1/4	SAE	3X3X0.25	33.0	2.83	Comp	2.83	168X	-0.497	NESC Ext	17.576	27.200	33.750	1.000	0.500	0.500	163.43	153.14	12.666	5	2

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Usage Cont-rol	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)

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 PeakPost L2.5x2.5x3/16   SAE 2.5X2.5X0.1875     33.0 36.70  Comp 30.15     14Y   5.819NESC Hea   21.917   27.200   25.312   19.301 10.271     2 1.000
0.875
     Leg1      L5x5x3/8   SAE      5X5X0.375     33.0 23.94  Comp 17.83      4X  14.750NESC Ext   82.747    0.000    0.000    0.000  5.000     0 3.360
0.875
     Leg2      L8x8x1/2   SAE        8X8X0.5     33.0 24.28  Comp 16.63     7XY  32.921NESC Ext  198.000    0.000    0.000    0.000  5.000     0 4.000
0.875
     Leg3      L8x8x1/2   SAE        8X8X0.5     33.0 36.59  Comp 30.01    10XY  59.417NESC Ext  198.000  380.800  944.999  874.999  5.091    28 4.000
0.875
     Leg4      L8x8x1/2   SAE        8X8X0.5     33.0 39.42  Comp 32.47    12XY  64.299NESC Ext  198.000  380.800  944.999  874.999 11.611    28 4.000
0.875
     Leg5      L8x8x1/2   SAE        8X8X0.5     33.0 40.92  Comp 30.83    13XY  61.037NESC Ext  198.000  380.800  944.999  874.999 24.257    28 4.000
0.875
     TTTC      L3x3x1/4   SAE       3X3X0.25     33.0 64.22  Tens 64.22     38Y  14.842NESC Ext   36.271   27.200   33.750   23.109  4.500     2 1.000
0.875
     TTBC      L3x3x1/4   SAE       3X3X0.25     33.0 35.41  Tens 35.41    40XY  10.544NESC Ext   29.774    0.000    0.000    0.000  4.500     0 2.000
0.875
    ARMTT      L4x4x1/4   SAE       4X4X0.25     33.0 22.23  Comp  4.37     67P   1.189NESC Ext   51.121   27.200   33.750   38.750  7.000     2 1.000
0.875
     MTTC      L4x4x1/4   SAE       4X4X0.25     33.0 69.21  Tens 69.21     43P  30.887NESC Ext   44.624    0.000    0.000    0.000  4.500     0 2.000
0.875
     MTBC      L4x4x1/4   SAE       4X4X0.25     33.0 42.00  Comp 41.92    46XY  18.705NESC Ext   44.624    0.000    0.000    0.000  4.500     0 2.000
0.875
    ARMMT      L4x4x1/4   SAE       4X4X0.25     33.0 15.78  Comp  3.09     68P   1.259NESC Ext   49.952   40.800   50.625   44.118  7.000     3 1.180
0.875
     BTTC     L4x4x5/16   SAE     4X4X0.3125     33.0 76.01  Tens 76.01     49P  41.832NESC Hea   55.038    0.000    0.000    0.000  4.500     0 2.000
0.875
     BTBC     L4x4x5/16   SAE     4X4X0.3125     33.0 45.26  Comp 43.90    52XY  24.161NESC Hea   55.038    0.000    0.000    0.000  4.500     0 2.000
0.875
    ARMBT      L4x4x1/4   SAE       4X4X0.25     33.0 15.50  Comp  3.52     69P   1.436NESC Ext   49.952   40.800   50.625   44.118  7.000     3 1.180
0.875
      BTC       8x8x1/2   SAE        8X8X0.5     33.0 20.85  Tens 20.85     55P  34.442NESC Hea  165.206    0.000    0.000    0.000  5.250     0 5.000
0.875
      BBC       6x6x1/2   SAE        6X6X0.5     33.0 28.99  Tens 28.99     59X  35.487NESC Hea  131.794  122.400  303.750  330.882  4.500     9 3.000
0.875
    Diag1     L2x2x3/16   SAE     2X2X0.1875     33.0  6.89 Cross  0.75    15XY   0.122NESC Ext   16.214   27.200   25.312   18.316  8.602     2 1.000
0.875
    Diag2  L2.5x2.5x1/4   SAE   2.5X2.5X0.25     33.0 14.41  Comp  6.74     17X   1.834NESC Hea   28.846   27.200   33.750   29.203  8.602     2 1.000
0.875
    Diag3     L3x3x5/16   SAE     3X3X0.3125     33.0  8.78  Tens  8.78     20X   3.583NESC Hea   44.745   40.800   63.281   56.660  8.602     3 1.000
0.875
    Diag4     L3x3x3/16   SAE     3X3X0.1875     33.0 29.10  Comp 16.32    23XY   3.208NESC Hea   27.500   27.200   25.312   19.652  6.698     2 1.000
0.875
    Diag5   L2.5x2x3/16   SAU   2.5X2X0.1875     33.0 88.16  Comp  6.59    25XY   1.264NESC Ext   19.184   27.200   25.312   24.609 18.775     2 1.000
0.875
    Diag6      L3x2x1/4   SAU       3X2X0.25     33.0 23.36  Tens 23.36     26X   6.739NESC Ext   28.846   40.800   50.625   36.328 10.415     3 1.000
0.875
    Diag7      L4x4x1/4   SAE       4X4X0.25     33.0 64.57  Comp 56.16     30X  26.338NESC Ext   46.898   54.400   67.500   58.823  6.727     4 1.650
0.875
    Diag8      L4x4x3/8   SAE      4X4X0.375     33.0 59.07  Comp 55.53     33P  37.760NESC Hea   69.934   68.000  126.562  110.294  6.789     5 1.540
0.875
    Diag9    L3.5x3x1/4   DAS     3.5X3X0.25     33.0 64.55  Comp 40.25     34P  19.435NESC Ext   72.542   54.400   67.500   48.281 18.923     2 2.000
0.875
   Diag10     L4x3x7/16   DAS     4X3X0.4375     33.0 70.59  Comp 36.05     35X  29.421NESC Ext  121.751   81.600  177.187  164.062 30.734     3 2.000
0.875
   Diag11     L3x3x5/16   SAE     3X3X0.3125     33.0 64.54  Comp 45.47     28X  18.552NESC Ext   44.745   40.800   63.281   46.699  6.727     3 1.000
0.875
   Diag12     L3x3x3/16   SAE     3X3X0.1875     33.0 18.04  Tens 18.04    27XY   4.960NESC Hea   27.500   40.800   37.969   35.156 22.141     3 1.000
0.875
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Horz1	L3x3x3/16	SAE	3X3X0.1875	33.0	30.75	Comp	0.00	60Y	0.000		27.500	40.800	37.969	26.473	16.318	3	1.000	0.875
Horz2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	36.00	Comp	0.00	61X	0.000		43.696	40.800	50.625	36.422	17.082	3	1.000	0.875
Br1	L2x2x3/16	SAE	2X2X0.1875	33.0	45.03	Tens	45.03	63P	3.689	NESC Ext	16.214	13.600	12.656	8.191	11.812	1	1.000	0.875
Br2	L3x3x3/16	SAE	3X3X0.1875	33.0	45.97	Comp	0.00	66P	0.000		27.500	13.600	12.656	9.949	17.082	1	1.000	0.875
ArmBr1	Bar 2x3/16	BAR	2 x 0.1875	33.0	56.80	Tens	56.80	72Y	3.558	NESC Hea	6.265	27.200	25.312	17.824	8.602	2	1.000	0.875
ArmBr2	ArmBr2	SAE	2X2X0.25	33.0	14.70	Tens	14.70	77P	1.892	NESC Hea	21.421	13.600	16.875	12.868	9.899	1	1.000	0.875
ArmBr3	ArmBr3	SAU	3.5X2.5X0.25	33.0	82.15	Tens	82.15	78X	11.172	NESC Hea	28.846	13.600	16.875	15.047	7.000	1	1.000	0.875
TTBr1	L2x2x3/16	SAE	2X2X0.1875	33.0	45.30	Comp	29.47	83Y	4.778	NESC Hea	16.214	27.200	25.312	19.160	5.000	2	1.000	0.875
TTBr2	L3x3x3/16	SAE	3X3X0.1875	33.0	79.54	Comp	49.80	80P	11.671	NESC Ext	27.500	27.200	25.312	23.437	7.810	2	1.000	0.875
TTBr3	L3x3x5/16	SAE	3X3X0.3125	33.0	40.78	Comp	36.90	84XY	15.055	NESC Hea	44.745	40.800	63.281	45.410	6.727	3	1.000	0.875
MTBr1	L2x2x3/16	SAE	2X2X0.1875	33.0	13.20	Tens	13.20	87XY	2.140	NESC Hea	16.214	27.200	25.312	19.301	5.000	2	1.000	0.875
MTBr2	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	48.77	Comp	46.77	89P	12.720	NESC Ext	32.410	27.200	33.750	31.250	5.000	2	1.000	0.875
MTBr3	L4x3.5x1/4	SAU	4X3.5X0.25	33.0	70.89	Comp	57.37	86P	23.406	NESC Ext	44.531	40.800	50.625	44.118	7.810	3	1.420	0.875
MTBr4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	61.09	Comp	48.37	88X	18.673	NESC Ext	40.448	40.800	50.625	38.603	6.727	3	1.500	0.875
MTBr5	L4x4x1/4	SAE	4X4X0.25	33.0	55.95	Comp	53.16	90XY	25.310	NESC Ext	47.613	54.400	67.500	58.823	6.727	4	1.540	0.875
BTBr1	L2x2x3/16	SAE	2X2X0.1875	33.0	13.66	Tens	13.66	93XY	2.216	NESC Hea	16.214	27.200	25.312	19.301	5.000	2	1.000	0.875
BTBr2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	42.30	Comp	40.69	95P	16.602	NESC Ext	43.696	40.800	50.625	42.516	5.000	3	1.000	0.875
BTBr3	L4x4x5/16	SAE	4X4X0.3125	33.0	65.17	Comp	57.39	92P	31.218	NESC Hea	59.748	54.400	84.375	73.529	7.810	4	1.420	0.875
BTBr4	L4x4x1/4	SAE	4X4X0.25	33.0	65.11	Comp	49.47	94X	24.551	NESC Ext	49.627	54.400	67.500	58.823	6.727	4	1.230	0.875
BTBr5	L4x4x3/8	SAE	4X4X0.375	33.0	47.11	Comp	46.68	96XY	31.647	NESC Hea	67.790	68.000	126.562	110.294	6.727	5	1.760	0.875
TBC1	L2x2x3/16	SAE	2X2X0.1875	33.0	42.47	Tens	42.47	110X	3.479	NESC Hea	16.214	13.600	12.656	8.191	9.220	1	1.000	0.875
TBC2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	33.0	46.54	Tens	46.54	111P	12.658	NESC Hea	28.846	27.200	33.750	28.125	7.000	2	1.000	0.875
TBC3	L2x2x1/4	SAE	2X2X0.25	33.0	46.25	Tens	46.25	112X	5.051	NESC Hea	21.421	13.600	16.875	10.922	8.322	1	1.000	0.875
TBC4	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	26.48	Comp	5.49	113X	1.158	NESC Ext	21.917	27.200	25.312	21.094	7.000	2	1.000	0.875
TTC1	L2x2x3/16	SAE	2X2X0.1875	33.0	48.03	Comp	21.04	121X	1.546	NESC Hea	16.214	13.600	12.656	7.348	7.000	1	1.000	0.875
TTC2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	3.77	Tens	3.77	122P	0.397	NESC Hea	21.917	13.600	12.656	10.512	8.322	1	1.000	0.875
Horz3	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	15.04	Comp	11.02	142X	1.995	NESC Ext	21.917	27.200	25.312	18.105	7.000	2	1.000	0.875
Horz4	L2x2x3/16	SAE	2X2X0.1875	33.0	19.47	Tens	19.47	146P	1.595	NESC Hea	16.214	13.600	12.656	8.191	7.000	1	1.000	0.875
Horz5	L3.5x3.5x5/16	SAE	3.5X3.5X0.3125	33.0	9.24	Comp	2.28	147X	0.932	NESC Ext	53.952	40.800	63.281	47.988	7.000	3	1.000	0.875
Horz6	L3.5x3x1/4	SAU	3.5X3X0.25	33.0	15.37	Tens	15.37	149P	4.181	NESC Ext	39.835	27.200	33.750	28.125	12.744	2	1.000	

0.875																		
	BBr1	L2x2x3/16	SAE	2X2X0.1875	33.0	4.25	Comp	2.10	152X	0.332NESC Ext	16.214	27.200	25.312	15.785	5.091	2	1.000	
0.875																		
	BBr2	L4x4x3/8	SAE	4X4X0.375	33.0	42.02	Comp	38.41	151P	26.122NESC Hea	70.324	68.000	126.562	110.294	7.313	5	1.500	
0.875																		
	BBr3	L4x4x5/16	SAE	4X4X0.3125	33.0	45.09	Tens	45.09	154P	24.531NESC Hea	63.159	54.400	84.375	59.355	5.091	4	1.000	
0.875																		
	BBr4	L7x4x7/16	SAU	7X4X0.4375	33.0	8.10	Tens	8.10	155XY	8.349NESC Ext	103.105	149.600	324.843	300.781	6.789	11	3.000	
0.875																		
	BTC1	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	10.99	Tens	10.99	157P	2.983NESC Ext	43.696	27.200	33.750	27.141	10.750	2	1.000	
0.875																		
	BTC2	L2x2x3/16	SAE	2X2X0.1875	33.0	46.17	Comp	0.33	158P	0.054NESC Hea	16.214	27.200	25.312	19.301	15.027	2	1.000	
0.875																		
	BTC3	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	17.18	Tens	17.18	161X	4.930NESC Ext	28.698	40.800	50.625	32.016	5.375	3	1.000	
0.875																		
	BTC4	L2.5x1.5x1/4	SAU	2.5X1.5X0.25	33.0	21.41	Comp	0.00	163Y	0.000	21.421	40.800	50.625	41.016	7.010	3	1.000	
0.875																		
	BTC5	L2x2x1/4	SAE	2X2X0.25	33.0	15.18	Tens	15.18	164P	3.194NESC Ext	21.421	27.200	33.750	21.047	4.500	2	1.000	
0.875																		
	BBC1	L3x3x3/16	SAE	3X3X0.1875	33.0	4.03	Comp	0.00	165P	0.000	27.500	27.200	25.312	19.652	12.666	2	1.000	
0.875																		
	BBC2	L2x2x3/16	SAE	2X2X0.1875	33.0	27.99	Comp	14.03	166XY	1.150NESC Hea	16.214	13.600	12.656	8.191	16.452	1	1.000	
0.875																		
	BBC3	L3x3x1/4	SAE	3X3X0.25	33.0	2.83	Comp	0.15	168P	0.039NESC Hea	36.271	27.200	33.750	26.203	12.666	2	1.000	
0.875																		

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy	82.15	78X	Angle
NESC Extreme	88.16	25Y	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
C1	Clamp	10.85	NESC Heavy	0.0
C2	Clamp	8.72	NESC Heavy	0.0
C3	Clamp	22.17	NESC Heavy	0.0
C4	Clamp	23.19	NESC Heavy	0.0
C5	Clamp	20.75	NESC Heavy	0.0
C6	Clamp	21.15	NESC Heavy	0.0
C7	Clamp	22.01	NESC Heavy	0.0
C8	Clamp	25.30	NESC Heavy	0.0
C9	Clamp	22.14	NESC Heavy	0.0
C10	Clamp	22.60	NESC Heavy	0.0
C11	Clamp	22.34	NESC Heavy	0.0
C12	Clamp	25.74	NESC Heavy	0.0
C13	Clamp	22.63	NESC Heavy	0.0

C14	Clamp	24.37	NESC Heavy	0.0
C15	Clamp	23.14	NESC Heavy	0.0
C16	Clamp	21.84	NESC Heavy	0.0
C17	Clamp	21.52	NESC Heavy	0.0
C18	Clamp	23.51	NESC Heavy	0.0
C19	Clamp	24.29	NESC Heavy	0.0
C20	Clamp	24.26	NESC Heavy	0.0
C21	Clamp	22.99	NESC Heavy	0.0
C22	Clamp	23.55	NESC Heavy	0.0
C23	Clamp	24.71	NESC Heavy	0.0
C24	Clamp	24.40	NESC Heavy	0.0
C25	Clamp	23.93	NESC Heavy	0.0
C26	Clamp	23.59	NESC Heavy	0.0
C27	Clamp	1.28	NESC Heavy	0.0
C28	Clamp	1.27	NESC Heavy	0.0
C29	Clamp	5.52	NESC Heavy	0.0
C30	Clamp	1.80	NESC Extreme	0.0
C31	Clamp	1.92	NESC Heavy	0.0
C32	Clamp	4.58	NESC Heavy	0.0
C34	Clamp	0.87	NESC Heavy	0.0
C35	Clamp	0.86	NESC Heavy	0.0
C36	Clamp	7.58	NESC Extreme	0.0
C37	Clamp	1.41	NESC Extreme	0.0
C38	Clamp	1.33	NESC Heavy	0.0
C39	Clamp	3.07	NESC Heavy	0.0
C41	Clamp	1.28	NESC Heavy	0.0
C42	Clamp	1.91	NESC Heavy	0.0
C43	Clamp	5.52	NESC Heavy	0.0
C44	Clamp	8.36	NESC Heavy	0.0
C45	Clamp	12.32	NESC Extreme	0.0
C46	Clamp	12.32	NESC Extreme	0.0
C47	Clamp	12.34	NESC Extreme	0.0
C48	Clamp	12.34	NESC Extreme	0.0
C49	Clamp	1.30	NESC Heavy	0.0
C50	Clamp	1.86	NESC Heavy	0.0
C51	Clamp	1.80	NESC Extreme	0.0
C52	Clamp	2.26	NESC Heavy	0.0
C53	Clamp	1.92	NESC Heavy	0.0
C54	Clamp	2.71	NESC Heavy	0.0
C55	Clamp	4.58	NESC Heavy	0.0
C56	Clamp	6.37	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	C1	Clamp	1P	0.008	5.098	1.853	5.424
NESC Heavy	C2	Clamp	1X	0.007	4.121	1.428	4.361
NESC Heavy	C3	Clamp	15P	10.534	3.222	1.242	11.086
NESC Heavy	C4	Clamp	15X	11.032	3.361	1.197	11.595
NESC Heavy	C5	Clamp	15XY	-9.691	3.089	2.041	10.374
NESC Heavy	C6	Clamp	15Y	-9.901	3.106	2.038	10.576
NESC Heavy	C7	Clamp	16P	10.453	3.200	1.252	11.003
NESC Heavy	C8	Clamp	16X	12.072	3.604	1.160	12.652
NESC Heavy	C9	Clamp	16XY	-10.378	3.252	2.065	11.070
NESC Heavy	C10	Clamp	16Y	-10.621	3.264	2.052	11.300

NESC Heavy	C11	Clamp	17P	10.617	3.246	1.238	11.171
NESC Heavy	C12	Clamp	17X	12.289	3.653	1.153	12.872
NESC Heavy	C13	Clamp	17XY	-10.618	3.307	2.074	11.313
NESC Heavy	C14	Clamp	17Y	-11.491	3.474	2.098	12.187
NESC Heavy	C15	Clamp	22P	11.012	3.319	1.250	11.569
NESC Heavy	C16	Clamp	22X	10.378	3.174	1.227	10.921
NESC Heavy	C17	Clamp	22XY	-10.080	3.140	2.069	10.759
NESC Heavy	C18	Clamp	22Y	-11.066	3.369	2.105	11.757
NESC Heavy	C19	Clamp	28P	11.574	3.457	1.257	12.145
NESC Heavy	C20	Clamp	28X	11.568	3.452	1.199	12.132
NESC Heavy	C21	Clamp	28XY	-10.801	3.313	2.111	11.493
NESC Heavy	C22	Clamp	28Y	-11.080	3.376	2.110	11.773
NESC Heavy	C23	Clamp	34P	11.781	3.504	1.247	12.354
NESC Heavy	C24	Clamp	34X	11.631	3.471	1.211	12.198
NESC Heavy	C25	Clamp	34XY	-11.265	3.422	2.144	11.967
NESC Heavy	C26	Clamp	34Y	-11.094	3.385	2.132	11.793
NESC Heavy	C27	Clamp	3XY	0.000	0.222	0.602	0.641
NESC Heavy	C28	Clamp	5XY	0.000	0.260	0.577	0.633
NESC Heavy	C29	Clamp	7XY	-0.035	0.380	2.735	2.762
NESC Heavy	C30	Clamp	9XY	0.000	0.257	0.776	0.818
NESC Heavy	C31	Clamp	11XY	0.000	0.363	0.886	0.958
NESC Heavy	C32	Clamp	13XY	0.000	1.000	2.061	2.291
NESC Heavy	C34	Clamp	3Y	0.000	0.075	0.430	0.436
NESC Heavy	C35	Clamp	5Y	0.000	0.075	0.425	0.432
NESC Heavy	C36	Clamp	7Y	-0.620	-0.909	3.531	3.699
NESC Heavy	C37	Clamp	9Y	0.000	0.075	0.604	0.609
NESC Heavy	C38	Clamp	11Y	0.000	0.100	0.658	0.666
NESC Heavy	C39	Clamp	13Y	0.000	0.239	1.514	1.533
NESC Heavy	C41	Clamp	3X	0.000	0.222	0.602	0.641
NESC Heavy	C42	Clamp	3P	0.000	0.137	0.946	0.955
NESC Heavy	C43	Clamp	7X	0.035	0.380	2.735	2.762
NESC Heavy	C44	Clamp	7P	0.620	-0.847	4.047	4.181
NESC Heavy	C45	Clamp	2X	0.480	0.874	3.025	3.185
NESC Heavy	C46	Clamp	2XY	-0.480	0.874	3.005	3.166
NESC Heavy	C47	Clamp	2Y	1.135	1.834	2.381	3.212
NESC Heavy	C48	Clamp	2P	-1.135	1.834	2.361	3.198
NESC Heavy	C49	Clamp	5X	0.000	0.260	0.597	0.651
NESC Heavy	C50	Clamp	5P	0.000	0.137	0.921	0.931
NESC Heavy	C51	Clamp	9X	0.000	0.257	0.776	0.818
NESC Heavy	C52	Clamp	9P	0.000	0.137	1.120	1.129
NESC Heavy	C53	Clamp	11X	0.000	0.363	0.886	0.958
NESC Heavy	C54	Clamp	11P	0.000	0.182	1.342	1.355
NESC Heavy	C55	Clamp	13X	0.000	1.000	2.061	2.291
NESC Heavy	C56	Clamp	13S	0.000	0.436	3.154	3.184
NESC Extreme	C1	Clamp	1P	0.010	3.598	0.637	3.654
NESC Extreme	C2	Clamp	1X	0.007	2.212	0.521	2.273
NESC Extreme	C3	Clamp	15P	6.116	2.570	0.453	6.649
NESC Extreme	C4	Clamp	15X	6.389	2.627	0.418	6.920
NESC Extreme	C5	Clamp	15XY	-5.734	2.523	1.031	6.349
NESC Extreme	C6	Clamp	15Y	-5.842	2.551	1.035	6.458
NESC Extreme	C7	Clamp	16P	5.907	2.481	0.467	6.424
NESC Extreme	C8	Clamp	16X	6.726	2.667	0.403	7.247
NESC Extreme	C9	Clamp	16XY	-5.935	2.531	1.041	6.536
NESC Extreme	C10	Clamp	16Y	-6.049	2.551	1.036	6.647
NESC Extreme	C11	Clamp	17P	5.782	2.408	0.464	6.281
NESC Extreme	C12	Clamp	17X	6.601	2.586	0.411	7.101
NESC Extreme	C13	Clamp	17XY	-5.862	2.468	1.035	6.444
NESC Extreme	C14	Clamp	17Y	-6.275	2.561	1.055	6.859
NESC Extreme	C15	Clamp	22P	6.352	2.616	0.450	6.884

NESC Extreme	C16	Clamp	22X	6.060	2.556	0.428	6.591
NESC Extreme	C17	Clamp	22XY	-5.936	2.572	1.042	6.553
NESC Extreme	C18	Clamp	22Y	-6.443	2.686	1.068	7.062
NESC Extreme	C19	Clamp	28P	6.464	2.612	0.449	6.986
NESC Extreme	C20	Clamp	28X	6.481	2.615	0.409	7.001
NESC Extreme	C21	Clamp	28XY	-6.145	2.584	1.052	6.749
NESC Extreme	C22	Clamp	28Y	-6.282	2.612	1.052	6.884
NESC Extreme	C23	Clamp	34P	6.348	2.536	0.442	6.850
NESC Extreme	C24	Clamp	34X	6.298	2.527	0.420	6.799
NESC Extreme	C25	Clamp	34XY	-6.173	2.542	1.055	6.759
NESC Extreme	C26	Clamp	34Y	-6.096	2.529	1.046	6.682
NESC Extreme	C27	Clamp	3XY	0.000	0.500	0.204	0.540
NESC Extreme	C28	Clamp	5XY	0.000	0.500	0.204	0.540
NESC Extreme	C29	Clamp	7XY	0.960	-1.009	-0.113	1.397
NESC Extreme	C30	Clamp	9XY	0.000	0.742	0.507	0.899
NESC Extreme	C31	Clamp	11XY	0.000	0.816	0.408	0.913
NESC Extreme	C32	Clamp	13XY	0.000	1.619	0.554	1.712
NESC Extreme	C34	Clamp	3Y	0.000	0.283	0.165	0.328
NESC Extreme	C35	Clamp	5Y	0.000	0.283	0.165	0.328
NESC Extreme	C36	Clamp	7Y	-1.335	-1.827	3.040	3.790
NESC Extreme	C37	Clamp	9Y	0.000	0.525	0.468	0.703
NESC Extreme	C38	Clamp	11Y	0.000	0.529	0.355	0.637
NESC Extreme	C39	Clamp	13Y	0.000	0.930	0.429	1.025
NESC Extreme	C41	Clamp	3X	0.000	0.500	0.204	0.540
NESC Extreme	C42	Clamp	3P	0.000	0.500	0.283	0.575
NESC Extreme	C43	Clamp	7X	-0.960	-1.009	-0.113	1.397
NESC Extreme	C44	Clamp	7P	1.335	-1.610	3.158	3.788
NESC Extreme	C45	Clamp	2X	2.826	4.638	2.910	6.162
NESC Extreme	C46	Clamp	2XY	-2.826	4.638	2.910	6.162
NESC Extreme	C47	Clamp	2Y	3.214	5.260	-0.220	6.168
NESC Extreme	C48	Clamp	2P	-3.214	5.260	-0.220	6.168
NESC Extreme	C49	Clamp	5X	0.000	0.500	0.204	0.540
NESC Extreme	C50	Clamp	5P	0.000	0.500	0.283	0.575
NESC Extreme	C51	Clamp	9X	0.000	0.742	0.507	0.899
NESC Extreme	C52	Clamp	9P	0.000	0.742	0.586	0.945
NESC Extreme	C53	Clamp	11X	0.000	0.816	0.408	0.913
NESC Extreme	C54	Clamp	11P	0.000	0.816	0.513	0.964
NESC Extreme	C55	Clamp	13X	0.000	1.619	0.554	1.712
NESC Extreme	C56	Clamp	13S	0.000	1.619	0.806	1.809

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	96.574	6.869	73.396	6595.520	440.974	121.426
NESC Extreme	90.804	2.766	28.688	6265.378	165.471	68.187

*** Weight of structure (lbs):
Weight of Angles*Section DLF: 30861.1
Total: 30861.1

*** End of Report

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:	Foundation Analysis Tower # 1102
Location:	Norwalk, CT
Rev. 0: 11/20/18	Prepared by: T.J.L. Checked by: C.A.G. Job No. 18000.55

Foundation Analysis

Input Data:

Max. Reactions at Tower Leg:

Shear =	Shear := 42.6·1.1·kips = 46.9·kips	(User Input)
Compression =	Comp := 126.8·1.1·kips = 139.5·kips	(User Input)
Uplift =	Uplift := 84.3·1.1·kips = 92.7·kips	(User Input)

Tower Properties:

Tower Height =	$H_t := 94 \cdot ft$	(User Input)

Foundation Properties:

Pier Height =	$P_H := 9.5 \cdot ft$	(User Input)
Pier Width Top =	$P_{w1} := 3 \cdot ft$	(User Input)
Pier Width Botttom =	$P_{w2} := 6 \cdot ft$	(User Input)
Pier Projection Above Grade =	$P_P := 0.5 \cdot ft$	(User Input)
Pad Width =	$Pd_w := 11 \cdot ft$	(User Input)
Pad Thickness =	$Pd_t := 3 \cdot ft$	(User Input)

Subgrade Properties:

Concrete Unit Weight =	$\gamma c := 150 \cdot pcf$	(User Input)
Water Unit Weight =	$\gamma w := 62.4 \cdot pcf$	(User Input)
Soil Unit Weight =	$\gamma s := 100 \cdot pcf$	(User Input)
Uplift Angle =	$\psi := 30.0 \cdot deg$	(User Input)
Soil Bearing Capacity =	$BC_{soil} := 3500 \cdot psf$	(User Input)

Calculated Data:

Volume of the Concrete Pad = $V_{pad} := Pd_w^2 \cdot Pd_t = 363 \cdot ft^3$

Volume of the Concrete Pier = $V_{pier} := \frac{(P_H)}{3} \cdot \left(P_{w1}^2 + P_{w2}^2 + \sqrt{P_{w1}^2 \cdot P_{w2}^2}\right) = 199.5 \cdot ft^3$

Resisting Pyramid Base 1 = $B_1 := P_{w2}^2 = 36\,ft^2$

Resisting Pyramid Base 2 = $B_2 := \left[2 \cdot \tan(\psi) \cdot (P_H - P_P) + Pd_w\right]^2 = 458\,ft^2$

Volume of Soil = $V_{soil} := \left[\frac{(P_H - P_P)}{3} \cdot \left(B_1 + B_2 + \sqrt{B_1 \cdot B_2}\right)\right] - V_{pier} = 1.67 \times 10^3 \cdot ft^3$

Total Vdume of Concrete = $V_{Conc} := V_{pad} + V_{pier} = 563 \cdot ft^3$

Mass of Concrete = $Mass_{Conc} := V_{Conc} \cdot \gamma c = 84.4 \cdot kips$

Mass of Soil = $Mass_{Soil} := V_{soil} \cdot \gamma s = 167 \cdot kips$

Total Mass = $Mass_{tot} := Mass_{Conc} + Mass_{Soil} = 251 \cdot kips$

Check Uplift:

Required Factor of Safety = $F_S := 1.0$

$ActualFS := \frac{Mass_{tot}}{Uplift} = 2.71$

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

Uplift_Check = "OK"

Cross Sectional Area of Pad = $A_{pad} := Pd_w^2 = 121\,ft^2$

Section Modulus of Pad = $S_{pad} := \frac{(Pd_w)^3}{6} = 222 \cdot ft^3$

Check Bearing:

$Bearing := \frac{Comp + Mass_{Conc}}{A_{pad}} = 1.85 \cdot ksf$

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

Bearing_Check = "OK"

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CTL05046	DATE:	03/15/2018	RF DESIGN ENG:	Md Mateen
ISSUE:	Bronze Standard	Approved? (Y/N):	Yes	RF DESIGN PHONE:	8602586382
REVISION:	Final	RF MANAGER:	Benedetto, John	RF DESIGN EMAIL:	MM093Q@ATT.COM
INITIATIVE /PROJECT:	LTE 3C WCS, LTE 4C AWSJ, LTE 5C 850 B(U), This is Utility pole, Ground, 2 ant soln.				

RF PERF ENG:		RFDS PROGRAM TYPE:	2018 LTE Next Carrier		
RF PERF PHONE:		RFDS TECHNOLOGY:	LTE		
RF PERF EMAIL:		STATE/STATUS:	As Built/In Progress		
RFDS VERSION:	1.00	RFDS ID:	2284440		
GSM FREQUENCY:		Created By:	mm093q	Updated By:	mm093q
UMTS FREQUENCY:	850	Date Created:	3/15/2018 12:12:23 PM	Date Updated:	8/30/2018 3:08:13 PM
LTE FREQUENCY:	700, 850, 1900, AWS, WCS				
5G FREQUENCY:	850				
I-PLAN JOB # 1:	NER-RCTB-17-07903	IPLAN PRD GRP || SUB GRP #1:	LTE Next Carrier || LTE 3C		
I-PLAN JOB # 2:	NER-RCTB-18-02342	IPLAN PRD GRP || SUB GRP #2:	LTE Next Carrier || LTE 4C		
I-PLAN JOB # 3:	NER-RCTB-18-02381	IPLAN PRD GRP || SUB GRP #3:	LTE Next Carrier || LTE 5C		
I-PLAN JOB # 4:		IPLAN PRD GRP || SUB GRP #4:			
I-PLAN JOB # 5:		IPLAN PRD GRP || SUB GRP #5:			
I-PLAN JOB # 6:		IPLAN PRD GRP || SUB GRP #6:			
I-PLAN JOB # 7:		IPLAN PRD GRP || SUB GRP #7:			
I-PLAN JOB # 8:		IPLAN PRD GRP || SUB GRP #8:			

Section 2 - LOCATION INFORMATION

USID:	4535	FA LOCATION CODE:	10071181	LOCATION NAME:	NORWALK CENTER
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT
ADDRESS:	1 WILL RUSS COURT	CITY:	NORWALK	STATE:	CT
ZIP CODE:	06850	COUNTY:	FAIRFIELD	LONG (DEC. DEG.):	-73.4327989
LATITUDE (D-M-S):	41d 7m36.09084s	LONGITUDE (D-M-S):	-73d -25m-58.07604s	LAT (DEC. DEG.):	41.1266919
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	CT-046 NORWALK NORTH NORWALK TAKE ROUTE 80 EAST ACROSS G.W. BRIDGE. FOLLOW CROSS BRONX EXPRESSWAY TO I-95 NORTH INTO CT. YOU WILL GET OFF AT EXIT 15 FOR RT 7 NORTH. TAKE 7 NORTH TO EXIT 2(RT. 123). AT THE END OF EXIT MAKE RIGHT ONTO NEW CANAAN AVE. GO STR				

ORACLE PTN # 1:	2051A0GJ85	PACE JOB # 1:	MRCTB031041		
ORACLE PTN # 2:	2051A0GH88	PACE JOB # 2:	MRCTB031949		
ORACLE PTN # 3:	2051A0GH6R	PACE JOB # 3:	MRCTB031707		
ORACLE PTN # 4:		PACE JOB # 4:			
ORACLE PTN # 5:		PACE JOB # 5:			
ORACLE PTN # 6:		PACE JOB # 6:			
ORACLE PTN # 7:		PACE JOB # 7:			
ORACLE PTN # 8:		PACE JOB # 8:			
BORDER CELL WITH CONTOUR COORD:		SEARCH RING NAME:			
AM STUDY REQ'D (Y/N):	No	SEARCH_RING_ID:			
FREQ COORD:		BTA:		MSA / RSA:	
OPS DISTRICT:	CT-South	LAC(GSM):			
OPS ZONE:	NE_CT_S_FRFD_W_CS	LAC(UMTS):	05989		
RF DISTRICT:	NPO Triage	BSC(GSM):			
RF ZONE:	Hotseat	RNC(UMTS):	BRPTCT04CRBR06		
PARENT NAME(GSM):		MME POOL ID(LTE):	FF01		
PARENT NAME(UMTS):	BRIDGEPORT RNC06 ERICSSON 3820				

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:	
CGSA - MINOR FILING NEEDED (Yes/No)::	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:	
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:			

CGSA CALL SIGNS:	

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	GROUND ELEVATION (ft):	0	STRUCTURE TYPE:	UTILITY
ADDITIONAL REGULATORY?:	No	HEIGHT OVERALL (ft):	0.00	FCC ASR NUMBER:	NR
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	0.00		
LIGHTING TYPE:	NOT REQUIRED				

MARKET LOCATION 700 MHz Band:			
MARKET LOCATION 850 MHz Band:			
MARKET LOCATION 1900 MHz Band:			
MARKET LOCATION AWS Band:			
MARKET LOCATION WCS Band:			
MARKET LOCATION Future Band:			

Section 5 - E-911 INFORMATION - existing

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A E-911						0				
SECTOR B						0				
SECTOR C						0				
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

Section 5 - E-911 INFORMATION - final

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A E-911						0				
SECTOR B						0				
SECTOR C						0				
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

Section 6 - RBS GENERAL INFORMATION - existing

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	5G 1ST RBS								
RBS ID:	172416	222843	360150									
CTS COMMON ID:	CTU5046	CTV5046	CTL05046									
CELL ID / BCF:	CTU5046	CTU5046	CTL05046									
BTA/TID:	321V	321U	321L									
4-9 DIGIT SITE ID:	5046	9046	5046									
COW OR TOY?:	No	No	No									
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED									
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL									
BTS LOCATION ID:	INTERNAL	GROUND	INTERNAL									
BASE STATION TYPE:	BASE	OVERLAY	BASE									
EQUIPMENT NAME:	NORWALK CENTER	NORWALK CENTER	NORWALK CENTER									
DISASTER PRIORITY:	1	1	3									

Section 6 - RBS GENERAL INFORMATION - final

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	5G 1ST RBS								
RBS ID:	172416	222843	360150	RFDS_36270436								
CTS COMMON ID:	CTU5046	CTV5046	CTL05046	CTN0005046								
CELL ID / BCF:	CTU5046	CTU5046	CTL05046	CTN0005046								
BTA/TID:	321V	321U	321L	321L								
4-9 DIGIT SITE ID:	5046	9046	5046	005046								
COW OR TOY?:	No	No	No	No								
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED								
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL								
BTS LOCATION ID:	INTERNAL	GROUND	INTERNAL	INTERNAL								
BASE STATION TYPE:	BASE	OVERLAY	BASE	BASE								
EQUIPMENT NAME:	NORWALK CENTER	NORWALK CENTER	NORWALK CENTER	NORWALK CENTER								
DISASTER PRIORITY:	1	1	3	3								

Section 7 - RBS SPECIFIC INFORMATION - existing

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	5G 1ST RBS								
RAC:												
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON									
EQUIPMENT TYPE:	3206 INDOOR	3106 OUTDOOR	6601 INDOOR MU									
BASEBAND CONFIGURATION:												
LOCATION:												
CABINET LOCATION:												
MARKET STATE CODE:			CT									
AGPS:	Yes	Yes	Yes									
NODE B NUMBER:	0	0	5046									

Section 7 - RBS SPECIFIC INFORMATION - final

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	5G 1ST RBS								
RAC:												
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON	ERICSSON								
EQUIPMENT TYPE:	3206 INDOOR	3106 OUTDOOR	6601 INDOOR MU	6601 INDOOR MU								
BASEBAND CONFIGURATION:			1x6601 / 1x5216 / 2xXMU03	xxxxx / 1x6630 / xxxxx								
LOCATION:												
CABINET LOCATION:												
MARKET STATE CODE:			CT	CT								
AGPS:	Yes	Yes	Yes	Yes								
NODE B NUMBER:	0	0	5046									

Section 8 - RBS/SECTOR ASSOCIATION - existing

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	5G 1ST RBS																
CTS Common ID	CTU5046	CTV5046	CTL05046																	
Soft Sector IDs	CTU50464	CTV50461	CTL05046_7A_1																	
	CTU50465	CTV50462	CTL05046_7B_1																	
	CTU50466	CTV50463	CTL05046_7C_1																	
	CTU50467	CTV5046A	CTL05046_9A_1																	
	CTU50468	CTV5046B	CTL05046_9A_2																	
	CTU50469	CTV5046C	CTL05046_9B_1																	
			CTL05046_9B_2																	
			CTL05046_9C_1																	
			CTL05046_9C_2																	

Section 8 - RBS/SECTOR ASSOCIATION - final

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	5G 1ST RBS																
CTS Common ID	CTU5046	CTV5046	CTL05046	CTN0005046																
Soft Sector IDs		CTV50461	CTL05046_2A_2	CTN0005046_8A_1																
		CTV50462	CTL05046_2B_2	CTN0005046_8B_1																
		CTV50463	CTL05046_2C_2	CTN0005046_8C_1																
			CTL05046_3A_1																	
			CTL05046_3B_1																	
			CTL05046_3C_1																	
			CTL05046_7A_1																	
			CTL05046_7B_1																	
			CTL05046_7C_1																	
			CTL05046_8A_1																	
			CTL05046_8B_1																	
			CTL05046_8C_1																	
			CTL05046_9A_1																	
			CTL05046_9A_2																	
			CTL05046_9B_1																	
			CTL05046_9B_2																	
			CTL05046_9C_1																	
			CTL05046_9C_2																	

Section 9 - SOFT SECTOR ID - existing

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	5G 1ST 850													
USEID (excluding Hard Sector)	4535.850.3G.1	4535.1900.3G.1	4535.850.3G.2	4535.1900.3G.2																					
SECTOR A **SOFT SECTOR ID**	CTV50461	CTU50467	CTV5046A	CTU50464	CTL05046_7A_1		CTL05046_9A_1		CTL05046_9A_2																
SECTOR B	CTV50462	CTU50468	CTV5046B	CTU50465	CTL05046_7B_1		CTL05046_9B_1		CTL05046_9B_2																
SECTOR C	CTV50463	CTU50469	CTV5046C	CTU50466	CTL05046_7C_1		CTL05046_9C_1		CTL05046_9C_2																
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - SOFT SECTOR ID - final

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	5G 1ST 850													
USEID (excluding Hard Sector)	4535.850.3G.1																								
SECTOR A **SOFT SECTOR ID**	CTV50461				CTL05046_7A_1	CTL05046_8A_1	CTL05046_9A_1	CTL05046_3A_1		CTL05046_9A_2	CTL05046_2A_2	CTN0005046_8A_1														
SECTOR B	CTV50462				CTL05046_7B_1	CTL05046_8B_1	CTL05046_9B_1	CTL05046_3B_1		CTL05046_9B_2	CTL05046_2B_2	CTN0005046_8B_1														
SECTOR C	CTV50463				CTL05046_7C_1	CTL05046_8C_1	CTL05046_9C_1	CTL05046_3C_1		CTL05046_9C_2	CTL05046_2C_2	CTN0005046_8C_1														
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - Cell Number - existing

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	5G 1ST 850													
USEID (excluding Hard Sector)	4535.850.3G.1	4535.1900.3G.1	4535.850.3G.2	4535.1900.3G.2																					
SECTOR A CELL NUMBER					15		8		178																
SECTOR B					16		9		179																
SECTOR C					17		10		180																
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - Cell Number - final

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	5G 1ST 850													
USEID (excluding Hard Sector)	4535.850.3G.1																								
SECTOR A CELL NUMBER					15	1	8	149		178	192	1													
SECTOR B					16	2	9	150		179	193	2													
SECTOR C					17	3	10	151		180	194	3													
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 10 - CID/SAC - existing

		UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	5G 1ST 850														
SECTOR A	CID/SAC	50461	50467	40461	50464																						
SECTOR B		50462	50468	40462	50465																						
SECTOR C		50463	50469	40463	50466																						
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 10 - CID/SAC - final

		UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	5G 1ST 850														
SECTOR A	CID/SAC	50461																									
SECTOR B		50462																									
SECTOR C		50463																									
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 15A - CURRENT TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	7770				AM-X-CD-14-65-00T-RET									
ANTENNA VENDOR	Powerwave				KMW									
ANTENNA SIZE (H x W x D)	55X11X5				48X11.8X5.9									
ANTENNA WEIGHT	35				36.4									
AZIMUTH	0				30									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	105				105									
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0				0									
FEEDER AMOUNT	2				2									
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)	2	Powerwave 7020				Built in								
SURGE ARRESTOR (QTY/MODEL)					4	Andrew APTDC-BDFDM-DB								
DIPLEXER (QTY/MODEL)	2	Powerwave / LGP 21901			2	Powerwave / CM1007-DBPXBC-003								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)	1	Kathrein / 860-10006												
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	1	Pwav TT19-08BP111-001 Twin 1900 w/ 850BP			1	Kaelus TMA2093FxxVx-1 Twin TMA 850 BP								
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	Polyphaser 1000860												
PDU FOR TMAS (QTY/MODEL)	1	LGP 12104 (1900 AND 850 Bypass TMA)												
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)					1	RRUS-11 (REUSE ONLY)								
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)					1	RRUS-12								
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1		4535.A.850.3G.1	CTV50461	CTV50461		UMTS 850	7770.00.850.05	13.5		5	None	Andrew 1-1/4 (850)	145.04						272.27		1	
	PORT 2		4535.A.850.3G.2	CTV50461	CTV5046A		UMTS 850	7770.00.850.05	13.5		5	Bottom	Andrew 1-1/4 (850)	145.04						272.27		1	
	PORT 3		4535.A.1900.3G.1	CTU50467	CTU50467		UMTS 1900	7770.00.1900.02	15.5		2	None	Andrew 1-1/4 (850)	145.04	CCI RxAIT 1900	1	CCI LLC 1900			583.45		1	
	PORT 4		4535.A.1900.3G.2	CTU50464	CTU50464		UMTS 1900	7770.00.1900.02	15.5		2	Bottom	Andrew 1-1/4 (850)	145.04	CCI RxAIT 1900	1	CCI LLC 1900			583.45		1	

	PORT 7		4535.A.1900.25G.1	321P50461	321P50461		GSM 1900	7770.00.1900.02	16.79		2	None	Andrew 1-1/4 (850)	145.04	CCI RxAIT 1900	1	CCI LLC 1900		7.07	167.1		1	
ANTENNA POSITION 3	**PORT 1**		4535.A.700.4G.1	CTL05046_7A_1	CTL05046_7A_1		LTE 700	AM-X-CD-14-65-00T-RET_725MHz_02DT	14.1		2	Bottom	1 1/4" ANDREW LDF6-50A_700 MHz	145.04						1475.7065		5	
	PORT 3		4535.A.1900.4G.1	CTL05046_9A_1	CTL05046_9A_1		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_05DT	17.1		5	Bottom	1 1/4" ANDREW LDF6-50A_700 MHz	145.04						2421.029		5	
	PORT 4			CTL05046_9A_2	CTL05046_9A_2		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_05DT	17.1		5	Bottom	1 1/4" ANDREW LDF6-50A_700 MHz	145.04						2421.029		5	

Section 15B - CURRENT TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	7770		AM-X-CD-14-65-00T-RET				
ANTENNA VENDOR	Powerwave		KMW				
ANTENNA SIZE (H x W x D)	55X11X5		48X11.8X5.9				
ANTENNA WEIGHT	35		36.4				
AZIMUTH	120		150				
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	105		105				
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0				
FEEDER AMOUNT	2		2				
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	2 Powerwave 7020		Built in				
SURGE ARRESTOR (QTY/MODEL)			4 Andrew APTDC-BDFDM-DB				
DIPLEXER (QTY/MODEL)	2 Powerwave / LGP 21901		2 Powerwave / CM1007-DBPXBC-003				
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 Pwav TT19-08BP111-001 Twin 1900 w/ 850BP		1 Kaelus TMA2093FxxVx-1 Twin TMA 850 BP				
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860						
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11 (REUSE ONLY)				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)			1 RRUS-12				
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1		4535.B.850.3G.1	CTV50462	CTV50462		UMTS 850	7770.00.850.10	13.5		10	None	Andrew 1-1/4 (850)	145.04						272.27		9	
	PORT 2		4535.B.850.3G.2	CTV50462	CTV5046B		UMTS 850	7770.00.850.10	13.5		10	Bottom	Andrew 1-1/4 (850)	145.04						272.27		9	
	PORT 3		4535.B.1900.3G.1	CTU50468	CTU50468		UMTS 1900	7770.00.1900.05	15.5		5	None	Andrew 1-1/4 (850)	145.04	CCI RxAIT 1900	1	CCI LLC 1900			583.45		9	
	PORT 4		4535.B.1900.3G.2	CTU50465	CTU50465		UMTS 1900	7770.00.1900.05	15.5		5	Bottom	Andrew 1-1/4 (850)	145.04	CCI RxAIT 1900	1	CCI LLC 1900			583.45		9	
	PORT 7		4535.B.1900.25G.1	321P50462	321P50462		GSM 1900	7770.00.1900.05	16.79		5	None	Andrew 1-1/4 (850)	145.04	CCI RxAIT	1	CCI LLC 1900		7.07	167.1		9	

															1900								
ANTENNA POSITION 3	**PORT 1**		4535.B.700.4G.1	CTL05046_7B_1	CTL05046_7B_1		LTE 700	AM-X-CD-14-65-00T-RET_725MHz_02DT	14.1		2	Bottom	1 1/4" ANDREW LDF6-50A_700 MHz	145.04						1475.7065		13	
	PORT 3		4535.B.1900.4G.1	CTL05046_9B_1	CTL05046_9B_1		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_05DT	17.1		5	Bottom	1 1/4" ANDREW LDF6-50A_700 MHz	145.04						2421.029		13	
	PORT 4			CTL05046_9B_2	CTL05046_9B_2		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_05DT	17.1		5	Bottom	1 1/4" ANDREW LDF6-50A_700 MHz	145.04						2421.029		13	

Section 15C - CURRENT TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	7770		AM-X-CD-14-65-00T-RET				
ANTENNA VENDOR	Powerwave		KMW				
ANTENNA SIZE (H x W x D)	55X11X5		48X11.8X5.9				
ANTENNA WEIGHT	35		36.4				
AZIMUTH	240		270				
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	105		105				
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0				
FEEDER AMOUNT	2		2				
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	2 Powerwave 7020		Built in				
SURGE ARRESTOR (QTY/MODEL)			4 Andrew APTDC-BDFDM-DB				
DIPLEXER (QTY/MODEL)	2 Powerwave / LGP 21901		2 Powerwave / CM1007-DBPXBC-003				
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 Pwav TT19-08BP111-001 Twin 1900 w/ 850BP		1 Kaelus TMA2093FxxVx-1 Twin TMA 850 BP				
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860						
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11 (REUSE ONLY)				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)			1 RRUS-12				
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1		4535.C.850.3G.1	CTV50463	CTV50463		UMTS 850	7770.00.850.00	13.5		0	None	Andrew 1-1/4 (850)	145.04						272.27		17	
	PORT 2		4535.C.850.3G.2	CTV50463	CTV5046C		UMTS 850	7770.00.850.00	13.5		0	Bottom	Andrew 1-1/4 (850)	145.04						272.27		17	
	PORT 3		4535.C.1900.3G.1	CTU50469	CTU50469		UMTS 1900	7770.00.1900.02	15.5		2	None	Andrew 1-1/4 (850)	145.04	CCI RxAIT 1900	1	CCI LLC 1900			583.45		17	
	PORT 4		4535.C.1900.3G.2	CTU50466	CTU50466		UMTS 1900	7770.00.1900.02	15.5		2	Bottom	Andrew 1-1/4 (850)	145.04	CCI RxAIT 1900	1	CCI LLC 1900			583.45		17	
	PORT 7		4535.C.1900.25G.1	321P50463	321P50463		GSM 1900	7770.00.1900.02	16.79		2	None	Andrew 1-1/4 (850)	145.04	CCI RxAIT	1	CCI LLC 1900		14.12	333.42		17	

															1900								
ANTENNA POSITION 3	**PORT 1**		4535.C.700.4G.1	CTL05046_7C_1	CTL05046_7C_1		LTE 700	AM-X-CD-14-65-00T-RET_725MHz_02DT	14.1		2	Bottom	1 1/4" ANDREW LDF6-50A_700 MHz	145.04						1475.7065		21	
	PORT 3		4535.C.1900.4G.1	CTL05046_9C_1	CTL05046_9C_1		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_02DT	16.79		2	Bottom	1 1/4" ANDREW LDF6-50A_700 MHz	145.04						2421.029		21	
	PORT 4			CTL05046_9C_2	CTL05046_9C_2		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_02DT	16.79		2	Bottom	1 1/4" ANDREW LDF6-50A_700 MHz	145.04						2421.029		21	

Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?					Yes									
ANTENNA MAKE - MODEL	QS46512-2													
ANTENNA VENDOR	Quintel													
ANTENNA SIZE (H x W x D)	52X12X10.8													
ANTENNA WEIGHT	75													
AZIMUTH	30													
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	105													
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT														
FEEDER AMOUNT	2													
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built in												
SURGE ARRESTOR (QTY/MODEL)	8	TSXDC-4310FM			4	TSXDC-4310FM(4)								
DIPLEXER (QTY/MODEL)	4	QBC0007F1V51-1			2	CCI Triplexer -TPX-070821								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	1	TMAT21X23B68-31-43 (Twin AWS-WCS w/700/850 BP)												
CURRENT INJECTORS FOR TMA (QTY/MODEL)		Aisg Quadplexer												
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)														
RRH - 850 band (QTY/MODEL)					1	4478 B5								
RRH - 1900 band (QTY/MODEL)														
RRH - AWS band (QTY/MODEL)	1	4426 B66												
RRH - WCS band (QTY/MODEL)	1	RRUS-32												
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)					2	K SBT 782-11055								
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	LTE 3C WCS, LTE 4C AWSJ, LTE 5C 850 B(U), This is Utility pole, 2 ant soln, Shelter mount. SOW: Replace the existing UMTS Antenna with a 12 port Antenna, Add 2 coax per sector, Add LTE AWS 4426 B66, with SA's. Add LTE WCS RADIO RRUS-32 B30, Replace Diplexers with Quadplexers, Replace TMA with TWin TMA, Replace Diplexers on existing LTE Antenna on pos4 with Triplexers, Add LTE 850 4478 B5 with SA's Swap DUS with 5216, Add 2nd XMU. Add LTE RBS 6630.													
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 3		4535.A.AWS.4G.4	CTL05046_2A_2	CTL05046_2A_2		LTE AWS	QS46512-	16.2	30	5	Bottom	Andrew 1-1/4 (850)	145.04						5070.2572		2	

								2_2170MHz_05DT															
	PORT 4		4535.A.WCS.4G.1	CTL05046_3A_1	CTL05046_3A_1		LTE WCS	QS46512-2_2355MHz_03DT	16.7	30	3	Bottom	Andrew 1-1/4 (850)	145.04						1285.2866		2	
ANTENNA POSITION 3	**PORT 5**		4535.A.850.4G.1	CTL05046_8A_1	CTL05046_8A_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	30	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		5	
	PORT 6		4535.A.850.4G.1	CTN0005046_8A_1	CTN0005046_8A_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	30	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		5	

Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?					Yes									
ANTENNA MAKE - MODEL	QS46512-2													
ANTENNA VENDOR	Quintel													
ANTENNA SIZE (H x W x D)	52X12X10.8													
ANTENNA WEIGHT	75													
AZIMUTH	150													
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	105													
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT														
FEEDER AMOUNT	2													
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built in												
SURGE ARRESTOR (QTY/MODEL)	8	TSXDC-4310FM			4	TSXDC-4310FM(4)								
DIPLEXER (QTY/MODEL)	4	QBC0007F1V51-1			2	CCI Triplexer -TPX-070821								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	1	TMAT21X23B68-31-43 (Twin AWS-WCS w/700/850 BP)												
CURRENT INJECTORS FOR TMA (QTY/MODEL)		Aisg Quadplexer												
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)														
RRH - 850 band (QTY/MODEL)					1	4478 B5								
RRH - 1900 band (QTY/MODEL)														
RRH - AWS band (QTY/MODEL)	1	4426 B66												
RRH - WCS band (QTY/MODEL)	1	RRUS-32												
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)					2	K SBT 782-11055								
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	LTE 3C WCS, LTE 4C AWSJ, LTE 5C 850 B(U), This is Utility pole, 2 ant soln, Shelter mount. SOW: Replace the existing UMTS Antenna with a 12 port Antenna, Add 2 coax per sector, Add LTE AWS 4426 B66, with SA's. Add LTE WCS RADIO RRUS-32 B30, Replace Diplexers with Quadplexers, Replace TMA with TWin TMA, Replace Diplexers on existing LTE Antenna on pos4 with Triplexers, Add LTE 850 4478 B5 with SA's Swap DUS with 5216, Add 2nd XMU. Add LTE RBS 6630.													
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 3		4535.B.AWS.4G.4	CTL05046_2B_2	CTL05046_2B_2		LTE AWS	QS46512-	16.2	150	5	Bottom	Andrew 1-1/4 (850)	145.04						5070.2572		10	

								2_2170MHz_05DT															
	PORT 4		4535.B.WCS.4G.1	CTL05046_3B_1	CTL05046_3B_1		LTE WCS	QS46512-2_2355MHz_03DT	16.7	150	3	Bottom	Andrew 1-1/4 (850)	145.04						1285.2866		10	
ANTENNA POSITION 3	**PORT 5**		4535.B.850.4G.1	CTL05046_8B_1	CTL05046_8B_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	150	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		13	
	PORT 6		4535.B.850.4G.1	CTN0005046_8B_1	CTN0005046_8B_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	150	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		13	

Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?					Yes									
ANTENNA MAKE - MODEL	QS46512-2													
ANTENNA VENDOR	Quintel													
ANTENNA SIZE (H x W x D)	52X12X10.8													
ANTENNA WEIGHT	75													
AZIMUTH	270													
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	105													
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT														
FEEDER AMOUNT	2													
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built in												
SURGE ARRESTOR (QTY/MODEL)	8	TSXDC-4310FM			4	TSXDC-4310FM(4)								
DIPLEXER (QTY/MODEL)	4	QBC0007F1V51-1			2	CCI Triplexer -TPX-070821								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	1	TMAT21X23B68-31-43 (Twin AWS-WCS w/700/850 BP)												
CURRENT INJECTORS FOR TMA (QTY/MODEL)		Aisg Quadplexer												
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)														
RRH - 850 band (QTY/MODEL)					1	4478 B5								
RRH - 1900 band (QTY/MODEL)														
RRH - AWS band (QTY/MODEL)	1	4426 B66												
RRH - WCS band (QTY/MODEL)	1	RRUS-32												
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)					2	K SBT 782-11055								
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	LTE 3C WCS, LTE 4C AWSJ, LTE 5C 850 B(U), This is Utility pole, 2 ant soln, Shelter mount. SOW: Replace the existing UMTS Antenna with a 12 port Antenna, Add 2 coax per sector, Add LTE AWS 4426 B66, with SA's. Add LTE WCS RADIO RRUS-32 B30, Replace Diplexers with Quadplexers, Replace TMA with TWin TMA, Replace Diplexers on existing LTE Antenna on pos4 with Triplexers, Add LTE 850 4478 B5 with SA's Swap DUS with 5216, Add 2nd XMU. Add LTE RBS 6630.													
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 3		4535.C.AWS.4G.4	CTL05046_2C_2	CTL05046_2C_2		LTE AWS	QS46512-	15.9	270	2	Bottom	Andrew 1-1/4 (850)	145.04						5070.2572		18	

								2_2170MHz_02DT															
	PORT 4		4535.C.WCS.4G.1	CTL05046_3C_1	CTL05046_3C_1		LTE WCS	QS46512-2_2355MHz_03DT	16.7	270	3	Bottom	Andrew 1-1/4 (850)	145.04						1285.2866		18	
ANTENNA POSITION 3	**PORT 5**		4535.C.850.4G.1	CTL05046_8C_1	CTL05046_8C_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	270	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		21	
	PORT 6		4535.C.850.4G.1	CTN0005046_8C_1	CTN0005046_8C_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	270	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		21	

Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	QS46512-2				AM-X-CD-14-65-00T-RET									
ANTENNA VENDOR	Quintel				KMW									
ANTENNA SIZE (H x W x D)	52X12X10.8				48X11.8X5.9									
ANTENNA WEIGHT	75				36.4									
AZIMUTH	30				30									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	105				105									
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0				0									
FEEDER AMOUNT	4				2									
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built in				Built in								
SURGE ARRESTOR (QTY/MODEL)	8	TSXDC-4310FM			8	Andrew APTDC-BDFDM-DB(4)+TSXDC-4310FM(4)								
DIPLEXER (QTY/MODEL)	4	QBC0007F1V51-1			2	CCI Triplexer -TPX-070821								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)	1	Kathrein / 860-10006												
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	1	TMAT21X23B68-31-43 (Twin AWS-WCS w/700/850 BP)			1	Kaelus TMA2093FxxVx-1 Twin TMA 850 BP								
CURRENT INJECTORS FOR TMA (QTY/MODEL)		Aisg Quadplexer												
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)					1	RRUS-11 (REUSE ONLY)								
RRH - 850 band (QTY/MODEL)					1	4478 B5								
RRH - 1900 band (QTY/MODEL)					1	RRUS-12								
RRH - AWS band (QTY/MODEL)	1	4426 B66												
RRH - WCS band (QTY/MODEL)	1	RRUS-32												
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)					2	K SBT 782-11055								
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	LTE 3C WCS, LTE 4C AWSJ, LTE 5C 850 B(U), This is Utility pole, 2 ant soln, Shelter mount. SOW: Replace the existing UMTS Antenna with a 12 port Antenna, Add 2 coax per sector, Add LTE AWS 4426 B66, with SA's. Add LTE WCS RADIO RRUS-32 B30, Replace Diplexers with Quadplexers, Replace TMA with TWin TMA, Replace Diplexers on existing LTE Antenna on pos4 with Triplexers, Add LTE 850 4478 B5 with SA's Swap DUS with 5216, Add 2nd XMU. Add LTE RBS 6630.														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1	4535.A.850.3G.1		CTV50461	CTV50461		UMTS 850	QS46512-	12.3	30	5	None	Andrew 1-1/4 (850)	145.04						272.27		1	

								2_850MHz_05DT															
	PORT 3	4535.A.AWS.4G.4	4535.A.AWS.4G.4	CTL05046_2A_2	CTL05046_2A_2		LTE AWS	QS46512-2_2170MHz_05DT	16.2	30	5	Bottom	Andrew 1-1/4 (850)	145.04						5070.2572		2	
	PORT 4	4535.A.WCS.4G.1	4535.A.WCS.4G.1	CTL05046_3A_1	CTL05046_3A_1		LTE WCS	QS46512-2_2355MHz_03DT	16.7	30	3	Bottom	Andrew 1-1/4 (850)	145.04						1285.2866		2	
ANTENNA POSITION 3	**PORT 1**	4535.A.700.4G.1	4535.A.700.4G.1	CTL05046_7A_1	CTL05046_7A_1		LTE 700	AM-X-CD-14-65-00T-RET_725MHz_02DT	14.1	30	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1475.7065		5	
	PORT 3	4535.A.1900.4G.1	4535.A.1900.4G.1	CTL05046_9A_1	CTL05046_9A_1		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_05DT	16.3	30	5	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						3664.3757		6	
	PORT 4	4535.A.1900.4G.2	4535.A.1900.4G.4	CTL05046_9A_2	CTL05046_9A_2		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_05DT	16.3	30	5	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						3664.3757		6	
	PORT 5	4535.A.850.4G.1	4535.A.850.4G.1	CTL05046_8A_1	CTL05046_8A_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	30	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		5	
	PORT 6	4535.A.850.4G.1,4535.A.850.5G.tmp1	4535.A.850.4G.1	CTN0005046_8A_1	CTN0005046_8A_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	30	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		5	

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	QS46512-2				AM-X-CD-14-65-00T-RET									
ANTENNA VENDOR	Quintel				KMW									
ANTENNA SIZE (H x W x D)	52X12X10.8				48X11.8X5.9									
ANTENNA WEIGHT	75				36.4									
AZIMUTH	150				150									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	105				105									
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0				0									
FEEDER AMOUNT	4				2									
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built in				Built in								
SURGE ARRESTOR (QTY/MODEL)	8	TSXDC-4310FM			8	Andrew APTDC-BDFDM-DB(4)+TSXDC-4310FM(4)								
DIPLEXER (QTY/MODEL)	4	QBC0007F1V51-1			2	CCI Triplexer -TPX-070821								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	1	TMAT21X23B68-31-43 (Twin AWS-WCS w/700/850 BP)			1	Kaelus TMA2093FxxVx-1 Twin TMA 850 BP								
CURRENT INJECTORS FOR TMA (QTY/MODEL)		Aisg Quadplexer												
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)					1	RRUS-11 (REUSE ONLY)								
RRH - 850 band (QTY/MODEL)					1	4478 B5								
RRH - 1900 band (QTY/MODEL)					1	RRUS-12								
RRH - AWS band (QTY/MODEL)	1	4426 B66												
RRH - WCS band (QTY/MODEL)	1	RRUS-32												
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)					2	K SBT 782-11055								
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	LTE 3C WCS, LTE 4C AWSJ, LTE 5C 850 B(U), This is Utility pole, 2 ant soln, Shelter mount. SOW: Replace the existing UMTS Antenna with a 12 port Antenna, Add 2 coax per sector, Add LTE AWS 4426 B66, with SA's. Add LTE WCS RADIO RRUS-32 B30, Replace Diplexers with Quadplexers, Replace TMA with TWin TMA, Replace Diplexers on existing LTE Antenna on pos4 with Triplexers, Add LTE 850 4478 B5 with SA's Swap DUS with 5216, Add 2nd XMU. Add LTE RBS 6630.														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1	4535.B.850.3G.1		CTV50462	CTV50462		UMTS 850	QS46512-	12	150	10	None	Andrew 1-1/4 (850)	145.04						272.27		9	

								2_850MHz_10DT															
	PORT 3	4535.B.AWS.4G.4	4535.B.AWS.4G.4	CTL05046_2B_2	CTL05046_2B_2		LTE AWS	QS46512-2_2170MHz_05DT	16.2	150	5	Bottom	Andrew 1-1/4 (850)	145.04						5070.2572		10	
	PORT 4	4535.B.WCS.4G.1	4535.B.WCS.4G.1	CTL05046_3B_1	CTL05046_3B_1		LTE WCS	QS46512-2_2355MHz_03DT	16.7	150	3	Bottom	Andrew 1-1/4 (850)	145.04						1285.2866		10	
ANTENNA POSITION 3	**PORT 1**	4535.B.700.4G.1	4535.B.700.4G.1	CTL05046_7B_1	CTL05046_7B_1		LTE 700	AM-X-CD-14-65-00T-RET_725MHz_02DT	14.1	150	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1475.7065		13	
	PORT 3	4535.B.1900.4G.1	4535.B.1900.4G.1	CTL05046_9B_1	CTL05046_9B_1		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_05DT	16.3	150	5	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						3664.3757		14	
	PORT 4	4535.B.1900.4G.2	4535.B.1900.4G.4	CTL05046_9B_2	CTL05046_9B_2		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_05DT	16.3	150	5	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						3664.3757		14	
	PORT 5	4535.B.850.4G.1	4535.B.850.4G.1	CTL05046_8B_1	CTL05046_8B_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	150	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		13	
	PORT 6	4535.B.850.4G.1,4535.B.850.5G.tmp1	4535.B.850.4G.1	CTN0005046_8B_1	CTN0005046_8B_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	150	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		13	

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	QS46512-2				AM-X-CD-14-65-00T-RET									
ANTENNA VENDOR	Quintel				KMW									
ANTENNA SIZE (H x W x D)	52X12X10.8				48X11.8X5.9									
ANTENNA WEIGHT	75				36.4									
AZIMUTH	270				270									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	105				105									
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0				0									
FEEDER AMOUNT	4				2									
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built in				Built in								
SURGE ARRESTOR (QTY/MODEL)	8	TSXDC-4310FM			8	Andrew APTDC-BDFDM-DB(4)+TSXDC-4310FM(4)								
DIPLEXER (QTY/MODEL)	4	QBC0007F1V51-1			2	CCI Triplexer -TPX-070821								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	1	TMAT21X23B68-31-43 (Twin AWS-WCS w/700/850 BP)			1	Kaelus TMA2093FxxVx-1 Twin TMA 850 BP								
CURRENT INJECTORS FOR TMA (QTY/MODEL)		Aisg Quadplexer												
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)					1	RRUS-11 (REUSE ONLY)								
RRH - 850 band (QTY/MODEL)					1	4478 B5								
RRH - 1900 band (QTY/MODEL)					1	RRUS-12								
RRH - AWS band (QTY/MODEL)	1	4426 B66												
RRH - WCS band (QTY/MODEL)	1	RRUS-32												
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)					2	K SBT 782-11055								
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	LTE 3C WCS, LTE 4C AWSJ, LTE 5C 850 B(U), This is Utility pole, 2 ant soln, Shelter mount. SOW: Replace the existing UMTS Antenna with a 12 port Antenna, Add 2 coax per sector, Add LTE AWS 4426 B66, with SA's. Add LTE WCS RADIO RRUS-32 B30, Replace Diplexers with Quadplexers, Replace TMA with TWin TMA, Replace Diplexers on existing LTE Antenna on pos4 with Triplexers, Add LTE 850 4478 B5 with SA's Swap DUS with 5216, Add 2nd XMU. Add LTE RBS 6630.														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1	4535.C.850.3G.1		CTV50463	CTV50463		UMTS 850	QS46512-	12.2	270	2	None	Andrew 1-1/4 (850)	145.04						272.27		17	

								2_850MHz_02DT															
	PORT 3	4535.C.AWS.4G.4	4535.C.AWS.4G.4	CTL05046_2C_2	CTL05046_2C_2		LTE AWS	QS46512-2_2170MHz_02DT	15.9	270	2	Bottom	Andrew 1-1/4 (850)	145.04						5070.2572		18	
	PORT 4	4535.C.WCS.4G.1	4535.C.WCS.4G.1	CTL05046_3C_1	CTL05046_3C_1		LTE WCS	QS46512-2_2355MHz_03DT	16.7	270	3	Bottom	Andrew 1-1/4 (850)	145.04						1285.2866		18	
ANTENNA POSITION 3	**PORT 1**	4535.C.700.4G.1	4535.C.700.4G.1	CTL05046_7C_1	CTL05046_7C_1		LTE 700	AM-X-CD-14-65-00T-RET_725MHz_02DT	14.1	270	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1475.7065		21	
	PORT 3	4535.C.1900.4G.1	4535.C.1900.4G.1	CTL05046_9C_1	CTL05046_9C_1		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_02DT	16.3	270	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						3664.3757		22	
	PORT 4	4535.C.1900.4G.2	4535.C.1900.4G.4	CTL05046_9C_2	CTL05046_9C_2		LTE 1900	AM-X-CD-14-65-00T-RET_1930MHz_02DT	16.3	270	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						3664.3757		22	
	PORT 5	4535.C.850.4G.1	4535.C.850.4G.1	CTL05046_8C_1	CTL05046_8C_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	270	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		21	
	PORT 6	4535.C.850.4G.1,4535.C.850.5G.tmp1	4535.C.850.4G.1	CTN0005046_8C_1	CTN0005046_8C_1		LTE 850	AM-X-CD-14-65-00T-RET_850MHz_02DT	14.8	270	2	Bottom	1 1/4 ANDREW LDF6-50A_700 MHz	145.04						1000		21	

Diagram - Sector	A	Diagram File Name - CT5046_A_B_C_Utility_2Ant_Soln_Rev1.vsd					
Atoll Site Name -	CTL05046	Location Name -	NORWALK CENTER	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_EricssonPD update - 2 Ant soln, UMTS Antenna updated to 65 deg.approved.

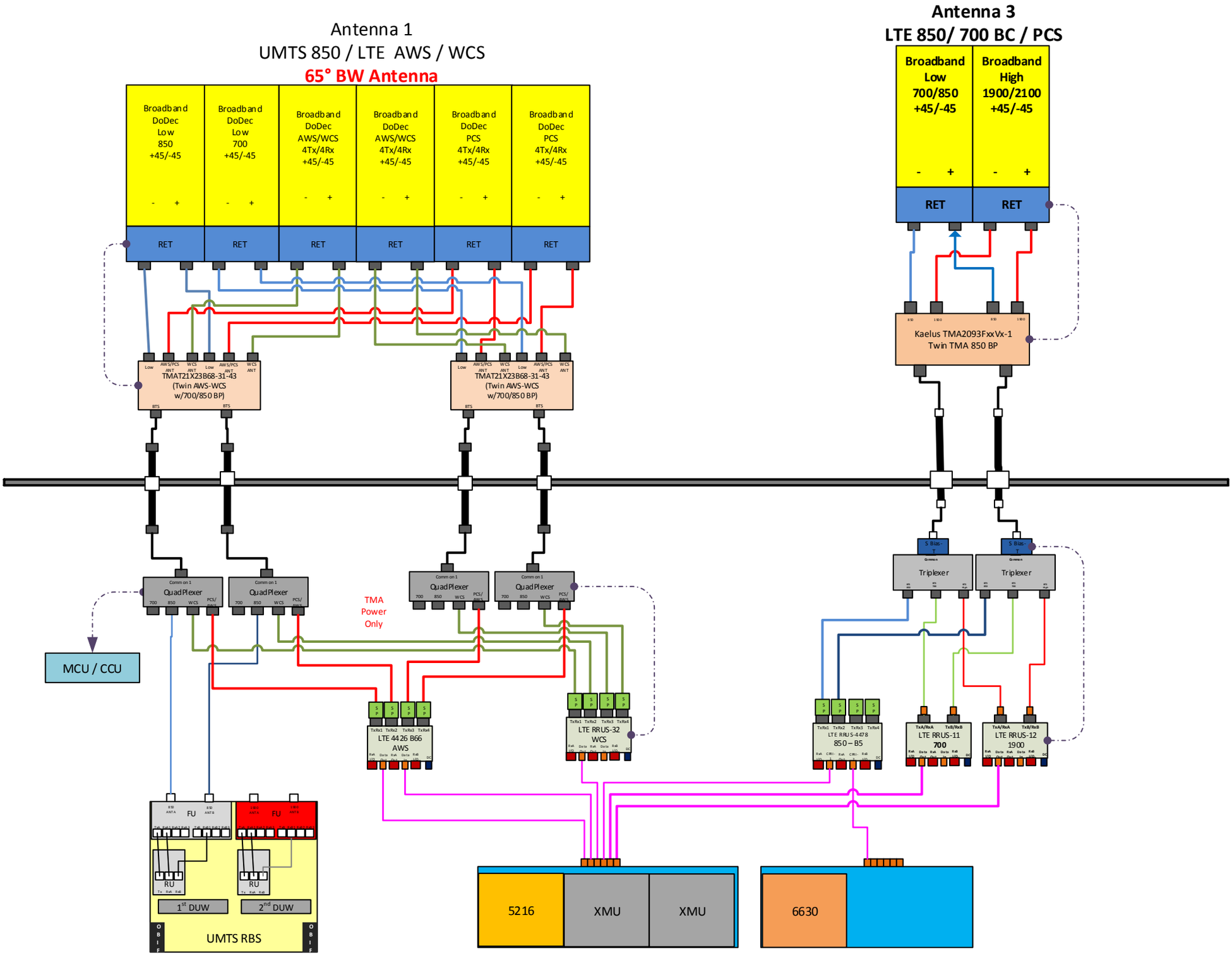


Diagram - Sector	B	Diagram File Name - CT5046_A_B_C_Utility_2Ant_Soln_Rev1.vsd					
Atoll Site Name -	CTL05046	Location Name -	NORWALK CENTER	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_EricssonPD update - 2 Ant soln, UMTS Antenna updated to 65 deg.approved.

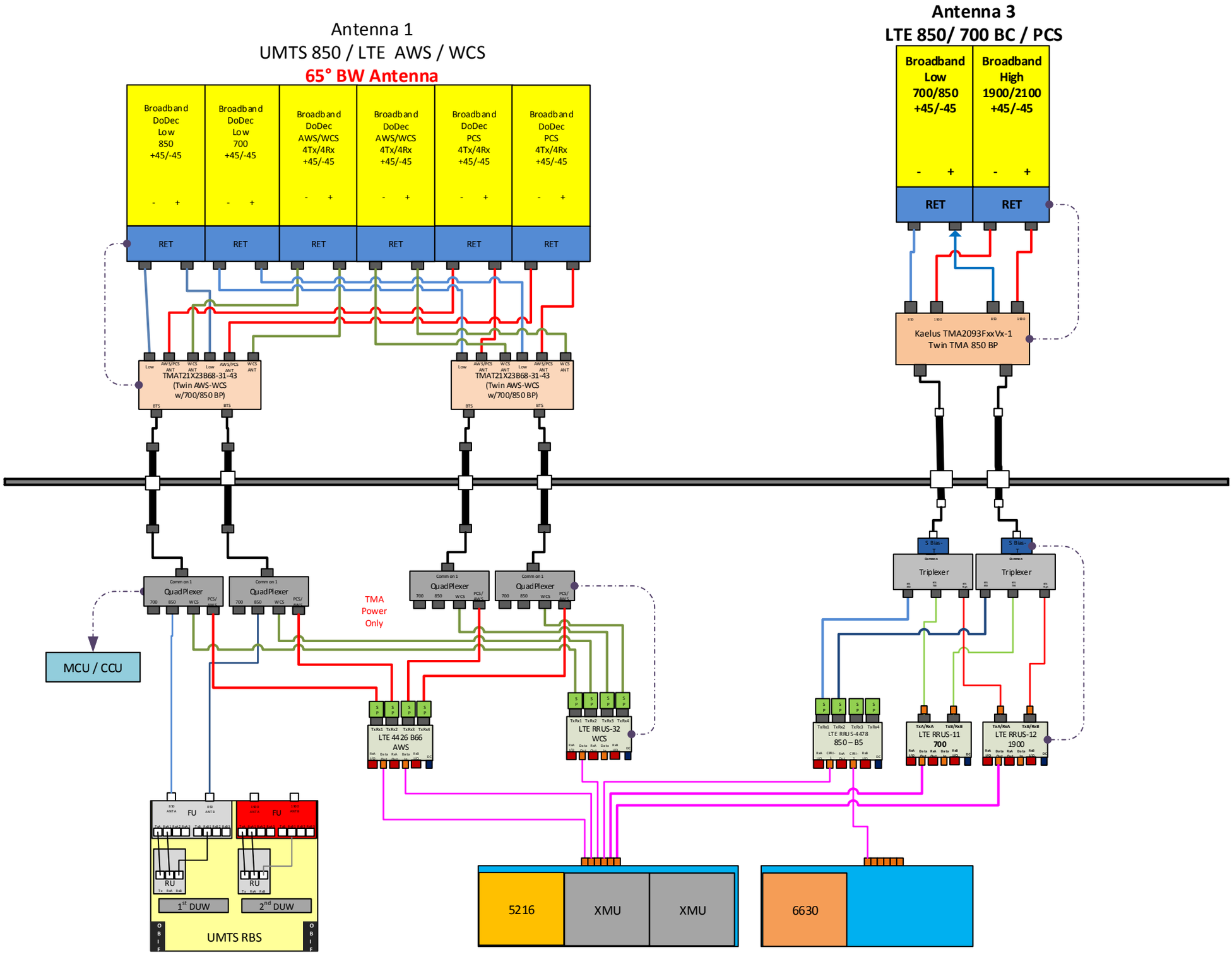
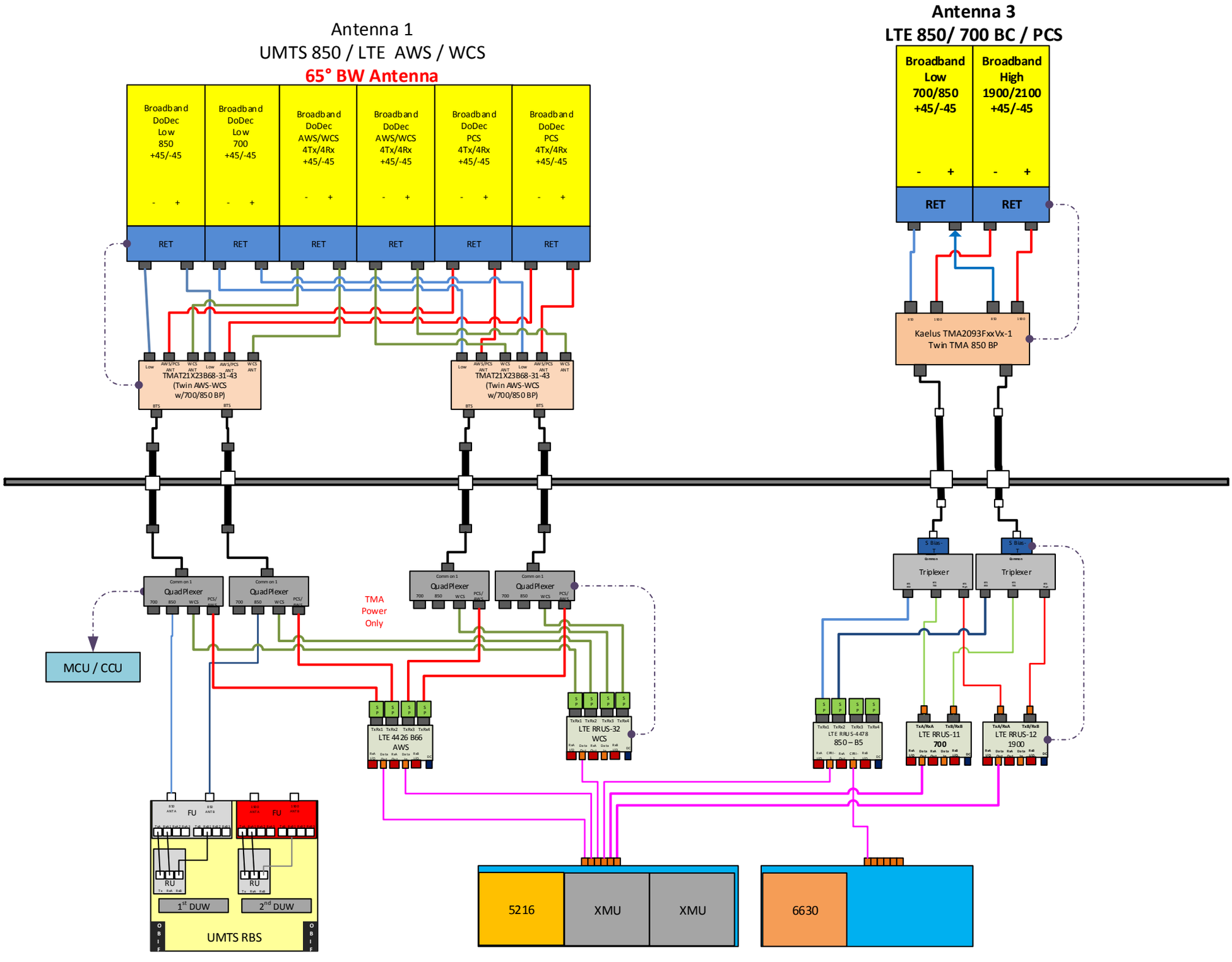


Diagram - Sector	C	Diagram File Name - CT5046_A_B_C_Utility_2Ant_Soln_Rev1.vsd					
Atoll Site Name -	CTL05046	Location Name -	NORWALK CENTER	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_EricssonPD update - 2 Ant soln, UMTS Antenna updated to 65 deg.approved.



WORKFLOW SUMMARY							
Date	FROM State / Status	FROM ATTUID	TO State / Status	TO ATTUID	Operation	Comments	PACE Status
05/09/2018	Preliminary In Progress	mm093q	Preliminary Submitted for Approval	RC475S	Promote	Preliminary RFDS	NER-RCTB-17-07903 MRCTB031041 SUCCESS 05/09/2018 2:50:05 AM NER-RCTB-18-02342 MRCTB031949 SUCCESS 05/09/2018 2:50:05 AM NER-RCTB-18-02381 MRCTB031707 SUCCESS 05/09/2018 2:50:05 AM
05/14/2018	Preliminary Submitted for Approval	RC475S	Preliminary Approved	JK0520	Promote		
06/27/2018	Preliminary Approved	JK0520	Preliminary In Progress	mm093q	Pull Back	Pull back to update PD.	
06/27/2018	Preliminary In Progress	mm093q	Preliminary Submitted for Approval	RC475S	Promote	Updated PD.	NER-RCTB-17-07903 FAILURE 06/27/2018 12:32:02 PM NER-RCTB-18-02342 FAILURE 06/27/2018 12:32:02 PM NER-RCTB-18-02381 FAILURE 06/27/2018 12:32:02 PM
06/28/2018	Preliminary Submitted for Approval	RC475S	Preliminary Approved	DC5778	Promote		
08/17/2018	Preliminary Approved	DC5778	Final RF Approval	mm093q	Promote		
08/31/2018	Final Approved	DC5778	As Built In Progress	dc5778	Promote		NER-RCTB-17-07903 MRCTB031041 SUCCESS 08/31/2018 10:35:51 AM NER-RCTB-18-02342 MRCTB031949 SUCCESS 08/31/2018 10:35:51 AM NER-RCTB-18-02381 MRCTB031707 SUCCESS 08/31/2018 10:35:51 AM

AM-X-CD-14-65-00T-RET (4' 65° Dual Broadband Antenna)

Dual Band Electrical DownTilt Antenna

698 ~ 894MHz, X-pol., H65° / V17.0°

1710 ~ 2170MHz, X-pol., H65° / V8.5°

Electrical Specification

Frequency Range		698~894MHz	1710~2170MHz
Impedance		50Ω	
Polarization		Dual, Slant ±45°	
Gain		14.0dBi / 11.85dBd @ 698-806MHz 14.8dBi / 12.65dBd @ 824-894MHz	16.1dBi / 13.95dBd @1710-1755MHz 16.3dBi / 14.15dBd @1850-1900MHz 16.0dBi / 13.85dBd @2110-2155MHz
Beamwidth	Horizontal	67° @ 698-806MHz 65° @ 824-894MHz	60° @ 1710-1755MHz 61° @ 1850-1900MHz 64° @ 2110-2155MHz
	Vertical	17.5 @ 698-806MHz 16.5° @ 824-894MHz	8.8° @ 1710-1755MHz 8.5° @ 1850-1900MHz 8.0° @ 2110-2155MHz
VSWR		≤1.5:1	
Front-to-Back Ratio		≥28 dB	
Electrical Downtilt Range		2° ~ 16°	0° ~ 10°
Isolation Between Ports		≥30 dB	
Isolation Between Ports of Different Frequency Elements		≥35 dB	
Cross Pole Discrimination		10.0 dB @ ±60° 15.0 dBi @ 0°	
First Upper Side Lobe Suppression		16dB	
Side Lobe Suppression		> 16 dB @ 0-6° Tilt > 18 dB @ 7-12° Tilt (Up to 15° from Boresight)	> 16 dB @ 0-6° Tilt > 18 dB @ 7-10° Tilt (Up to 15° from Boresight)
Passive Intermodulation		≤ -150 dBc @ 2x20w	
Input Maximum CW Power		500 W	300 W
Environmental Compliance		IP65 for Radome IP67 for Connectors	
RET Motor Configuration		Field Replaceable RET Electronic Control Module / RET Motor is internal to antenna & not field replaceable	
Compliant with AISG 1.1 and 2.0		AISG 1.1 and 2.0	

Mechanical Specification

Dimension (W×D×H)	11.8×5.9×48 inches (300×150×1219mm)
Weight (Without clamp)	36.4 lbs (16.5 kg)
Connector	4 x 7/16 DIN(F), Long Neck
Max Wind Speed	150 mph
Wind Load (@150 mph)	1260 N

Quintel®
New Dimensions in Wireless™

QS46512-2

4ft 65° XXX MultiServ™ 12-Port Antenna

2x698-806MHz / 2x824-894MHz / 4x1850-1990MHz / 4x1695-1780+2110-2400MHz

MultiServ

- Provides 12 antenna Ports in a slim-line form factor
- Optimized Azimuth patterns for Min Inter-Sector Interference
- Industry leading Minimal Wind-Load design
- 700, 850, PCS, AWS & WCS bands in one antenna
- AISG & 3GPP compliant internal remote electrical tilt (RET)
- AWS & PCS Cross band PIM >159dBc

The Quintel MultiServ™ Multiband 12 Port Antenna with patented QTilt™ technology uniquely delivers four independent services in a single slim-line antenna. This enables existing antenna network sites to be upgraded constraint free to add new services such as LTE for 700, 850, PCS, AWS and WCS bands with the replacement of one antenna. The QS46512-2 also provides 4x1695-1780+2110-2400MHz & 4x1850-1990MHz ports as two side-by-side (CLA-2X) arrays, each set of 4x ports having independent tilt, for connection to 2T4R/4T4R services.

Electrical Characteristics	2x Ports 1&2	2x Ports 3&4	4x Ports 5-8			4x Ports 9-12
Operating Frequency (MHz)	**698-806**	**824-894**	**1695-1780 and 2110-2400**			**1850-1990**
	698-806	824-894	1695-1780	2110-2180	2300-2400	1850-1990
Azimuth beamwidth[1]	65°	61°	72°	65°	60°	68°
Elevation beamwidth[1]	15.5°	14°	7.7°	6.2°	5.7°	7.3°
Gain[1] (dBi)	12.7	12.5	15.5	16.0	16.2	15.3
Polarization	±45°	±45°	±45° ±45°			±45° ±45°
Electrical down-tilt range	2°-10°	2°-10°	2° – 10°			2° – 10°
Upper SLL (20° > mainbeam)[1]	-16dB	-19dB	-17.5dB	-16dB	-17dB	-19dB
Front to Back Ratio(180°±10°)[1]	≥25dB	≥24dB	≥34dB	≥28dB	≥30dB	≥28dB
Port to Port isolation[1]	≥26dB	≥29dB	≥30dB	≥30dB	≥30dB	≥30dB
Return loss (VSWR)	14dB(1.5)	14dB(1.5)	14dB(1.5)	14dB(1.5)	14dB (1.5)	14dB(1.5)
X Polar Discrimination (at 0°)	>16dB	>17.5dB	>21dB	>20dB	>21dB	>18dB
Max Power handling (per any port)	500 watts	500 watts	250 watts			250 watts
Total Composite Power (all ports)	1750 watts					
PIM (3rd Order) (2x43dBm)	>153dBc	>153dBc	>153dBc			>153dBc
XBand PIM (3rd Order) (2x43dBm)			>159dBc			

[1] *Typical Performance across frequency and Downtilt.*

Mechanical Characteristics	
Dimensions	L 52"(1320mm) x W 12"(304mm) x D 10.8"(275mm)
Weight (excl mounting brackets)	75lbs (34kg)
No. of Connectors	12x 4.3-10.0 DIN Female Long Neck
Max Wind Speed	150mph (67m/s)
Equivalent Flat Plate Area	2.02ft² (0.19m²)
Wind Load @160km/h (45m/s)	Front: 445N (100 lbs), Side: 267N (60 lbs)
Operating Temperature	-40°C to +65°C

Fully Integrated RET Characteristics	
AISG Standards	V1.1,V 2.0 and 3GPP
Factory Default	AISG 2.0
Surge immunity	IEC 61000-4-5:2005 4KV(AISG PIN)
Device Type	SRET Type 1
AISG Data rate	9.6 kbps
No of connectors	RET1 1in/1out.
Connector type	IEC 60130-9 (Ed 3.0)
MTBF	36,000 Operational moves

All specifications are subject to change without notice. Please contact your Quintel representative for complete information.

TMA2093F00V1-1

AWS / 1900, Dual Band, Twin TMA with Lo Band bypass and AISG2.0

Designed to be deployed in co-located AWS, 1900 and low band (698-960) systems with wideband antennas the Kaelus TMA2093 provides internal duplexing in all three bands with gain in the high bands, thereby saving capital expenditure and tower leasing fees.

PRODUCT FEATURES

- Improved base station sensitivity through gain in the AWS and 1900 uplink bands
- AISG2.0 compatible, hardware & software configuration using AISG “personality” upload
- Excellent noise figure performance
- Internal duplexing of AWS and 1900MHz bands
- Internal duplexing of 698-960MHz signals to be passed to additional ANT ports

TECHNICAL SPECIFICATIONS

Downlink Path, Band 1	1900
Passband	1930 - 1990
Insertion Loss	0.7dB typ
Return Loss	18dB min
Max Average input power (W)	160
Max PEP Input Power (W)	2000
Intermodulation, 2 x 43dBm TX carriers (dBc)	-153dBc, (3rd order)
Uplink Path, Band 1	
Passband	1850 - 1910
Gain (dB)	12
Gain window	+/- 1dB max
Return Loss (Operating)	18dB min
Return Loss (Bypass)	12dB min
Noise Figure	1.4dB typ

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Supply Current, alarm mode	220 +/- 20 mA per port

AISG MODE OF OPERATION (AUTO SELECTED ON VALID AISG 2.0 FRAMES)

AISG Version	2
AISG Supply Current	300mA @ 7.5V, 85mA @ 30V typ
AISG Connector	IEC60130-9, 8-pin female
AISG Connector Current rating	< 4A peak, 2A continuous, pin 6
Field firmware upgradable	Yes

ENVIRONMENTAL

Temperature range	-40ºC to +65ºC | -40º to +149ºF
Environmental sealing	IP67
Lightning protection	RF port: +/- 5kA max (8/20us), AISG port: +/- 2kA max (8/20us) IEC61312-1
MTBF	>1,000,000 hours
Compliance	EMC:EN301 489, Ingress ETSI EN 300 019 class 4.1, RoHS

MECHANICAL

Connectors	DIN 7-16 (F) x 6 long neck, AISG (F) x 1
Dimensions, H x D x W	300 x 95 x 250mm | 11.8 x 3.7 x 9.8 in
Finish	Painted, light grey (RAL7035)
Weight	10.5kg | 23.1lbs
Mounting	Pole/wall bracket supplied with two metal clamps 45-178mm diameter poles

ELECTRICAL BLOCK DIAGRAM

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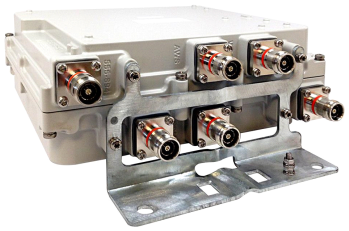
TMAT21X23B68-31-43 | E14R00P04



Twin TMA AWS/WCS with 555-894 Bypass, 4.3-10 connectors

Electrical Specifications

Sub-module	1 | 2	1 | 2	1 | 2
Branch	1	2	3
Port Designation	ANT 555-894	ANT AWS	ANT WCS
AISG 2.0 Device Subunit		E25A01P12 1/3	E25A01P12 2/4
License Band	CEL 850, Band Pass USA 700, Band Pass USA 750, Band Pass	AWS 1700, LNA	WCS 2300, LNA

Electrical Specifications Rx (Uplink)

Frequency Range	1695–1780 MHz	2305–2315 MHz
Gain, nominal	13.0 dB	13.0 dB
Noise Figure, typical	1.4 dB	1.8 dB
Total Group Delay, maximum	80 ns	150 ns
Return Loss, typical	20 dB	21 dB
Insertion Loss - Bypass Mode, typical	2.2 dB	3.0 dB
Return Loss - Bypass Mode, typical	18 dB	18 dB

Electrical Specifications Tx (Downlink)

Frequency Range	2110–2200 MHz	2350–2360 MHz
Insertion Loss, typical	0.25 dB	0.50 dB
Total Group Delay, maximum	15 ns	50 ns
Return Loss, typical	22 dB	22 dB
Input Power, RMS, maximum	200 W	200 W
Input Power, PEP, maximum	2 kW	2 kW
Higher Order PIM, maximum	-153 dBc	-153 dBc
Higher Order PIM Test Method	2 x 20 W CW tones	2 x 20 W CW tones

Electrical Specifications, Band Pass

Frequency Range	555–894 MHz
Insertion Loss, maximum	0.20 dB
Return Loss, minimum	20 dB
Isolation, minimum	60 dB
Input Power, RMS, maximum	200 W
Input Power, PEP, maximum	2 kW

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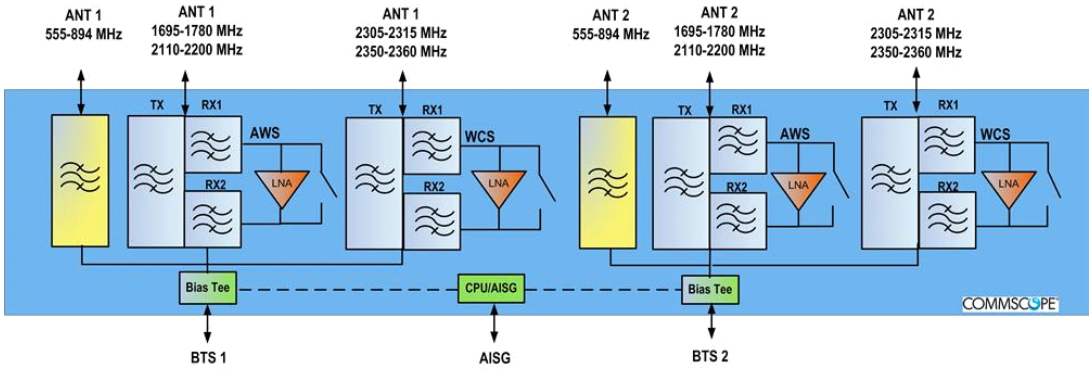
Block Diagram



Mechanical Specifications

RF Connector Interface	4.3-10 Female
RF Connector Interface Body Style	Long neck
Ground Screw Diameter	5.00 mm

Dimensions

Height	247.0 mm | 9.7 in
Width	280.0 mm | 11.0 in
Depth	99.0 mm | 3.9 in
Weight, without mounting hardware	9.6 kg | 21.2 lb
Mounting Hardware Weight	0.7 kg | 1.5 lb

Environmental Specifications

Operating Temperature	-40 °C to +65 °C (-40 °F to +149 °F)
Relative Humidity	Up to 100%
Ingress Protection Test Method	IEC 60529:2001, IP67

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Product Data Sheet **APX16DWV-16DWVS-E-A20**

Optimizer® Side-by-Side Dual Polarized Antenna, 1710-2200, 65deg, 18.4dBi, 1.4m, VET, 0-10deg RET

Product Description

A combination of two X-Polarized antennas in a single radome, this pair of variable tilt antennas provides exceptional suppression of all upper sidelobes at all downtilt angles. It also features a wide downtilt range. This antenna is optimized for performance across the entire frequency band (1710-2200 MHz). The antenna comes pre-connected with two antenna control units (ACU).

Features/Benefits

- **Variable electrical downtilt - provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.**
- **High Suppression of all Upper Sidelobes (Typically <-20dB).**
- **Gain tracking – difference between AWS UL (1710-1755 MHz) and DL (2110-2155 MHz) <1dB.**
- **Two X-Polarised panels in a single radome.**
- **Azimuth horizontal beamwidth difference <4deg between AWS UL (1710-1755 MHz) and DL (2110-2155 MHz).**
- **Low profile for low visual impact.**
- **Dual polarization; Broadband design.**
- **Includes (2) AISG 2.0 Compatible ACU-A20-N antenna control units.**

Technical Specifications

Electrical Specifications

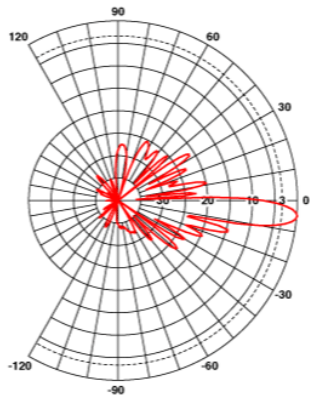
Frequency Range, MHz	1710-2200
Horizontal Beamwidth, deg	65
Vertical Beamwidth, deg	5.9 to 7.7
Electrical Downtilt, deg	0-10
Gain, dBi (dBd)	18.4 (16.3)
1st Upper Sidelobe Suppression, dB	> 18 (typically > 20)
Upper Sidelobe Suppression, dB	> 18 all (typically > 20)
Front-To-Back Ratio, dB	>26 (typically 28)
Polarization	Dual pol +/-45°
VSWR	< 1.5:1
Isolation between Ports, dB	> 30
3rd Order IMP @ 2 x 43 dBm, dBc	> 150 (155 Typical)
Impedance, Ohms	50
Maximum Power Input, W	300
Lightning Protection	Direct Ground
Connector Type	(4) 7-16 Long Neck Female

Mechanical Specifications

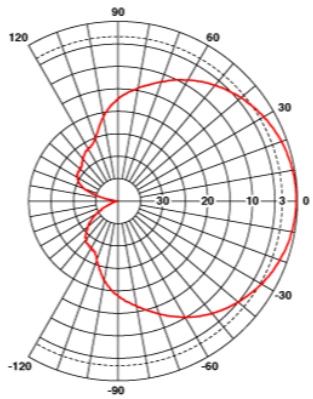
Dimensions - HxWxD, mm (in)	1420 x 331 x 80 (55.9 x 13 x 3.15)
Weight w/o Mtg Hardware, kg (lb)	18.5 (40.7)
Survival Wind Speed, km/h (mph)	200 (125)
Rated Wind Speed, km/h (mph)	160 (100)
Max Wind Loading Area, m² (ft²)	0.47 (5.03)
Front Thrust @ Rated Wind, N (lbf)	756 (170)
Maximum Thrust @ Rated Wind, N (lbf)	756 (170)
Wind Load - Side @ Rated Wind, N (lbf)	231 (52)
Wind Load - Rear @ Rated Wind, N (lbf)	408 (92)
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Mounting Hardware Material	Diecasted Aluminum
Shipping Weight, kg (lb)	24.5 (53.9)
Packing Dimensions, HxWxD, mm (in)	1520 x 408 x 198 (59.8 x 16 x 7.8)

Ordering Information

Mounting Hardware	APM40-2 + APM40-E2



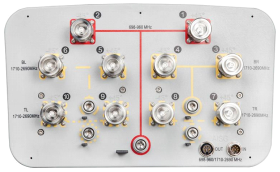
Vertical Pattern



Horizontal Pattern

All information contained in the present datasheet is subject to confirmation at time of ordering

Product Specifications



RV4PX306R

Multiband Antenna, 698–960 and 4x 1710–2690 MHz, 65° horizontal beamwidth, internal electrical tilt with manual override.

Electrical Specifications

Frequency Band, MHz	698–790	790–890	890–960	1710–1920	1920–2180	2300–2690
Gain, dBi	14.2	14.4	14.9	14.7	15.2	16.1
Beamwidth, Horizontal, degrees	68	69	63	63	63	62
Beamwidth, Vertical, degrees	16.4	14.9	13.6	13.7	12.2	9.7
Beam Tilt, degrees	0–10	0–10	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	18	18	18	18
Null Fill, dB	-22	-22	-22	-22	-22	-22
Front-to-Back Ratio at 180°, dB	23	23	23	27	28	28
CPR at Boresight, dB	16	12	12	17	15	14
CPR at Sector, dB	8	8	6	5	3	2
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.43 | 15.0	1.43 | 15.0	1.43 | 15.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-150	-150	-150	-150	-150	-150
Input Power per Port, maximum, watts	300	300	300	250	250	250
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–790	790–890	890–960	1710–1920	1920–2180	2300–2690
Gain by all Beam Tilts, average, dBi	14.0	14.2	14.6	14.6	15.0	15.8
Gain by all Beam Tilts Tolerance, dB	±0.2	±0.2	±0.3	±0.5	±0.4	±0.5
Gain by Beam Tilt, average, dBi	0 ° | 14.0	0 ° | 14.2	0 ° | 14.6	0 ° | 14.6	0 ° | 15.0	0 ° | 16.0
	5 ° | 14.0	5 ° | 14.2	5 ° | 14.6	5 ° | 14.6	5 ° | 15.0	5 ° | 15.8
	10 ° | 14.0	10 ° | 14.1	10 ° | 14.6	10 ° | 14.6	10 ° | 15.1	10 ° | 15.6
Beamwidth, Horizontal Tolerance, degrees	±1.4	±1.2	±1.6	±2.5	±3.5	±6.4
Beamwidth, Vertical Tolerance, degrees	±0.8	±0.8	±0.5	±0.9	±1	±0.9
USLS, beampeak to 20° above beampeak, dB	18	18	18	18	18	18
Front-to-Back Total Power at 180° ± 30°, dB	25	23	23	23	25	25
CPR at Boresight, dB	17	13	13	20	17	18
CPR at Sector, dB	10	10	8	7	5	4

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

General Specifications

Antenna Type	Sector with internal RET
Band	Multiband
Brand	DualPol®
Operating Frequency Band	1710 – 2690 MHz | 698 – 960 MHz
Performance Note	Outdoor usage

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Product Specifications

RV4PX306R

Mechanical Specifications

Lightning Protection	dc Ground inner/outer conductor
Radome Material	ASA, UV stabilized
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	10
Wind Loading, maximum	681.0 N @ 150 km/h 153.1 lbf @ 150 km/h
Wind Speed, maximum	250 km/h | 155 mph

Dimensions

Depth	209.0 mm | 8.2 in
Length	1599.0 mm | 63.0 in
Width	353.0 mm | 13.9 in
Net Weight, without mounting kit	24.0 kg | 52.9 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (4) | Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Single RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	1 female | 1 male

Packed Dimensions

Depth	325.0 mm | 12.8 in
Length	1787.0 mm | 70.4 in
Width	427.0 mm | 16.8 in
Shipping Weight	39.0 kg | 86.0 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	
China RoHS SJ/T 11364-2006	
ISO 9001:2008	

Included Products

T-041-GL-E — Argus® Adjustable Tilt Pipe Mounting Kit for 2.0"-4.5" (50-115mm) OD round members for panel antennas. Includes 2 clamp sets.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

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Product Specifications

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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

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Product Specifications

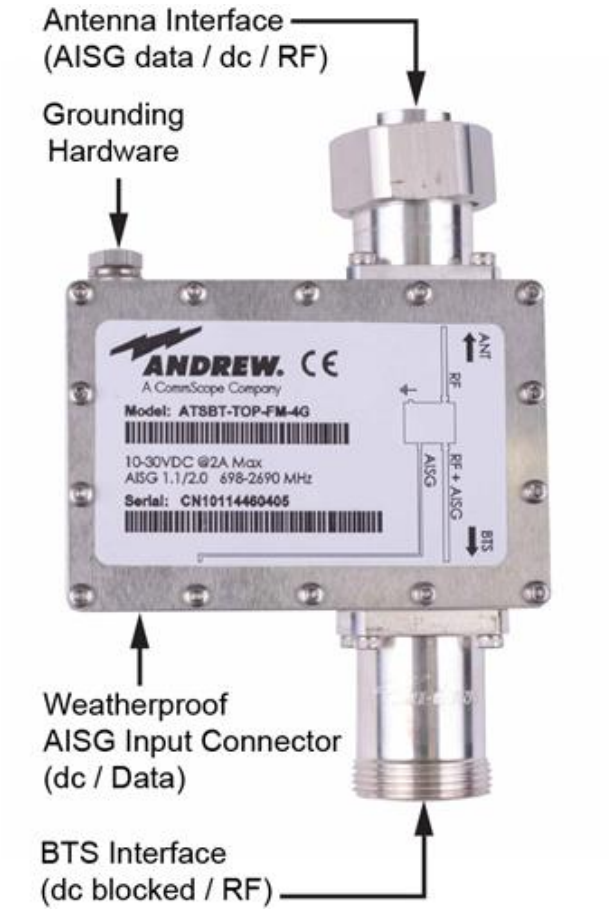
ATSBT-TOP-FM-4G

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

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Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5046

FA#: 10071181

Norwalk Center
1 Will Russ Court
Norwalk, CT 06850

December 5, 2018

Centerline Communications Project Number: 950006-151

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**8.44 %**

December 5, 2018

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5046 – Norwalk Center**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **1 Will Russ Court, Norwalk, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general 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.

Population 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 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) 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 performed for the proposed AT&T Wireless antenna facility located at **1 Will Russ Court, Norwalk, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	40
LTE	2100 MHz (AWS)	4	30
LTE	2300 MHz (WCS)	4	30
LTE	700 MHz	2	40
LTE	1900 MHz (PCS)	4	40
LTE	850 MHz	2	40

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Quintel QS46512-2	105
A	2	KMW AM-X-CD-14-65-00T-RET	105
B	1	Quintel QS46512-2	105
B	2	KMW AM-X-CD-14-65-00T-RET	105
C	1	Quintel QS46512-2	105
C	2	KMW AM-X-CD-14-65-00T-RET	105

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Quintel QS46512-2	850 MHz / 2100 MHz (AWS) / 2300 MHz (WCS)	10.35 / 13.85 / 14.05	10	300	6,611.46	2.61
Antenna A2	KMW AM-X-CD-14-65-00T-RET	700 MHz / 1900 MHz (PCS) / 850 MHz	11.85 / 14.15 / 12.65	8	320	6,857.74	3.44
						Sector A Composite MPE%	**6.05**
Antenna B1	Quintel QS46512-2	850 MHz / 2100 MHz (AWS) / 2300 MHz (WCS)	10.35 / 13.85 / 14.05	10	300	6,611.46	2.61
Antenna B2	KMW AM-X-CD-14-65-00T-RET	700 MHz / 1900 MHz (PCS) / 850 MHz	11.85 / 14.15 / 12.65	8	320	6,857.74	3.44
						Sector B Composite MPE%	**6.05**
Antenna C1	Quintel QS46512-2	850 MHz / 2100 MHz (AWS) / 2300 MHz (WCS)	10.35 / 13.85 / 14.05	10	300	6,611.46	2.61
Antenna C2	KMW AM-X-CD-14-65-00T-RET	700 MHz / 1900 MHz (PCS) / 850 MHz	11.85 / 14.15 / 12.65	8	320	6,857.74	3.44
						Sector C Composite MPE%	**6.05**

Table 3: AT&T Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Sector Value	**6.05 %**
T-Mobile	2.39 %
Site Total MPE %:	**8.44 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	6.05 %
AT&T Sector B Total:	6.05 %
AT&T Sector C Total:	6.05 %
Site Total:	8.44 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	325.18	105	2.39	850 MHz	567	0.42%
AT&T 2100 MHz (AWS) LTE	4	727.98	105	10.68	2100 MHz (AWS)	1000	1.07%
AT&T 2300 MHz (WCS) LTE	4	762.29	105	11.18	2300 MHz (WCS)	1000	1.12%
AT&T 700 MHz LTE	2	612.43	105	4.49	700 MHz	467	0.96%
AT&T 1900 MHz (PCS) LTE	4	1,040.06	105	15.26	1900 MHz (PCS)	1000	1.53%
AT&T 850 MHz LTE	2	736.31	105	5.40	850 MHz	567	0.95%
						Total:	**6.05%**

Table 6: AT&T Maximum Sector MPE Power Values

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 AT&T 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:

AT&T Sector	Power Density Value (%)
Sector A:	6.05 %
Sector B:	6.05 %
Sector C:	6.05 %
AT&T Maximum Total (per sector):	6.05 %
Site Total:	8.44 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.44 %** 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.

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.

Scott Heffernan
RF Engineering Director
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767

First-Class Package International Service® is temporarily unavailable on Click-N-Ship®. Please select a different Service Type or visit a Post Office™ location to complete your shipment.

Account # 161958927

Label Details

Label Number:
9405503699300491419892

SCAN® Form: 947570369930031264468O

Terms
Acceptance Cutoff: 04/29/2019 4:30 PM
Acceptance Time: 04/29/2019 3:08 PM
Expected Date: 05/01/2019 11:59 PM
Delivery Status: Delivered, To Agent 2019-05-01 09:45:00.0
Label Actions

USPS Tracking®
Ship Again

Need help

File an insurance claim
Request A Service Refund

Return Address:
NICOLE CAPLAN-MASON
EMPIRE TELECOM
16 ESQUIRE RD
N BILLERICA, MA 01862-2527
ne_sa_deliverable@empiretelecomm.com

Delivery Address:
STEVEN KLEPPIN
PLANNING DEPARTMENT
125 EAST AVE
RM 223
NORWALK, CT 06851-5702

Package:
Ship Date: 04/29/19
Value: $0.00
From: 01862

Service:
Priority Mail® 2-Day
Flat Rate Envelope
USPS Tracking®

Feedback

Transaction Number:	462747012
Transaction Type:	Label
Payment Method:	AMEX-1004
Payment Status:	Account Charged

Postage Cost	$7.35
USPS Tracking®	Free
Label Total:	**$7.35**
Order Total:	**$29.40**

Timestamp	Message
04-29-2019 10:35:48	LABEL PRINTED
04-29-2019 10:34:53	Getting Payment
04-29-2019 10:34:27	Setting Payment

Back to Shipping History

First-Class Package International Service® is temporarily unavailable on Click-N-Ship®. Please select a different Service Type or visit a Post Office™ location to complete your shipment.

Account # 161958927

Label Details

Label Number:
9405503699300491419885

SCAN® Form: 947570369930031264468O

Terms
Acceptance Cutoff: 04/29/2019 4:30 PM
Acceptance Time: 04/29/2019 3:08 PM
Expected Date: 05/01/2019 11:59 PM
Delivery Status: Delivered, To Agent 2019-05-01 05:41:00.0
Label Actions

USPS Tracking®
Ship Again

Need help

File an insurance claim
Request A Service Refund

Return Address:
NICOLE CAPLAN-MASON
EMPIRE TELECOM
16 ESQUIRE RD
N BILLERICA, MA 01862-2527
ne_sa_deliverable@empiretelecomm.com

Delivery Address:
HONORABLE HARRY W RILLING
MAYOR, CITY OF NORWALK
125 EAST AVE
P O BOX 5125
NORWALK, CT 06851-5702

Package:
Ship Date: 04/29/19
Value: $0.00
From: 01862

Service:
Priority Mail® 2-Day
Flat Rate Envelope
USPS Tracking®

Feedback

Transaction Number:	462747012
Transaction Type:	Label
Payment Method:	AMEX-1004
Payment Status:	Account Charged

Postage Cost	$7.35
USPS Tracking®	Free
Label Total:	**$7.35**
Order Total:	**$29.40**

Timestamp	Message
04-29-2019 10:35:47	LABEL PRINTED
04-29-2019 10:34:53	Getting Payment
04-29-2019 10:34:27	Setting Payment

Back to Shipping History

First-Class Package International Service® is temporarily unavailable on Click-N-Ship®. Please select a different Service Type or visit a Post Office™ location to complete your shipment.

Create Label | Preferences | Shipping History | Address Book

Account # 161958927

Label Details

Label Number:
9405503699300491419939

SCAN® Form: 947570369930031264468O

Terms
Acceptance Cutoff: 04/29/2019 4:30 PM
Acceptance Time: 04/29/2019 3:08 PM
Expected Date: 05/01/2019 11:59 PM
Delivery Status: Delivered, Front Desk/Reception/Mail Room 2019-05-01 13:14:00.0

Label Actions
USPS Tracking®
Ship Again

Need help

File an Insurance claim
Request A Service Refund

Return Address:
NICOLE CAPLAN-MASON
EMPIRE TELECOM
16 ESQUIRE RD
N BILLERICA, MA 01862-2527
ne_sa_deliverable@empiretelecomm.com

Delivery Address:
JOEL SZARKOWICZ
EVERSOURCE ENERGY
56 PROSPECT ST
1
HARTFORD, CT 06103-2818

Package:
Ship Date: 04/29/19
Value: $0.00
From: 01862

Service:
Priority Mail® 2-Day
Flat Rate Envelope
USPS Tracking®

Feedback

Transaction Number:	462747012
Transaction Type:	Label
Payment Method:	AMEX-1004
Payment Status:	Account Charged

Postage Cost	$7.35
USPS Tracking®	Free
Label Total:	**$7.35**
Order Total:	**$29.40**

Timestamp	Message
04-29-2019 10:35:50	LABEL PRINTED
04-29-2019 10:34:53	Getting Payment
04-29-2019 10:34:27	Setting Payment

Back to Shipping History

First-Class Package International Service® is temporarily unavailable on Click-N-Ship®. Please select a different Service Type or visit a Post Office™ location to complete your shipment.

Account # 161958927

Label Details

Label Number:
9405503699300491419908

SCAN® Form: 947570369930031264468O

Terms
Acceptance Cutoff: 04/29/2019 4:30 PM
Acceptance Time: 04/29/2019 3:08 PM
Expected Date: 05/01/2019 11:59 PM
Delivery Status: Delivered, To Agent 2019-05-01 09:45:00.0
Label Actions

USPS Tracking®
Ship Again

Need help

File an Insurance claim
Request A Service Refund

Return Address:
NICOLE CAPLAN-MASON
EMPIRE TELECOM
16 ESQUIRE RD
N BILLERICA, MA 01862-2527
ne_sa_deliverable@empiretelecomm.com

Delivery Address:
WILLIAM IRELAND
CHIEF BUILDING OFFICIAL
125 EAST AVE
RM 121
NORWALK, CT 06851-5702

Package:
Ship Date: 04/29/19
Value: $0.00
From: 01862

Service:
Priority Mail® 2-Day
Flat Rate Envelope
USPS Tracking®

Feedback

Transaction Number:	462747012
Transaction Type:	Label
Payment Method:	AMEX-1004
Payment Status:	Account Charged

Postage Cost	$7.35
USPS Tracking®	Free
Label Total:	**$7.35**
Order Total:	**$29.40**

Timestamp	Message
04-29-2019 10:35:49	LABEL PRINTED
04-29-2019 10:34:53	Getting Payment
04-29-2019 10:34:27	Setting Payment

Back to Shipping History