April 30, 2019

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

Regarding:	Notice of Exempt Modification – Equipment, Mount, and Tower Modifications
Property Address:	268 Windham Avenue; a.k.a. 112 Munn Road; Colchester, CT 06415 (the "Property")
Applicant:	AT&T Mobility ("AT&T", Site # CT2284)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 320-foot self-support tower at the above-referenced address, latitude N 41.59250000 // longitude W -72.32166667. The property is owned by The State of Connecticut via the Connecticut Department of Emergency Services and Public Protection; Division of Statewide Emergency Telecommunications.

AT&T desires to modify its existing (6) panel antenna telecommunications facility by adding three (3) panel antennas and modifying its ancillary tower-installed equipment as follows: add (6) remote radio units (RRUs) and add (1) DC squid surge suppressor with associated cables at the existing mount height of 200'.

To support the proposed equipment, minor modifications to the existing tower are proposed, as detailed on sheets SK-1 through SK-2 of the February 22, 2019 Structural Analysis by AECOM. AT&T also proposes to reinforce the existing antenna mount. Said mount reinforcement is shown in the Construction Drawings provided and is considered in the Structural Analysis by AECOM, dated February 22, 2019 (see reference on page 8). The mount reinforcement is also accounted for in the Mount Analysis by Centek Engineering, Inc., attached as Exhibit 4 hereto.

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 Art Shilosky, the First Selectman of the Town of Colchester, Randall Benson, Town Planner of the Town of Colchester, and Brian Benito of the Connecticut Department of Emergency Services and Public Protection; Division of Statewide Emergency Telecommunications, as property owner.

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). Specifically:

1. The planned modification will not result in an increase in the height of the existing structure. The added antennas, reinforced mount, and accessory equipment will be installed at the existing height of 200 feet on the 320-foot self-support tower.

2. The proposed modifications will not involve any changes to AT&T's ground-space footprint, and therefore 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 decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation for AT&T's modified facility is herein provided.

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

6. Once the mount is reinforced and the modifications indicated on the February 22, 2019 Structural Analysis by AECOM are performed, the structure and its foundation can support AT&T's proposed modifications.

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

Sincerely,

Julia Coughlin

Julia Coughlin
Site Acquisition Specialist
Empire Telecom USA, LLC
jcoughlin@empiretelecomm.com

Enclosures: Exhibit 1 – Property Card and Map
Exhibit 2 – Construction Drawings
Exhibit 3 – Structural Analysis
Exhibit 4 – Mount Analysis
Exhibit 5 - RF Emissions Analysis Report Evaluation

cc:

Art Shilosky, First Selectman
Town of Colchester
127 Norwich Avenue
Colchester, CT 06415

Randall Benson, Planning & Zoning Department
Town of Colchester
127 Norwich Avenue
Colchester, CT 06415

Brian Benito
Connecticut Department of Emergency Services and Public Protection; Division of Statewide Emergency Telecommunications - CTS Unit
1111 Country Club Road
Middletown, CT 06457

EXHIBIT 1

Town of Colchester, CT

Property Listing Report

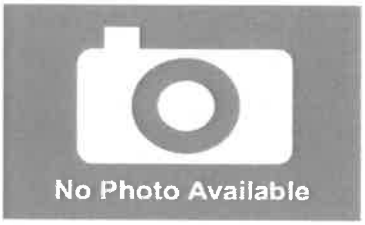
Map Block Lot 06-04/010-001/TWR | Account 11AT0001 | PID 105094

Property Information

Property Location	112 MUNN RD
Owner	CONNECTICUT STATE OF
Co-Owner	VERIZON WIRELESS
Mailing Address	PO BOX 2549 ADDISON TX 75001
Land Use	4310 Tel Rel Tw
Land Class	I
Zoning Code	
Census Tract	
Sub Lot	

Neighborhood	
Acreage	0
Utilities	
Lot Setting/Desc	
Survey Map	
Additional Info	

Photo



Sketch

Primary Construction Details

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Floors	
Total Rooms	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	

Exterior Walls	
Interior Walls	
Heating Type	
Heating Fuel	
AC Type	
Gross Bldg Area	
Total Living Area	

Report Created On 4/26/2019

Town of Colchester, CT

Property Listing Report | Map Block Lot 06-04/010-001/TWR | Account 11AT0001

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Extras	0	0
Outbuildings	909600	636700
Land	0	0
Total	909600	636700

Outbuilding and Extra Items

Type	Description
Cell Shed	1600.00 S.F.
Cell Shed	240.00 S.F.
Cell Tower	3.00 SITES
Fence 8' Chain	400.00 L.F.

Sub Areas

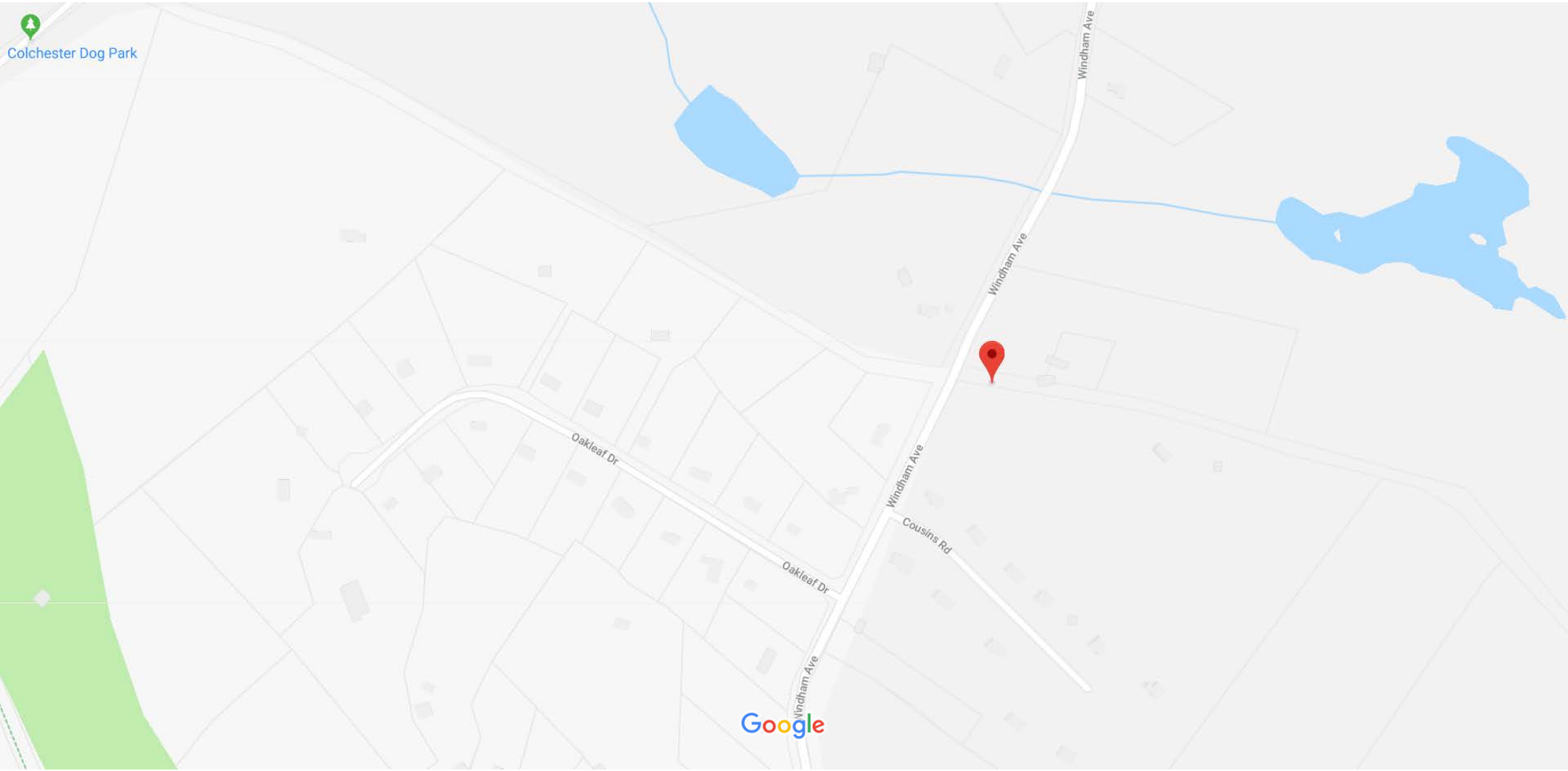
Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		0

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
CONNECTICUT STATE OF	000/ 000	10/1/2011	0

Report Created On 4/26/2019

Google Maps 41°35'33.0"N 72°19'18.0"W 268 Windham Avenue; 112 Munn Road; Colchester, CT 06415



Map data ©2019 Google 200 ft

41°35'33.0"N 72°19'18.0"W

41.592500, -72.321667

Directions | Save | Nearby | Send to your phone | Share

Colchester Public Schools, Colchester, CT 06415

HMVH+28 Colchester, Connecticut

EXHIBIT 2

WIRELESS COMMUNICATIONS FACILITY
CT2284 - LTE 2C
COLCHESTER MUNN ROAD STATE POLICE
268 WINDHAM AVENUE
COLCHESTER, CT 06415

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, 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

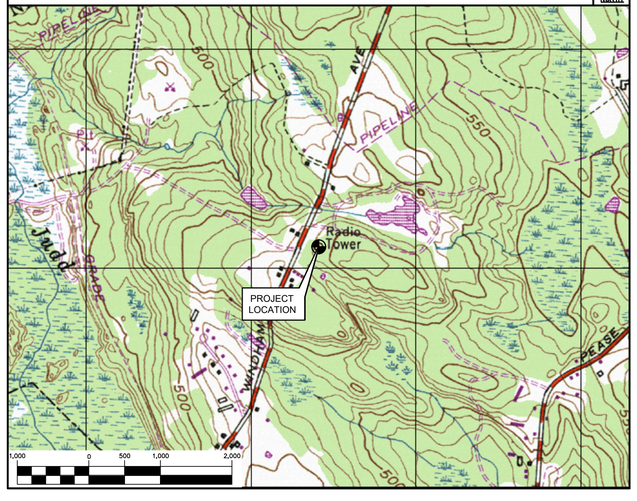
TO: 268 WINDHAM AVENUE, COLCHESTER, CONNECTICUT

1.	HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD	0.30 MI
2.	TURN LEFT ONTO CAPITAL BLVD	0.20 MI
3.	TURN LEFT ONTO STATE HWY 411	0.20 MI
4.	TURN LEFT TO MERGE ONTO I-91 N	0.40 MI
5.	MERGE ONTO I-91 N	4.10 MI
6.	TAKE EXIT 25-26 TO MERGE ONTO CT-3 N TOWARD GLASTONBURY	2.30 MI
7.	TAKE THE EXIT ONTO CT-2 E TOWARD NORWICH	19.40 MI
8.	TAKE EXIT 18 FOR CT-16 TOWARD COLCHESTER	0.50 MI
9.	TURN LEFT ONTO MAIN ST	449 FT
10.	TURN RIGHT TO STAY ON MAIN ST	236 FT
11.	CONTINUE ONTO LEBANON AVE	0.40 MI
12.	SLIGHT LEFT ONTO WINDHAM AVE	0.90 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. INSTALL PROPOSED LTE HEXPORT ANTENNA AT POSITION 4, (1) PER SECTOR, TOTAL OF (3).
   - B. INSTALL (3) NEW RRUS-11 BEHIND POSITION 4 ANTENNAS.
   - C. INSTALL (3) NEW RRUS- 32 B2 BEHIND POSITION 4 ANTENNAS.
   - D. INSTALL (1) DC FIBER SQUID SURGE ARRESTOR BEHIND POSTION 1 ANTENNA.
   - E. INSTALL XMU IN EXISTING LTE RACK IN EXISTING EQUIPMENT SHELTER.
   - F. ANTENNA MOUNTED MODIFICATION REQUIRED. REFER TO ACCOMPANYING DRAWINGS.

PROJECT INFORMATION

AT&T SITE NUMBER:	CT2284
AT&T SITE NAME:	COLCHESTER MUNN ROAD STATE POLICE
SITE ADDRESS:	268 WINDHAM AVENUE COLCHESTER, CT 06415
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-35'-33.5" N LONGITUDE: 72°-19'-16.2" W GROUND ELEVATION: ±650' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
N-1	NOTES, SPECIFICATIONS AND DETAILS	1
C-1	PLANS AND ELEVATION	1
C-2	LTE 2C EQUIPMENT DETAILS	1
C-3	MOUNT MODIFICATION	1
E-1	LTE SCHEMATIC DIAGRAM AND NOTES	1
E-2	LTE WIRING DIAGRAM	1
E-3	TYPICAL ELECTRICAL DETAILS	1

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	05/01/19	FJP	CAG	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
1	10/19/17	JTD	CAG	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	10/11/17	DMD	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT · CAMILO A. GARCIA · 27517 · LICENSED PROFESSIONAL ENGINEER

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

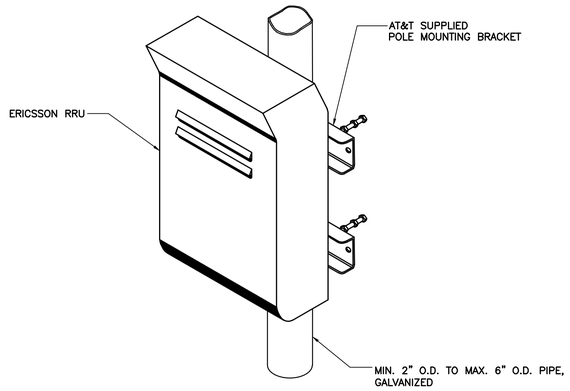
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY

COLCHESTER MUNN ROAD STATE POLICE
CT2284 - LTE 2C
268 WINDHAM AVENUE
COLCHESTER, CT 06415

DATE: 09/05/17
SCALE: AS NOTED
JOB NO. 17004.46

TITLE SHEET

T-1



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 / N-1 **TYPICAL RRUS MOUNTING DETAILS**
SCALE: NTS

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:
   - WIND LOAD: PER TIA 222 G (ANTENNA MOUNTS): 90-105 MPH (3 SECOND GUST)
   - RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
   - NOMINAL DESIGN SPEED (OTHER STRUCTURE): 101 MPH (Vasd) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10) PER 2015 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.
   - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

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

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)
   - A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   - B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   - C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   - D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   - E. PIPE---ASTM A53 (FY = 35 KSI)
   - F. CONNECTION BOLTS---ASTM A325-N
   - G. U-BOLTS---ASTM A36
   - H. ANCHOR RODS---ASTM F 1554
   - I. WELDING ELECTRODE---ASTM E 70XX
2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

PAINT NOTES

PAINTING SCHEDULE:

1. ANTENNA PANELS:
   - A. SHERWIN WILLIAMS POLANE-B
   - B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.
2. COAXIAL CABLES:
   - A. ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH)
   - B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH)
   - C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.

EXAMINATION AND PREPARATION:

1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE. DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

CLEANING:

1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.

APPLICATION:

1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
3. APPLY EACH COAT TO UNIFORM FINISH.
4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

COMPLETED WORK:

1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.
2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

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2	05/01/19	FJP	CAG	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
1	10/19/17	JTD	CAG	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	10/11/17	DMD	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

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NOTES, SPECIFICATIONS AND DETAILS

N-1

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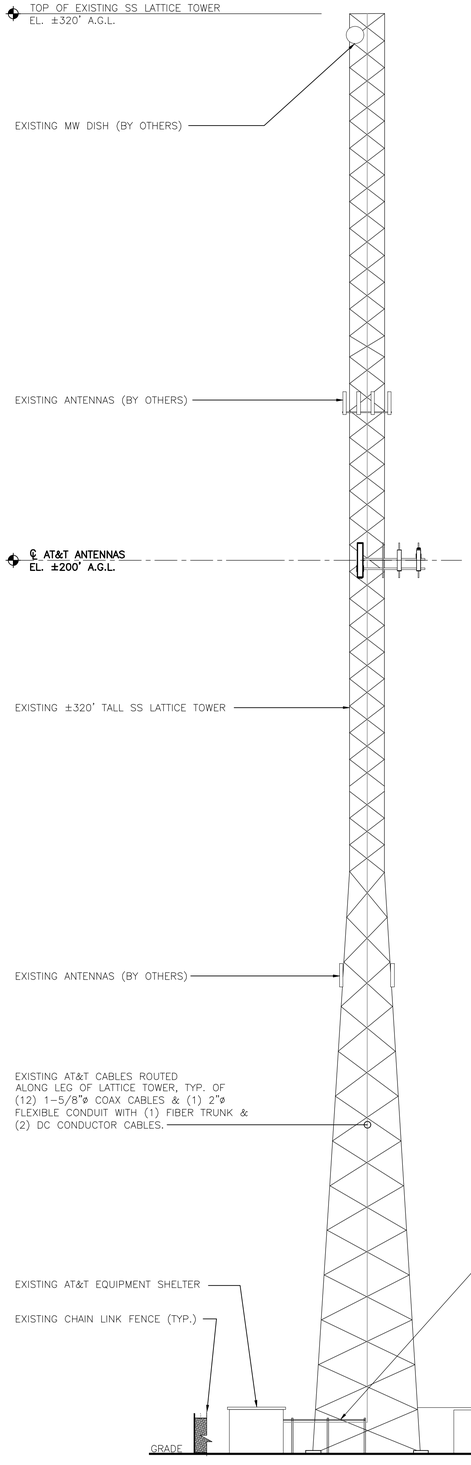


3 C-1 **TOWER ELEVATION**
SCALE: 1/16" = 1'-0"

TOWER STRUCTURAL NOTES:

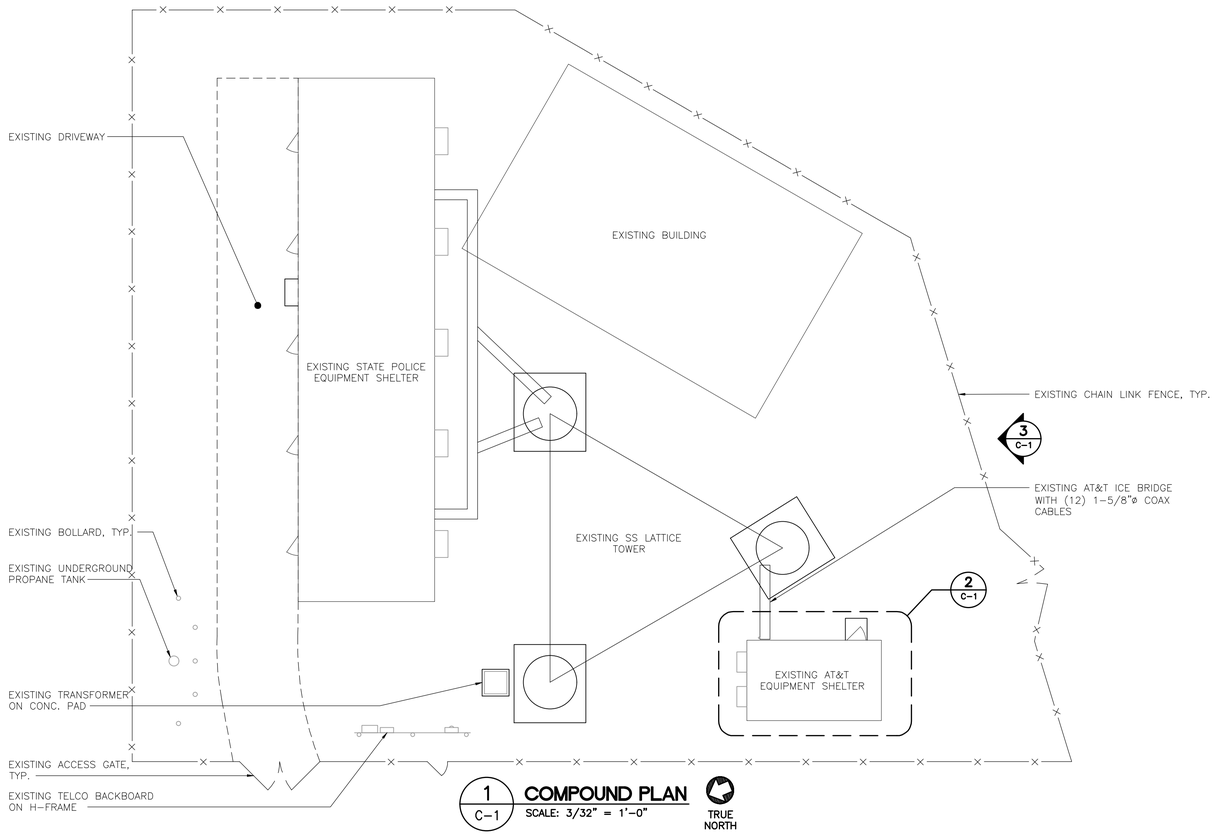
1. TOWER STRUCTURAL ANALYSIS SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT TO BE PROVIDED PRIOR TO INSTALLATION OF THE ADDITIONAL TOWER LOADING DEPICTED HEREIN.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AECOM AND FINAL AT&T RF DATA SHEET.

NOTES:

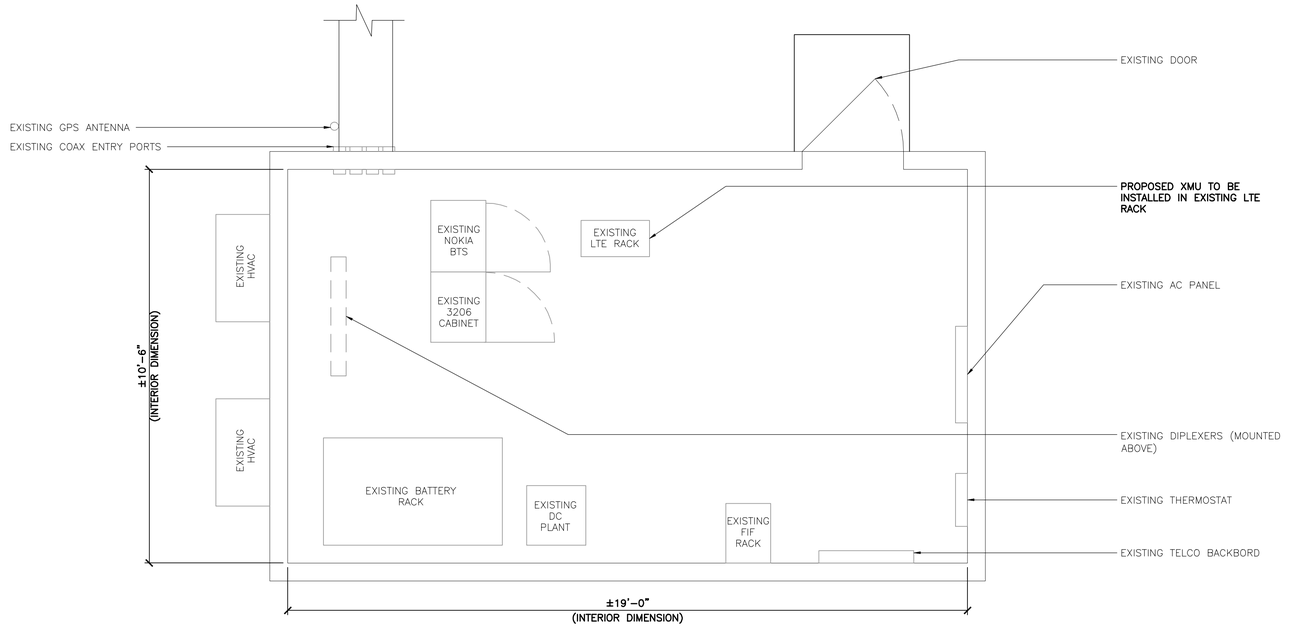
1. OTHER CARRIER EQUIPMENT NOT SHOWN FOR CLARITY
2. A.G.L. = ABOVE GRADE LEVEL

NOTE:
ALL GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

GRAPHIC SCALE
16 0 8 16 32 64
(IN FEET)
1 inch = 16 ft.



1 C-1 **COMPOUND PLAN**
SCALE: 3/32" = 1'-0"
TRUE NORTH



2 C-1 **EQUIPMENT LAYOUT PLAN**
SCALE: 1/2" = 1'-0"
TRUE NORTH

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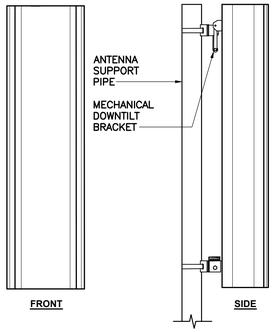
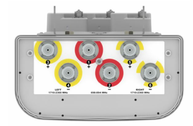
PLANS AND ELEVATION

C-1
Sheet No. 3 of 8



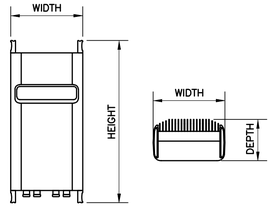
BOTTOM
HPA-65R-BUU-H8



BOTTOM
HPA-65R-BUU-H6

ALPHA/BETA/GAMMA ANTENNA			
EQUIPMENT		DIMENSIONS	WEIGHT
MAKE: CCI MODEL: HPA-65R-BUU-H8		92.4"L x 14.8"W x 7.4"D	68 LBS.
MAKE: CCI MODEL: HPA-65R-BUU-H6		72.3"L x 14.4"W x 7.3"D	42.9 LBS.

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

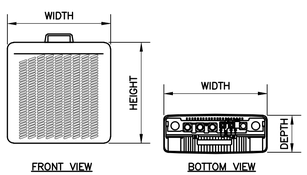


FRONT VIEW TOP VIEW

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS-32 B2	27.17"H 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-2 ERICSSON RRUS 32 B2 DETAIL
SCALE: 1" = 1'-0"

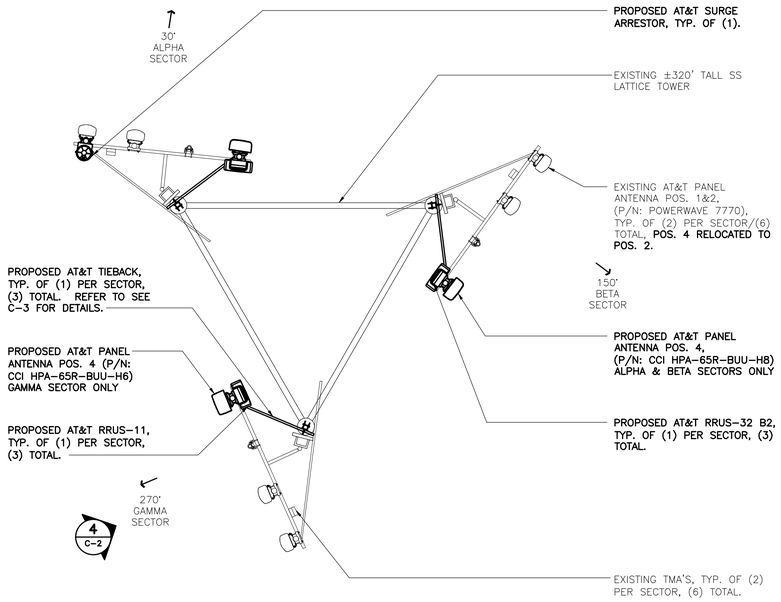


FRONT VIEW BOTTOM VIEW

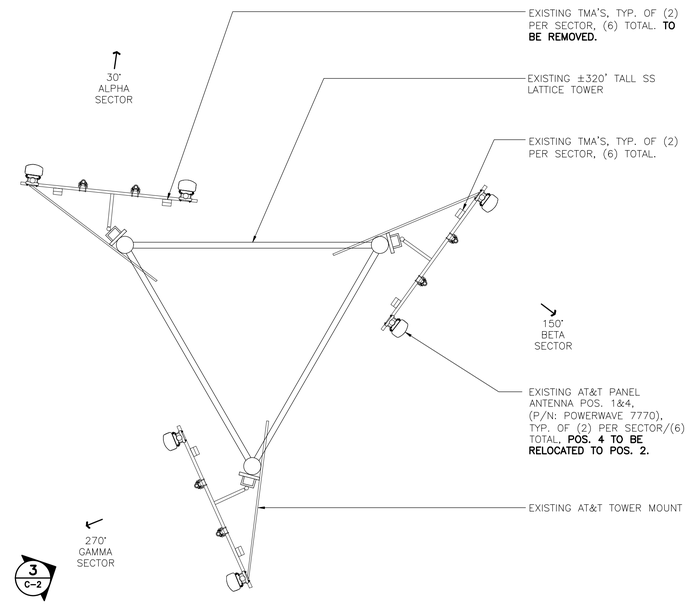
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 11	17.8"L x 17.3"W x 7.2"D	50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

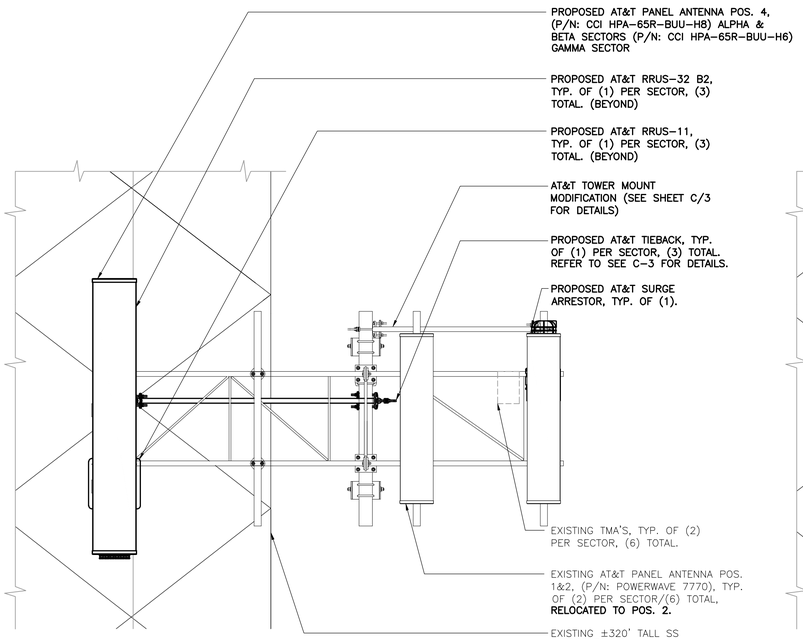
7 C-2 ERICSSON RRUS 11 DETAIL
SCALE: 1" = 1'-0"



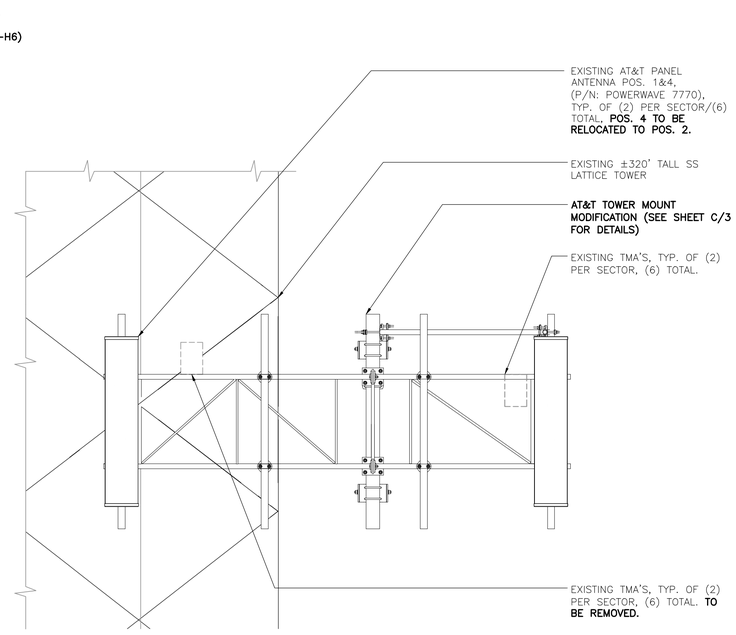
2 C-2 PROPOSED ANTENNA PLAN
SCALE: 1/4" = 1'-0" NORTH



1 C-2 EXISTING ANTENNA PLAN
SCALE: 1/4" = 1'-0" NORTH



4 C-2 PROPOSED ANTENNA ELEVATION
SCALE: 1/2" = 1'-0"



3 C-2 EXISTING ANTENNA ELEVATION
SCALE: 1/2" = 1'-0"

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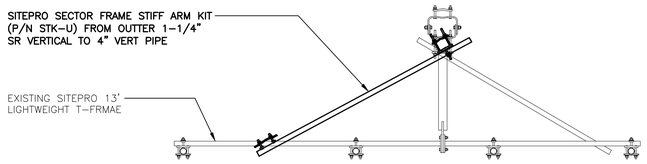
LTE 2C EQUIPMENT DETAILS

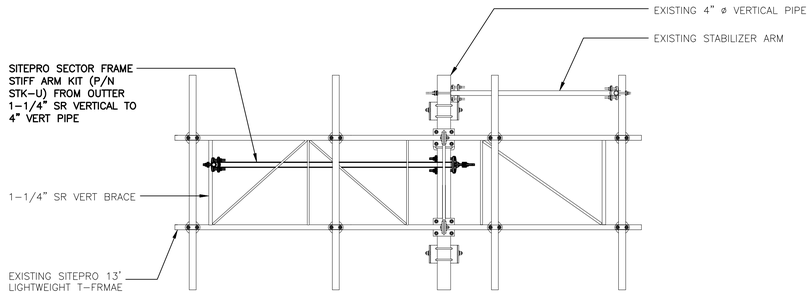
C-2

Sheet No. 4 of 8



1 / C-3 ANTENNA MOUNT REINFORCEMENT PLAN

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



2 / C-3 ANTENNA MOUNT REINFORCEMENT ELEVATION

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

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MOUNT MODIFICATION

C-3

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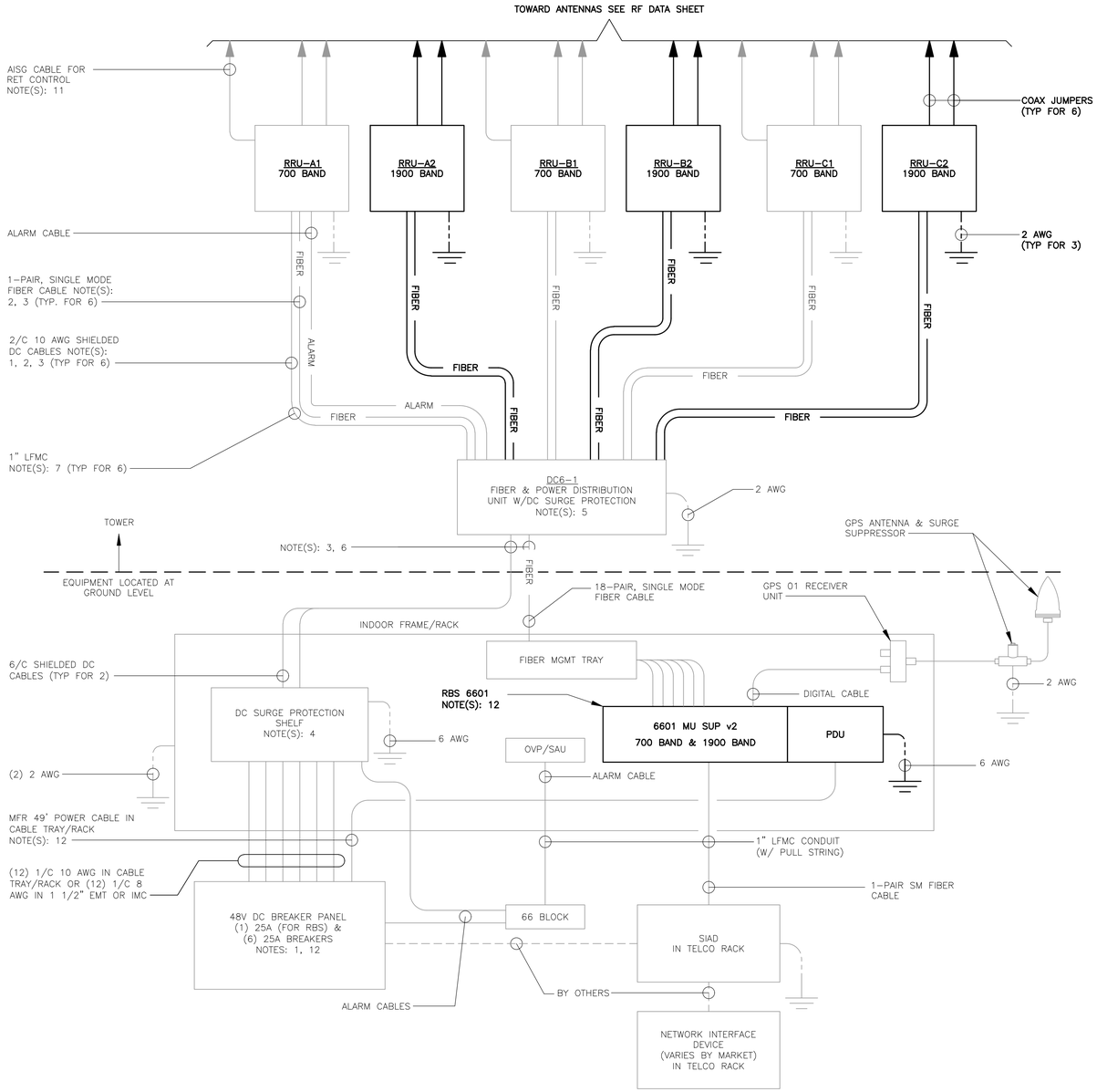

1 E-1 LTE SCHEMATIC DIAGRAM

NOT TO SCALE

LTE 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.

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.

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0	10/11/17	DMD	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

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AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY

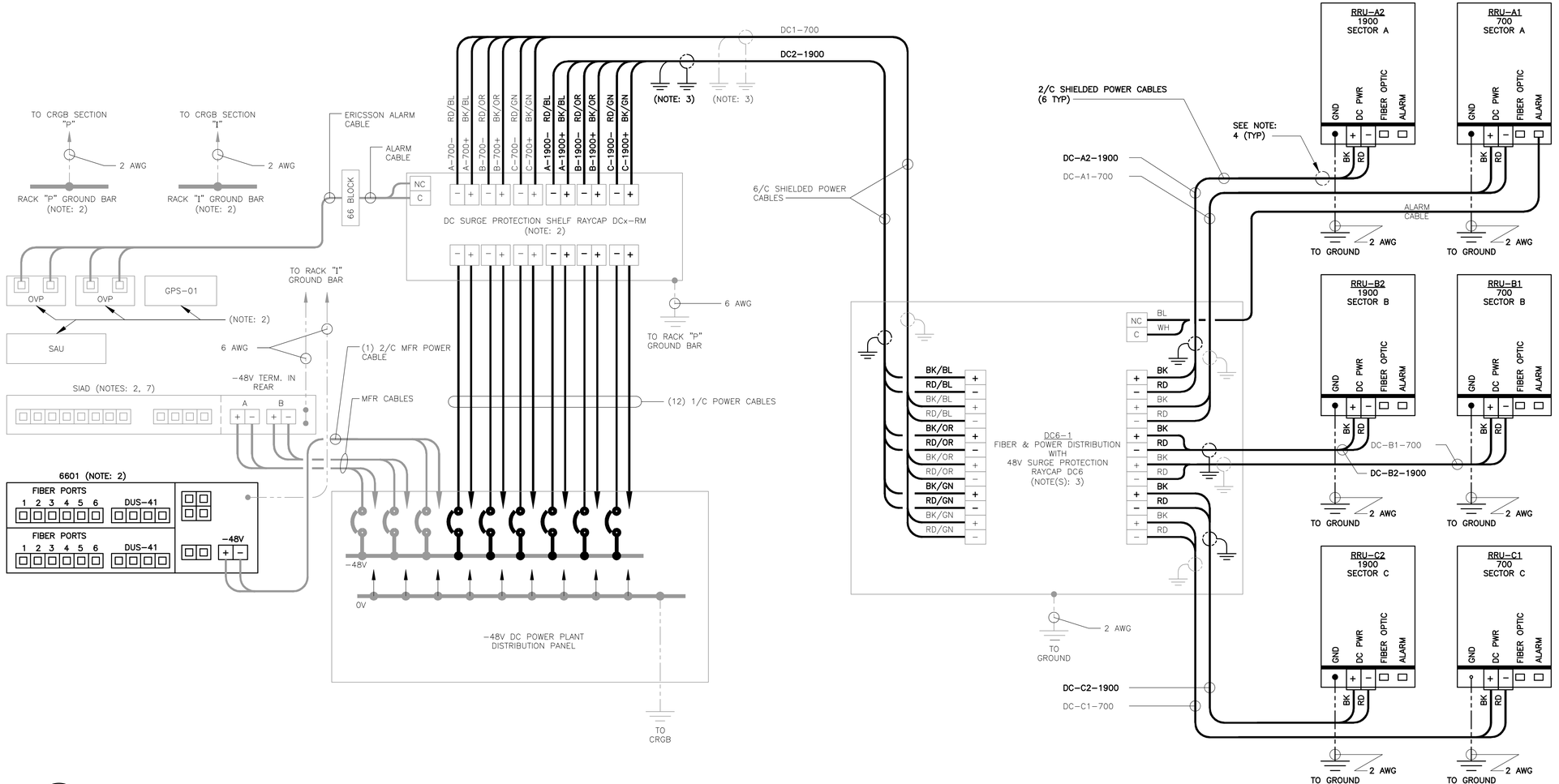
COLCHESTER MUNN ROAD STATE POLICE
CT2284 - LTE 2C
268 WINDHAM AVENUE
COLCHESTER, CT 06415

DATE: 09/05/17
SCALE: AS NOTED
JOB NO. 17004.46

LTE SCHEMATIC DIAGRAM AND NOTES

E-1

Sheet No. 6 of 8



1 / E–2 LTE WIRING DIAGRAM

NOT TO SCALE

LTE 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.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	10/11/17	DMD	CAG	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
1	10/19/17	JTD	CAG	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
2	05/01/19	FJP	CAG	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS

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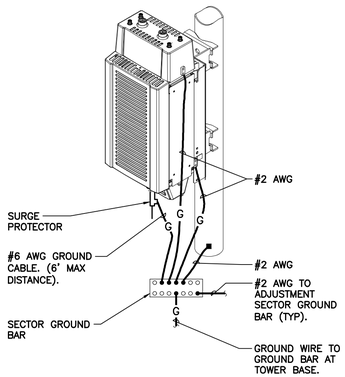
LTE WIRING DIAGRAM

E–2

Sheet No. 7 of 8

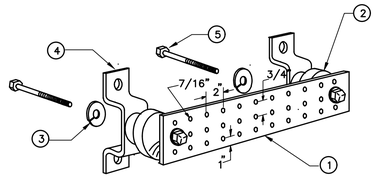
EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:

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



3 E-3 RRU POLE MOUNT GROUNDING

NOT TO SCALE

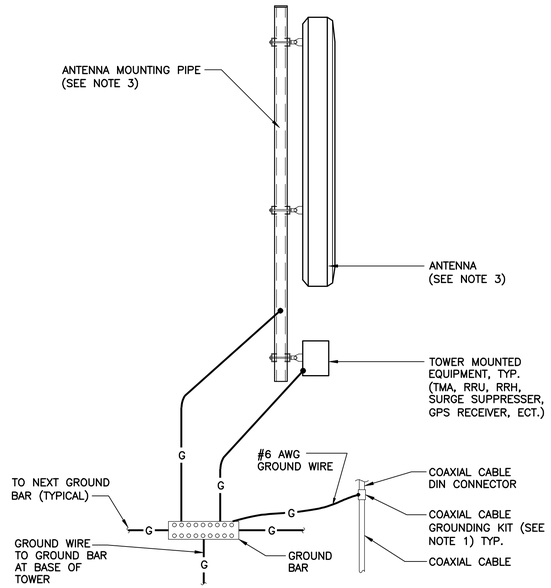


LEGEND

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.

2 E-3 GROUND BAR DETAIL

NOT TO SCALE

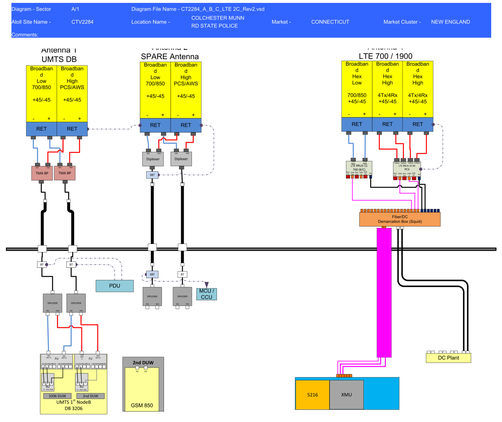


NOTES:

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.

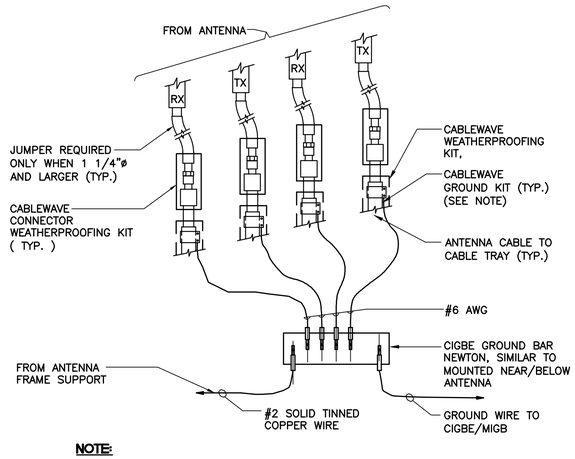
1 E-3 TYPICAL ANTENNA GROUNDING DETAIL

NOT TO SCALE



6 E-3 RF PLUMBING DIAGRAM

NOT TO SCALE

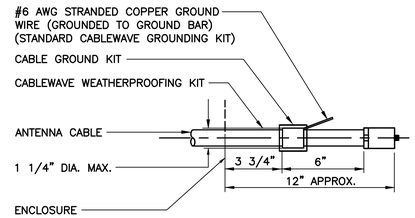


NOTE:

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

5 E-3 CONNECTION OF GROUND WIRES TO GROUND BAR

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

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	05/01/19	FJP	CAG	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
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TYPICAL ELECTRICAL DETAILS

E-3

Sheet No. 8 of 8

EXHIBIT 3

AECOM

Submitted to
Empire Telecom USA, LLC
16 Esquire Road
Billerica, MA 01862

Verizon Wireless
99 East River Drive
East Hartford, CT 06108

Submitted by
AECOM
500 Enterprise Drive,
Suite 3B
Rocky Hill, CT 06067
February 22, 2019

DETAILED STRUCTURAL ANALYSIS AND MODIFICATION OF AN EXISTING 320’ SELF SUPPORTING LATTICE TOWER AND FOUNDATION FOR PROPOSED ANTENNA ARRANGEMENT

AT&T Site Number : CT2284
Site Address: 112 Munn Road
Colchester, Connecticut

EMP-008
VZ5-217

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis and modification of the 320' Self-supporting lattice tower located at 112 Munn Road in Colchester, Connecticut.

The structural analysis was conducted in accordance with the 2018 Connecticut State Building Code which include the TIA-222-G[1] Standard, 2015 International Building Code, the 2018 Connecticut State Building Code Amendments, the AISC[2] Load Resistance Factor Design (LRFD), the ASCE 7[3] design Code, and the Connecticut State Police Requirements which include the TIA/EIA-222-F[4].

The antenna loading considered in the analysis consists of all the existing antennas, transmission lines and ancillary items as outlined in the Introduction Section of this report.

The proposed AT&T & Verizon Wireless (VZW) antenna upgrades are listed below:

Proposed Antennas	Carrier	Antenna Center Elevation
Remove:		
(6) TMA Units	**AT&T (Existing)**	**@ 200'**
(6) SBNHH-1D65B Panel Antennas (3) Nokia 2x60-700 MHz RRH Units (3) Nokia 2x90-AWS RRH Units	**VZW (Existing)**	**@ 220'**
Install: **(2) CCI HPA-65R-BUU-H8 Panel Antennas (1 Alpha Sector, 1 Beta Sector) (1) CCI HPA-65R-BUU-H6 Panel Antenna (1 Gamma Sector) (3) Ericsson RRUS-11 RRH Units (3) Ericsson RRUS-32 B2 RRH Units (1) Raycap DC6 Surge Arrestor Unit (3) SitePro1 Sector Frame Stiff Arm Kit (Part # STK-U) attaching to Existing Mount Assembly**	**AT&T (Proposed)**	**@ 200'**
(6) Commscope JAHH-65B-R3B Panels (2 per Sector) (3) Commcsope BSAMNT-SBS-2-2 Panel Mounts for JAHH Panels (3) Samsung B2/B66A RRH-BR049 (RFV01U-D1A) RRH Units (3) Samsung B5/B13 RRH-BR04C (RFV01UD2A) RRH Units (3) Commscope CBC78T-DS-43-2X Diplexer Units	**VZW (Proposed)**	**@ 220'**

1. TIA = Telecommunications Industry Association Structural Standard for Antenna Supporting Structures and Antennas (Version G)

2. AISC = American Institute of Steel Construction (14th Edition)

3. ASCE 7 = American Society of Civil Engineers Standard 7 (2010 Edition)

4. TIA/EIA = Telecommunications Industry Association Structural Standard for Antenna Supporting Structures and Antennas (Version F)

1. EXECUTIVE SUMMARY *(continued):*

The results of the analysis indicated the existing tower structure did not have enough capacity for the proposed loading conditions above. The tower structure and anchor components require modifications shown on SK-1 through SK-2. **Once the modifications indicated on sheets SK-1 through SK-2 are performed the modified tower along with the existing tower anchor bolts and foundation are considered structurally adequate with the wind load specification specified above with the existing and proposed antenna loading herein. The maximum structural capacity calculated herein is 93.4%**.

This analysis results (herein) have considered the design requirements of the Department of Energy Services and Public Protection (DESPP) / Connecticut State Police (CSP) for the 90 MPH wind with ½" concurrent radial ice as proposed for use under the TIA-222-F design standard. This analysis (with permission from the DESPP) is NOT considering the combined Twist and Sway requirements for this analysis results.

This analysis is based on:

1) The tower structure's theoretical capacity not including any assessment of the condition of the tower.
2) Tower geometry, structural member sizes, and antenna mount assembly taken from original construction drawings (Rohn File #: 43233AE) prepared by Rohn Industries, Inc., approved May 10, 2001.
3) Previous structural analysis and reinforcement by URS Corporation for Verizon Wireless, project number VZ5-122 / 36922280, signed and sealed July 13, 2012 with updated modification sketches signed and sealed December 18, 2013. (Note: Only foundation components have been constructed from this report).
4) Antenna inventory provided by Connecticut State Police via e-mail on April 14, 2016.
5) Previous structural analysis and tower modification performed by AECOM on behalf of AT&T, project number 60529362 / SAI-095, signed and sealed on February 6, 2017.
6) Tower climb and antenna inventory performed by Hightower Solutions Inc. (dated May 25, 2017), on behalf of KM Consulting Engineers, Inc. and the Connecticut State Police, obtained via e-mail dated November 9, 2017.
7) Proposed antenna inventory update to AT&T antennas via Radio Frequency Data Sheet (RFDS), Dated May 12, 2017, along with associated construction drawings date October 19, 2017, obtained via e-mail dated March 20, 2018.
8) Antenna inventory updates to the Motorola / Connecticut State Police obtained via e-mail dated March 22, 2018.
9) Updated analysis design requirements per the Department of Energy Services and Public Protection (DESPP) / Connecticut State Police (CSP), obtained via-email dated November 30, 2018.
10) Proposed antenna inventory update to Verizon Wireless (VZW) antenna via RDFS, dated December 8, 2018, obtained via e-mail dated December 20, 2018.
11) Antenna inventory as specified in Sections 2 and 6 of this report

1. EXECUTIVE SUMMARY *(continued)*:

This report is only valid as per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the antenna, cabling and mount configuration used, as well as the physical condition of the tower members, connections and foundations. Notify the engineer in writing immediately if any of the information in this report is found to be other than specified.

If you should have any questions, please contact this office at (860) 990-6767.

Sincerely,

AECOM,

Richard A. Sambor, P.E.
Senior Structural Engineer

RAS/mcd

2. INTRODUCTION

The subject tower is located at 112 Munn Road in Colchester, Connecticut. The structure is a 320' self-supporting lattice tower structure designed by Rohn Industries, Inc.

The tower geometry and structure member sizes were taken from the original construction drawings (Rohn File #: 43233AE) prepared by Rohn Industries, Inc., approved May 10, 2001.

The structural analysis was conducted in accordance with the following:

- TIA-222-G Standard for Standard for a wind velocity of range of 105 mph to 120 mph (3-second gust) and 50 mph (3-second gust) concurrent with 0.75" ice thickness, considered to increase in thickness with height
- 2015 International Building Code with 2018 Connecticut State Building Code Amendments for a wind speed of 108 mph (3-second gust)
- 2010 AISC Load Resistance Factor Design (LRFD)
- 2010 ASCE 7 Minimum Design Loads for Buildings and Other Structures for the ice thickness referenced in the TIA-222-G Standard
- Connecticut State Police Requirements for a wind velocity of 90 mph (fastest mile) and 90 mph (fastest mile) concurrent with 0.5" ice, analyzed under the TIA/EIA-222-F design Standard.

The inventory together with the proposed AT&T & VZW antenna arrangement is summarized in the table below:

Antenna Type	***Carrier***	***Mount***	***Antenna Centerline Elevation***	***Cable***
(1) Lightning Rod	HTS-35 Tower (existing)	Leg Mount	325'	N/A
(1) Lighted Beacon	HTS-34 Tower (existing)	Tower Mount	325'	(1) 1/2" coax cable
(1) PD-128 Omni/Dipole Antenna	HTS-33 CSP-2 (existing)	6' Side Arm Mount	322'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) BA-1012 Omni Antenna	HTS-32 CSP-1 (existing)	6' Side Arm Mount	318'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) ANT450F6 Antenna	HTS-31 (existing)	6' Side Arm Mount	317'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) SC479-HF1LDF (D00-E6085) Omni Antenna	HTS-30 CSP-52 (existing)	6' Side Arm Mount	297'	(1) 1-5/8" coax cable (AVA7-50A)
(1) PD-340 Dipole Antenna	HTS-29 CSP-4 (existing)	6' Side Arm Mount	290'	(1) 7/8" coax cable (LCF78-50JA-A7)

Antenna Type	*Carrier*	*Mount*	*Antenna Centerline Elevation*	*Cable*
(1) OGT9-840 Omni Antenna	HTS-28 CSP-15 (existing)	6' Side Arm Mount	285'	(1) 1-5/8" coax cable (AVA7-50A)
(1) DB-809T3 Omni Antenna	HTS-26 CSP-14 (existing)	*Shared with HTS-25 Mount*	285'	(1) 1-5/8" coax cable (AVA7-50A)
(1) (inverted) SC479-HF1LDF (D00I-E6085) Omni Antenna (1) 432-83H TTA Unit	HTS-27 CSP-54,55 (existing)	6' Side Arm Mount	284'	(1) 1-5/8" coax cable (AVA7-50A) (2) 1/2" coax cable
(1) (inverted) SC479-HF1LDF (D00I-E6085) Omni Antenna	HTS-25 CSP-53 (existing)	6' Side Arm Mount	283'	(1) 1-5/8" coax cable (AVA7-50A)
(1) PD-440 Dipole Antenna	HTS-24 DEHMS-6 (existing)	*Shared with HTS-23 Mount*	262'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) (inverted) SC479-HF1LDF Omni Antenna	HTS-23 CSP-51 (existing)	6' Side Arm Mount	261'	(1) 1-5/8" coax cable (AVA7-50A)
(1) SC479-HF1LDF Omni Antenna	HTS-22 DEP-5 (existing)	*Shared with HTS-21 Mount*	248'	(1) 1-5/8" coax cable (AVA7-50A)
(2) (inverted) SC479-HF1LDF Omni Antennas (1) TMA Unit	HTS-21 CSP-16,17 (existing)	(1)T-Arm Frame Mount	246'	(2) 1-5/8" coax cable (AVA7-50A) (1) 1/2" coax cable
(1) PD-1142 Omni Antenna	HTS-20 DEHMS-7 (existing)	6' Side Arm Mount	244'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) 531-70 Dipole Antenna	HTS-19 CSP-8 (existing)	6' Side Arm Mount	235'	(1) 7/8" coax cable (LCF78-50JA-A7)
(6) JAHH-65B-R3B Panel Antennas (2 per Sector) (3) B2/B66A RRH-BR049 (RFV01U-D1A) RRH Unit (3) B5/B13 RRH-BR04C (RFV01U-D2A) RRH Unit (3) CBC78T-DS-43-2X Diplexer Units	**VZW (Proposed)**	**(3) BSAMNT-SBS-2-2 Panel Mounts for JAHH Antennas Shared with Below Mount**	**220'**	*See Below Cables*
(3) LNX-6512DS-VTM (2) OVP-RC3DC-3315-PF-48 OVP Units	HTS-16,17,18 VZW (existing)	(3) T-Arms (existing)	220'	(6) 1 5/8" coax cables (existing) (2) HB158-1-08U8-S8J18 Fiber Optic Cable

Antenna Type	*Carrier*	*Mount*	*Antenna Centerline Elevation*	*Cable*
(2) CCI HPA-65R-BUU-H8 (1A, 1B) (1) CCI HPA-65R-BUU-H6 (1C) (3) RRUS-11 RRH Units (3) RRUS-32 B2 RRH Units (1) DC6-48-60-0-8C Surge Arrestor	**AT&T (Proposed)**	**(3) SitePro1 STK-U Mount Stiff-Arm Kits added to Existing Mounts (*indicated below*)**	**200'**	*See Below Cables*
(6) Powerwave 7770 Panel Antennas (2) Powerwave LGP 21401 TMA Units (2) LGP 13519 Diplexer Units	HTS-15 AT&T (existing)	(3) T-Arm mounts with (1) Stiff-Arm connected to Tower Structure	200'	(12) 1 5/8" coax cables (1) Fiber Optic Cable & (2) DC Cables within 2" Flex Conduit
(1) 1151-3N Omni Antenna	HTS-14 NEU-32 (existing)	*Shared with HTS-13 Mount*	177'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) DB586-Y Omni Antenna	HTS-12 NEU-48 (existing)	6' Side Arm Mount	176'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) (inverted) DB586-Y Omni Antenna (1) TTA Unit	HTS-13 NEU-49,50 (existing)	6' Side Arm Mount	174'	(1) 7/8" coax cable (LCF78-50JA-A7) (1) ½" coax cable (LDF4-50A)
(3) Small Lighted Tower Beacon Lights	HTS-11 Tower (existing)	Mounted to Leg	164'	(1) 3/8" coax cable
(1) ANT450F6 Antenna	HTS-10 CSP (existing)	6' Side Arm Mount	153'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) 6' Dish with Radome	CSP (existing)	Pipe Mounted to Leg	145'	(1) WG65 elliptical cable
(1) PD-156S Yagi Antenna	HTS-9 DEP-9 (existing)	*Shared with HTS-8 Mount*	137'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) DB-212 Dipole Antenna	HTS-8 NEU-33 (existing)	6' Side Arm Mount	134'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) 3' Dish Antenna	CSP (existing)	Pipe Mounted to Leg	120'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) Ice Shield (for HTS-5 Dish)	HTS-7 CSP (existing)	Pipe Mounted to Leg	118'	N/A
(1) Ice Shield (for HTS-4 Dish)	HTS-6 CSP (existing)	Pipe Mounted to Leg	118'	N/A
(1) 3' Dish with Radome	HTS-5 CSP-13 (existin8g)	Pipe Mount to Leg	113'	(1) WE108 coax cable

Antenna Type	*Carrier*	*Mount*	*Antenna Centerline Elevation*	*Cable*
(1) 8' Dish Antenna w/ Shroud	HTS-4 CSP (existing)	Pipe mounted to Leg	106'	(1) WE 65 Elliptical Cable
(1) PD-458 Omni Antenna	HTS-3 CTT-18 (existing)	*Shared with HTS-2 Mount*	105'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) Yagi Antenna	HTS-2 CSP (existing)	6' Side Arm Mount	103'	(1) 7/8" coax cable (LCF78-50JA-A7)
(1) PD-688 Yagi Antenna	HTS-1 FBI-31 (existing)	6' Side Arm Mount	91'	(1) 7/8" coax cable (LCF78-50JA-A7)

Notes: Antenna ID numbering (HTS-#) obtained from Tower Existing Inventory via tower climb, performed by Hightower Solutions, Inc. dated May 25, 2017. CSP numbering and elevations provided by CSP inventory obtained via e-mail dated April 14, 2016.

This structural analysis of the communications tower was performed by AECOM, on behalf of AT&T and Verizon Wireless (VZW). The purpose of this analysis was to investigate the structural integrity of the modified tower and the previously modified foundation for existing and proposed antenna loads in compliance with the 2018 Connecticut State Building Code. This analysis was conducted to evaluate stress on the tower and the effect forces to the foundation of the tower resulting from existing and proposed antenna arrangements.

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was done in accordance with, the TIA-222-G–Structural Standard for Antenna Towers and Antenna Supporting Structures and Antennas, the 2015 International Building Code with 2018 Connecticut State Building Code Amendments and the American Institute of Steel Construction (AISC) Manual of Steel Construction – Load Resistance Factor Design (LRFD)

The structural analysis was conducted using TNX Tower version 8.0.5.0 and used the following conditions for this tower review (following the TIA-222-G Standard):

- Structure Class 3 – (Essential Communications)
  - NOTE: ASCE 7 and CT State Building Code Applied Risk Category 4 for design wind loads (see below)
- Topographic Category 3 – (Tower location on top of hill – rolling wind conditions considered)
  - Crest Height used for analysis: (approximate elevations listed below)
    - Tower Base Elevation = 590 feet
    - High point (2 mile Radius) = 637 feet (Ref. Peak of hill near Amston Lake)
    - Low Point (2 mile Radius) = 410 feet (Ref. Bench mark Elevation near local Cemetery)
    - "H" = (Avg of High/Low) – Base Elevation = (637+410)/2 – 590 = 66.5 feet
- Exposure Class C – (Open Terrain with scattered obstructions)
- Load Conditions:
  - Two load conditions were evaluated as shown which were compared to design stresses according to AISC and TIA/EIA-222-G Standard.

Basic Wind Speed:

- TIA-222-G:
  - New London County (Wind Speed Range): V = 105 mph - 120 mph (3-second gust) [Annex of TIA/EIA-222-G 2006]
- IBC 2015 w/ 2018 CT State Building Code Amendment:
  - (2015) IBC Section 1609.1.1 – Determination of Wind Loads – Exception 5 "Designs using TIA-222" applies for determination of Design Wind Load obtained as "V.ult" are to be converted to "V.asd" when applying the TIA-222-G design Standard (under Section 1609.3) for Basic Wind Speed.
  - (2018) CT State Building Code Amendment to the IBC Section 1609.3 wind loads are obtained from Appendix N of the State Building Code.
    - **V.asd = 108 mph** (3-Second Gust) Wind Design Parameter for the Town of Southbury, Connecticut for Risk Category four (IV) for essential communications (Connecticut State Police).

LOAD CONDITION 1 = 108 MPH (3-SECOND GUST) WIND LOAD (WITHOUT ICE) + TOWER DEAD LOAD
Load Condition 2 = 50 mph (3-second gust) Wind Load (with ice) + Ice Load + Tower Dead Load

Ice thickness used for this analysis is **0.75 inch** (assumed to start at the base of the tower) and is considered to increase in thickness with height. The initial ice thickness for design is referenced in the Annex of TIA-222-G and follows the same design criteria as the ASCE 7 Standard.

The load condition below implements the design requirements of the Department of Energy Services and Public Protection (DESPP) / Connecticut State Police (CSP) for the 90 MPH wind with ½" concurrent radial ice as proposed for use under the TIA-222-F design standard. This analysis (with permission from the DESPP) is NOT considering the combined Twist and Sway requirements for this analysis results.

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS (cont.)

Load Condition 3 = 90 mph (fastest mile) Wind Load (with Ice) + Ice Load + Dead Load

Seismic event consideration factors/values for design:

- S.s = 0.174 (2018 CT State Building Code – Location Specific Value)
- S.1 = 0.061 (2018 CT State Building Code – Location Specific Value)
- Site Classification = "D"
- Seismic Design Category = "B" – (2015 International Building Code)
- F.a = 1.6 (Obtained from TIA-222-G Table 2-12 Considering above conditions)
- F.v = 2.4 (Obtained from TIA-222-G Table 2-13 Considering above conditions)

Strength Limit State Load Combinations (TIA-222-G Section 2.3.2):

The structural analysis herein has considered the following load combinations within the analysis:

1. ***1.2 Dead Load Tower structure + 1.0 Dead Load Guy Assemblies + 1.6 Wind load without ice***
2. 1.2 Dead Load Tower structure + 1.0 Dead Load Guy Assemblies + 1.0 Dead weight of ice due to factored ice thickness + 1.0 Concurrent wind load with factored ice thickness + 1.0 Load effects due to temperature
3. 1.2 Dead Load Tower structure + 1.0 Dead Load Guy Assemblies + 1.0 Earthquake Load

NOTE 1: The above **bolded** load combination is considered to create the governing design loads per the results of the analysis.

NOTE 2: The above "Dead Load Guy Assemblies" are not considered as part of the analysis and are considered as a value of zero.

NOTE 3: The "Load effects due to temperature" do not apply for structures that are self-sustaining (from the TIA-222-G Standard)

4. FINDINGS AND EVALUATION

Combined axial and bending stresses on the existing tower structure were evaluated to compare with strength design in accordance with AISC (LRFD). The results of an initial analysis indicated that the existing tower structure did not have enough capacity to support the proposed loading conditions. The tower structure requires modifications shown on SK-1 through SK-2. **Once the modification indicated on sheets SK-1 through SK-2 are performed, the modified tower structure, existing tower anchors bolts and existing foundation are considered structurally adequate within the wind load specification and with the existing and proposed antenna loading herein.**

The combined values for the tower sway (deflection) and the tower twist (rotation) are NOT required for this analysis, as requested by the Department of Energy Services and Public Protection (DESPP) / Connecticut State Police (CSP). These figures combined are included within this report as reference and information only.

Proposed Tower Component Stress vs. Capacity Summary

Component / (Section No.)	Controlling Component/ Elevation	Stress (% capacity)	Pass/Fail
Leg (T16)	ROHN 12 EH w/ L8x8x1/2 w/ (2) / Compression / 30' – 60'	64.9	**Pass**
Diagonal (T12)	L5x5x1/2 / Compression / 120' – 140'	90.4	**Pass**
Horizontal (T16)	ROHN 3.5 EH (P4x0.318") / Compression / 30' – 60'	93.3	**Pass**
Top Grit (T1)	L1-3/4x1-3/4x3/16 / Compression / 300' – 320''	2.6	**Pass**
Redundant Horizontal Bracing (T17)	ROHN 1.5 STD (P1.9x0.145") / Compression / 0'-30'	93.4	**Pass**
Redundant Diagonal Bracing (T16)	ROHN 2 EH (P2.5x0.218") / Compression / 0'-30'	90.6	**Pass**
Inner Bracing (T15)	ROHN 3 STD (P3x0.216) / 0' – 30'	0.5	**Pass**
Bolt Checks(T12)	@ Diagonal Connection (Bolt Shear) (1) A325X 7/8" Dia. / 120' – 140'	90.4	**Pass**

Foundation Summary

Component	Required	Computed	% Capacity	Pass/Fail
Anchor Rod Capacity (TIA-222-G – 4.9.9)	Ratio < 1.0	0.660	66.0	Pass
Foundation – Drilled Pier Soil Failure Cone Uplift Capacity	1451.51 (Factored Resistance)	725.960	66.7	Pass
Foundation – Drilled Pier Bearing Capacity	1442.54 kip (Factored Resistance)	1278.94	88.7	Pass
Foundation – Drilled Pier Uplift Capacity	865.26 kip (Factored Resistance)	725.960	83.9	Pass

Structure Rating (Maximum from all Components) =	**93.4 %**	**Pass**

4. FINDINGS AND EVALUATION (cont.)

Maximum Deformations – Proposed Condition

TIA-222-G Section 2.8.2 - Limit State Deformations

1. A rotation of 4 degrees about the vertical axis (twist) or any horizontal axis (sway) of the structure
2. A horizontal displacement (in feet) of 3% of the height of the structure.

Load Case Description	Current		Allowable	
	Sway (degree)	Displacement (Feet)	Sway (degree)	Displacement (Feet)
Service Wind Load	0.3975	1.429	4.0	9.6

Tower Twist & Sway at Top (Connecticut State Police Requirements – TIA/EIA-222-F):

Description	Current	Total	Allowable
Tower Twist (degrees)	0.4306	0.9110	0.750
Tower Sway (degrees)	0.4804		

NOTE: Above combined Twist and Sway results are for information and reference only, per the direction of the DESPP / CSP.

5. CONCLUSIONS

The results of the analysis indicated the existing tower structure did not have enough capacity for the proposed loading conditions above. The tower structure and anchor components require modifications shown on SK-1 through SK-2. **Once the modifications indicated on sheets SK-1 through SK-2 are performed the modified tower along with the existing tower anchor bolts and foundation are considered structurally adequate with the wind load specification specified with the existing and proposed antenna loading herein. The maximum structural capacity calculated herein is 93.4%**.

Limitations/Assumptions:

This report is based on the following:

1) Tower inventory as listed in this report.

2) Tower is properly installed and maintained.

3) All members are as specified in the original design documents and are in good condition.

4) All required members are in place.

5) All bolts are in place and are properly tightened.

6) Tower is in plumb condition.

7) All member protective coatings are in good condition.

8) All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.

9) Foundations are in good condition without defects and were properly constructed to support original design loads as specified in the original design documents.

AECOM is not responsible for any modifications completed prior to or hereafter in which AECOM is not or was not directly involved. Modifications include but are not limited to:

A. Adding antennas
B. Removing/replacing antennas
C. Adding coaxial cables

AECOM hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact AECOM. AECOM disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Ongoing and Periodic Inspection and Maintenance:

After the Contractor has successfully completed the installation and the work has been accepted, the owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

The tower owner shall refer to TIA-222-G Section 14.2 for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system be performed at least yearly and more frequently as conditions warrant. It is also recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions

6. DRAWINGS AND DATA

REINFORCEMENT DRAWINGS SK-1 THROUGH SK-2

GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL COMPLY WITH THE CONNECTICUT STATE BUILDING AND LIFE SAFETY CODES, SUPPLEMENTS AND AMENDMENTS.
2. CONTRACTOR IS TO REVIEW ALL DRAWINGS AND NOTES 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 SUB–CONTRACTORS AND ALL RELATED PARTIES. THE SUB–CONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD–OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON DRAWINGS OR WRITTEN IN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION AND ELECTRICAL SUB–CONTRACTORS SHALL PAY FOR THEIR PERMITS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS ON SITE AT ALL TIMES AND ENSURE THE DISTRIBUTION OF NEW DRAWINGS TO SUB–CONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. CONTRACTOR SHALL FURNISH 'AS–BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. INSTALLATION OF THIS WIRELESS COMMUNICATIONS EQUIPMENT SITE REQUIRES WORK IN THE IMMEDIATE VICINITY OF EXISTING OPERATING TELECOMMUNICATION SYSTEMS. THE CONTRACTOR SHALL PROVIDE AND COORDINATE THE METHODS OF PROTECTION WITH THE VARIOUS TELECOMMUNICATION CARRIERS AND THE TOWER OWNER. THERE SHALL BE NO INTERRUPTION OF OPERATION WITHOUT TIMELY COORDINATION WITH AND APPROVAL BY THE VARIOUS COMMUNICATIONS OPERATORS INCLUDING THE CONNECTICUT STATE POLICE.
8. THE REINFORCEMENT OF PORTIONS OF THIS TOWER STRUCTURE MAY AFFECT CRITICAL CONNECTICUT STATE POLICE ANTENNAS. NO MOVEMENT, ALTERATION, OR DISCONNECTION OF CONNECTICUT STATE POLICE ANTENNAS MAY OCCUR WITHOUT THE NOTIFICATION AND APPROVAL OF THE CONNECTICUT STATE POLICE. CONTACT THE NETWORK CONTROL CENTER AT 860–865–8008
9. TOWER REINFORCING WORK AFFECTING CRITICAL CONNECTICUT STATE POLICE ANTENNAS MAY BE REQUIRED TO BE CONDUCTED AT TIMES AS DETERMINED BY THE REQUIREMENTS OF THE CONNECTICUT STATE POLICE.
10. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB–CONTRACTORS FOR ANY CONDITION PER MFR'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR ARCHITECT.
11. 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.
12. SHOP DRAWINGS ARE REQUIRED. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS ON THE TOWER AND INCLUDE THE GATHERED INFORMATION ON THE SHOP DRAWINGS. NOTE ANY DISCREPANCIES ENCOUNTERED ON THE SHOP DRAWINGS. NO FABRICATION OR INSTALLATION OF STEEL SHALL OCCUR PRIOR TO THE RECEIPT AND APPROVAL OF SHOP DRAWINGS.
13. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ARCHITECT FOR REVIEW. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTAL TO THE ARCHITECT FOR REVIEW.
14. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURE AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
15. CONTRACTOR TO CONTACT "CALL BEFORE YOU DIG" AT 1–800–922–4455 TO VERIFY AND IDENTIFY THE EXACT LOCATIONS OF ALL UNDERGROUND UTILITIES AND OBSTRUCTIONS IDENTIFIED PRIOR TO COMMENCING WORK IN THE CONTRACT AREA.
16. CONTRACTOR SHALL COMPLY WITH OWNER ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
17. EXISTING DIMENSIONS OF STRUCTURE SHOWN ON THESE DOCUMENTS ARE BASED ON ORIGINAL TOWER CONSTRUCTION DRAWINGS PERFORMED BY ROHN INDUSTRIES, INC., DATED MAY 2001, AND ARE NOT GUARANTEED. CONTRACTOR SHALL TAKE FIELD DIMENSIONS AS NECESSARY TO ASSURE PROPER FIT OF ALL FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENT ARE SUBMITTED FOR REVIEW, DIMENSIONS ARE PROVIDED FOR THE ENGINEER'S REFERENCE ONLY.
18. CONTRACTOR TO VERIFY REQUIRED CLEARANCES INCLUDING BUT NOT LIMITED TO EXISTING BUILDINGS, EQUIPMENT PADS AND SHELTERS PRIOR TO COMMENCING WORK.
19. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION. NO MEMBER OF THE TOWER SHALL BE LEFT DISCONNECTED FOR THE NEXT WORKING DAY. THE CONTRACTOR SHALL BE AWARE OF WEATHER AND WIND CONDITIONS AND NOT PERFORM MEMBER REPLACEMENT IN A WIND.

STRUCTURAL NOTES

STRUCTURAL STEEL MATERIAL NOTES:

STRUCTURAL STEEL BEAMS, CHANNELS, PLATES..... A36
STRUCTURAL ANGLES:
ANGLE SIZE 2–1/2"x2–1/2"x1/4" AND SMALLER A36
ANGLE SIZE GREATER THAN 2–1/2"x2–1/2"x1/4"..... A 572–Gr. 50
EXISTING TOWER LEG ROHN PIPE ..... A 572–Gr. 50
STRUCTURAL STEEL SHALL CONFORM TO ALL THE REQUIREMENTS OF THE ASTM SPECIFICATION, AS REFERENCED IN THE CODE.

UNLESS OTHERWISE NOTED, ALL STEEL WILL BE GALVANIZED IN ACCORDANCE WITH ASTM 123 AFTER FABRICATION. TOUCH UP ALL DAMAGED GALVANIZED STEEL WITH APPROVED COLD ZINC, "GALVANOX", "DRY GALV", "ZINC–IT", OR APPROVED EQUIVALENT, IN ACCORDANCE WITH MANUFACTURERS GUIDELINES. TOUCH–UP DAMAGED NON GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.

SHOP AND ERECTION DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL STEEL WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SUBMIT 2 SETS OF PRINTS FOR THE ENGINEER REVIEW. REFER TO NOTE 12

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

THE OMISSION OF ANY MATERIAL THAT WAS SHOWN ON THE CONTRACT DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF PROVIDING THE SAME.

CONNECTIONS / FIELD ASSEMBLY NOTES:

BOLTED CONNECTIONS: UNLESS OTHERWISE NOTED, ALL JOINTS ARE SLIP CRITICAL TYPE, REQUIRING 5/8", 7/8" & 1" DIA. A325X & A490X BOLTS, A563 NUTS AND F436 WASHERS, ALL GALVANIZED. BEVELED WASHERS SHALL BE USED ON BEAM FLANGES HAVING A SLOPE GREATER THAN 1:20.

ALL WELDING SHALL BE DONE BY A CERTIFIED WELDER IN ACCORDANCE WITH AWS STANDARDS, USING E70XX ELECTRODES UNLESS OTHERWISE NOTED. WHERE WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZES PER "PREQUALIFIED WELDED JOINTS" TABLES IN AISC "MANUAL OF STEEL CONSTRUCTION", 14TH EDITION.

IF WELDING GALVANIZED MATERIALS, USE PRECAUTIONS & PROCEDURES PER AWS D1.1.

STRUCTURE IS DESIGNED TO BE LEVEL AND PLUMB, SELF–SUPPORTING AND STABLE AFTER WORK IS COMPLETED.

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

INSPECTIONS:

SPECIAL INSPECTIONS ARE REQUIRED PER THE CODE FOR STRUCTURAL STEEL WORK.

OWNER WILL SUPPLY THE SERVICES OF A SPECIAL INSPECTOR AND TESTING AGENTS AS REQUIRED. CONTRACTOR SHALL COORDINATE INSPECTIONS OF FABRICATOR'S AND ERECTOR'S WORK AND MATERIALS TO MEET THE REQUIREMENTS OF THE STATEMENT OF SPECIAL INSPECTIONS FOR THIS PROJECT.

COPIES OF TESTING AND INSPECTION REPORTS WILL BE PROVIDED TO THE CONNECTICUT STATE POLICE, BUILDING OFFICIAL, ENGINEER OF RECORD AND CONTRACTOR.

PROJECT NO.	60556418
Designed by:	MCD
Drawn by:	KAP
Checked by:	KAB
Approved by:	RAS

AECOM
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
(860)-529-8882

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SITE ADDRESS: 112 MUNN ROAD
COLCHESTER, CONNECTICUT 06415

REV.	DATE:	DESCRIPTION
1	02/22/2019	RE–ISSUE/NO CHANGE

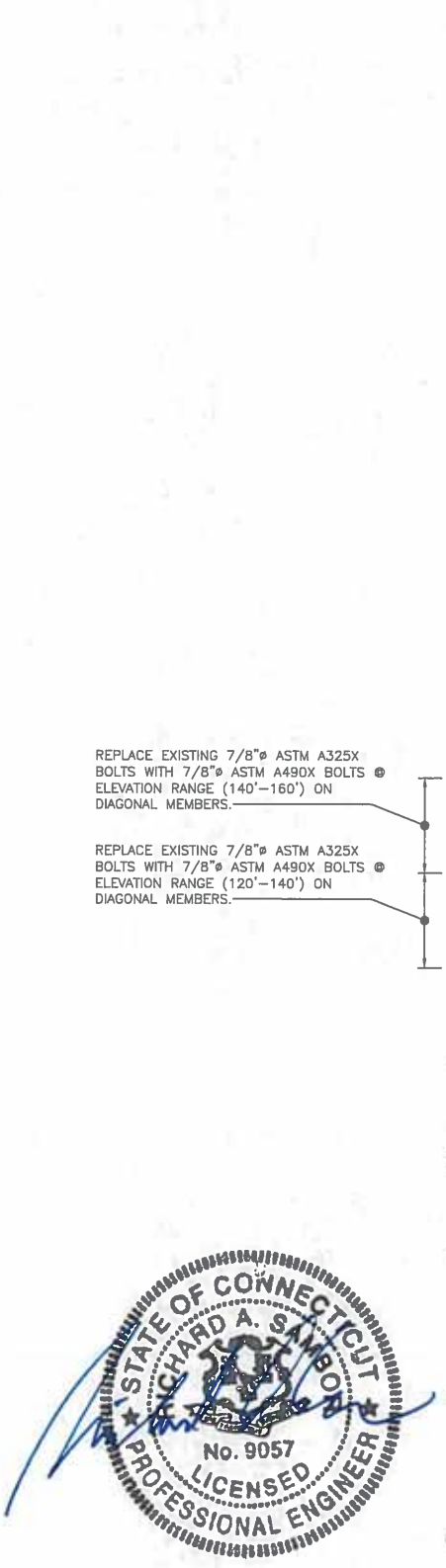
Scale: AS NOTED | Date: 1/2/2019
Job No. | File No.

Dwg. No. SK–1

Dwg. 1 of 2

STRUCTURAL NOTES

SEE SHEET SK-1 FOR STRUCTURAL NOTES



NOTES:
1. REFER TO STRUCTURAL NOTES ON SK-1 FOR STEEL GRADE REQUIREMENTS FOR REPLACEMENT MEMBERS.
2. CONTRACTOR SHALL COORDINATE WITH ROHN INDUSTRIES INC. FOR DIAGONAL AND HORIZONTAL PIPE ASSEMBLIES INDICATED ON SHEET.
3. REINFORCEMENT OF TOWER IS REQUIRED FOR ALL 3 SIDES OF EXISTING TOWER STRUCTURE.
4. CONNECTION BOLTS FOR REPLACEMENT MEMBERS SHALL BE REPLACED IN KIND, UNLESS NOTED OTHERWISE.
5. CONTRACTOR SHALL FIELD VERIFY ALL REQUIRED REINFORCEMENT MEMBERS AS INDICATED BELOW PRIOR TO ORDERING SUPPLIES.

REPLACE EXISTING 7/8"ø ASTM A325X BOLTS WITH 7/8"ø ASTM A490X BOLTS @ ELEVATION RANGE (140'–160') ON DIAGONAL MEMBERS.

REPLACE EXISTING 7/8"ø ASTM A325X BOLTS WITH 7/8"ø ASTM A490X BOLTS @ ELEVATION RANGE (120'–140') ON DIAGONAL MEMBERS.

REPLACE EXISTING DIAGONAL L4x4x3/8 WITH (2) L4x4x1/4 AT ELEVATION 160'–180'. ANGLE MATERIAL SHALL BE A MINIMUM ASTM A529–50 (Fy=50ksi). ONE OF THE TWO ANGLES AT INTERSECTION POINTS SHALL HAVE TO STEEL MATERIAL TRIMMED / REMOVED SUCH TO AVOID STEEL CONFLICT PRIOR TO INSTALLATION. FIELD MEASUREMENTS SHALL BE REQUIRED PRIOR TO ORDERING SUPPLIES TO ADDRESS INSTALLATION CONFLICTS.

REPLACE EXISTING DIAGONAL ROHN 3 EH (PIPE 3.5" O.D. x 0.3" (t)) WITH ROHN 3 XXS (PIPE 3.5" O.D. x 0.600" (t)) AT ELEVATION 100'–120'

REPLACE EXISTING ROHN 3 STD (PIPE 3.5" O.D. x 0.216" (t)) WITH ROHN 3 XS (PIPE 3.5" O.D. x 0.300"(t)) AT ELEVATION 100'

REPLACE EXISTING ROHN 3 EH (PIPE 3.5" O.D. x 0.300" (t)) WITH ROHN 3 XXS (PIPE 3.5" O.D. x 0.600"(t)) AT ELEVATION 80'

REPLACE EXISTING DIAGONAL ROHN 3XXS (PIPE 3.5" O.D. x 0.6" (t)) WITH ROHN 3.5 EH (PIPE 4" O.D. x 0.318" (t)) AT ELEVATION 60'–80'

REPLACE EXISTING DIAGONAL ROHN 3.5 EH (PIPE 4" O.D. x 0.318" (t)) WITH ROHN 4 XS (PIPE 4.5" O.D. x 0.337" (t)) AT ELEVATION 30'–60'

REPLACE EXISTING (2) 3/4"ø ASTM A325X BOLTS WITH (2) 3/4"ø ASTM A490X BOLTS @ ELEVATION 30' ON HORIZONTAL MEMBERS

REPLACE EXISTING ROHN 4 STD (PIPE 4.5" O.D. x 0.237" (t)) WITH ROHN 4 XS (PIPE 4.5" O.D. x 0.337"(t)) AT ELEVATION 30'

REPLACE EXISTING DIAGONAL ROHN 3.5 EH (PIPE 4" O.D. x 0.318" (t)) WITH ROHN 4 XS (PIPE 4.5" O.D. x 0.337" (t)) AT ELEVATION 0'–30'

1 / SK-2 TOWER ELEVATION

SCALE: 1" = 40'-0"

PROJECT NO.	60556418
Designed by:	MCD
Drawn by:	KAP
Checked by:	KAB
Approved by:	RAS

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REV.	DATE:	DESCRIPTION
1	02/22/2019	RE-ISSUE/NO CHANGE

Scale: AS NOTED | Date: 1/2/2019

Job No. | File No.

Dwg. No. SK-2

SEISMIC BASE SHEAR ANALYSIS

Seismic (Vs) Base Shear Implementing ANSI/TIA–222-G, IBC 2015 & Connecticut State Building Code of 2018

Calculation of Seismic Base Shear Implementing ANSI/TIA-222-G, IBC 2015 & & CT State Building Code 2018.

Location: Colchester, CT -Site Class "D"

$S_{DS} = \frac{2}{3} F_A S_S$, where $S_S = 0.174$ and $F_A = 1.6$ $S_{DS} = \frac{2}{3} F_A S_S = \frac{2}{3} * 1.6 * 0.174 = 0.1856$

$S_{D1} = \frac{2}{3} F_V S_1$, where $S_1 = 0.061$ and $F_V = 2.4$ $S_{D1} = \frac{2}{3} F_V S_1 = \frac{2}{3} * 2.4 * 0.061 = 0.0976$

TIA-222-G SECTION 2.7 EARTHQUAKE LOADS (PROCEDURES):

1. Importance Factor "I" (tables 2-3 TIA-222-G) = 1.5 (Structure Class 3)

ANSI/TIA-222-G 2.7.7.1 (TOTAL BASE SEISMIC SHEAR (Vs)

W=DL TOWER	=	125.375	Kips	
W=Antennas/Mounts	=	8.211	Kips	
W=Cables	=	8.236	Kips	
		141.822	Kips	= WT Total = "W"

$$V_s = \frac{S_{DS} * W * I}{R} = \frac{0.1856 * 141.822 kips * 1.5}{3.0} = 13.1611 \ kips,$$ where R = 3.0 for Lattice Tower

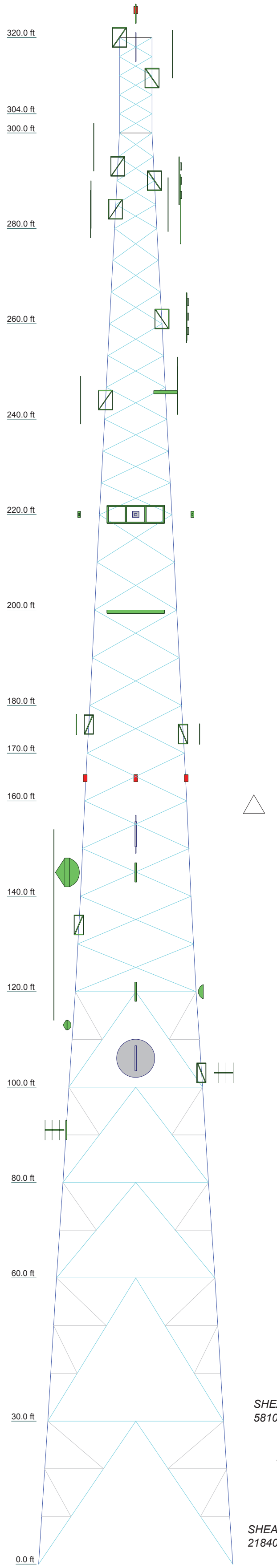
$$V_{S.min} = \frac{0.5 * S_{D1} * W * I}{R} = \frac{0.5 * 0.0976 * 141.822 \ kips * 1.5}{3.0} = 3.4868 \ kips$$

*By visual inspection, the above "Base Shear" value when considering the following Load Combination is less that the base shear of wind on structure.

$1.2 * DL + 1.0 \ E < 1.2 \ DL + 1.6 \ W$, (128 Kips), therefore seismic effect on structure Does NOT control Design.

TNX TOWER INPUT / OUTPUT SUMMARY

Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Horizontals	Red. Horizontals	Red. Diagonals	Red. Hips	Inner Bracing	Face Width (ft)	# Panels @ (ft)	Weight (lb)
T1	ROHN 5 EH		L1 3/4x1 3/4x3/16		L1 3/4x1 3/4x3/16						6.81	5 @ 4	1442.1
T2					N.A.								349.7
T3	ROHN 6 EH		L2x2x1/4	A36	L2x2x1/4							4 @ 5	2496.3
T4			L2 1/2x2 1/2x1/4								8.85		5067.7
T5	ROHN 8 EH w/ angle 8x8x0.5		L3x3x1/4								11.04	9 @ 6.66667	5409.2
T6			L4x4x5/16								13.08		6484.4
T7			L4x4x3/8			N.A.	N.A.	N.A.	N.A.	N.A.	15.09		6406.0
T8											17.09		7298.6
T9			2L4x4x1/4								19.22		4191.7
T10		A572-50									20.26	10 @ 10	4265.6
T11	ROHN 10 EH w/ angle 8x8x0.5		L5x5x1/2		N.A.						21.3		9608.6
T12				A572-50							23.21		9975.3
T13			ROHN 3 XXS			ROHN 3 STD	ROHN 1.5 STD	ROHN 2 STD			25.39		9144.9
T14						ROHN 3 X-STR	P1.5x.145				27.97	3 @ 20	9675.5
T15	ROHN 12 EH w/ angle 8x8x0.5		ROHN 3.5 EH			ROHN 3 XXS	ROHN 2 STD	ROHN 2 EH	ROHN 1.5 STD	ROHN 3 STD	30.47		10502.0
T16			ROHN 4 X-STR			ROHN 3.5 EH	ROHN 1.5 STD				33.14		15115.4
T17	ROHN 12 EHS w Angle 8x8x0.625					ROHN 4 X-STR	P1.5x.145	ROHN 2.5 STD			36.8	2 @ 30	17941.9
											40.69		125374.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Dual Lights (HTS-34)	325	RFV01U-D1A RRH Unit (Verizon RRH)	220
Lightning Rod 5/8x4' (HTS-35)	325	RFV01U-D2A RRH Unit (Verizon RRH)	220
PD128-1 (HTS-33)	322	CBC78T-DS-43-2X Diplexer (Verizon)	220
6' Side Mount Standoff (HTS-33)	320	CBC78T-DS-43-2X Diplexer (Verizon)	220
BA1012-0 (HTS-32)	318	CBC78T-DS-43-2X Diplexer (Verizon)	220
ANT450F6 (HTS-31)	316.5	7770.00 (ATT)	200
6' Side Mount Standoff (HTS-32)	315	(2) LGP21401 TMA Unit (ATT)	200
4'x4" Pipe Mount (HTS-31)	311.5	HPA-65R-BUU-H6 Panel (ATT)	200
SC479-HF1LDF (HTS-30)	297	(2) LGP21401 TMA Unit (ATT)	200
6' Side Mount Standoff (HTS-30)	293	RRUS-11 (ATT)	200
PD340-1 (HTS-29)	290	7770.00 (ATT)	200
6' Side Mount Standoff (HTS-29)	290	RRUS-32 (ATT)	200
DB809T3E-XC (HTS-26)	285	7770.00 (ATT)	200
OGT9-840 (HTS-28)	285	HPA-65R-BUU-H8 Panel (ATT)	200
6' Side Mount Standoff (HTS-27,28,TTA)	284.5	RRUS-11 (ATT)	200
TMA (TMA/TTA)	284.5	7770.00 (ATT)	200
6' Side Mount Standoff (HTS-25,26,TTA)	284	HPA-65R-BUU-H8 Panel (ATT)	200
TMA (TMA/TTA)	284	RRUS-32 (ATT)	200
SC479-HF1LDF (HTS-27)	284	7770.00 (ATT)	200
SC479-HF1LDF (HTS-25)	283	(2) LGP21401 TMA Unit (ATT)	200
PD440-2 (HTS-24)	261.5	PiROD 12' Lightweight T-Frame (ATT)	200
SC479-HF1LDF(D00-E6085) (HTS-23)	261	7770.00 (ATT)	200
6' Side Mount Standoff (HTS-23, 24)	261	PiROD 12' Lightweight T-Frame (ATT)	200
PD1142-1 (HTS-22)	248	PiROD 12' Lightweight T-Frame (ATT)	200
SC479-HF1LDF(D00I-E6085) (Inverted) (HTS-21a)	246	STK-U Stiffener Side Arm Attachment (ATT)	200
		STK-U Stiffener Side Arm Attachment (ATT)	200
SC479-HF1LDF(D00I-E6085) (Inverted) (HTS-21b)	246	DC6-48-60-0-8C Squid / Surge Arrestor (ATT)	200
		STK-U Stiffener Side Arm Attachment (ATT)	200
Sabre T-Boom (1) (HTS-21 (a,b) - HTS 22)	246	RRUS-11 (ATT)	200
PD1142-1 (HTS-20)	244	RRUS-32 (ATT)	200
6' Side Mount Standoff (HTS-20)	244	DB586-Y (HTS-12)	176
531-70HD Exposed Dipole Antenna (HTS-19)	235	Pirod 4' Side Mount Standoff (1) (HTS-12)	176
6' Side Mount Standoff (HTS-19)	235	DB586-Y (inverted) (HTS-13)	174
Valmont VFA-10-U V-Frame (Verizon)	220	Pirod 4' Side Mount Standoff (1) (HTS-13,14,TTA)	174
Valmont VFA-10-U V-Frame (Verizon)	220	430-94C-09168-M-11048 TTA (TMA/TTA Control Unit)	174
Valmont VFA-10-U V-Frame (Verizon)	220		
JAHH-65B-R3B Panel Antenna (Verizon-AWS)	220	DB586-Y (HTS-14)	174
JAHH-65B-R3B Panel Antenna (Verizon-PCS)	220	L-810 Obstruction Lighting (1) (HTS-11b)	164
LNX-6512DS-VTM (Verizon-850)	220	L-810 Obstruction Lighting (1) (HTS-11c)	164
BSAMNT-SBS-2-2 (JAHH Antenna Bracket (for 2)) (Verizon-PCS/AWS)	220	L-810 Obstruction Lighting (1) (HTS-11a)	164
		5'3"x4" Pipe Mount (HTS-10)	153
RFV01U-D1A RRH Unit (Verizon RRH)	220	ANT450F6 (HTS-10)	153
RFV01U-D2A RRH Unit (Verizon RRH)	220	4'x4" Pipe Mount (CSP Dish Mt. @ 145)	145
DB-B1-6C-12AB-0Z / DC-3315-PF-48 Dist. Box (Verizon)	220	Commscope PAR6-59W-PXA/A (CSP Proposed)	145
		PD156S (HTS-9)	137
JAHH-65B-R3B Panel Antenna (Verizon-AWS)	220	DB212-1 (HTS-8)	134
JAHH-65B-R3B Panel Antenna (Verizon-PCS)	220	6' Side Mount Standoff (HTS-8 ,9)	134
LNX-6512DS-VTM (Verizon-850)	220	4'x4" Pipe Mount (CSP Dish Mt. @ 120)	120
BSAMNT-SBS-2-2 (JAHH Antenna Bracket (for 2)) (Verizon-PCS/AWS)	220	HPD3-4.7 (CSP Proposed)	120
		Andrew 2' w/Radome (HTS-5)	113
RFV01U-D1A RRH Unit (Verizon RRH)	220	PA8-65 (HTS-4)	106
RFV01U-D2A RRH Unit (Verizon RRH)	220	5'3"x4" Pipe Mount (HTS-4)	106
DB-B1-6C-12AB-0Z / DC-3315-PF-48 Dist. Box (Verizon)	220	PD458 (HTS-3)	105
		Pirod 4' Side Mount Standoff (1) (HTS-2 ,3)	103
JAHH-65B-R3B Panel Antenna (Verizon-AWS)	220	PD688S-4 (HTS-2)	103
JAHH-65B-R3B Panel Antenna (Verizon-PCS)	220	PD688S-4 (HTS-1)	91
LNX-6512DS-VTM (Verizon-850)	220	4'x4" Pipe Mount (HTS-1)	91
BSAMNT-SBS-2-2 (JAHH Antenna Bracket (for 2)) (Verizon-PCS/AWS)	220		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class III.
6. Topographic Category 3 with Crest Height of 66.50 ft
7. P-Delta Displacement Effects are not applicable to this tower for this case (TIA-222-G Section 3.5)
8. Wind speed shown as 101 MPH times the Importance Factor (1.15) equals the wind speed required for Risk 4/TIA-G Risk 3 wind speed of 108 MPH.
9. TOWER RATING: 93.4%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 924766 lb
SHEAR: 128286 lb

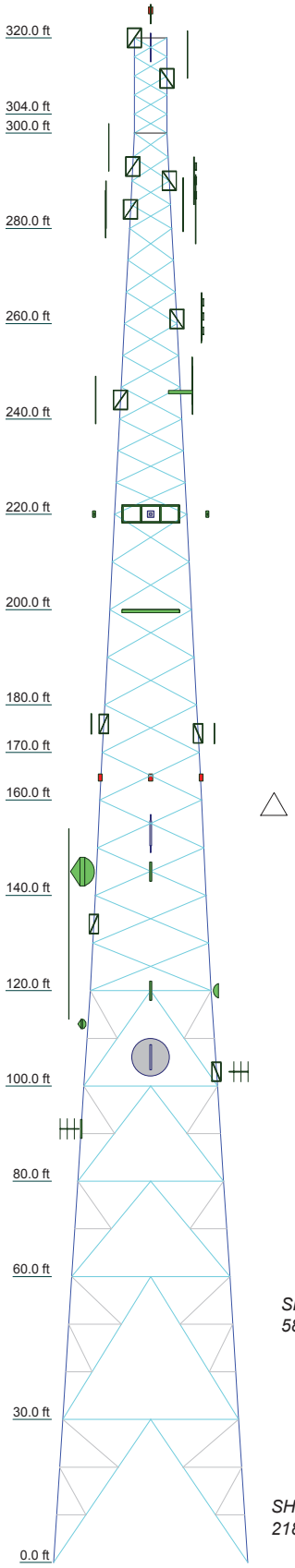
UPLIFT: -725960 lb
SHEAR: 105814 lb

AXIAL 466410 lb
SHEAR 58105 lb
MOMENT 8818 kip-ft
TORQUE 218 kip-ft
50 mph WIND - 0.7500 in ICE

AXIAL 169631 lb
SHEAR 218404 lb
MOMENT 30595 kip-ft
TORQUE 382 kip-ft
REACTIONS - 101 mph WIND

AECOM 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: 860-529-8882 FAX: 860-529-3991	Job: 320' Rohn SSVMW Project: CSP Tower - Colchester, CT Client: (MODification) VZW-217/ EMP-008 - "G" Code: TIA-222-G Path:	Drawn by: MCD App'd: Date: 02/22/19 Scale: NTS Dwg No. E-1

Section	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	A	ROHN 12 EH w/ angle 8x8x0.5			ROHN 10 EH w/ angle 8x8x0.5							ROHN 8 EH w/ angle 8x8x0.5			ROHN 6 EH		ROHN 5 EH
Leg Grade								A572-50									
Diagonals		ROHN 4 X-STR		ROHN 3.5 EH	ROHN 3 XXS		L5x5x1/2		2L4x4x1/4	L4x4x3/8		L4x4x5/16	L3x3x1/4	C	L2x2x1/4		B
Diagonal Grade							A572-50								A36		
Top Girts							N.A.								L2x2x1/4	D	B
Horizontals		ROHN 4 X-STR	ROHN 3.5 EH	ROHN 3 XXS	E	ROHN 3 STD					N.A.						
Red. Horizontals		P1.5x.145	ROHN 1.5 STD	ROHN 2 STD	P1.5x.145	ROHN 1.5 STD					N.A.						
Red. Diagonals		ROHN 2.5 STD		ROHN 2 EH		ROHN 2 STD					N.A.						
Red. Hips				ROHN 1.5 STD							N.A.						
Inner Bracing				ROHN 3 STD							N.A.						
Face Width (ft)	40.69	36.8	33.14	30.47	27.97	25.39	23.21	21.3	20.26	19.22	17.09	15.09	13.08	11.04	8.85		6.81
# Panels @ (ft)		2 @ 30			3 @ 20				10 @ 10				9 @ 6.66667		4 @ 5		5 @ 4
Weight (lb)	125374.9	17941.9	15115.4	10502.0	9675.5	9144.9	9975.3	9608.6	4285.6	4191.7	7298.6	6406.0	6484.4	5409.2	5067.7	2496.3	1442.1



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 12 EHS w Angle 8x8x0.625	D	N.A.
B	L1 3/4x1 3/4x3/16	E	ROHN 3 X-STR
C	L2 1/2x2 1/2x1/4		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

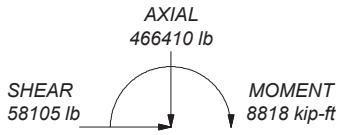
TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class III.
6. Topographic Category 3 with Crest Height of 66.50 ft
7. P-Delta Displacement Effects are not applicable to this tower for this case (TIA-222-G Section 3.5)
8. Wind speed shown as 101 MPH times the Importance Factor (1.15) equals the wind speed required for Risk 4/TIA-G Risk 3 wind speed of 108 MPH.
9. TOWER RATING: 93.4%

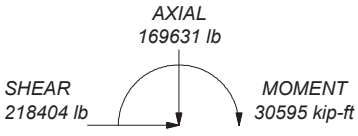
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 924766 lb
SHEAR: 128286 lb

UPLIFT: -725960 lb
SHEAR: 105814 lb



TORQUE 218 kip-ft
50 mph WIND - 0.7500 in ICE



TORQUE 382 kip-ft
REACTIONS - 101 mph WIND

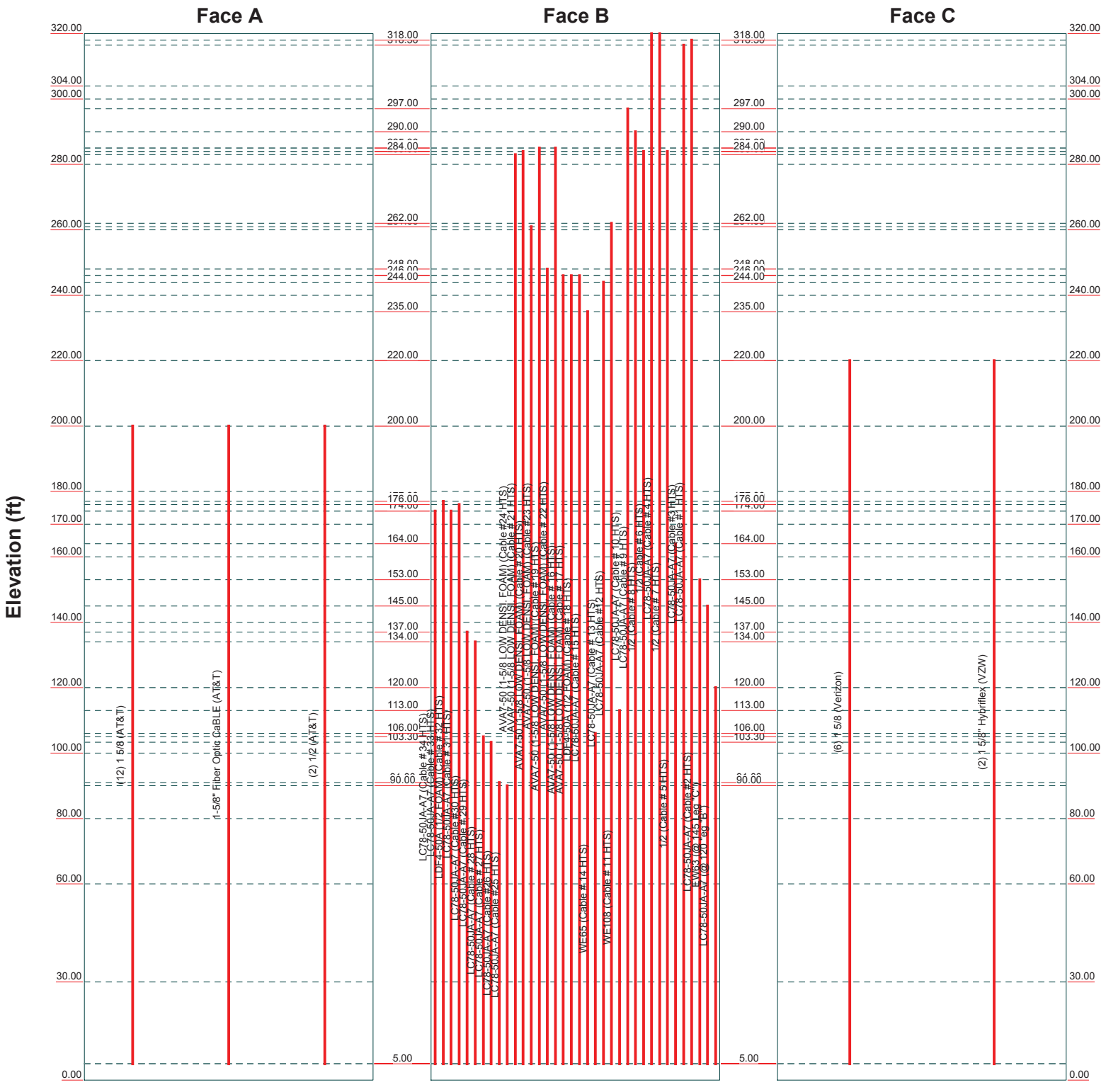
AECOM
500 Enterprise Drive, Suite 3B
Rocky Hill, CT
Phone: 860-529-8882
FAX: 860-529-3991

Job: ***320' Rohn SSVMW***			
Project: ***CSP Tower - Colchester, CT***			
Client: (MODification) VZW-217/ EMP-008 - "G"	Drawn by: MCD	App'd:	
Code: TIA-222-G	Date: 02/22/19	Scale: NTS	
Path:		Dwg No. E-1	

TNX TOWER FEEDLINE DISTRIBUTION CHART

Feed Line Distribution Chart
0' - 320'

Round | Flat | App In Face | App Out Face | Truss Leg



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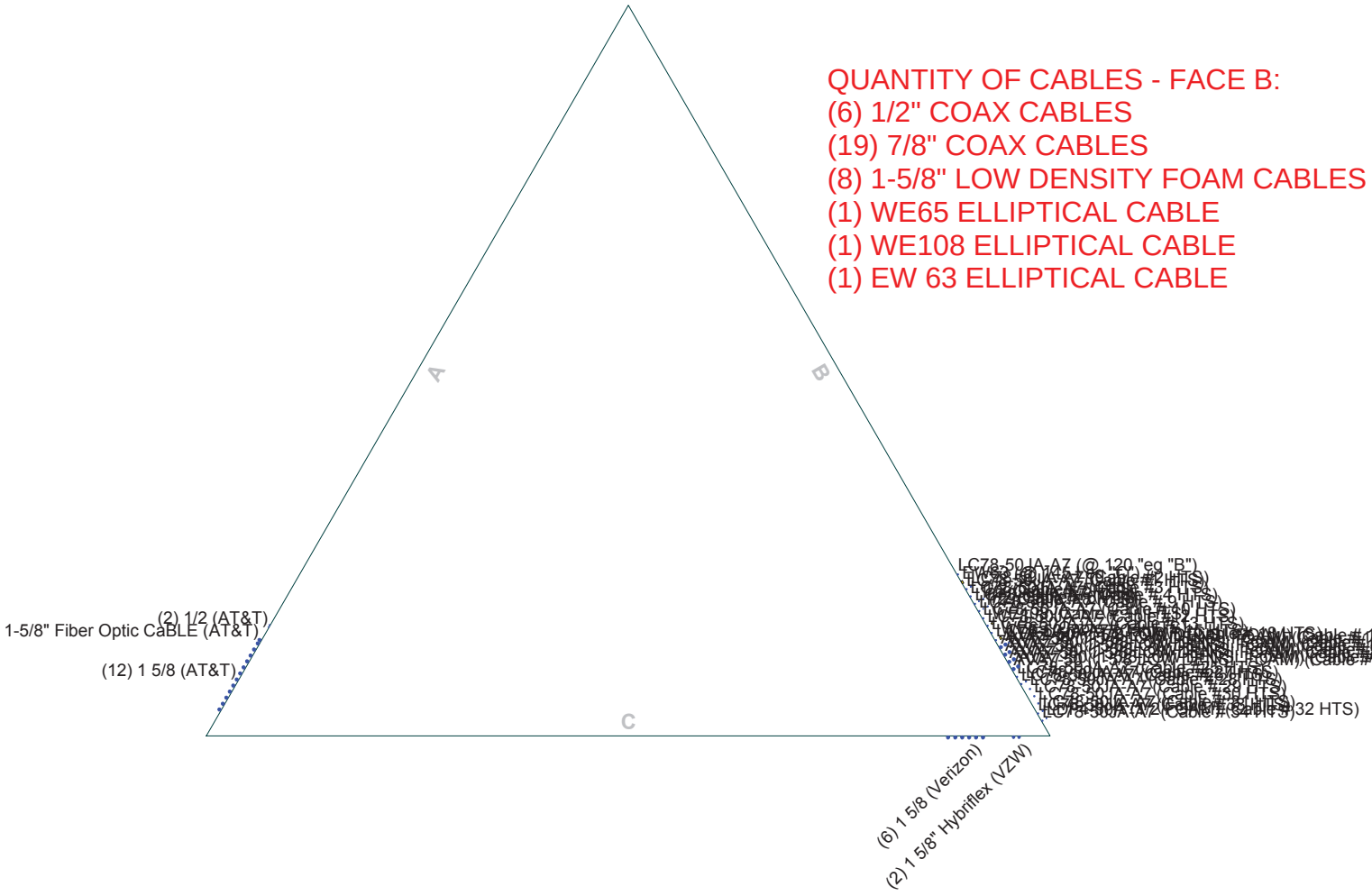
Client:	(MODification) VZW-217/ EMP-008 - "G"	Drawn by: MCD	App'd:
Code:	TIA-222-G	Date: 02/22/19	Scale: NTS
Path:			Dwg No. E-7

TNX TOWER FEEDLINE PLAN

Feed Line Plan

Round Flat App In Face App Out Face



QUANTITY OF CABLES - FACE B:
(6) 1/2" COAX CABLES
(19) 7/8" COAX CABLES
(8) 1-5/8" LOW DENSITY FOAM CABLES
(1) WE65 ELLIPTICAL CABLE
(1) WE108 ELLIPTICAL CABLE
(1) EW 63 ELLIPTICAL CABLE

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Job: ***320' Rohn SSVMW***			
Project: ***CSP Tower - Colchester, CT***			
Client: (MODification) VZW-217/ EMP-008 - "G"		Drawn by: MCD	App'd:
Code: TIA-222-G		Date: 02/22/19	Scale: NTS
Path:			Dwg No. E-7

TNX TOWER DETAILED OUTPUT

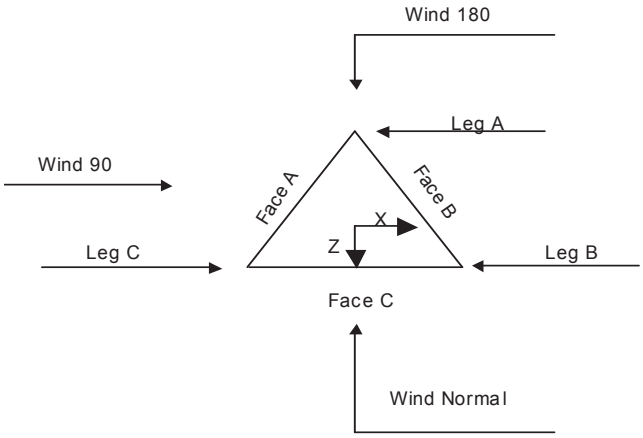
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 320.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 6.81 ft at the top and 40.69 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Basic wind speed of 101 mph.
Structure Class III.
Exposure Category C.
Topographic Category 3.
Crest Height 66.50 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
P-Delta Displacement Effects are not applicable to this tower for this case (TIA-222-G Section 3.5).
Wind speed shown as 101 MPH times the Importance Factor (1.15) equals the wind speed required for Risk 4/TIA-G Risk 3 wind speed of 108 MPH..
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz		Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	320.00-304.00			6.81	1	16.00
T2	304.00-300.00			6.81	1	4.00
T3	300.00-280.00			6.81	1	20.00
T4	280.00-260.00			8.85	1	20.00
T5	260.00-240.00			11.04	1	20.00
T6	240.00-220.00			13.08	1	20.00
T7	220.00-200.00			15.09	1	20.00
T8	200.00-180.00			17.09	1	20.00
T9	180.00-170.00			19.22	1	10.00
T10	170.00-160.00			20.26	1	10.00
T11	160.00-140.00			21.30	1	20.00
T12	140.00-120.00			23.21	1	20.00
T13	120.00-100.00			25.39	1	20.00
T14	100.00-80.00			27.97	1	20.00
T15	80.00-60.00			30.47	1	20.00
T16	60.00-30.00			33.14	1	30.00
T17	30.00-0.00			36.80	1	30.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	320.00-304.00	4.00	X Brace	No	No	0.0000	0.0000
T2	304.00-300.00	4.00	X Brace	No	No	0.0000	0.0000
T3	300.00-280.00	5.00	X Brace	No	No	0.0000	0.0000
T4	280.00-260.00	6.67	X Brace	No	No	0.0000	0.0000
T5	260.00-240.00	6.67	X Brace	No	No	0.0000	0.0000
T6	240.00-220.00	6.67	X Brace	No	No	0.0000	0.0000
T7	220.00-200.00	10.00	X Brace	No	No	0.0000	0.0000
T8	200.00-180.00	10.00	X Brace	No	No	0.0000	0.0000
T9	180.00-170.00	10.00	X Brace	No	No	0.0000	0.0000
T10	170.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T11	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T12	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T13	120.00-100.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T14	100.00-80.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T15	80.00-60.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T16	60.00-30.00	30.00	K2 Down	No	Yes	0.0000	0.0000
T17	30.00-0.00	30.00	K2 Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 320.00-304.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 304.00-300.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T3 300.00-280.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T4 280.00-260.00	Arbitrary Shape	ROHN 8 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 260.00-240.00	Arbitrary Shape	ROHN 8 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T6 240.00-220.00	Arbitrary Shape	ROHN 8 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T7 220.00-200.00	Arbitrary Shape	ROHN 8 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T8 200.00-180.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T9 180.00-170.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Double Equal Angle	2L4x4x1/4	A572-50 (50 ksi)
T10 170.00-160.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Double Equal Angle	2L4x4x1/4	A572-50 (50 ksi)
T11 160.00-140.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L5x5x1/2	A572-50 (50 ksi)
T12 140.00-120.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L5x5x1/2	A572-50 (50 ksi)
T13 120.00-100.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Pipe	ROHN 3 XXS	A572-50 (50 ksi)
T14 100.00-80.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Pipe	ROHN 3 XXS	A572-50 (50 ksi)
T15 80.00-60.00	Arbitrary Shape	ROHN 12 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)
T16 60.00-30.00	Arbitrary Shape	ROHN 12 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Pipe	ROHN 4 X-STR	A572-50 (50 ksi)
T17 30.00-0.00	Arbitrary Shape	ROHN 12 EHS w Angle	A572-50	Pipe	ROHN 4 X-STR	A572-50

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
		8x8x0.625	(50 ksi)			(50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 320.00-304.00	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 300.00-280.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T13 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T14 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 X-STR	A572-50 (50 ksi)
T15 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 XXS	A572-50 (50 ksi)
T16 60.00-30.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)
T17 30.00-0.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 4 X-STR	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T13 120.00-100.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T14 100.00-80.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T15 80.00-60.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T16 60.00-30.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T17 30.00-0.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T13	A572-50	Horizontal (1)	Pipe	ROHN 1.5 STD	1
120.00-100.00	(50 ksi)	Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
T14	A572-50	Horizontal (1)	Pipe	P1.5x.145	1
100.00-80.00	(50 ksi)	Diagonal (1)	Pipe	ROHN 2 EH	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
T15	A572-50	Horizontal (1)	Pipe	ROHN 2 STD	1
80.00-60.00	(50 ksi)	Diagonal (1)	Pipe	ROHN 2 EH	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 3 STD	1
T16	A572-50	Horizontal (1)	Pipe	ROHN 1.5 STD	1
60.00-30.00	(50 ksi)	Horizontal (2)		ROHN 2 XXS	
		Diagonal (1)	Pipe	ROHN 2 EH	1
		Diagonal (2)		ROHN 2.5 STD	
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip (2)		ROHN 2 STD	
		Hip Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip Diagonal (2)		ROHN 2 STD	1
T17	A572-50	Horizontal (1)	Pipe	P1.5x.145	1
30.00-0.00	(50 ksi)	Horizontal (2)		ROHN 2.5 EH	
		Diagonal (1)	Pipe	ROHN 2.5 STD	1
		Diagonal (2)		ROHN 2.5 STD	
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip (2)		ROHN 2 STD	
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
		Hip Diagonal (2)		ROHN 2.5 STD	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
320.00-304.00			(36 ksi)						
T2	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
304.00-300.00			(36 ksi)						
T3	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
300.00-280.00			(36 ksi)						
T4	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
280.00-260.00			(36 ksi)						
T5	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
260.00-240.00			(36 ksi)						
T6	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
240.00-220.00			(36 ksi)						
T7	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
220.00-200.00			(36 ksi)						
T8	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
200.00-180.00			(36 ksi)						
T9	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
180.00-170.00			(36 ksi)						
T10	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
170.00-160.00			(36 ksi)						
T11	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
160.00-140.00			(36 ksi)						
T12	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
140.00-120.00			(36 ksi)						
T13	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
120.00-100.00			(36 ksi)						
T14	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
100.00-80.00			(36 ksi)						
T15	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
80.00-60.00			(36 ksi)						
T16	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
60.00-30.00			(36 ksi)						
T17 30.00-0.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
320.00-304.00				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
304.00-300.00				1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	1	1
300.00-280.00				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
280.00-260.00				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
260.00-240.00				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1
240.00-220.00				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1
220.00-200.00				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
200.00-180.00				1	1	1	1	1	1	1
T9	Yes	No	1	1	1	1	1	1	1	1
180.00-170.00				1	1	1	1	1	1	1
T10	Yes	No	1	1	1	1	1	1	1	1
170.00-160.00				1	1	1	1	1	1	1
T11	Yes	No	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T12	Yes	No	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T13	No	No	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T14	No	No	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors[1] X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
100.00-80.00				1	1	1	1	1	1	1
T15	No	No	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T16	No	No	1	1	1	1	1	1	1	1
60.00-30.00				1	1	1	1	1	1	1
T17	No	No	1	1	1	1	1	1	1	1
30.00-0.00				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 320.00-304.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 304.00-300.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 300.00-280.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 280.00-260.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 260.00-240.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 240.00-220.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 220.00-200.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 200.00-180.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 180.00-170.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 170.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 60.00-30.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 30.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 320.00-304.00	Flange	1.0000 A325N	6	0.6250 A325X	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 304.00-300.00	Flange	1.0000 A325N	0	0.6250 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 300.00-280.00	Flange	1.0000 A325N	8	0.6250 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 280.00-260.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 260.00-240.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 240.00-220.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 220.00-200.00	Flange	1.0000 A325N	12	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 200.00-180.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 180.00-170.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 170.00-160.00	Flange	1.0000 A325N	0	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 160.00-140.00	Flange	1.0000 A325N	12	0.8750 A490X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 140.00-120.00	Flange	1.0000 A325N	12	0.8750 A490X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 120.00-100.00	Flange	1.0000 A325N	12	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T14 100.00-80.00	Flange	1.0000 A325N	16	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T15 80.00-60.00	Flange	1.0000 A325N	16	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T16 60.00-30.00	Flange	1.0000 A325N	16	0.8750 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T17 30.00-0.00	Flange	1.0000 A325N	24	0.8750 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A490X	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (AT&T)	A	No	No	Ar (CaAa)	200.00 - 5.00	0.0000	-0.42	12	12	1.9800	1.9800		1.04
1 5/8 (Verizon)	C	No	No	Ar (CaAa)	220.00 - 5.00	0.0000	-0.4	6	6	1.9800	1.9800		1.04
1 5/8" Hybriflex (VZW)	C	No	No	Ar (CaAa)	220.00 - 5.00	0.0000	-0.46	2	2	1.6000	1.6000		1.85
LC78-50JA-A	B	No	No	Ar (CaAa)	174.00 -	0.0000	0.48	1	1	1.0900	1.0900		0.28

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
7 (Cable # 34 HTS)					5.00								
LC78-50JA-A 7 (Cable # 33 HTS)	B	No	No	Ar (CaAa)	177.00 - 5.00	0.0000	0.47	1	1	1.0900	1.0900		0.28
LDF4-50A (1/2 FOAM) (Cable # 32 HTS)	B	No	No	Ar (CaAa)	174.00 - 5.00	3.0000	0.48	1	1	0.6300	0.6300		0.15
LC78-50JA-A 7 (Cable # 31 HTS)	B	No	No	Ar (CaAa)	176.00 - 5.00	3.0000	0.47	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable #30 HTS)	B	No	No	Ar (CaAa)	137.00 - 5.00	3.0000	0.46	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable # 29 HTS)	B	No	No	Ar (CaAa)	134.00 - 5.00	3.0000	0.45	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable # 28 HTS)	B	No	No	Ar (CaAa)	105.00 - 5.00	3.0000	0.44	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable # 27 HTS)	B	No	No	Ar (CaAa)	103.30 - 5.00	3.0000	0.43	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable #26 HTS)	B	No	No	Ar (CaAa)	91.00 - 5.00	0.0000	0.43	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable #25 HTS)	B	No	No	Ar (CaAa)	90.00 - 5.00	0.0000	0.42	1	1	1.0900	1.0900		0.28
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable #24 HTS)	B	No	No	Ar (CaAa)	283.00 - 5.00	3.0000	0.41	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 21 HTS)	B	No	No	Ar (CaAa)	284.00 - 5.00	0.0000	0.41	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 20 HTS)	B	No	No	Ar (CaAa)	261.00 - 5.00	0.0000	0.4	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI.	B	No	No	Ar (CaAa)	285.00 - 5.00	3.0000	0.4	1	1	1.9800	1.9800		0.72

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
FOAM) (Cable #23 HTS)													
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 19 HTS)	B	No	No	Ar (CaAa)	248.00 - 5.00	0.0000	0.39	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 22 HTS)	B	No	No	Ar (CaAa)	285.00 - 5.00	3.0000	0.39	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 16 HTS)	B	No	No	Ar (CaAa)	246.00 - 5.00	0.0000	0.38	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 17 HTS)	B	No	No	Ar (CaAa)	246.00 - 5.00	3.0000	0.38	1	1	1.9800	1.9800		0.72
LDF4-50A (1/2 FOAM) (Cable # 18 HTS)	B	No	No	Ar (CaAa)	246.00 - 5.00	6.0000	0.38	1	1	0.6300	0.6300		0.15
LC78-50JA-A 7 (Cable # 15 HTS)	B	No	No	Ar (CaAa)	235.00 - 5.00	0.0000	0.37	1	1	1.0900	1.0900		0.28
WE65 (Cable # 14 HTS)	B	No	No	Af (CaAa)	106.00 - 5.00	3.0000	0.37	1	1	1.5836	1.5836		0.53
LC78-50JA-A 7 (Cable # 13 HTS)	B	No	No	Ar (CaAa)	244.00 - 5.00	0.0000	0.36	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable #12 HTS)	B	No	No	Ar (CaAa)	262.00 - 5.00	0.0000	0.35	1	1	1.0900	1.0900		0.28
WE108 (Cable # 11 HTS)	B	No	No	Af (CaAa)	113.00 - 5.00	3.0000	0.35	1	1	1.0149	1.0149		0.35
LC78-50JA-A 7 (Cable # 10 HTS)	B	No	No	Ar (CaAa)	297.00 - 5.00	0.0000	0.34	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable # 9 HTS)	B	No	No	Ar (CaAa)	290.00 - 5.00	0.0000	0.33	1	1	1.0900	1.0900		0.28
1/2 (Cable # 8 HTS)	B	No	No	Ar (CaAa)	284.00 - 5.00	3.0000	0.33	1	1	0.5800	0.5800		0.25

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1/2 (Cable # 6 HTS)	B	No	No	Ar (CaAa)	320.00 - 5.00	6.0000	0.33	1	1	0.5800	0.5800		0.25
LC78-50JA-A 7 (Cable # 4 HTS)	B	No	No	Ar (CaAa)	320.00 - 5.00	0.0000	0.32	1	1	1.0900	1.0900		0.28
1/2 (Cable # 7 HTS)	B	No	No	Ar (CaAa)	284.00 - 5.00	3.0000	0.32	1	1	0.5800	0.5800		0.25
1/2 (Cable # 5 HTS)	B	No	No	Ar (CaAa)	164.00 - 5.00	6.0000	0.32	1	1	0.5800	0.5800		0.25
LC78-50JA-A 7 (Cable #3 HTS)	B	No	No	Ar (CaAa)	316.50 - 5.00	0.0000	0.31	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable #1 HTS)	B	No	No	Ar (CaAa)	318.00 - 5.00	0.0000	0.3	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable #2 HTS) * CSP Proposed Cables	B	No	No	Ar (CaAa)	153.00 - 5.00	3.0000	0.3	1	1	1.0900	1.0900		0.28
EW63 (@ 145 Leg "C")	B	No	No	Af (CaAa)	145.00 - 5.00	0.0000	0.29	1	1	1.5742	1.5742		0.51
LC78-50JA-A 7 (@ 120 "eg "B")	B	No	No	Ar (CaAa)	120.00 - 5.00	0.0000	0.28	1	1	1.0900	1.0900		0.28
1-5/8" Fiber Optic CaBLE (AT&T)	A	No	No	Ar (CaAa)	200.00 - 5.00	0.0000	-0.37	1	1	1.9800	1.9800		1.85
1/2 (AT&T)	A	No	No	Ar (CaAa)	200.00 - 5.00	0.0000	-0.35	2	2	0.5800	0.5800		0.25

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	320.00-304.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	5.561	0.000	15.90
		C	0.000	0.000	0.000	0.000	0.00
T2	304.00-300.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.540	0.000	4.36
		C	0.000	0.000	0.000	0.000	0.00
T3	300.00-280.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	14.473	0.000	43.60
		C	0.000	0.000	0.000	0.000	0.00
T4	280.00-260.00	A	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B	0.000	0.000	30.636	0.000	101.88
		C	0.000	0.000	0.000	0.000	0.00
T5	260.00-240.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	41.134	0.000	137.02
		C	0.000	0.000	0.000	0.000	0.00
T6	240.00-220.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	53.315	0.000	176.60
		C	0.000	0.000	0.000	0.000	0.00
T7	220.00-200.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	53.860	0.000	178.00
		C	0.000	0.000	30.160	0.000	198.80
T8	200.00-180.00	A	0.000	0.000	53.800	0.000	296.60
		B	0.000	0.000	53.860	0.000	178.00
		C	0.000	0.000	30.160	0.000	198.80
T9	180.00-170.00	A	0.000	0.000	26.900	0.000	148.30
		B	0.000	0.000	29.035	0.000	94.36
		C	0.000	0.000	15.080	0.000	99.40
T10	170.00-160.00	A	0.000	0.000	26.900	0.000	148.30
		B	0.000	0.000	31.062	0.000	99.90
		C	0.000	0.000	15.080	0.000	99.40
T11	160.00-140.00	A	0.000	0.000	53.800	0.000	296.60
		B	0.000	0.000	65.549	0.000	208.99
		C	0.000	0.000	30.160	0.000	198.80
T12	140.00-120.00	A	0.000	0.000	53.800	0.000	296.60
		B	0.000	0.000	73.626	0.000	227.28
		C	0.000	0.000	30.160	0.000	198.80
T13	120.00-100.00	A	0.000	0.000	53.800	0.000	296.60
		B	0.000	0.000	81.475	0.000	245.45
		C	0.000	0.000	30.160	0.000	198.80
T14	100.00-80.00	A	0.000	0.000	53.800	0.000	296.60
		B	0.000	0.000	92.098	0.000	270.08
		C	0.000	0.000	30.160	0.000	198.80
T15	80.00-60.00	A	0.000	0.000	53.800	0.000	296.60
		B	0.000	0.000	94.169	0.000	275.40
		C	0.000	0.000	30.160	0.000	198.80
T16	60.00-30.00	A	0.000	0.000	80.700	0.000	444.90
		B	0.000	0.000	141.253	0.000	413.10
		C	0.000	0.000	45.240	0.000	298.20
T17	30.00-0.00	A	0.000	0.000	67.250	0.000	370.75
		B	0.000	0.000	117.711	0.000	344.25
		C	0.000	0.000	37.700	0.000	248.50

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	320.00-304.00	A	2.347	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	33.025	0.000	569.18
		C		0.000	0.000	0.000	0.000	0.00
T2	304.00-300.00	A	2.340	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	9.027	0.000	155.39
		C		0.000	0.000	0.000	0.000	0.00
T3	300.00-280.00	A	2.330	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	75.994	0.000	1331.40
		C		0.000	0.000	0.000	0.000	0.00
T4	280.00-260.00	A	2.314	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	143.089	0.000	2557.39

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C		0.000	0.000	0.000	0.000	0.00
T5	260.00-240.00	A	2.296	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	183.505	0.000	3288.12
		C		0.000	0.000	0.000	0.000	0.00
T6	240.00-220.00	A	2.278	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	233.247	0.000	4163.61
		C		0.000	0.000	0.000	0.000	0.00
T7	220.00-200.00	A	2.258	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	234.475	0.000	4154.54
		C		0.000	0.000	95.573	0.000	1662.50
T8	200.00-180.00	A	2.236	0.000	0.000	158.995	0.000	2877.67
		B		0.000	0.000	232.775	0.000	4093.89
		C		0.000	0.000	95.297	0.000	1648.37
T9	180.00-170.00	A	2.220	0.000	0.000	79.358	0.000	1429.33
		B		0.000	0.000	127.144	0.000	2212.02
		C		0.000	0.000	47.540	0.000	818.62
T10	170.00-160.00	A	2.208	0.000	0.000	79.262	0.000	1422.80
		B		0.000	0.000	138.818	0.000	2391.36
		C		0.000	0.000	47.465	0.000	814.81
T11	160.00-140.00	A	2.190	0.000	0.000	158.229	0.000	2825.60
		B		0.000	0.000	292.474	0.000	4991.97
		C		0.000	0.000	94.700	0.000	1617.91
T12	140.00-120.00	A	2.166	0.000	0.000	157.832	0.000	2798.68
		B		0.000	0.000	321.040	0.000	5420.41
		C		0.000	0.000	94.390	0.000	1602.18
T13	120.00-100.00	A	2.144	0.000	0.000	157.450	0.000	2772.89
		B		0.000	0.000	350.400	0.000	5856.69
		C		0.000	0.000	94.093	0.000	1587.11
T14	100.00-80.00	A	2.124	0.000	0.000	157.125	0.000	2750.98
		B		0.000	0.000	389.875	0.000	6456.26
		C		0.000	0.000	93.840	0.000	1574.31
T15	80.00-60.00	A	2.112	0.000	0.000	156.925	0.000	2737.56
		B		0.000	0.000	398.287	0.000	6561.42
		C		0.000	0.000	93.684	0.000	1566.47
T16	60.00-30.00	A	2.116	0.000	0.000	235.486	0.000	4112.91
		B		0.000	0.000	598.278	0.000	9870.81
		C		0.000	0.000	140.602	0.000	2353.55
T17	30.00-0.00	A	2.124	0.000	0.000	196.410	0.000	3438.97
		B		0.000	0.000	500.053	0.000	8276.09
		C		0.000	0.000	117.302	0.000	1968.03

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	320.00-304.00	2.5641	0.7801	5.5190	1.5393
T2	304.00-300.00	2.9465	0.8949	6.5121	1.8226
T3	300.00-280.00	5.5104	1.9274	11.3315	3.6052
T4	280.00-260.00	6.7680	2.7938	18.3241	6.7732
T5	260.00-240.00	9.5286	4.1017	24.1902	9.3730
T6	240.00-220.00	12.0303	5.2661	29.9190	11.8756
T7	220.00-200.00	19.6839	11.0496	41.1815	20.3890
T8	200.00-180.00	5.5497	15.7914	17.3101	26.1060
T9	180.00-170.00	6.8684	17.2063	20.8282	28.7907
T10	170.00-160.00	8.0523	18.2356	24.0905	30.7546
T11	160.00-140.00	8.6557	18.2598	26.0722	31.7159

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T12	140.00-120.00	10.8452	19.7771	30.5995	34.4382
T13	120.00-100.00	16.9467	26.4578	39.5617	40.6225
T14	100.00-80.00	21.4296	29.5103	47.1895	45.0200
T15	80.00-60.00	21.9208	29.7729	50.0642	47.3669
T16	60.00-30.00	23.7816	32.3510	54.2906	51.4314
T17	30.00-0.00	22.4220	30.6726	53.7118	51.0924

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	31	1/2	304.00 - 320.00	0.6000	0.4913
T1	32	LC78-50JA-A7	304.00 - 320.00	0.6000	0.4913
T1	35	LC78-50JA-A7	304.00 - 316.50	0.6000	0.4913
T1	36	LC78-50JA-A7	304.00 - 318.00	0.6000	0.4913
T2	31	1/2	300.00 - 304.00	0.6000	0.5200
T2	32	LC78-50JA-A7	300.00 - 304.00	0.6000	0.5200
T2	35	LC78-50JA-A7	300.00 - 304.00	0.6000	0.5200
T2	36	LC78-50JA-A7	300.00 - 304.00	0.6000	0.5200
T3	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	280.00 - 283.00	0.6000	0.5461
T3	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	280.00 - 284.00	0.6000	0.5461
T3	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	280.00 - 285.00	0.6000	0.5461
T3	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	280.00 - 285.00	0.6000	0.5461
T3	28	LC78-50JA-A7	280.00 - 297.00	0.6000	0.5461
T3	29	LC78-50JA-A7	280.00 - 290.00	0.6000	0.5461
T3	30	1/2	280.00 - 284.00	0.6000	0.5461
T3	31	1/2	280.00 - 300.00	0.6000	0.5461
T3	32	LC78-50JA-A7	280.00 - 300.00	0.6000	0.5461
T3	33	1/2	280.00 - 284.00	0.6000	0.5461
T3	35	LC78-50JA-A7	280.00 - 300.00	0.6000	0.5461
T3	36	LC78-50JA-A7	280.00 - 300.00	0.6000	0.5461
T4	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	260.00 - 280.00	0.6000	0.6000
T4	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	260.00 - 280.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	260.00 - 261.00	0.6000	0.6000
T4	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	260.00 - 280.00	0.6000	0.6000
T4	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	260.00 - 280.00	0.6000	0.6000
T4	26	LC78-50JA-A7	260.00 - 262.00	0.6000	0.6000
T4	28	LC78-50JA-A7	260.00 - 280.00	0.6000	0.6000
T4	29	LC78-50JA-A7	260.00 - 280.00	0.6000	0.6000
T4	30	1/2	260.00 - 280.00	0.6000	0.6000
T4	31	1/2	260.00 - 280.00	0.6000	0.6000
T4	32	LC78-50JA-A7	260.00 - 280.00	0.6000	0.6000
T4	33	1/2	260.00 - 280.00	0.6000	0.6000
T4	35	LC78-50JA-A7	260.00 - 280.00	0.6000	0.6000
T4	36	LC78-50JA-A7	260.00 - 280.00	0.6000	0.6000
T5	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	240.00 - 260.00	0.6000	0.6000
T5	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	240.00 - 260.00	0.6000	0.6000
T5	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	240.00 - 260.00	0.6000	0.6000
T5	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	240.00 - 260.00	0.6000	0.6000
T5	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	240.00 - 248.00	0.6000	0.6000
T5	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	240.00 - 260.00	0.6000	0.6000
T5	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	240.00 - 246.00	0.6000	0.6000
T5	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	240.00 - 246.00	0.6000	0.6000
T5	22	LDF4-50A (1/2 FOAM)	240.00 - 246.00	0.6000	0.6000
T5	25	LC78-50JA-A7	240.00 - 244.00	0.6000	0.6000
T5	26	LC78-50JA-A7	240.00 - 260.00	0.6000	0.6000
T5	28	LC78-50JA-A7	240.00 - 260.00	0.6000	0.6000
T5	29	LC78-50JA-A7	240.00 - 260.00	0.6000	0.6000
T5	30	1/2	240.00 - 260.00	0.6000	0.6000
T5	31	1/2	240.00 - 260.00	0.6000	0.6000
T5	32	LC78-50JA-A7	240.00 - 260.00	0.6000	0.6000
T5	33	1/2	240.00 - 260.00	0.6000	0.6000
T5	35	LC78-50JA-A7	240.00 - 260.00	0.6000	0.6000
T5	36	LC78-50JA-A7	240.00 - 260.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	220.00 - 240.00	0.6000	0.6000
T6	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	220.00 - 240.00	0.6000	0.6000
T6	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	220.00 - 240.00	0.6000	0.6000
T6	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	220.00 - 240.00	0.6000	0.6000
T6	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	220.00 - 240.00	0.6000	0.6000
T6	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	220.00 - 240.00	0.6000	0.6000
T6	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	220.00 - 240.00	0.6000	0.6000
T6	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	220.00 - 240.00	0.6000	0.6000
T6	22	LDF4-50A (1/2 FOAM)	220.00 - 240.00	0.6000	0.6000
T6	23	LC78-50JA-A7	220.00 - 235.00	0.6000	0.6000
T6	25	LC78-50JA-A7	220.00 - 240.00	0.6000	0.6000
T6	26	LC78-50JA-A7	220.00 - 240.00	0.6000	0.6000
T6	28	LC78-50JA-A7	220.00 - 240.00	0.6000	0.6000
T6	29	LC78-50JA-A7	220.00 - 240.00	0.6000	0.6000
T6	30	1/2	220.00 - 240.00	0.6000	0.6000
T6	31	1/2	220.00 - 240.00	0.6000	0.6000
T6	32	LC78-50JA-A7	220.00 - 240.00	0.6000	0.6000
T6	33	1/2	220.00 - 240.00	0.6000	0.6000
T6	35	LC78-50JA-A7	220.00 - 240.00	0.6000	0.6000
T6	36	LC78-50JA-A7	220.00 - 240.00	0.6000	0.6000
T7	2	1 5/8	200.00 - 220.00	0.6000	0.6000
T7	3	1 5/8" Hybriflex	200.00 - 220.00	0.6000	0.6000
T7	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	200.00 - 220.00	0.6000	0.6000
T7	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	200.00 - 220.00	0.6000	0.6000
T7	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	200.00 - 220.00	0.6000	0.6000
T7	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	200.00 - 220.00	0.6000	0.6000
T7	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	200.00 - 220.00	0.6000	0.6000
T7	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	200.00 - 220.00	0.6000	0.6000
T7	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	200.00 - 220.00	0.6000	0.6000
T7	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	200.00 - 220.00	0.6000	0.6000
T7	22	LDF4-50A (1/2 FOAM)	200.00 - 220.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	23	LC78-50JA-A7	200.00 - 220.00	0.6000	0.6000
T7	25	LC78-50JA-A7	200.00 - 220.00	0.6000	0.6000
T7	26	LC78-50JA-A7	200.00 - 220.00	0.6000	0.6000
T7	28	LC78-50JA-A7	200.00 - 220.00	0.6000	0.6000
T7	29	LC78-50JA-A7	200.00 - 220.00	0.6000	0.6000
T7	30	1/2	200.00 - 220.00	0.6000	0.6000
T7	31	1/2	200.00 - 220.00	0.6000	0.6000
T7	32	LC78-50JA-A7	200.00 - 220.00	0.6000	0.6000
T7	33	1/2	200.00 - 220.00	0.6000	0.6000
T7	35	LC78-50JA-A7	200.00 - 220.00	0.6000	0.6000
T7	36	LC78-50JA-A7	200.00 - 220.00	0.6000	0.6000
T8	1	1 5/8	180.00 - 200.00	0.6000	0.6000
T8	2	1 5/8	180.00 - 200.00	0.6000	0.6000
T8	3	1 5/8" Hybriflex	180.00 - 200.00	0.6000	0.6000
T8	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	180.00 - 200.00	0.6000	0.6000
T8	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	180.00 - 200.00	0.6000	0.6000
T8	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	180.00 - 200.00	0.6000	0.6000
T8	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	180.00 - 200.00	0.6000	0.6000
T8	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	180.00 - 200.00	0.6000	0.6000
T8	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	180.00 - 200.00	0.6000	0.6000
T8	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	180.00 - 200.00	0.6000	0.6000
T8	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	180.00 - 200.00	0.6000	0.6000
T8	22	LDF4-50A (1/2 FOAM)	180.00 - 200.00	0.6000	0.6000
T8	23	LC78-50JA-A7	180.00 - 200.00	0.6000	0.6000
T8	25	LC78-50JA-A7	180.00 - 200.00	0.6000	0.6000
T8	26	LC78-50JA-A7	180.00 - 200.00	0.6000	0.6000
T8	28	LC78-50JA-A7	180.00 - 200.00	0.6000	0.6000
T8	29	LC78-50JA-A7	180.00 - 200.00	0.6000	0.6000
T8	30	1/2	180.00 - 200.00	0.6000	0.6000
T8	31	1/2	180.00 - 200.00	0.6000	0.6000
T8	32	LC78-50JA-A7	180.00 - 200.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	33	1/2	180.00 - 200.00	0.6000	0.6000
T8	35	LC78-50JA-A7	180.00 - 200.00	0.6000	0.6000
T8	36	LC78-50JA-A7	180.00 - 200.00	0.6000	0.6000
T8	41	1-5/8" Fiber Optic CaBLE	180.00 - 200.00	0.6000	0.6000
T8	42	1/2	180.00 - 200.00	0.6000	0.6000
T9	1	1 5/8	170.00 - 180.00	0.6000	0.6000
T9	2	1 5/8	170.00 - 180.00	0.6000	0.6000
T9	3	1 5/8" Hybriflex	170.00 - 180.00	0.6000	0.6000
T9	4	LC78-50JA-A7	170.00 - 174.00	0.6000	0.6000
T9	5	LC78-50JA-A7	170.00 - 177.00	0.6000	0.6000
T9	6	LDF4-50A (1/2 FOAM)	170.00 - 174.00	0.6000	0.6000
T9	7	LC78-50JA-A7	170.00 - 176.00	0.6000	0.6000
T9	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	170.00 - 180.00	0.6000	0.6000
T9	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	170.00 - 180.00	0.6000	0.6000
T9	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	170.00 - 180.00	0.6000	0.6000
T9	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	170.00 - 180.00	0.6000	0.6000
T9	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	170.00 - 180.00	0.6000	0.6000
T9	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	170.00 - 180.00	0.6000	0.6000
T9	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	170.00 - 180.00	0.6000	0.6000
T9	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	170.00 - 180.00	0.6000	0.6000
T9	22	LDF4-50A (1/2 FOAM)	170.00 - 180.00	0.6000	0.6000
T9	23	LC78-50JA-A7	170.00 - 180.00	0.6000	0.6000
T9	25	LC78-50JA-A7	170.00 - 180.00	0.6000	0.6000
T9	26	LC78-50JA-A7	170.00 - 180.00	0.6000	0.6000
T9	28	LC78-50JA-A7	170.00 - 180.00	0.6000	0.6000
T9	29	LC78-50JA-A7	170.00 - 180.00	0.6000	0.6000
T9	30	1/2	170.00 - 180.00	0.6000	0.6000
T9	31	1/2	170.00 - 180.00	0.6000	0.6000
T9	32	LC78-50JA-A7	170.00 - 180.00	0.6000	0.6000
T9	33	1/2	170.00 - 180.00	0.6000	0.6000
T9	35	LC78-50JA-A7	170.00 - 180.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	36	LC78-50JA-A7	170.00 - 180.00	0.6000	0.6000
T9	41	1-5/8" Fiber Optic CaBLE	170.00 - 180.00	0.6000	0.6000
T9	42	1/2	170.00 - 180.00	0.6000	0.6000
T10	1	1 5/8	160.00 - 170.00	0.6000	0.6000
T10	2	1 5/8	160.00 - 170.00	0.6000	0.6000
T10	3	1 5/8" Hybriflex	160.00 - 170.00	0.6000	0.6000
T10	4	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000
T10	5	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000
T10	6	LDF4-50A (1/2 FOAM)	160.00 - 170.00	0.6000	0.6000
T10	7	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000
T10	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	160.00 - 170.00	0.6000	0.6000
T10	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	160.00 - 170.00	0.6000	0.6000
T10	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	160.00 - 170.00	0.6000	0.6000
T10	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	160.00 - 170.00	0.6000	0.6000
T10	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	160.00 - 170.00	0.6000	0.6000
T10	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	160.00 - 170.00	0.6000	0.6000
T10	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	160.00 - 170.00	0.6000	0.6000
T10	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	160.00 - 170.00	0.6000	0.6000
T10	22	LDF4-50A (1/2 FOAM)	160.00 - 170.00	0.6000	0.6000
T10	23	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000
T10	25	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000
T10	26	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000
T10	28	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000
T10	29	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000
T10	30	1/2	160.00 - 170.00	0.6000	0.6000
T10	31	1/2	160.00 - 170.00	0.6000	0.6000
T10	32	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000
T10	33	1/2	160.00 - 170.00	0.6000	0.6000
T10	34	1/2	160.00 - 164.00	0.6000	0.6000
T10	35	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000
T10	36	LC78-50JA-A7	160.00 - 170.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T10	41	1-5/8" Fiber Optic CaBLE	160.00 - 170.00	0.6000	0.6000
T10	42	1/2	160.00 - 170.00	0.6000	0.6000
T11	1	1 5/8	140.00 - 160.00	0.6000	0.6000
T11	2	1 5/8	140.00 - 160.00	0.6000	0.6000
T11	3	1 5/8" Hybriflex	140.00 - 160.00	0.6000	0.6000
T11	4	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	5	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	6	LDF4-50A (1/2 FOAM)	140.00 - 160.00	0.6000	0.6000
T11	7	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	140.00 - 160.00	0.6000	0.6000
T11	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	140.00 - 160.00	0.6000	0.6000
T11	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	140.00 - 160.00	0.6000	0.6000
T11	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	140.00 - 160.00	0.6000	0.6000
T11	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	140.00 - 160.00	0.6000	0.6000
T11	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	140.00 - 160.00	0.6000	0.6000
T11	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	140.00 - 160.00	0.6000	0.6000
T11	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	140.00 - 160.00	0.6000	0.6000
T11	22	LDF4-50A (1/2 FOAM)	140.00 - 160.00	0.6000	0.6000
T11	23	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	25	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	26	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	28	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	29	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	30	1/2	140.00 - 160.00	0.6000	0.6000
T11	31	1/2	140.00 - 160.00	0.6000	0.6000
T11	32	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	33	1/2	140.00 - 160.00	0.6000	0.6000
T11	34	1/2	140.00 - 160.00	0.6000	0.6000
T11	35	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	36	LC78-50JA-A7	140.00 - 160.00	0.6000	0.6000
T11	37	LC78-50JA-A7	140.00 - 153.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T11	39	EW63	140.00 - 145.00	0.6000	0.6000
T11	41	1-5/8" Fiber Optic CaBLE	140.00 - 160.00	0.6000	0.6000
T11	42	1/2	140.00 - 160.00	0.6000	0.6000
T12	1	1 5/8	120.00 - 140.00	0.6000	0.6000
T12	2	1 5/8	120.00 - 140.00	0.6000	0.6000
T12	3	1 5/8" Hybriflex	120.00 - 140.00	0.6000	0.6000
T12	4	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	5	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	6	LDF4-50A (1/2 FOAM)	120.00 - 140.00	0.6000	0.6000
T12	7	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	8	LC78-50JA-A7	120.00 - 137.00	0.6000	0.6000
T12	9	LC78-50JA-A7	120.00 - 134.00	0.6000	0.6000
T12	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	120.00 - 140.00	0.6000	0.6000
T12	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	120.00 - 140.00	0.6000	0.6000
T12	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	120.00 - 140.00	0.6000	0.6000
T12	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	120.00 - 140.00	0.6000	0.6000
T12	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	120.00 - 140.00	0.6000	0.6000
T12	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	120.00 - 140.00	0.6000	0.6000
T12	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	120.00 - 140.00	0.6000	0.6000
T12	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	120.00 - 140.00	0.6000	0.6000
T12	22	LDF4-50A (1/2 FOAM)	120.00 - 140.00	0.6000	0.6000
T12	23	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	25	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	26	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	28	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	29	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	30	1/2	120.00 - 140.00	0.6000	0.6000
T12	31	1/2	120.00 - 140.00	0.6000	0.6000
T12	32	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	33	1/2	120.00 - 140.00	0.6000	0.6000
T12	34	1/2	120.00 - 140.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T12	35	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	36	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	37	LC78-50JA-A7	120.00 - 140.00	0.6000	0.6000
T12	39	EW63	120.00 - 140.00	0.6000	0.6000
T12	41	1-5/8" Fiber Optic CaBLE	120.00 - 140.00	0.6000	0.6000
T12	42	1/2	120.00 - 140.00	0.6000	0.6000
T13	1	1 5/8	100.00 - 120.00	0.6000	0.6000
T13	2	1 5/8	100.00 - 120.00	0.6000	0.6000
T13	3	1 5/8" Hybriflex	100.00 - 120.00	0.6000	0.6000
T13	4	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	5	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	6	LDF4-50A (1/2 FOAM)	100.00 - 120.00	0.6000	0.6000
T13	7	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	8	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	9	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	10	LC78-50JA-A7	100.00 - 105.00	0.6000	0.6000
T13	11	LC78-50JA-A7	100.00 - 103.30	0.6000	0.6000
T13	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	100.00 - 120.00	0.6000	0.6000
T13	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	100.00 - 120.00	0.6000	0.6000
T13	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	100.00 - 120.00	0.6000	0.6000
T13	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	100.00 - 120.00	0.6000	0.6000
T13	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	100.00 - 120.00	0.6000	0.6000
T13	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	100.00 - 120.00	0.6000	0.6000
T13	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	100.00 - 120.00	0.6000	0.6000
T13	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	100.00 - 120.00	0.6000	0.6000
T13	22	LDF4-50A (1/2 FOAM)	100.00 - 120.00	0.6000	0.6000
T13	23	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	24	WE65	100.00 - 106.00	0.6000	0.6000
T13	25	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	26	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	27	WE108	100.00 - 113.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	28	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	29	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	30	1/2	100.00 - 120.00	0.6000	0.6000
T13	31	1/2	100.00 - 120.00	0.6000	0.6000
T13	32	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	33	1/2	100.00 - 120.00	0.6000	0.6000
T13	34	1/2	100.00 - 120.00	0.6000	0.6000
T13	35	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	36	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	37	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	39	EW63	100.00 - 120.00	0.6000	0.6000
T13	40	LC78-50JA-A7	100.00 - 120.00	0.6000	0.6000
T13	41	1-5/8" Fiber Optic CaBLE	100.00 - 120.00	0.6000	0.6000
T13	42	1/2	100.00 - 120.00	0.6000	0.6000
T14	1	1 5/8	80.00 - 100.00	0.6000	0.6000
T14	2	1 5/8	80.00 - 100.00	0.6000	0.6000
T14	3	1 5/8" Hybriflex	80.00 - 100.00	0.6000	0.6000
T14	4	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	5	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	6	LDF4-50A (1/2 FOAM)	80.00 - 100.00	0.6000	0.6000
T14	7	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	8	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	9	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	10	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	11	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	12	LC78-50JA-A7	80.00 - 91.00	0.6000	0.6000
T14	13	LC78-50JA-A7	80.00 - 90.00	0.6000	0.6000
T14	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	80.00 - 100.00	0.6000	0.6000
T14	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	80.00 - 100.00	0.6000	0.6000
T14	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	80.00 - 100.00	0.6000	0.6000
T14	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	80.00 - 100.00	0.6000	0.6000
T14	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	80.00 - 100.00	0.6000	0.6000
T14	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	80.00 - 100.00	0.6000	0.6000
T14	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	80.00 - 100.00	0.6000	0.6000
T14	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	80.00 - 100.00	0.6000	0.6000
T14	22	LDF4-50A (1/2 FOAM)	80.00 - 100.00	0.6000	0.6000
T14	23	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	24	WE65	80.00 - 100.00	0.6000	0.6000
T14	25	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	26	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T14	27	WE108	80.00 - 100.00	0.6000	0.6000
T14	28	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	29	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	30	1/2	80.00 - 100.00	0.6000	0.6000
T14	31	1/2	80.00 - 100.00	0.6000	0.6000
T14	32	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	33	1/2	80.00 - 100.00	0.6000	0.6000
T14	34	1/2	80.00 - 100.00	0.6000	0.6000
T14	35	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	36	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	37	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	39	EW63	80.00 - 100.00	0.6000	0.6000
T14	40	LC78-50JA-A7	80.00 - 100.00	0.6000	0.6000
T14	41	1-5/8" Fiber Optic CaBLE	80.00 - 100.00	0.6000	0.6000
T14	42	1/2	80.00 - 100.00	0.6000	0.6000
T15	1	1 5/8	60.00 - 80.00	0.6000	0.6000
T15	2	1 5/8	60.00 - 80.00	0.6000	0.6000
T15	3	1 5/8" Hybriflex	60.00 - 80.00	0.6000	0.6000
T15	4	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	5	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	6	LDF4-50A (1/2 FOAM)	60.00 - 80.00	0.6000	0.6000
T15	7	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	8	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	9	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	10	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	11	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	12	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	13	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	60.00 - 80.00	0.6000	0.6000
T15	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	60.00 - 80.00	0.6000	0.6000
T15	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	60.00 - 80.00	0.6000	0.6000
T15	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	60.00 - 80.00	0.6000	0.6000
T15	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	60.00 - 80.00	0.6000	0.6000
T15	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	60.00 - 80.00	0.6000	0.6000
T15	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	60.00 - 80.00	0.6000	0.6000
T15	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	60.00 - 80.00	0.6000	0.6000
T15	22	LDF4-50A (1/2 FOAM)	60.00 - 80.00	0.6000	0.6000
T15	23	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	24	WE65	60.00 - 80.00	0.6000	0.6000
T15	25	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	26	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	27	WE108	60.00 - 80.00	0.6000	0.6000
T15	28	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	29	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	30	1/2	60.00 - 80.00	0.6000	0.6000
T15	31	1/2	60.00 - 80.00	0.6000	0.6000
T15	32	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	33	1/2	60.00 - 80.00	0.6000	0.6000
T15	34	1/2	60.00 - 80.00	0.6000	0.6000
T15	35	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	36	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	37	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000
T15	39	EW63	60.00 - 80.00	0.6000	0.6000
T15	40	LC78-50JA-A7	60.00 - 80.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T15	41	1-5/8" Fiber Optic CaBLE	60.00 - 80.00	0.6000	0.6000
T15	42	1/2	60.00 - 80.00	0.6000	0.6000
T16	1	1 5/8	30.00 - 60.00	0.6000	0.6000
T16	2	1 5/8	30.00 - 60.00	0.6000	0.6000
T16	3	1 5/8" Hybriflex	30.00 - 60.00	0.6000	0.6000
T16	4	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	5	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	6	LDF4-50A (1/2 FOAM)	30.00 - 60.00	0.6000	0.6000
T16	7	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	8	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	9	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	10	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	11	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	12	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	13	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	30.00 - 60.00	0.6000	0.6000
T16	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	30.00 - 60.00	0.6000	0.6000
T16	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	30.00 - 60.00	0.6000	0.6000
T16	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	30.00 - 60.00	0.6000	0.6000
T16	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	30.00 - 60.00	0.6000	0.6000
T16	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	30.00 - 60.00	0.6000	0.6000
T16	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	30.00 - 60.00	0.6000	0.6000
T16	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	30.00 - 60.00	0.6000	0.6000
T16	22	LDF4-50A (1/2 FOAM)	30.00 - 60.00	0.6000	0.6000
T16	23	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	24	WE65	30.00 - 60.00	0.6000	0.6000
T16	25	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	26	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	27	WE108	30.00 - 60.00	0.6000	0.6000
T16	28	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	29	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	30	1/2	30.00 - 60.00	0.6000	0.6000
T16	31	1/2	30.00 - 60.00	0.6000	0.6000
T16	32	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	33	1/2	30.00 - 60.00	0.6000	0.6000
T16	34	1/2	30.00 - 60.00	0.6000	0.6000
T16	35	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	36	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	37	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	39	EW63	30.00 - 60.00	0.6000	0.6000
T16	40	LC78-50JA-A7	30.00 - 60.00	0.6000	0.6000
T16	41	1-5/8" Fiber Optic CaBLE	30.00 - 60.00	0.6000	0.6000
T16	42	1/2	30.00 - 60.00	0.6000	0.6000
T17	1	1 5/8	5.00 - 30.00	0.6000	0.6000
T17	2	1 5/8	5.00 - 30.00	0.6000	0.6000
T17	3	1 5/8" Hybriflex	5.00 - 30.00	0.6000	0.6000
T17	4	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	5	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	6	LDF4-50A (1/2 FOAM)	5.00 - 30.00	0.6000	0.6000
T17	7	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	8	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	9	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	10	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	11	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T17	12	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	13	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 30.00	0.6000	0.6000
T17	15	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 30.00	0.6000	0.6000
T17	16	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 30.00	0.6000	0.6000
T17	17	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 30.00	0.6000	0.6000
T17	18	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 30.00	0.6000	0.6000
T17	19	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 30.00	0.6000	0.6000
T17	20	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 30.00	0.6000	0.6000
T17	21	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 30.00	0.6000	0.6000
T17	22	LDF4-50A (1/2 FOAM)	5.00 - 30.00	0.6000	0.6000
T17	23	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	24	WE65	5.00 - 30.00	0.6000	0.6000
T17	25	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	26	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	27	WE108	5.00 - 30.00	0.6000	0.6000
T17	28	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	29	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	30	1/2	5.00 - 30.00	0.6000	0.6000
T17	31	1/2	5.00 - 30.00	0.6000	0.6000
T17	32	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	33	1/2	5.00 - 30.00	0.6000	0.6000
T17	34	1/2	5.00 - 30.00	0.6000	0.6000
T17	35	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	36	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	37	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	39	EW63	5.00 - 30.00	0.6000	0.6000
T17	40	LC78-50JA-A7	5.00 - 30.00	0.6000	0.6000
T17	41	1-5/8" Fiber Optic CaBLE	5.00 - 30.00	0.6000	0.6000
T17	42	1/2	5.00 - 30.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
*** EMP-005 AT&T Inventory									
PiROD 12' Lightweight T-Frame (AT&T)	A	None		0.0000	200.00	No Ice	10.20	10.20	253.00
						1/2" Ice	16.20	16.20	355.00
						1" Ice	22.20	22.20	457.00
PiROD 12' Lightweight T-Frame	B	None		0.0000	200.00	No Ice	10.20	10.20	253.00
						1/2" Ice	16.20	16.20	355.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(AT&T)						1" Ice	22.20	22.20	457.00
PiROD 12' Lightweight	C	None		0.0000	200.00	No Ice	10.20	10.20	253.00
T-Frame						1/2" Ice	16.20	16.20	355.00
(AT&T)						1" Ice	22.20	22.20	457.00
7770.00	A	From Leg	3.00	0.0000	200.00	No Ice	10.03	5.60	20.00
(AT&T)			-6.00			1/2" Ice	10.61	6.15	70.47
			0.00			1" Ice	11.20	6.71	130.07
7770.00	A	From Leg	3.00	0.0000	200.00	No Ice	10.03	5.60	20.00
(AT&T)			-2.00			1/2" Ice	10.61	6.15	70.47
			0.00			1" Ice	11.20	6.71	130.07
HPA-65R-BUU-H8 Panel	A	From Leg	3.00	0.0000	200.00	No Ice	12.99	7.48	68.00
(AT&T)			6.00			1/2" Ice	13.69	8.06	140.41
			0.00			1" Ice	14.40	8.64	220.44
(2) LGP21401 TMA Unit	A	From Leg	3.00	0.0000	200.00	No Ice	0.47	0.12	7.70
(AT&T)			4.00			1/2" Ice	0.56	0.17	10.71
			0.00			1" Ice	0.67	0.24	14.96
RRUS-32	A	From Leg	3.00	0.0000	200.00	No Ice	3.20	1.85	60.00
(AT&T)			6.00			1/2" Ice	3.46	2.08	81.11
			1.50			1" Ice	3.73	2.31	105.42
RRUS-11	A	From Leg	3.00	0.0000	200.00	No Ice	2.99	1.25	50.00
(AT&T)			6.00			1/2" Ice	3.23	1.41	69.57
			-1.50			1" Ice	3.47	1.59	92.08
7770.00	B	From Leg	3.00	0.0000	200.00	No Ice	10.03	5.60	20.00
(AT&T)			-6.00			1/2" Ice	10.61	6.15	70.47
			0.00			1" Ice	11.20	6.71	130.07
7770.00	B	From Leg	3.00	0.0000	200.00	No Ice	10.03	5.60	20.00
(AT&T)			-6.00			1/2" Ice	10.61	6.15	70.47
			0.00			1" Ice	11.20	6.71	130.07
HPA-65R-BUU-H8 Panel	B	From Leg	3.00	0.0000	200.00	No Ice	12.99	7.48	68.00
(AT&T)			6.00			1/2" Ice	13.69	8.06	140.41
			0.00			1" Ice	14.40	8.64	220.44
(2) LGP21401 TMA Unit	B	From Leg	3.00	0.0000	200.00	No Ice	0.47	0.12	7.70
(AT&T)			4.00			1/2" Ice	0.56	0.17	10.71
			0.00			1" Ice	0.67	0.24	14.96
RRUS-32	B	From Leg	3.00	0.0000	200.00	No Ice	3.20	1.85	60.00
(AT&T)			6.00			1/2" Ice	3.46	2.08	81.11
			1.50			1" Ice	3.73	2.31	105.42
RRUS-11	B	From Leg	3.00	0.0000	200.00	No Ice	2.99	1.25	50.00
(AT&T)			6.00			1/2" Ice	3.23	1.41	69.57
			-1.50			1" Ice	3.47	1.59	92.08
7770.00	C	From Leg	3.00	0.0000	200.00	No Ice	10.03	5.60	20.00
(AT&T)			-6.00			1/2" Ice	10.61	6.15	70.47
			0.00			1" Ice	11.20	6.71	130.07
7770.00	C	From Leg	3.00	0.0000	200.00	No Ice	10.03	5.60	20.00
(AT&T)			-2.00			1/2" Ice	10.61	6.15	70.47
			0.00			1" Ice	11.20	6.71	130.07
HPA-65R-BUU-H6 Panel	C	From Leg	3.00	0.0000	200.00	No Ice	10.12	5.49	48.00
(AT&T)			6.00			1/2" Ice	10.69	5.94	105.33
			0.00			1" Ice	11.26	6.41	168.95
(2) LGP21401 TMA Unit	B	From Leg	3.00	0.0000	200.00	No Ice	0.47	0.12	7.70
(AT&T)			4.00			1/2" Ice	0.56	0.17	10.71
			0.00			1" Ice	0.67	0.24	14.96
RRUS-32	B	From Leg	3.00	0.0000	200.00	No Ice	3.20	1.85	60.00
(AT&T)			6.00			1/2" Ice	3.46	2.08	81.11
			1.50			1" Ice	3.73	2.31	105.42
RRUS-11	B	From Leg	3.00	0.0000	200.00	No Ice	2.99	1.25	50.00
(AT&T)			6.00			1/2" Ice	3.23	1.41	69.57

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			-1.50			1" Ice	3.47	1.59	92.08
DC6-48-60-0-8C Squid / Surge Arrestor	C	None		0.0000	200.00	No Ice	1.79	1.79	27.00
						1/2" Ice	2.02	2.02	47.39
(AT&T)						1" Ice	2.27	2.27	70.57
STK-U Stiffener Side Arm Attachment	A	None		0.0000	200.00	No Ice	0.07	4.01	63.79
						1/2" Ice	0.11	5.00	95.84
(AT&T)						1" Ice	0.16	6.01	138.17
STK-U Stiffener Side Arm Attachment	B	None		0.0000	200.00	No Ice	0.07	4.01	63.79
						1/2" Ice	0.11	5.00	95.84
(AT&T)						1" Ice	0.16	6.01	138.17
STK-U Stiffener Side Arm Attachment	C	None		0.0000	200.00	No Ice	0.07	4.01	63.79
						1/2" Ice	0.11	5.00	95.84
(AT&T)						1" Ice	0.16	6.01	138.17
*** EMP-005 AT&T Inventory									
* CSP Antenna Inventory - via Hightower Solutions									
PD688S-4	C	From Leg	0.50	0.0000	91.00	No Ice	0.35	0.35	3.75
(HTS-1)			0.00			1/2" Ice	0.63	0.63	4.88
			0.00			1" Ice	0.91	0.91	6.00
4'x4" Pipe Mount	C	From Leg	0.00	0.0000	91.00	No Ice	1.07	1.07	44.00
(HTS-1)			0.00			1/2" Ice	1.58	1.58	56.99
			0.00			1" Ice	1.84	1.84	73.03
PD688S-4	B	From Leg	3.00	0.0000	103.00	No Ice	0.35	0.35	3.75
(HTS-2)			0.00			1/2" Ice	0.63	0.63	4.88
			0.00			1" Ice	0.91	0.91	6.00
Pirod 4' Side Mount Standoff (1)	B	From Leg	0.00	0.0000	103.00	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
(HTS-2 & 3)			0.00			1" Ice	7.10	7.10	128.00
PD458	B	From Leg	3.00	0.0000	105.00	No Ice	2.88	2.88	20.00
(HTS-3)			0.00			1/2" Ice	4.34	4.34	46.22
			0.00			1" Ice	5.83	5.83	77.59
5'3"x4" Pipe Mount	A	From Leg	0.00	0.0000	106.00	No Ice	1.45	1.45	57.00
(HTS-4)			0.00			1/2" Ice	2.21	2.21	73.81
			0.00			1" Ice	2.54	2.54	94.43
* Ice Shield - Place Holder HTS-6 / Leg A / 118'									
* Ice Shield - Place Holder HTS-7 / Leg C / 118'									
DB212-1	C	From Leg	6.00	0.0000	134.00	No Ice	4.40	4.40	31.00
(HTS-8)			0.00			1/2" Ice	8.42	8.42	70.21
			0.00			1" Ice	12.45	12.45	134.11
6' Side Mount Standoff	C	From Leg	0.00	0.0000	134.00	No Ice	6.50	6.50	100.00
(HTS-8 & 9)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00			1" Ice	10.50	10.50	240.00
PD156S	C	From Leg	6.00	0.0000	137.00	No Ice	0.44	0.44	5.00
(HTS-9)			0.00			1/2" Ice	0.79	0.79	6.50
			0.00			1" Ice	1.14	1.14	8.00
ANT450F6	A	From Leg	0.50	0.0000	153.00	No Ice	1.90	1.90	8.00
(HTS-10)			0.00			1/2" Ice	2.73	2.73	22.34
			0.00			1" Ice	3.40	3.40	41.96
5'3"x4" Pipe Mount	A	From Leg	0.00	0.0000	153.00	No Ice	1.42	1.42	57.00
(HTS-10)			0.00			1/2" Ice	2.21	2.21	73.81
			0.00			1" Ice	2.54	2.54	94.43
L-810 Obstruction Lighting (1)	A	From Leg	0.25	0.0000	164.00	No Ice	0.36	0.36	6.65
			0.00			1/2" Ice	0.52	0.52	12.44
(HTS-11a)			0.00			1" Ice	0.70	0.70	19.93

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
L-810 Obstruction Lighting	B	From Leg	0.25	0.0000	164.00	No Ice	0.36	0.36	6.65
(1)			0.00			1/2" Ice	0.52	0.52	12.44
(HTS-11b)			0.00			1" Ice	0.70	0.70	19.93
L-810 Obstruction Lighting	C	From Leg	0.25	0.0000	164.00	No Ice	0.36	0.36	6.65
(1)			0.00			1/2" Ice	0.52	0.52	12.44
(HTS-11c)			0.00			1" Ice	0.70	0.70	19.93
DB586-Y	C	From Leg	3.00	0.0000	176.00	No Ice	1.01	1.01	8.25
(HTS-12)			0.00			1/2" Ice	1.28	1.28	16.59
			0.00			1" Ice	1.56	1.56	28.01
Pirod 4' Side Mount Standoff	C	From Leg	0.00	0.0000	176.00	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
(HTS-12)			0.00			1" Ice	7.10	7.10	128.00
DB586-Y (inverted)	B	From Leg	4.00	0.0000	174.00	No Ice	1.01	1.01	8.25
(HTS-13)			0.00			1/2" Ice	1.28	1.28	16.59
			0.00			1" Ice	1.56	1.56	28.01
Pirod 4' Side Mount Standoff	B	From Leg	0.00	0.0000	174.00	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
(HTS-13,14,TTA)			0.00			1" Ice	7.10	7.10	128.00
430-94C-09168-M-11048 TTA	B	From Leg	2.00	0.0000	174.00	No Ice	1.63	0.95	30.00
(TMA/TTA Control Unit)			0.00			1/2" Ice	1.81	1.09	37.44
			0.00			1" Ice	1.99	1.24	52.22
DB586-Y	B	From Leg	4.00	0.0000	174.00	No Ice	1.01	1.01	8.25
(HTS-14)			0.00			1/2" Ice	1.28	1.28	16.59
			0.00			1" Ice	1.56	1.56	28.01
* HTS 15-18 Are VZw/AT&T Carrier Antennas									
531-70HD Exposed Dipole Antenna	A	From Leg	6.00	0.0000	235.00	No Ice	5.91	5.91	50.00
(HTS-19)			0.00			1/2" Ice	7.68	7.68	79.03
			0.00			1" Ice	9.47	9.47	125.80
6' Side Mount Standoff	A	From Leg	0.00	0.0000	235.00	No Ice	6.50	6.50	100.00
(HTS-19)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00			1" Ice	10.50	10.50	240.00
PD1142-1	C	From Leg	6.00	0.0000	244.00	No Ice	1.32	1.32	10.00
(HTS-20)			0.00			1/2" Ice	3.21	3.21	23.85
			0.00			1" Ice	5.12	5.12	49.42
6' Side Mount Standoff	C	From Leg	0.00	0.0000	244.00	No Ice	6.50	6.50	100.00
(HTS-20)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00			1" Ice	10.50	10.50	240.00
SC479-HF1LDF(D00I-E6085) (Inverted)	B	From Leg	3.00	0.0000	246.00	No Ice	5.06	5.06	34.00
(HTS-21a)			0.00			1/2" Ice	6.54	6.54	69.82
			0.00			1" Ice	8.04	8.04	114.98
SC479-HF1LDF(D00I-E6085) (Inverted)	B	From Leg	3.00	0.0000	246.00	No Ice	5.06	5.06	34.00
(HTS-21b)			0.00			1/2" Ice	6.54	6.54	69.82
			0.00			1" Ice	8.04	8.04	114.98
Sabre T-Boom (1)	B	From Leg	0.00	0.0000	246.00	No Ice	35.40	35.40	471.00
(HTS-21 (a,b) - HTS 22)			0.00			1/2" Ice	46.90	46.90	690.00
			0.00			1" Ice	58.40	58.40	909.00
PD1142-1	B	From Leg	3.00	0.0000	248.00	No Ice	1.32	1.32	10.00
(HTS-22)			0.00			1/2" Ice	3.21	3.21	23.85
			0.00			1" Ice	5.12	5.12	49.42
SC479-HF1LDF(D00-E6085)	B	From Leg	6.00	0.0000	261.00	No Ice	5.06	5.06	34.00
(HTS-23)			0.00			1/2" Ice	6.54	6.54	69.82
			0.00			1" Ice	8.04	8.04	114.98
6' Side Mount Standoff	B	From Leg	0.00	0.0000	261.00	No Ice	6.50	6.50	100.00
(HTS-23, 24)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00			1" Ice	10.50	10.50	240.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
PD440-2	B	From Leg	6.00	0.0000	261.50	No Ice	1.38	1.38	19.00
(HTS-24)			0.00			1/2" Ice	2.48	2.48	24.70
			0.00			1" Ice	3.59	3.59	30.40
SC479-HF1LDF	C	From Leg	6.00	0.0000	283.00	No Ice	4.08	4.08	34.00
(HTS-25)			0.00			1/2" Ice	6.54	6.54	69.82
			0.00			1" Ice	8.04	8.04	114.98
6' Side Mount Standoff	C	From Leg	0.00	0.0000	284.00	No Ice	6.50	6.50	100.00
(HTS-25,26,TTA)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00			1" Ice	10.50	10.50	240.00
DB809T3E-XC	C	From Leg	6.00	0.0000	285.00	No Ice	4.00	4.00	39.00
(HTS-26)			0.00			1/2" Ice	5.70	5.70	69.70
			0.00			1" Ice	7.17	7.17	109.50
TMA	C	From Leg	3.00	0.0000	284.00	No Ice	1.06	0.45	20.00
(TMA/TTA)			0.00			1/2" Ice	1.21	0.57	26.53
			0.00			1" Ice	1.37	0.71	34.91
SC479-HF1LDF	B	From Leg	6.00	0.0000	284.00	No Ice	4.08	4.08	34.00
(HTS-27)			0.00			1/2" Ice	6.54	6.54	69.82
			0.00			1" Ice	8.04	8.04	114.98
6' Side Mount Standoff	B	None		0.0000	284.50	No Ice	6.50	6.50	100.00
(HTS-27,28,TTA)						1/2" Ice	8.50	8.50	170.00
						1" Ice	10.50	10.50	240.00
TMA	B	None		0.0000	284.50	No Ice	1.06	0.45	20.00
(TMA/TTA)						1/2" Ice	1.21	0.57	26.53
						1" Ice	1.37	0.71	34.91
OGT9-840	B	From Leg	3.00	0.0000	285.00	No Ice	2.27	2.27	18.50
(HTS-28)			0.00			1/2" Ice	3.44	3.44	36.09
			0.00			1" Ice	4.61	4.61	60.98
PD340-1	B	From Leg	6.00	0.0000	290.00	No Ice	3.30	3.30	40.00
(HTS-29)			0.00			1/2" Ice	5.94	5.94	52.00
			0.00			1" Ice	8.58	8.58	64.00
6' Side Mount Standoff	B	From Leg	0.00	0.0000	290.00	No Ice	6.50	6.50	100.00
(HTS-29)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00			1" Ice	10.50	10.50	240.00
SC479-HF1LDF	C	From Leg	6.00	0.0000	297.00	No Ice	4.06	4.06	34.00
(HTS-30)			0.00			1/2" Ice	6.54	6.54	69.82
			0.00			1" Ice	8.04	8.04	114.98
6' Side Mount Standoff	C	From Leg	0.00	0.0000	293.00	No Ice	6.50	6.50	100.00
(HTS-30)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00			1" Ice	10.50	10.50	240.00
ANT450F6	B	From Leg	5.00	0.0000	316.50	No Ice	1.90	1.90	8.00
(HTS-31)			0.00			1/2" Ice	2.73	2.73	22.34
			0.00			1" Ice	3.40	3.40	41.96
4'x4" Pipe Mount	B	From Leg	0.00	0.0000	311.50	No Ice	1.01	1.01	44.00
(HTS-31)			0.00			1/2" Ice	1.58	1.58	56.99
			0.00			1" Ice	1.84	1.84	73.03
BA1012-0	A	From Leg	6.00	0.0000	318.00	No Ice	0.47	0.47	2.20
(HTS-32)			0.00			1/2" Ice	0.96	0.96	6.61
			0.00			1" Ice	1.31	1.31	14.14
6' Side Mount Standoff	A	From Leg	0.00	0.0000	315.00	No Ice	6.50	6.50	100.00
(HTS-32)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00			1" Ice	10.50	10.50	240.00
PD128-1	C	From Leg	6.00	0.0000	322.00	No Ice	1.00	1.00	13.00
(HTS-33)			0.00			1/2" Ice	1.80	1.80	16.90
			0.00			1" Ice	2.60	2.60	20.80
6' Side Mount Standoff	C	From Leg	0.00	0.0000	320.00	No Ice	6.50	6.50	100.00
(HTS-33)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00			1" Ice	10.50	10.50	240.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Dual Lights	A	None		0.0000	325.00	No Ice	4.00	4.00	250.00
(HTS-34)						1/2" Ice	4.80	4.80	400.00
						1" Ice	5.60	5.60	550.00
Lightning Rod 5/8x4'	C	None		0.0000	325.00	No Ice	0.25	0.25	31.00
(HTS-35)						1/2" Ice	0.66	0.66	33.82
						1" Ice	0.97	0.97	39.29
* CSP Proposed									
4'x4" Pipe Mount	C	None		0.0000	145.00	No Ice	1.05	1.05	44.00
(CSP Dish Mt. @ 145)						1/2" Ice	1.58	1.58	56.99
						1" Ice	1.84	1.84	73.03
4'x4" Pipe Mount	B	None		0.0000	120.00	No Ice	1.06	1.06	44.00
(CSP Dish Mt. @ 120)						1/2" Ice	1.58	1.58	56.99
						1" Ice	1.84	1.84	73.03
* VZW Proposed 12/07/2018									
Valmont VFA-10-U V-Frame	A	None		0.0000	220.00	No Ice	7.95	4.45	285.00
(Verizon)						1/2" Ice	8.33	4.74	343.57
						1" Ice	8.71	5.04	407.08
Valmont VFA-10-U V-Frame	B	None		0.0000	220.00	No Ice	7.95	4.45	285.00
(Verizon)						1/2" Ice	8.33	4.74	343.57
						1" Ice	8.71	5.04	407.08
Valmont VFA-10-U V-Frame	C	None		0.0000	220.00	No Ice	7.95	4.45	285.00
(Verizon)						1/2" Ice	8.33	4.74	343.57
						1" Ice	8.71	5.04	407.08
JAHH-65B-R3B Panel	A	From Leg	5.00	0.0000	220.00	No Ice	9.66	5.98	126.30
Antenna			6.00			1/2" Ice	10.22	6.44	184.38
(Verizon-AWS)			0.00			1" Ice	10.79	6.91	248.75
JAHH-65B-R3B Panel	A	From Leg	5.00	0.0000	220.00	No Ice	9.66	5.98	126.30
Antenna			5.50			1/2" Ice	10.22	6.44	184.38
(Verizon-PCS)			0.00			1" Ice	10.79	6.91	248.75
LNX-6512DS-VTM	A	From Leg	5.00	0.0000	220.00	No Ice	5.61	3.30	30.00
(Verizon-850)			-3.00			1/2" Ice	6.01	3.66	63.32
			0.00			1" Ice	6.41	4.04	102.51
BSAMNT-SBS-2-2 (JAHH	A	From Leg	5.00	0.0000	220.00	No Ice	3.78	3.56	116.83
Antenna Bracket (for 2))			6.00			1/2" Ice	4.84	4.62	175.06
(Verizon-PCS/AWS)			0.00			1" Ice	5.64	5.41	240.44
RFV01U-D1A RRH Unit	A	From Leg	5.00	0.0000	220.00	No Ice	1.88	1.25	97.50
(Verizon RRH)			0.00			1/2" Ice	2.05	1.39	115.84
			0.00			1" Ice	2.22	1.54	136.97
RFV01U-D2A RRH Unit	A	From Leg	5.00	0.0000	220.00	No Ice	1.88	1.01	82.00
(Verizon RRH)			0.00			1/2" Ice	2.05	1.14	98.43
			0.00			1" Ice	2.22	1.28	117.53
DB-B1-6C-12AB-0Z /	A	From Leg	5.00	0.0000	220.00	No Ice	4.42	2.90	32.00
DC-3315-PF-48 Dist. Box			0.00			1/2" Ice	4.72	3.16	63.48
(Verizon)			0.00			1" Ice	5.02	3.43	98.72
JAHH-65B-R3B Panel	B	From Leg	5.00	0.0000	220.00	No Ice	9.66	5.98	126.30
Antenna			6.00			1/2" Ice	10.22	6.44	184.38
(Verizon-AWS)			0.00			1" Ice	10.79	6.91	248.75
JAHH-65B-R3B Panel	B	From Leg	5.00	0.0000	220.00	No Ice	9.66	5.98	126.30
Antenna			5.50			1/2" Ice	10.22	6.44	184.38
(Verizon-PCS)			0.00			1" Ice	10.79	6.91	248.75
LNX-6512DS-VTM	B	From Leg	5.00	0.0000	220.00	No Ice	5.61	3.30	30.00
(Verizon-850)			-3.00			1/2" Ice	6.01	3.66	63.32
			0.00			1" Ice	6.41	4.04	102.51
BSAMNT-SBS-2-2 (JAHH	B	From Leg	5.00	0.0000	220.00	No Ice	3.78	3.56	116.83
Antenna Bracket (for 2))			6.00			1/2" Ice	4.84	4.62	175.06
(Verizon-PCS/AWS)			0.00			1" Ice	5.64	5.41	240.44
RFV01U-D1A RRH Unit	B	From Leg	5.00	0.0000	220.00	No Ice	1.88	1.25	97.50

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(Verizon RRH)			0.00			1/2" Ice	2.05	1.39	115.84
			0.00			1" Ice	2.22	1.54	136.97
RFV01U-D2A RRH Unit	B	From Leg	5.00	0.0000	220.00	No Ice	1.88	1.01	82.00
(Verizon RRH)			0.00			1/2" Ice	2.05	1.14	98.43
			0.00			1" Ice	2.22	1.28	117.53
DB-B1-6C-12AB-0Z /	B	From Leg	5.00	0.0000	220.00	No Ice	4.42	2.90	32.00
DC-3315-PF-48 Dist. Box			0.00			1/2" Ice	4.72	3.16	63.48
(Verizon)			0.00			1" Ice	5.02	3.43	98.72
JAHH-65B-R3B Panel	C	From Leg	5.00	0.0000	220.00	No Ice	9.66	5.98	126.30
Antenna			6.00			1/2" Ice	10.22	6.44	184.38
(Verizon-AWS)			0.00			1" Ice	10.79	6.91	248.75
JAHH-65B-R3B Panel	C	From Leg	5.00	0.0000	220.00	No Ice	9.66	5.98	126.30
Antenna			5.50			1/2" Ice	10.22	6.44	184.38
(Verizon-PCS)			0.00			1" Ice	10.79	6.91	248.75
LNX-6512DS-VTM	C	From Leg	5.00	0.0000	220.00	No Ice	5.61	3.30	30.00
(Verizon-850)			-3.00			1/2" Ice	6.01	3.66	63.32
			0.00			1" Ice	6.41	4.04	102.51
BSAMNT-SBS-2-2 (JAHH	C	From Leg	5.00	0.0000	220.00	No Ice	3.78	3.56	116.83
Antenna Bracket (for 2))			6.00			1/2" Ice	4.84	4.62	175.06
(Verizon-PCS/AWS)			0.00			1" Ice	5.64	5.41	240.44
RFV01U-D1A RRH Unit	C	From Leg	5.00	0.0000	220.00	No Ice	1.88	1.25	97.50
(Verizon RRH)			0.00			1/2" Ice	2.05	1.39	115.84
			0.00			1" Ice	2.22	1.54	136.97
RFV01U-D2A RRH Unit	C	From Leg	5.00	0.0000	220.00	No Ice	1.88	1.01	82.00
(Verizon RRH)			0.00			1/2" Ice	2.05	1.14	98.43
			0.00			1" Ice	2.22	1.28	117.53
CBC78T-DS-43-2X Diplexer	A	From Leg	5.00	0.0000	220.00	No Ice	0.37	0.51	22.00
(Verizon)			0.00			1/2" Ice	0.45	0.60	28.34
			0.00			1" Ice	0.53	0.70	36.37
CBC78T-DS-43-2X Diplexer	B	From Leg	5.00	0.0000	220.00	No Ice	0.37	0.51	22.00
(Verizon)			0.00			1/2" Ice	0.45	0.60	28.34
			0.00			1" Ice	0.53	0.70	36.37
CBC78T-DS-43-2X Diplexer	C	From Leg	5.00	0.0000	220.00	No Ice	0.37	0.51	22.00
(Verizon)			0.00			1/2" Ice	0.45	0.60	28.34
			0.00			1" Ice	0.53	0.70	36.37

* VZW Proposed 12/07/2018

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
* CSP Inventory from HighTower Solutions Climb											
PA8-65	A	Paraboloid	From	0.50	Worst		106.00	8.00	No Ice	50.27	285.00
(HTS-4)		w/Shroud (HP)	Leg	0.00					1/2" Ice	51.29	548.30
				0.00					1" Ice	52.31	811.60
Andrew 2' w/Radome	C	Paraboloid	From	0.50	Worst		113.00	2.00	No Ice	3.14	70.00

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
(HTS-5)		w/Radome	Leg	0.00					1/2" Ice	3.41	282.00
				0.00					1" Ice	3.68	494.00
* CSP Proposed											
Commscope	C	Paraboloid	From	0.50	Worst		145.00	6.00	No Ice	28.27	310.00
PAR6-59W-PXA/A		w/Radome	Leg	0.00					1/2" Ice	29.07	460.00
(CSP Proposed)				0.00					1" Ice	29.86	610.00
HPD3-4.7	B	Paraboloid w/o	From	0.50	Worst		120.00	3.00	No Ice	7.07	105.00
(CSP Proposed)		Radome	Leg	0.00					1/2" Ice	7.47	143.35
				0.00					1" Ice	7.86	181.69

222-G Verification Constants

Constant	Value
Wind Importance Factor Without Ice	1.15
Wind Importance Factor With Ice Factor	1
Ice Importance Factor	1.25
K_d	0.85
Z_g	900
α	9.5
K_{zmin}	0.85
K_e	1
K_t	0.53
f	2

222-G Section Verification ArRr By Element

Section Elevation ft	Elem. Num.	Size	C	C w/Ice	Face	e	e w/Ice	A_r ft^2	A_r w/Ice ft^2	A_rR_r ft^2	A_rR_r w/Ice ft^2
T1	1	ROHN 5 EH	63.677	54.203	C	0.209	0.509	7.417	13.677	3.355	9.433
320.00-304.00											
	1	ROHN 5 EH	63.677	54.203	A	0.209	0.509	7.417	13.677	3.355	9.433
	2	ROHN 5 EH	63.677	54.203	C	0.209	0.509	7.417	13.677	3.355	9.433
	2	ROHN 5 EH	63.677	54.203	B	0.209	0.509	7.417	13.677	3.355	9.433
	3	ROHN 5 EH	63.677	54.203	B	0.209	0.509	7.417	13.677	3.355	9.433
	3	ROHN 5 EH	63.677	54.203	A	0.209	0.509	7.417	13.677	3.355	9.433
					A		Sum:	14.835	27.354	6.710	18.867
					B			14.835	27.354	6.710	18.867
					C			14.835	27.354	6.710	18.867
T2	31	ROHN 5 EH	63.46	53.939	C	0.201	0.48	1.854	3.414	0.832	2.303
304.00-300.00											
	31	ROHN 5 EH	63.46	53.939	A	0.201	0.48	1.854	3.414	0.832	2.303
	32	ROHN 5 EH	63.46	53.939	C	0.201	0.48	1.854	3.414	0.832	2.303
	32	ROHN 5 EH	63.46	53.939	B	0.201	0.48	1.854	3.414	0.832	2.303
	33	ROHN 5 EH	63.46	53.939	B	0.201	0.48	1.854	3.414	0.832	2.303
	33	ROHN 5 EH	63.46	53.939	A	0.201	0.48	1.854	3.414	0.832	2.303
					A		Sum:	3.709	6.828	1.664	4.605
					B			3.709	6.828	1.664	4.605
					C			3.709	6.828	1.664	4.605
T3	40	ROHN 6 EH	75.255	59.18	C	0.207	0.454	11.061	18.842	4.976	12.458
300.00-280.00											
	40	ROHN 6 EH	75.255	59.18	A	0.207	0.454	11.061	18.842	4.976	12.458

Section Elevation ft	Elem. Num.	Size	C	C w/Ice	Face	e	e w/Ice	A_r ft^2	A_r w/Ice ft^2	A_rR_r ft^2	A_rR_r w/Ice ft^2
	41	ROHN 6 EH	75.255	59.18	C	0.207	0.454	11.061	18.842	4.976	12.458
	41	ROHN 6 EH	75.255	59.18	B	0.207	0.454	11.061	18.842	4.976	12.458
	42	ROHN 6 EH	75.255	59.18	B	0.207	0.454	11.061	18.842	4.976	12.458
	42	ROHN 6 EH	75.255	59.18	A	0.207	0.454	11.061	18.842	4.976	12.458
					A		Sum:	22.122	37.684	9.951	24.917
					B			22.122	37.684	9.951	24.917
					C			22.122	37.684	9.951	24.917
T4					A		Sum:	0.000	0.000	0.000	0.000
280.00-260.00					B			0.000	0.000	0.000	0.000
					C			0.000	0.000	0.000	0.000
T5					A		Sum:	0.000	0.000	0.000	0.000
260.00-240.00					B			0.000	0.000	0.000	0.000
					C			0.000	0.000	0.000	0.000
T6					A		Sum:	0.000	0.000	0.000	0.000
240.00-220.00					B			0.000	0.000	0.000	0.000
					C			0.000	0.000	0.000	0.000
T7					A		Sum:	0.000	0.000	0.000	0.000
220.00-200.00					B			0.000	0.000	0.000	0.000
					C			0.000	0.000	0.000	0.000
T8					A		Sum:	0.000	0.000	0.000	0.000
200.00-180.00					B			0.000	0.000	0.000	0.000
					C			0.000	0.000	0.000	0.000
T9					A		Sum:	0.000	0.000	0.000	0.000
180.00-170.00					B			0.000	0.000	0.000	0.000
					C			0.000	0.000	0.000	0.000
T10					A		Sum:	0.000	0.000	0.000	0.000
170.00-160.00					B			0.000	0.000	0.000	0.000
					C			0.000	0.000	0.000	0.000
T11					A		Sum:	0.000	0.000	0.000	0.000
160.00-140.00					B			0.000	0.000	0.000	0.000
					C			0.000	0.000	0.000	0.000
T12					A		Sum:	0.000	0.000	0.000	0.000
140.00-120.00					B			0.000	0.000	0.000	0.000
					C			0.000	0.000	0.000	0.000
T13	214	ROHN 3 STD	36.594	37.584	C	0.131	0.212	7.130	15.864	3.874	9.150
120.00-100.00											
	215	ROHN 3 XXS	36.594	37.584	C	0.131	0.212	6.882	15.311	3.739	8.830
	216	ROHN 1.5 STD	19.865	29.862	C	0.131	0.212	0.930	3.030	0.526	1.747
	217	ROHN 2 STD	24.831	32.155	C	0.131	0.212	2.092	5.867	1.183	3.384
	218	ROHN 3 XXS	36.594	37.584	C	0.131	0.212	6.882	15.311	3.739	8.830
	219	ROHN 1.5 STD	19.865	29.862	C	0.131	0.212	0.930	3.030	0.526	1.747
	220	ROHN 2 STD	24.831	32.155	C	0.131	0.212	2.092	5.867	1.183	3.384
	221	ROHN 3 STD	36.594	37.584	B	0.131	0.212	7.130	15.864	3.874	9.150
	222	ROHN 3 XXS	36.594	37.584	B	0.131	0.212	6.882	15.311	3.739	8.830
	223	ROHN 1.5 STD	19.865	29.862	B	0.131	0.212	0.930	3.030	0.526	1.747
	224	ROHN 2 STD	24.831	32.155	B	0.131	0.212	2.092	5.867	1.183	3.384
	225	ROHN 3 XXS	36.594	37.584	B	0.131	0.212	6.882	15.311	3.739	8.830
	226	ROHN 1.5 STD	19.865	29.862	B	0.131	0.212	0.930	3.030	0.526	1.747
	227	ROHN 2 STD	24.831	32.155	B	0.131	0.212	2.092	5.867	1.183	3.384
	230	ROHN 3 STD	36.594	37.584	A	0.131	0.212	7.130	15.864	3.874	9.150
	231	ROHN 3 XXS	36.594	37.584	A	0.131	0.212	6.882	15.311	3.739	8.830
	232	ROHN 1.5 STD	19.865	29.862	A	0.131	0.212	0.930	3.030	0.526	1.747
	233	ROHN 2 STD	24.831	32.155	A	0.131	0.212	2.092	5.867	1.183	3.384
	234	ROHN 3 XXS	36.594	37.584	A	0.131	0.212	6.882	15.311	3.739	8.830
	235	ROHN 1.5 STD	19.865	29.862	A	0.131	0.212	0.930	3.030	0.526	1.747
	236	ROHN 2 STD	24.831	32.155	A	0.131	0.212	2.092	5.867	1.183	3.384
					A		Sum:	26.937	64.278	14.773	37.073
					B			26.937	64.278	14.773	37.073
					C			26.937	64.278	14.773	37.073
T14	247	ROHN 3 X-STR	36.391	37.188	C	0.122	0.2	7.883	17.450	4.283	10.026

Section Elevation ft	Elem. Num.	Size	C	C w/Ice	Face	e	e w/Ice	A_r ft^2	A_r w/Ice ft^2	A_rR_r ft^2	A_rR_r w/Ice ft^2
100.00-80.00											
	248	ROHN 3 XXS	36.391	37.188	C	0.122	0.2	7.109	15.738	3.863	9.042
	249	P1.5x.145	19.755	29.509	C	0.122	0.2	1.033	3.341	0.584	1.919
	250	ROHN 2 EH	24.746	31.813	C	0.122	0.2	2.178	6.067	1.232	3.486
	251	ROHN 3 XXS	36.391	37.188	C	0.122	0.2	7.109	15.738	3.863	9.042
	252	P1.5x.145	19.755	29.509	C	0.122	0.2	1.033	3.341	0.584	1.919
	253	ROHN 2 EH	24.746	31.813	C	0.122	0.2	2.178	6.067	1.232	3.486
	254	ROHN 3 X-STR	36.391	37.188	B	0.122	0.2	7.883	17.450	4.283	10.026
	255	ROHN 3 XXS	36.391	37.188	B	0.122	0.2	7.109	15.738	3.863	9.042
	256	P1.5x.145	19.755	29.509	B	0.122	0.2	1.033	3.341	0.584	1.919
	257	ROHN 2 EH	24.746	31.813	B	0.122	0.2	2.178	6.067	1.232	3.486
	258	ROHN 3 XXS	36.391	37.188	B	0.122	0.2	7.109	15.738	3.863	9.042
	259	P1.5x.145	19.755	29.509	B	0.122	0.2	1.033	3.341	0.584	1.919
	260	ROHN 2 EH	24.746	31.813	B	0.122	0.2	2.178	6.067	1.232	3.486
	263	ROHN 3 X-STR	36.391	37.188	A	0.122	0.2	7.883	17.450	4.283	10.026
	264	ROHN 3 XXS	36.391	37.188	A	0.122	0.2	7.109	15.738	3.863	9.042
	265	P1.5x.145	19.755	29.509	A	0.122	0.2	1.033	3.341	0.584	1.919
	266	ROHN 2 EH	24.746	31.813	A	0.122	0.2	2.178	6.067	1.232	3.486
	267	ROHN 3 XXS	36.391	37.188	A	0.122	0.2	7.109	15.738	3.863	9.042
	268	P1.5x.145	19.755	29.509	A	0.122	0.2	1.033	3.341	0.584	1.919
	269	ROHN 2 EH	24.746	31.813	A	0.122	0.2	2.178	6.067	1.232	3.486
					A		Sum:	28.523	67.741	15.639	38.919
					B			28.523	67.741	15.639	38.919
					C			28.523	67.741	15.639	38.919
T15 80.00-60.00	280	ROHN 3 XXS	36.44	37.123	C	0.13	0.205	8.612	19.005	4.686	10.934
	281	ROHN 3.5 EH	41.645	39.526	C	0.13	0.205	8.384	17.237	4.348	9.916
	282	ROHN 2 STD	24.727	31.716	C	0.13	0.205	1.402	3.897	0.794	2.242
	283	ROHN 2 EH	24.779	31.74	C	0.13	0.205	2.253	6.251	1.275	3.596
	284	ROHN 3.5 EH	41.645	39.526	C	0.13	0.205	8.384	17.237	4.348	9.916
	285	ROHN 2 STD	24.727	31.716	C	0.13	0.205	1.402	3.897	0.794	2.242
	286	ROHN 2 EH	24.779	31.74	C	0.13	0.205	2.253	6.251	1.275	3.596
	287	ROHN 3 XXS	36.44	37.123	B	0.13	0.205	8.612	19.005	4.686	10.934
	288	ROHN 3.5 EH	41.645	39.526	B	0.13	0.205	8.384	17.237	4.348	9.916
	289	ROHN 2 STD	24.727	31.716	B	0.13	0.205	1.402	3.897	0.794	2.242
	290	ROHN 2 EH	24.779	31.74	B	0.13	0.205	2.253	6.251	1.275	3.596
	291	ROHN 3.5 EH	41.645	39.526	B	0.13	0.205	8.384	17.237	4.348	9.916
	292	ROHN 2 STD	24.727	31.716	B	0.13	0.205	1.402	3.897	0.794	2.242
	293	ROHN 2 EH	24.779	31.74	B	0.13	0.205	2.253	6.251	1.275	3.596
	296	ROHN 3 XXS	36.44	37.123	A	0.13	0.205	8.612	19.005	4.686	10.934
	297	ROHN 3.5 EH	41.645	39.526	A	0.13	0.205	8.384	17.237	4.348	9.916
	298	ROHN 2 STD	24.727	31.716	A	0.13	0.205	1.402	3.897	0.794	2.242
	299	ROHN 2 EH	24.779	31.74	A	0.13	0.205	2.253	6.251	1.275	3.596
	300	ROHN 3.5 EH	41.645	39.526	A	0.13	0.205	8.384	17.237	4.348	9.916
	301	ROHN 2 STD	24.727	31.716	A	0.13	0.205	1.402	3.897	0.794	2.242
	302	ROHN 2 EH	24.779	31.74	A	0.13	0.205	2.253	6.251	1.275	3.596
					A		Sum:	32.691	73.775	17.518	42.443
					B			32.691	73.775	17.518	42.443
					C			32.691	73.775	17.518	42.443
T16 60.00-30.00	313	ROHN 3.5 EH	42.455	40.333	C	0.122	0.191	10.693	22.004	5.485	12.609
	314	ROHN 4 X-STR	47.762	42.783	C	0.122	0.191	12.823	24.881	6.237	14.258
	315	ROHN 1.5 STD	20.166	30.044	C	0.122	0.191	0.790	2.551	0.447	1.462
	316	ROHN 2 XXS	25.208	32.371	C	0.122	0.191	2.081	5.789	1.176	3.317
	317	ROHN 2 EH	25.261	32.396	C	0.122	0.191	1.972	5.480	1.115	3.140
	318	ROHN 2.5 STD	30.515	34.821	C	0.122	0.191	3.288	8.127	1.859	4.657
	319	ROHN 4 X-STR	47.762	42.783	C	0.122	0.191	12.823	24.881	6.237	14.258
	320	ROHN 1.5 STD	20.166	30.044	C	0.122	0.191	0.790	2.551	0.447	1.462
	321	ROHN 2 XXS	25.208	32.371	C	0.122	0.191	2.081	5.789	1.176	3.317
	322	ROHN 2 EH	25.261	32.396	C	0.122	0.191	1.972	5.480	1.115	3.140
	323	ROHN 2.5 STD	30.515	34.821	C	0.122	0.191	3.288	8.127	1.859	4.657
	324	ROHN 3.5 EH	42.455	40.333	B	0.122	0.191	10.693	22.004	5.485	12.609

Section Elevation ft	Elem. Num.	Size	C	C w/Ice	Face	e	e w/Ice	A_r ft^2	A_r w/Ice ft^2	A_rR_r ft^2	A_rR_r w/Ice ft^2
	325	ROHN 4 X-STR	47.762	42.783	B	0.122	0.191	12.823	24.881	6.237	14.258
	326	ROHN 1.5 STD	20.166	30.044	B	0.122	0.191	0.790	2.551	0.447	1.462
	327	ROHN 2 XXS	25.208	32.371	B	0.122	0.191	2.081	5.789	1.176	3.317
	328	ROHN 2 EH	25.261	32.396	B	0.122	0.191	1.972	5.480	1.115	3.140
	329	ROHN 2.5 STD	30.515	34.821	B	0.122	0.191	3.288	8.127	1.859	4.657
	330	ROHN 4 X-STR	47.762	42.783	B	0.122	0.191	12.823	24.881	6.237	14.258
	331	ROHN 1.5 STD	20.166	30.044	B	0.122	0.191	0.790	2.551	0.447	1.462
	332	ROHN 2 XXS	25.208	32.371	B	0.122	0.191	2.081	5.789	1.176	3.317
	333	ROHN 2 EH	25.261	32.396	B	0.122	0.191	1.972	5.480	1.115	3.140
	334	ROHN 2.5 STD	30.515	34.821	B	0.122	0.191	3.288	8.127	1.859	4.657
	339	ROHN 3.5 EH	42.455	40.333	A	0.122	0.191	10.693	22.004	5.485	12.609
	340	ROHN 4 X-STR	47.762	42.783	A	0.122	0.191	12.823	24.881	6.237	14.258
	341	ROHN 1.5 STD	20.166	30.044	A	0.122	0.191	0.790	2.551	0.447	1.462
	342	ROHN 2 XXS	25.208	32.371	A	0.122	0.191	2.081	5.789	1.176	3.317
	343	ROHN 2 EH	25.261	32.396	A	0.122	0.191	1.972	5.480	1.115	3.140
	344	ROHN 2.5 STD	30.515	34.821	A	0.122	0.191	3.288	8.127	1.859	4.657
	345	ROHN 4 X-STR	47.762	42.783	A	0.122	0.191	12.823	24.881	6.237	14.258
	346	ROHN 1.5 STD	20.166	30.044	A	0.122	0.191	0.790	2.551	0.447	1.462
	347	ROHN 2 XXS	25.208	32.371	A	0.122	0.191	2.081	5.789	1.176	3.317
	348	ROHN 2 EH	25.261	32.396	A	0.122	0.191	1.972	5.480	1.115	3.140
	349	ROHN 2.5 STD	30.515	34.821	A	0.122	0.191	3.288	8.127	1.859	4.657
					A		Sum:	52.602	115.660	27.154	66.277
					B			52.602	115.660	27.154	66.277
					C			52.602	115.660	27.154	66.277
T17 30.00-0.00	364	ROHN 4 X-STR	50.087	44.95	C	0.117	0.183	13.402	26.053	6.343	14.897
	365	ROHN 4 X-STR	50.087	44.95	C	0.117	0.183	13.245	25.749	6.269	14.723
	366	P1.5x.145	21.148	31.591	C	0.117	0.183	0.887	2.870	0.501	1.641
	367	ROHN 2.5 EH	32	36.601	C	0.117	0.183	2.812	6.966	1.589	3.983
	368	ROHN 2.5 STD	32	36.601	C	0.117	0.183	2.470	6.119	1.395	3.499
	369	ROHN 2.5 STD	32	36.601	C	0.117	0.183	3.506	8.686	1.981	4.967
	370	ROHN 4 X-STR	50.087	44.95	C	0.117	0.183	13.245	25.749	6.269	14.723
	371	P1.5x.145	21.148	31.591	C	0.117	0.183	0.887	2.870	0.501	1.641
	372	ROHN 2.5 EH	32	36.601	C	0.117	0.183	2.812	6.966	1.589	3.983
	373	ROHN 2.5 STD	32	36.601	C	0.117	0.183	2.470	6.119	1.395	3.499
	374	ROHN 2.5 STD	32	36.601	C	0.117	0.183	3.506	8.686	1.981	4.967
	375	ROHN 4 X-STR	50.087	44.95	B	0.117	0.183	13.402	26.053	6.343	14.897
	376	ROHN 4 X-STR	50.087	44.95	B	0.117	0.183	13.245	25.749	6.269	14.723
	377	P1.5x.145	21.148	31.591	B	0.117	0.183	0.887	2.870	0.501	1.641
	378	ROHN 2.5 EH	32	36.601	B	0.117	0.183	2.812	6.966	1.589	3.983
	379	ROHN 2.5 STD	32	36.601	B	0.117	0.183	2.470	6.119	1.395	3.499
	380	ROHN 2.5 STD	32	36.601	B	0.117	0.183	3.506	8.686	1.981	4.967
	381	ROHN 4 X-STR	50.087	44.95	B	0.117	0.183	13.245	25.749	6.269	14.723
	382	P1.5x.145	21.148	31.591	B	0.117	0.183	0.887	2.870	0.501	1.641
	383	ROHN 2.5 EH	32	36.601	B	0.117	0.183	2.812	6.966	1.589	3.983
	384	ROHN 2.5 STD	32	36.601	B	0.117	0.183	2.470	6.119	1.395	3.499
	385	ROHN 2.5 STD	32	36.601	B	0.117	0.183	3.506	8.686	1.981	4.967
	390	ROHN 4 X-STR	50.087	44.95	A	0.117	0.183	13.402	26.053	6.343	14.897
	391	ROHN 4 X-STR	50.087	44.95	A	0.117	0.183	13.245	25.749	6.269	14.723
	392	P1.5x.145	21.148	31.591	A	0.117	0.183	0.887	2.870	0.501	1.641
	393	ROHN 2.5 EH	32	36.601	A	0.117	0.183	2.812	6.966	1.589	3.983
	394	ROHN 2.5 STD	32	36.601	A	0.117	0.183	2.470	6.119	1.395	3.499
	395	ROHN 2.5 STD	32	36.601	A	0.117	0.183	3.506	8.686	1.981	4.967
	396	ROHN 4 X-STR	50.087	44.95	A	0.117	0.183	13.245	25.749	6.269	14.723
	397	P1.5x.145	21.148	31.591	A	0.117	0.183	0.887	2.870	0.501	1.641
	398	ROHN 2.5 EH	32	36.601	A	0.117	0.183	2.812	6.966	1.589	3.983
	399	ROHN 2.5 STD	32	36.601	A	0.117	0.183	2.470	6.119	1.395	3.499
	400	ROHN 2.5 STD	32	36.601	A	0.117	0.183	3.506	8.686	1.981	4.967
					A		Sum:	59.240	126.835	29.812	72.522
					B			59.240	126.835	29.812	72.522
					C			59.240	126.835	29.812	72.522

Section Elevation ft	Elem. Num.	Size	C	C w/Ice	Face	e	e w/Ice	A_r ft^2	A_r w/Ice ft^2	A_rR_r ft^2	A_rR_r w/Ice ft^2

222-G Section Verification Tables - No Ice

Section Elevation ft	z_{wind} ft	z_{ice} ft	K_z	K_h	K_{zt}	t_z in	q_z psf	Face	e	A_rR_r ft^2
T1 320.00-304.00	312.00		1.608	11890.1	1		41	A	0.209	6.710
								B	0.209	6.710
								C	0.209	6.710
T2 304.00-300.00	302.00		1.597	8801.76	1		41	A	0.201	1.664
								B	0.201	1.664
								C	0.201	1.664
T3 300.00-280.00	290.00		1.584	6135.24	1		40	A	0.207	9.951
								B	0.207	9.951
								C	0.207	9.951
T4 280.00-260.00	270.00		1.56	3362.03	1		40	A	0.237	0.000
								B	0.237	0.000
								C	0.237	0.000
T5 260.00-240.00	250.00		1.535	1842.35	1.001		39	A	0.219	0.000
								B	0.219	0.000
								C	0.219	0.000
T6 240.00-220.00	230.00		1.508	1009.58	1.001		39	A	0.223	0.000
								B	0.223	0.000
								C	0.223	0.000
T7 220.00-200.00	210.00		1.48	553.239	1.002		38	A	0.181	0.000
								B	0.181	0.000
								C	0.181	0.000
T8 200.00-180.00	190.00		1.449	303.168	1.003		37	A	0.187	0.000
								B	0.187	0.000
								C	0.187	0.000
T9 180.00-170.00	175.00		1.424	193.09	1.005		37	A	0.177	0.000
								B	0.177	0.000
								C	0.177	0.000
T10 170.00-160.00	165.00		1.406	142.937	1.007		36	A	0.171	0.000
								B	0.171	0.000
								C	0.171	0.000
T11 160.00-140.00	150.00		1.378	91.038	1.012		36	A	0.181	0.000
								B	0.181	0.000
								C	0.181	0.000
T12 140.00-120.00	130.00		1.337	49.888	1.021		35	A	0.173	0.000
								B	0.173	0.000
								C	0.173	0.000
T13 120.00-100.00	110.00		1.291	27.338	1.039		34	A	0.131	14.773
								B	0.131	14.773
								C	0.131	14.773
T14 100.00-80.00	90.00		1.238	14.981	1.072		34	A	0.122	15.639
								B	0.122	15.639
								C	0.122	15.639
T15 80.00-60.00	70.00		1.174	8.209	1.133		34	A	0.13	17.518
								B	0.13	17.518
								C	0.13	17.518
T16 60.00-30.00	45.00		1.07	3.87	1.293		35	A	0.122	27.154

Section Elevation ft	z_{wind} ft	z_{ice} ft	K_z	K_h	K_{zt}	t_z in	q_z psf	Face	e	A_rR_r ft^2
								B	0.122	27.154
								C	0.122	27.154
T17 30.00-0.00	15.00		0.85	1.57	1.789		39	A	0.117	29.812
								B	0.117	29.812
								C	0.117	29.812

222-G Section Verification Tables - Ice

Section Elevation ft	z_{wind} ft	z_{ice} ft	K_z	K_h	K_{zt}	t_z in	q_z psf	Face	e	A_rR_r ft^2
T1 320.00-304.00	312.00	312.00	1.608	11890.1	1	2.3474	9	A	0.509	36.468
								B	0.509	36.468
								C	0.509	36.468
T2 304.00-300.00	302.00	302.00	1.597	8801.76	1	2.3397	9	A	0.48	8.477
								B	0.48	8.477
								C	0.48	8.477
T3 300.00-280.00	290.00	290.00	1.584	6135.24	1	2.3303	9	A	0.454	44.325
								B	0.454	44.325
								C	0.454	44.325
T4 280.00-260.00	270.00	270.00	1.56	3362.03	1	2.3138	8	A	0.388	15.976
								B	0.388	15.976
								C	0.388	15.976
T5 260.00-240.00	250.00	250.00	1.535	1842.35	1.001	2.2963	8	A	0.361	18.127
								B	0.361	18.127
								C	0.361	18.127
T6 240.00-220.00	230.00	230.00	1.508	1009.58	1.001	2.2776	8	A	0.359	20.544
								B	0.359	20.544
								C	0.359	20.544
T7 220.00-200.00	210.00	210.00	1.48	553.239	1.002	2.2577	8	A	0.284	15.968
								B	0.284	15.968
								C	0.284	15.968
T8 200.00-180.00	190.00	190.00	1.449	303.168	1.003	2.2364	8	A	0.283	17.406
								B	0.283	17.406
								C	0.283	17.406
T9 180.00-170.00	175.00	175.00	1.424	193.09	1.005	2.2197	8	A	0.271	9.205
								B	0.271	9.205
								C	0.271	9.205
T10 170.00-160.00	165.00	165.00	1.406	142.937	1.007	2.2081	8	A	0.263	9.535
								B	0.263	9.535
								C	0.263	9.535
T11 160.00-140.00	150.00	150.00	1.378	91.038	1.012	2.1904	8	A	0.271	20.145
								B	0.271	20.145
								C	0.271	20.145
T12 140.00-120.00	130.00	130.00	1.337	49.888	1.021	2.1665	7	A	0.26	21.434
								B	0.26	21.434
								C	0.26	21.434
T13 120.00-100.00	110.00	110.00	1.291	27.338	1.039	2.1435	7	A	0.212	37.073
								B	0.212	37.073
								C	0.212	37.073
T14 100.00-80.00	90.00	90.00	1.238	14.981	1.072	2.1239	7	A	0.2	38.919
								B	0.2	38.919
								C	0.2	38.919
T15 80.00-60.00	70.00	70.00	1.174	8.209	1.133	2.1119	7	A	0.205	42.443
								B	0.205	42.443
								C	0.205	42.443

Section Elevation ft	z_{wind} ft	z_{ice} ft	K_z	K_h	K_{zt}	t_z in	q_z psf	Face	e	A_rR_r ft²
T16 60.00-30.00	45.00	45.00	1.07	3.87	1.293	2.1159	8	A	0.191	66.277
								B	0.191	66.277
								C	0.191	66.277
T17 30.00-0.00	15.00	15.00	0.85	1.57	1.789	2.1241	8	A	0.183	72.522
								B	0.183	72.522
								C	0.183	72.522

222-G Section Verification Tables - Service

Section Elevation ft	z_{wind} ft	z_{ice} ft	K_z	K_h	K_{zt}	t_z in	q_z psf	Face	e	A_rR_r ft²
T1 320.00-304.00	312.00		1.608	11890.1	1		13	A	0.209	6.710
								B	0.209	6.710
								C	0.209	6.710
T2 304.00-300.00	302.00		1.597	8801.76	1		13	A	0.201	1.664
								B	0.201	1.664
								C	0.201	1.664
T3 300.00-280.00	290.00		1.584	6135.24	1		12	A	0.207	9.951
								B	0.207	9.951
								C	0.207	9.951
T4 280.00-260.00	270.00		1.56	3362.03	1		12	A	0.237	0.000
								B	0.237	0.000
								C	0.237	0.000
T5 260.00-240.00	250.00		1.535	1842.35	1.001		12	A	0.219	0.000
								B	0.219	0.000
								C	0.219	0.000
T6 240.00-220.00	230.00		1.508	1009.58	1.001		12	A	0.223	0.000
								B	0.223	0.000
								C	0.223	0.000
T7 220.00-200.00	210.00		1.48	553.239	1.002		12	A	0.181	0.000
								B	0.181	0.000
								C	0.181	0.000
T8 200.00-180.00	190.00		1.449	303.168	1.003		11	A	0.187	0.000
								B	0.187	0.000
								C	0.187	0.000
T9 180.00-170.00	175.00		1.424	193.09	1.005		11	A	0.177	0.000
								B	0.177	0.000
								C	0.177	0.000
T10 170.00-160.00	165.00		1.406	142.937	1.007		11	A	0.171	0.000
								B	0.171	0.000
								C	0.171	0.000
T11 160.00-140.00	150.00		1.378	91.038	1.012		11	A	0.181	0.000
								B	0.181	0.000
								C	0.181	0.000
T12 140.00-120.00	130.00		1.337	49.888	1.021		11	A	0.173	0.000
								B	0.173	0.000
								C	0.173	0.000
T13 120.00-100.00	110.00		1.291	27.338	1.039		11	A	0.131	14.773
								B	0.131	14.773
								C	0.131	14.773
T14 100.00-80.00	90.00		1.238	14.981	1.072		10	A	0.122	15.639
								B	0.122	15.639
								C	0.122	15.639
T15 80.00-60.00	70.00		1.174	8.209	1.133		10	A	0.13	17.518
								B	0.13	17.518

Section Elevation ft	z_{wind} ft	z_{ice} ft	K_z	K_h	K_{zt}	t_z in	q_z psf	Face	e	A_rR_r ft²
								C	0.13	17.518
T16 60.00-30.00	45.00		1.07	3.87	1.293		11	A	0.122	27.154
								B	0.122	27.154
								C	0.122	27.154
T17 30.00-0.00	15.00		0.85	1.57	1.789		12	A	0.117	29.812
								B	0.117	29.812
								C	0.117	29.812

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	312.00	1.608	41	116.377	A	9.512	14.835	14.835	60.93	0.000	0.000
320.00-304.00					B	9.512	14.835		60.93	5.561	0.000
					C	9.512	14.835		60.93	0.000	0.000
T2	302.00	1.597	41	29.094	A	2.147	3.709	3.709	63.34	0.000	0.000
304.00-300.00					B	2.147	3.709		63.34	1.540	0.000
					C	2.147	3.709		63.34	0.000	0.000
T3	290.00	1.584	40	167.656	A	12.596	22.122	22.122	63.72	0.000	0.000
300.00-280.00					B	12.596	22.122		63.72	14.473	0.000
					C	12.596	22.122		63.72	0.000	0.000
T4	270.00	1.56	40	216.829	A	51.464	0.000	37.788	73.43	0.000	0.000
280.00-260.00					B	51.464	0.000		73.43	30.636	0.000
					C	51.464	0.000		73.43	0.000	0.000
T5	250.00	1.535	39	259.126	A	56.868	0.000	37.778	66.43	0.000	0.000
260.00-240.00					B	56.868	0.000		66.43	41.134	0.000
					C	56.868	0.000		66.43	0.000	0.000
T6	230.00	1.508	39	299.625	A	66.901	0.000	37.776	56.46	0.000	0.000
240.00-220.00					B	66.901	0.000		56.46	53.315	0.000
					C	66.901	0.000		56.46	0.000	0.000
T7	210.00	1.48	38	339.725	A	61.588	0.000	37.775	61.34	0.000	0.000
220.00-200.00					B	61.588	0.000		61.34	53.860	0.000
					C	61.588	0.000		61.34	30.160	0.000
T8	190.00	1.449	37	385.076	A	71.846	0.000	45.633	63.52	53.800	0.000
200.00-180.00					B	71.846	0.000		63.52	53.860	0.000
					C	71.846	0.000		63.52	30.160	0.000
T9	175.00	1.424	37	208.387	A	36.864	0.000	22.815	61.89	26.900	0.000
180.00-170.00					B	36.864	0.000		61.89	29.035	0.000
					C	36.864	0.000		61.89	15.080	0.000
T10	165.00	1.406	36	218.787	A	37.492	0.000	22.815	60.85	26.900	0.000
170.00-160.00					B	37.492	0.000		60.85	31.062	0.000
					C	37.492	0.000		60.85	15.080	0.000
T11	150.00	1.378	36	467.070	A	84.562	0.000	45.617	53.94	53.800	0.000
160.00-140.00					B	84.562	0.000		53.94	65.549	0.000
					C	84.562	0.000		53.94	30.160	0.000
T12	130.00	1.337	35	507.978	A	87.738	0.000	45.637	52.02	53.800	0.000
140.00-120.00					B	87.738	0.000		52.02	73.626	0.000
					C	87.738	0.000		52.02	30.160	0.000
T13	110.00	1.291	34	555.591	A	45.673	26.937	45.673	62.90	53.800	0.000
120.00-100.00					B	45.673	26.937		62.90	81.475	0.000
					C	45.673	26.937		62.90	30.160	0.000
T14	90.00	1.238	34	606.388	A	45.666	28.523	45.666	61.55	53.800	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
100.00-80.00					B	45.666	28.523		61.55	92.098	0.000
					C	45.666	28.523		61.55	30.160	0.000
T15	70.00	1.174	34	662.098	A	53.708	32.691	53.708	62.16	53.800	0.000
80.00-60.00					B	53.708	32.691		62.16	94.169	0.000
					C	53.708	32.691		62.16	30.160	0.000
T16	45.00	1.07	35	1088.08	A	80.523	52.602	80.523	60.49	80.700	0.000
60.00-30.00				3	B	80.523	52.602		60.49	141.253	0.000
					C	80.523	52.602		60.49	45.240	0.000
T17 30.00-0.00	15.00	0.85	39	1202.12	A	81.480	59.240	81.480	57.90	67.250	0.000
				2	B	81.480	59.240		57.90	117.711	0.000
					C	81.480	59.240		57.90	37.700	0.000

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	312.00	1.608	9	2.3474	122.637	A	9.512	52.873	27.354	43.85	0.000	0.000
320.00-304.00						B	9.512	52.873		43.85	33.025	0.000
						C	9.512	52.873		43.85	0.000	0.000
T2	302.00	1.597	9	2.3397	30.654	A	2.147	12.569	6.828	46.40	0.000	0.000
304.00-300.00						B	2.147	12.569		46.40	9.027	0.000
						C	2.147	12.569		46.40	0.000	0.000
T3	290.00	1.584	9	2.3303	175.434	A	12.596	67.037	37.684	47.32	0.000	0.000
300.00-280.00						B	12.596	67.037		47.32	75.994	0.000
						C	12.596	67.037		47.32	0.000	0.000
T4	270.00	1.56	8	2.3138	224.554	A	61.768	25.316	48.092	55.22	0.000	0.000
280.00-260.00						B	61.768	25.316		55.22	143.089	0.000
						C	61.768	25.316		55.22	0.000	0.000
T5	250.00	1.535	8	2.2963	266.790	A	67.092	29.225	48.001	49.84	0.000	0.000
260.00-240.00						B	67.092	29.225		49.84	183.505	0.000
						C	67.092	29.225		49.84	0.000	0.000
T6	230.00	1.508	8	2.2776	307.227	A	77.041	33.169	47.916	43.48	0.000	0.000
240.00-220.00						B	77.041	33.169		43.48	233.247	0.000
						C	77.041	33.169		43.48	0.000	0.000
T7	210.00	1.48	8	2.2577	347.260	A	71.639	26.881	47.826	48.54	0.000	0.000
220.00-200.00						B	71.639	26.881		48.54	234.475	0.000
						C	71.639	26.881		48.54	95.573	0.000
T8	190.00	1.449	8	2.2364	392.542	A	81.804	29.311	55.592	50.03	158.995	0.000
200.00-180.00						B	81.804	29.311		50.03	232.775	0.000
						C	81.804	29.311		50.03	95.297	0.000
T9	175.00	1.424	8	2.2197	212.092	A	41.805	15.592	27.756	48.36	79.358	0.000
180.00-170.00						B	41.805	15.592		48.36	127.144	0.000
						C	41.805	15.592		48.36	47.540	0.000
T10	165.00	1.406	8	2.2081	222.473	A	42.408	16.205	27.730	47.31	79.262	0.000
170.00-160.00						B	42.408	16.205		47.31	138.818	0.000
						C	42.408	16.205		47.31	47.465	0.000
T11	150.00	1.378	8	2.1904	474.380	A	94.312	34.122	55.366	43.11	158.229	0.000
160.00-140.00						B	94.312	34.122		43.11	292.474	0.000
						C	94.312	34.122		43.11	94.700	0.000
T12	130.00	1.337	7	2.1665	515.210	A	97.386	36.484	55.285	41.30	157.832	0.000
140.00-120.00						B	97.386	36.484		41.30	321.040	0.000
						C	97.386	36.484		41.30	94.390	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T13	110.00	1.291	7	2.1435	562.751	A	55.227	64.278	55.227	46.21	157.450	0.000
120.00-100.00						B	55.227	64.278		46.21	350.400	0.000
						C	55.227	64.278		46.21	94.093	0.000
T14	90.00	1.238	7	2.1239	613.482	A	55.130	67.741	55.130	44.87	157.125	0.000
100.00-80.00						B	55.130	67.741		44.87	389.875	0.000
						C	55.130	67.741		44.87	93.840	0.000
T15 80.00-60.00	70.00	1.174	7	2.1119	669.154	A	63.122	73.775	63.122	46.11	156.925	0.000
						B	63.122	73.775		46.11	398.287	0.000
						C	63.122	73.775		46.11	93.684	0.000
T16 60.00-30.00	45.00	1.07	8	2.1159	1098.682	A	94.664	115.660	94.664	45.01	235.486	0.000
						B	94.664	115.660		45.01	598.278	0.000
						C	94.664	115.660		45.01	140.602	0.000
T17 30.00-0.00	15.00	0.85	8	2.1241	1212.765	A	95.680	126.835	95.680	43.00	196.410	0.000
						B	95.680	126.835		43.00	500.053	0.000
						C	95.680	126.835		43.00	117.302	0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	312.00	1.608	13	116.377	A	9.512	14.835	14.835	60.93	0.000	0.000
320.00-304.00					B	9.512	14.835		60.93	5.561	0.000
					C	9.512	14.835		60.93	0.000	0.000
T2	302.00	1.597	13	29.094	A	2.147	3.709	3.709	63.34	0.000	0.000
304.00-300.00					B	2.147	3.709		63.34	1.540	0.000
					C	2.147	3.709		63.34	0.000	0.000
T3	290.00	1.584	12	167.656	A	12.596	22.122	22.122	63.72	0.000	0.000
300.00-280.00					B	12.596	22.122		63.72	14.473	0.000
					C	12.596	22.122		63.72	0.000	0.000
T4	270.00	1.56	12	216.829	A	51.464	0.000	37.788	73.43	0.000	0.000
280.00-260.00					B	51.464	0.000		73.43	30.636	0.000
					C	51.464	0.000		73.43	0.000	0.000
T5	250.00	1.535	12	259.126	A	56.868	0.000	37.778	66.43	0.000	0.000
260.00-240.00					B	56.868	0.000		66.43	41.134	0.000
					C	56.868	0.000		66.43	0.000	0.000
T6	230.00	1.508	12	299.625	A	66.901	0.000	37.776	56.46	0.000	0.000
240.00-220.00					B	66.901	0.000		56.46	53.315	0.000
					C	66.901	0.000		56.46	0.000	0.000
T7	210.00	1.48	12	339.725	A	61.588	0.000	37.775	61.34	0.000	0.000
220.00-200.00					B	61.588	0.000		61.34	53.860	0.000
					C	61.588	0.000		61.34	30.160	0.000
T8	190.00	1.449	11	385.076	A	71.846	0.000	45.633	63.52	53.800	0.000
200.00-180.00					B	71.846	0.000		63.52	53.860	0.000
					C	71.846	0.000		63.52	30.160	0.000
T9	175.00	1.424	11	208.387	A	36.864	0.000	22.815	61.89	26.900	0.000
180.00-170.00					B	36.864	0.000		61.89	29.035	0.000
					C	36.864	0.000		61.89	15.080	0.000
T10	165.00	1.406	11	218.787	A	37.492	0.000	22.815	60.85	26.900	0.000
170.00-160.00					B	37.492	0.000		60.85	31.062	0.000
					C	37.492	0.000		60.85	15.080	0.000
T11	150.00	1.378	11	467.070	A	84.562	0.000	45.617	53.94	53.800	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
160.00-140.00					B	84.562	0.000		53.94	65.549	0.000
					C	84.562	0.000		53.94	30.160	0.000
T12	130.00	1.337	11	507.978	A	87.738	0.000	45.637	52.02	53.800	0.000
140.00-120.00					B	87.738	0.000		52.02	73.626	0.000
					C	87.738	0.000		52.02	30.160	0.000
T13	110.00	1.291	11	555.591	A	45.673	26.937	45.673	62.90	53.800	0.000
120.00-100.00					B	45.673	26.937		62.90	81.475	0.000
					C	45.673	26.937		62.90	30.160	0.000
T14	90.00	1.238	10	606.388	A	45.666	28.523	45.666	61.55	53.800	0.000
100.00-80.00					B	45.666	28.523		61.55	92.098	0.000
					C	45.666	28.523		61.55	30.160	0.000
T15	70.00	1.174	10	662.098	A	53.708	32.691	53.708	62.16	53.800	0.000
80.00-60.00					B	53.708	32.691		62.16	94.169	0.000
					C	53.708	32.691		62.16	30.160	0.000
T16	45.00	1.07	11	1088.08	A	80.523	52.602	80.523	60.49	80.700	0.000
60.00-30.00				3	B	80.523	52.602		60.49	141.253	0.000
					C	80.523	52.602		60.49	45.240	0.000
T17 30.00-0.00	15.00	0.85	12	1202.12	A	81.480	59.240	81.480	57.90	67.250	0.000
				2	B	81.480	59.240		57.90	117.711	0.000
					C	81.480	59.240		57.90	37.700	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	15.90	1442.07	A	0.209	2.566	41	1	1	16.223	1568.86	98.05	C
320.00-304.00			B	0.209	2.566		1	1	16.223			
			C	0.209	2.566		1	1	16.223			
T2	4.36	349.72	A	0.201	2.592	41	1	1	3.811	374.34	93.58	C
304.00-300.00			B	0.201	2.592		1	1	3.811			
			C	0.201	2.592		1	1	3.811			
T3	43.60	2496.34	A	0.207	2.573	40	1	1	22.547	2291.85	114.59	C
300.00-280.00			B	0.207	2.573		1	1	22.547			
			C	0.207	2.573		1	1	22.547			
T4	101.88	5067.66	A	0.237	2.476	40	1	1	51.464	4936.84	246.84	C
280.00-260.00			B	0.237	2.476		1	1	51.464			
			C	0.237	2.476		1	1	51.464			
T5	137.02	5409.17	A	0.219	2.532	39	1	1	56.868	5621.20	281.06	C
260.00-240.00			B	0.219	2.532		1	1	56.868			
			C	0.219	2.532		1	1	56.868			
T6	176.60	6484.36	A	0.223	2.52	39	1	1	66.901	6570.98	328.55	C
240.00-220.00			B	0.223	2.52		1	1	66.901			
			C	0.223	2.52		1	1	66.901			
T7	376.80	6406.00	A	0.181	2.66	38	1	1	61.588	6890.36	344.52	C
220.00-200.00			B	0.181	2.66		1	1	61.588			
			C	0.181	2.66		1	1	61.588			
T8	673.40	7298.65	A	0.187	2.641	37	1	1	71.846	8594.90	429.75	C
200.00-180.00			B	0.187	2.641		1	1	71.846			
			C	0.187	2.641		1	1	71.846			
T9	342.06	4191.71	A	0.177	2.675	37	1	1	36.864	4386.92	438.69	C
180.00-170.00			B	0.177	2.675		1	1	36.864			
			C	0.177	2.675		1	1	36.864			
T10	347.60	4265.58	A	0.171	2.694	36	1	1	37.492	4452.75	445.28	C
170.00-160.00			B	0.171	2.694		1	1	37.492			
			C	0.171	2.694		1	1	37.492			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T11	704.39	9608.59	A	0.181	2.661	36	1	1	84.562	9521.59	476.08	C
160.00-140.00			B	0.181	2.661		1	1	84.562			
			C	0.181	2.661		1	1	84.562			
T12	722.68	9975.29	A	0.173	2.69	35	1	1	87.738	9797.31	489.87	C
140.00-120.00			B	0.173	2.69		1	1	87.738			
			C	0.173	2.69		1	1	87.738			
T13	740.85	9144.95	A	0.131	2.844	34	1	1	60.446	7894.74	394.74	C
120.00-100.00			B	0.131	2.844		1	1	60.446			
			C	0.131	2.844		1	1	60.446			
T14	765.48	9675.54	A	0.122	2.876	34	1	1	61.305	8117.86	405.89	C
100.00-80.00			B	0.122	2.876		1	1	61.305			
			C	0.122	2.876		1	1	61.305			
T15	770.80	10501.98	A	0.13	2.845	34	1	1	71.226	8934.95	446.75	C
80.00-60.00			B	0.13	2.845		1	1	71.226			
			C	0.13	2.845		1	1	71.226			
T16	1156.20	15115.36	A	0.122	2.876	35	1	1	107.677	14101.40	470.05	C
60.00-30.00			B	0.122	2.876		1	1	107.677			
			C	0.122	2.876		1	1	107.677			
T17	963.50	17941.94	A	0.117	2.896	39	1	1	111.292	15044.45	501.48	C
30.00-0.00			B	0.117	2.896		1	1	111.292			
			C	0.117	2.896		1	1	111.292			
Sum Weight:	8043.12	125374.92						OTM	15885.76 kip-ft	119101.29		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	15.90	1442.07	A	0.209	2.566	41	0.825	1	14.558	1419.82	88.74	C
320.00-304.00			B	0.209	2.566		0.825	1	14.558			
			C	0.209	2.566		0.825	1	14.558			
T2	4.36	349.72	A	0.201	2.592	41	0.825	1	3.435	340.59	85.15	C
304.00-300.00			B	0.201	2.592		0.825	1	3.435			
			C	0.201	2.592		0.825	1	3.435			
T3	43.60	2496.34	A	0.207	2.573	40	0.825	1	20.343	2096.96	104.85	C
300.00-280.00			B	0.207	2.573		0.825	1	20.343			
			C	0.207	2.573		0.825	1	20.343			
T4	101.88	5067.66	A	0.237	2.476	40	0.825	1	42.458	4181.81	209.09	C
280.00-260.00			B	0.237	2.476		0.825	1	42.458			
			C	0.237	2.476		0.825	1	42.458			
T5	137.02	5409.17	A	0.219	2.532	39	0.825	1	46.916	4781.42	239.07	C
260.00-240.00			B	0.219	2.532		0.825	1	46.916			
			C	0.219	2.532		0.825	1	46.916			
T6	176.60	6484.36	A	0.223	2.52	39	0.825	1	55.194	5604.44	280.22	C
240.00-220.00			B	0.223	2.52		0.825	1	55.194			
			C	0.223	2.52		0.825	1	55.194			
T7	376.80	6406.00	A	0.181	2.66	38	0.825	1	50.810	5968.31	298.42	C
220.00-200.00			B	0.181	2.66		0.825	1	50.810			
			C	0.181	2.66		0.825	1	50.810			
T8	673.40	7298.65	A	0.187	2.641	37	0.825	1	59.273	7547.28	377.36	C
200.00-180.00			B	0.187	2.641		0.825	1	59.273			
			C	0.187	2.641		0.825	1	59.273			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T9	342.06	4191.71	A	0.177	2.675	37	0.825	1	30.413	3850.84	385.08	C
180.00-170.00			B	0.177	2.675		0.825	1	30.413			
			C	0.177	2.675		0.825	1	30.413			
T10	347.60	4265.58	A	0.171	2.694	36	0.825	1	30.931	3909.29	390.93	C
170.00-160.00			B	0.171	2.694		0.825	1	30.931			
			C	0.171	2.694		0.825	1	30.931			
T11	704.39	9608.59	A	0.181	2.661	36	0.825	1	69.763	8330.31	416.52	C
160.00-140.00			B	0.181	2.661		0.825	1	69.763			
			C	0.181	2.661		0.825	1	69.763			
T12	722.68	9975.29	A	0.173	2.69	35	0.825	1	72.384	8573.23	428.66	C
140.00-120.00			B	0.173	2.69		0.825	1	72.384			
			C	0.173	2.69		0.825	1	72.384			
T13	740.85	9144.95	A	0.131	2.844	34	0.825	1	52.453	7232.95	361.65	C
120.00-100.00			B	0.131	2.844		0.825	1	52.453			
			C	0.131	2.844		0.825	1	52.453			
T14	765.48	9675.54	A	0.122	2.876	34	0.825	1	53.313	7456.12	372.81	C
100.00-80.00			B	0.122	2.876		0.825	1	53.313			
			C	0.122	2.876		0.825	1	53.313			
T15	770.80	10501.98	A	0.13	2.845	34	0.825	1	61.827	8163.08	408.15	C
80.00-60.00			B	0.13	2.845		0.825	1	61.827			
			C	0.13	2.845		0.825	1	61.827			
T16	1156.20	15115.36	A	0.122	2.876	35	0.825	1	93.585	12885.47	429.52	C
60.00-30.00			B	0.122	2.876		0.825	1	93.585			
			C	0.122	2.876		0.825	1	93.585			
T17	963.50	17941.94	A	0.117	2.896	39	0.825	1	97.033	13681.70	456.06	C
30.00-0.00			B	0.117	2.896		0.825	1	97.033			
			C	0.117	2.896		0.825	1	97.033			
Sum Weight:	8043.12	125374.92						OTM	13960.91 kip-ft	106023.63		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	15.90	1442.07	A	0.209	2.566	41	0.8	1	14.320	1398.53	87.41	C
320.00-304.00			B	0.209	2.566		0.8	1	14.320			
			C	0.209	2.566		0.8	1	14.320			
T2	4.36	349.72	A	0.201	2.592	41	0.8	1	3.381	335.77	83.94	C
304.00-300.00			B	0.201	2.592		0.8	1	3.381			
			C	0.201	2.592		0.8	1	3.381			
T3	43.60	2496.34	A	0.207	2.573	40	0.8	1	20.028	2069.12	103.46	C
300.00-280.00			B	0.207	2.573		0.8	1	20.028			
			C	0.207	2.573		0.8	1	20.028			
T4	101.88	5067.66	A	0.237	2.476	40	0.8	1	41.171	4073.95	203.70	C
280.00-260.00			B	0.237	2.476		0.8	1	41.171			
			C	0.237	2.476		0.8	1	41.171			
T5	137.02	5409.17	A	0.219	2.532	39	0.8	1	45.494	4661.45	233.07	C
260.00-240.00			B	0.219	2.532		0.8	1	45.494			
			C	0.219	2.532		0.8	1	45.494			
T6	176.60	6484.36	A	0.223	2.52	39	0.8	1	53.521	5466.37	273.32	C
240.00-220.00			B	0.223	2.52		0.8	1	53.521			
			C	0.223	2.52		0.8	1	53.521			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T7	376.80	6406.00	A	0.181	2.66	38	0.8	1	49.270	5836.59	291.83	C
220.00-200.00			B	0.181	2.66		0.8	1	49.270			
			C	0.181	2.66		0.8	1	49.270			
T8	673.40	7298.65	A	0.187	2.641	37	0.8	1	57.477	7397.62	369.88	C
200.00-180.00			B	0.187	2.641		0.8	1	57.477			
			C	0.187	2.641		0.8	1	57.477			
T9	342.06	4191.71	A	0.177	2.675	37	0.8	1	29.491	3774.26	377.43	C
180.00-170.00			B	0.177	2.675		0.8	1	29.491			
			C	0.177	2.675		0.8	1	29.491			
T10	347.60	4265.58	A	0.171	2.694	36	0.8	1	29.994	3831.65	383.17	C
170.00-160.00			B	0.171	2.694		0.8	1	29.994			
			C	0.171	2.694		0.8	1	29.994			
T11	704.39	9608.59	A	0.181	2.661	36	0.8	1	67.649	8160.13	408.01	C
160.00-140.00			B	0.181	2.661		0.8	1	67.649			
			C	0.181	2.661		0.8	1	67.649			
T12	722.68	9975.29	A	0.173	2.69	35	0.8	1	70.190	8398.36	419.92	C
140.00-120.00			B	0.173	2.69		0.8	1	70.190			
			C	0.173	2.69		0.8	1	70.190			
T13	740.85	9144.95	A	0.131	2.844	34	0.8	1	51.311	7138.41	356.92	C
120.00-100.00			B	0.131	2.844		0.8	1	51.311			
			C	0.131	2.844		0.8	1	51.311			
T14	765.48	9675.54	A	0.122	2.876	34	0.8	1	52.171	7361.59	368.08	C
100.00-80.00			B	0.122	2.876		0.8	1	52.171			
			C	0.122	2.876		0.8	1	52.171			
T15	770.80	10501.98	A	0.13	2.845	34	0.8	1	60.484	8052.81	402.64	C
80.00-60.00			B	0.13	2.845		0.8	1	60.484			
			C	0.13	2.845		0.8	1	60.484			
T16	1156.20	15115.36	A	0.122	2.876	35	0.8	1	91.572	12711.77	423.73	C
60.00-30.00			B	0.122	2.876		0.8	1	91.572			
			C	0.122	2.876		0.8	1	91.572			
T17	963.50	17941.94	A	0.117	2.896	39	0.8	1	94.996	13487.03	449.57	C
30.00-0.00			B	0.117	2.896		0.8	1	94.996			
			C	0.117	2.896		0.8	1	94.996			
Sum Weight:	8043.12	125374.92						OTM	13685.94 kip-ft	104155.39		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	15.90	1442.07	A	0.209	2.566	41	0.85	1	14.796	1441.11	90.07	C
320.00-304.00			B	0.209	2.566		0.85	1	14.796			
			C	0.209	2.566		0.85	1	14.796			
T2	4.36	349.72	A	0.201	2.592	41	0.85	1	3.489	345.41	86.35	C
304.00-300.00			B	0.201	2.592		0.85	1	3.489			
			C	0.201	2.592		0.85	1	3.489			
T3	43.60	2496.34	A	0.207	2.573	40	0.85	1	20.658	2124.80	106.24	C
300.00-280.00			B	0.207	2.573		0.85	1	20.658			
			C	0.207	2.573		0.85	1	20.658			
T4	101.88	5067.66	A	0.237	2.476	40	0.85	1	43.745	4289.67	214.48	C
280.00-260.00			B	0.237	2.476		0.85	1	43.745			
			C	0.237	2.476		0.85	1	43.745			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T5	137.02	5409.17	A	0.219	2.532	39	0.85	1	48.338	4901.38	245.07	C
260.00-240.00			B	0.219	2.532		0.85	1	48.338			
			C	0.219	2.532		0.85	1	48.338			
T6	176.60	6484.36	A	0.223	2.52	39	0.85	1	56.866	5742.52	287.13	C
240.00-220.00			B	0.223	2.52		0.85	1	56.866			
			C	0.223	2.52		0.85	1	56.866			
T7	376.80	6406.00	A	0.181	2.66	38	0.85	1	52.350	6100.03	305.00	C
220.00-200.00			B	0.181	2.66		0.85	1	52.350			
			C	0.181	2.66		0.85	1	52.350			
T8	673.40	7298.65	A	0.187	2.641	37	0.85	1	61.069	7696.94	384.85	C
200.00-180.00			B	0.187	2.641		0.85	1	61.069			
			C	0.187	2.641		0.85	1	61.069			
T9	342.06	4191.71	A	0.177	2.675	37	0.85	1	31.334	3927.42	392.74	C
180.00-170.00			B	0.177	2.675		0.85	1	31.334			
			C	0.177	2.675		0.85	1	31.334			
T10	347.60	4265.58	A	0.171	2.694	36	0.85	1	31.869	3986.93	398.69	C
170.00-160.00			B	0.171	2.694		0.85	1	31.869			
			C	0.171	2.694		0.85	1	31.869			
T11	704.39	9608.59	A	0.181	2.661	36	0.85	1	71.877	8500.49	425.02	C
160.00-140.00			B	0.181	2.661		0.85	1	71.877			
			C	0.181	2.661		0.85	1	71.877			
T12	722.68	9975.29	A	0.173	2.69	35	0.85	1	74.577	8748.10	437.40	C
140.00-120.00			B	0.173	2.69		0.85	1	74.577			
			C	0.173	2.69		0.85	1	74.577			
T13	740.85	9144.95	A	0.131	2.844	34	0.85	1	53.595	7327.49	366.37	C
120.00-100.00			B	0.131	2.844		0.85	1	53.595			
			C	0.131	2.844		0.85	1	53.595			
T14	765.48	9675.54	A	0.122	2.876	34	0.85	1	54.455	7550.66	377.53	C
100.00-80.00			B	0.122	2.876		0.85	1	54.455			
			C	0.122	2.876		0.85	1	54.455			
T15	770.80	10501.98	A	0.13	2.845	34	0.85	1	63.170	8273.34	413.67	C
80.00-60.00			B	0.13	2.845		0.85	1	63.170			
			C	0.13	2.845		0.85	1	63.170			
T16	1156.20	15115.36	A	0.122	2.876	35	0.85	1	95.598	13059.18	435.31	C
60.00-30.00			B	0.122	2.876		0.85	1	95.598			
			C	0.122	2.876		0.85	1	95.598			
T17	963.50	17941.94	A	0.117	2.896	39	0.85	1	99.070	13876.38	462.55	C
30.00-0.00			B	0.117	2.896		0.85	1	99.070			
			C	0.117	2.896		0.85	1	99.070			
Sum Weight:	8043.12	125374.92						OTM	14235.89 kip-ft	107891.87		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	569.18	5434.85	A	0.509	1.889	9	1	1	45.981	766.60	47.91	C
320.00-304.00			B	0.509	1.889		1	1	45.981			
			C	0.509	1.889		1	1	45.981			
T2	155.39	1272.99	A	0.48	1.927	9	1	1	10.623	185.90	46.47	C
304.00-300.00			B	0.48	1.927		1	1	10.623			
			C	0.48	1.927		1	1	10.623			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T3	1331.40	7605.74	A	0.454	1.967	9	1	1	56.921	1123.99	56.20	C
300.00-280.00			B	0.454	1.967		1	1	56.921			
			C	0.454	1.967		1	1	56.921			
T4	2557.39	12926.42	A	0.388	2.089	8	1	1	77.744	1791.14	89.56	C
280.00-260.00			B	0.388	2.089		1	1	77.744			
			C	0.388	2.089		1	1	77.744			
T5	3288.12	14220.37	A	0.361	2.146	8	1	1	85.219	2080.81	104.04	C
260.00-240.00			B	0.361	2.146		1	1	85.219			
			C	0.361	2.146		1	1	85.219			
T6	4163.61	16903.26	A	0.359	2.152	8	1	1	97.585	2442.75	122.14	C
240.00-220.00			B	0.359	2.152		1	1	97.585			
			C	0.359	2.152		1	1	97.585			
T7	5817.03	15557.50	A	0.284	2.34	8	1	1	87.606	2762.78	138.14	C
220.00-200.00			B	0.284	2.34		1	1	87.606			
			C	0.284	2.34		1	1	87.606			
T8	8619.93	17512.14	A	0.283	2.342	8	1	1	99.210	3526.51	176.33	C
200.00-180.00			B	0.283	2.342		1	1	99.210			
			C	0.283	2.342		1	1	99.210			
T9	4459.97	10277.40	A	0.271	2.377	8	1	1	51.010	1811.80	181.18	C
180.00-170.00			B	0.271	2.377		1	1	51.010			
			C	0.271	2.377		1	1	51.010			
T10	4628.97	10469.57	A	0.263	2.398	8	1	1	51.944	1859.72	185.97	C
170.00-160.00			B	0.263	2.398		1	1	51.944			
			C	0.263	2.398		1	1	51.944			
T11	9435.48	21612.45	A	0.271	2.377	8	1	1	114.456	3864.21	193.21	C
160.00-140.00			B	0.271	2.377		1	1	114.456			
			C	0.271	2.377		1	1	114.456			
T12	9821.27	22383.07	A	0.26	2.408	7	1	1	118.819	3980.21	199.01	C
140.00-120.00			B	0.26	2.408		1	1	118.819			
			C	0.26	2.408		1	1	118.819			
T13	10216.69	19669.68	A	0.212	2.555	7	1	1	92.299	3704.22	185.21	C
120.00-100.00			B	0.212	2.555		1	1	92.299			
			C	0.212	2.555		1	1	92.299			
T14	10781.55	20433.81	A	0.2	2.595	7	1	1	94.049	3856.89	192.84	C
100.00-80.00			B	0.2	2.595		1	1	94.049			
			C	0.2	2.595		1	1	94.049			
T15	10865.45	22432.42	A	0.205	2.581	7	1	1	105.565	4071.57	203.58	C
80.00-60.00			B	0.205	2.581		1	1	105.565			
			C	0.205	2.581		1	1	105.565			
T16	16337.26	33424.13	A	0.191	2.625	8	1	1	160.941	6439.34	214.64	C
60.00-30.00			B	0.191	2.625		1	1	160.941			
			C	0.191	2.625		1	1	160.941			
T17	13683.09	37493.82	A	0.183	2.652	8	1	1	168.202	6570.14	219.00	C
30.00-0.00			B	0.183	2.652		1	1	168.202			
			C	0.183	2.652		1	1	168.202			
Sum Weight:	116731.79	289629.62						OTM	6586.03 kip-ft	50838.56		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	569.18	5434.85	A	0.509	1.889	9	0.825	1	44.316	743.21	46.45	C
320.00-304.00			B	0.509	1.889		0.825	1	44.316			
			C	0.509	1.889		0.825	1	44.316			
T2	155.39	1272.99	A	0.48	1.927	9	0.825	1	10.248	180.55	45.14	C
304.00-300.00			B	0.48	1.927		0.825	1	10.248			
			C	0.48	1.927		0.825	1	10.248			
T3	1331.40	7605.74	A	0.454	1.967	9	0.825	1	54.716	1092.23	54.61	C
300.00-280.00			B	0.454	1.967		0.825	1	54.716			
			C	0.454	1.967		0.825	1	54.716			
T4	2557.39	12926.42	A	0.388	2.089	8	0.825	1	66.935	1628.24	81.41	C
280.00-260.00			B	0.388	2.089		0.825	1	66.935			
			C	0.388	2.089		0.825	1	66.935			
T5	3288.12	14220.37	A	0.361	2.146	8	0.825	1	73.478	1901.85	95.09	C
260.00-240.00			B	0.361	2.146		0.825	1	73.478			
			C	0.361	2.146		0.825	1	73.478			
T6	4163.61	16903.26	A	0.359	2.152	8	0.825	1	84.103	2240.24	112.01	C
240.00-220.00			B	0.359	2.152		0.825	1	84.103			
			C	0.359	2.152		0.825	1	84.103			
T7	5817.03	15557.50	A	0.284	2.34	8	0.825	1	75.070	2561.67	128.08	C
220.00-200.00			B	0.284	2.34		0.825	1	75.070			
			C	0.284	2.34		0.825	1	75.070			
T8	8619.93	17512.14	A	0.283	2.342	8	0.825	1	84.895	3301.12	165.06	C
200.00-180.00			B	0.283	2.342		0.825	1	84.895			
			C	0.283	2.342		0.825	1	84.895			
T9	4459.97	10277.40	A	0.271	2.377	8	0.825	1	43.694	1696.67	169.67	C
180.00-170.00			B	0.271	2.377		0.825	1	43.694			
			C	0.271	2.377		0.825	1	43.694			
T10	4628.97	10469.57	A	0.263	2.398	8	0.825	1	44.522	1743.14	174.31	C
170.00-160.00			B	0.263	2.398		0.825	1	44.522			
			C	0.263	2.398		0.825	1	44.522			
T11	9435.48	21612.45	A	0.271	2.377	8	0.825	1	97.952	3611.27	180.56	C
160.00-140.00			B	0.271	2.377		0.825	1	97.952			
			C	0.271	2.377		0.825	1	97.952			
T12	9821.27	22383.07	A	0.26	2.408	7	0.825	1	101.777	3720.95	186.05	C
140.00-120.00			B	0.26	2.408		0.825	1	101.777			
			C	0.26	2.408		0.825	1	101.777			
T13	10216.69	19669.68	A	0.212	2.555	7	0.825	1	82.635	3551.00	177.55	C
120.00-100.00			B	0.212	2.555		0.825	1	82.635			
			C	0.212	2.555		0.825	1	82.635			
T14	10781.55	20433.81	A	0.2	2.595	7	0.825	1	84.402	3703.27	185.16	C
100.00-80.00			B	0.2	2.595		0.825	1	84.402			
			C	0.2	2.595		0.825	1	84.402			
T15	10865.45	22432.42	A	0.205	2.581	7	0.825	1	94.518	3896.17	194.81	C
80.00-60.00			B	0.205	2.581		0.825	1	94.518			
			C	0.205	2.581		0.825	1	94.518			
T16	16337.26	33424.13	A	0.191	2.625	8	0.825	1	144.375	6161.29	205.38	C
60.00-30.00			B	0.191	2.625		0.825	1	144.375			
			C	0.191	2.625		0.825	1	144.375			
T17	13683.09	37493.82	A	0.183	2.652	8	0.825	1	151.458	6257.87	208.60	C
30.00-0.00			B	0.183	2.652		0.825	1	151.458			
			C	0.183	2.652		0.825	1	151.458			
Sum Weight:	116731.79	289629.62						OTM	6176.37 kip-ft	47990.75		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	569.18	5434.85	A	0.509	1.889	9	0.8	1	44.078	739.87	46.24	C
320.00-304.00			B	0.509	1.889		0.8	1	44.078			
			C	0.509	1.889		0.8	1	44.078			
T2	155.39	1272.99	A	0.48	1.927	9	0.8	1	10.194	179.79	44.95	C
304.00-300.00			B	0.48	1.927		0.8	1	10.194			
			C	0.48	1.927		0.8	1	10.194			
T3	1331.40	7605.74	A	0.454	1.967	9	0.8	1	54.401	1087.70	54.38	C
300.00-280.00			B	0.454	1.967		0.8	1	54.401			
			C	0.454	1.967		0.8	1	54.401			
T4	2557.39	12926.42	A	0.388	2.089	8	0.8	1	65.391	1604.97	80.25	C
280.00-260.00			B	0.388	2.089		0.8	1	65.391			
			C	0.388	2.089		0.8	1	65.391			
T5	3288.12	14220.37	A	0.361	2.146	8	0.8	1	71.800	1876.29	93.81	C
260.00-240.00			B	0.361	2.146		0.8	1	71.800			
			C	0.361	2.146		0.8	1	71.800			
T6	4163.61	16903.26	A	0.359	2.152	8	0.8	1	82.176	2211.31	110.57	C
240.00-220.00			B	0.359	2.152		0.8	1	82.176			
			C	0.359	2.152		0.8	1	82.176			
T7	5817.03	15557.50	A	0.284	2.34	8	0.8	1	73.279	2532.94	126.65	C
220.00-200.00			B	0.284	2.34		0.8	1	73.279			
			C	0.284	2.34		0.8	1	73.279			
T8	8619.93	17512.14	A	0.283	2.342	8	0.8	1	82.850	3268.92	163.45	C
200.00-180.00			B	0.283	2.342		0.8	1	82.850			
			C	0.283	2.342		0.8	1	82.850			
T9	4459.97	10277.40	A	0.271	2.377	8	0.8	1	42.649	1680.22	168.02	C
180.00-170.00			B	0.271	2.377		0.8	1	42.649			
			C	0.271	2.377		0.8	1	42.649			
T10	4628.97	10469.57	A	0.263	2.398	8	0.8	1	43.462	1726.49	172.65	C
170.00-160.00			B	0.263	2.398		0.8	1	43.462			
			C	0.263	2.398		0.8	1	43.462			
T11	9435.48	21612.45	A	0.271	2.377	8	0.8	1	95.594	3575.14	178.76	C
160.00-140.00			B	0.271	2.377		0.8	1	95.594			
			C	0.271	2.377		0.8	1	95.594			
T12	9821.27	22383.07	A	0.26	2.408	7	0.8	1	99.342	3683.91	184.20	C
140.00-120.00			B	0.26	2.408		0.8	1	99.342			
			C	0.26	2.408		0.8	1	99.342			
T13	10216.69	19669.68	A	0.212	2.555	7	0.8	1	81.254	3529.11	176.46	C
120.00-100.00			B	0.212	2.555		0.8	1	81.254			
			C	0.212	2.555		0.8	1	81.254			
T14	10781.55	20433.81	A	0.2	2.595	7	0.8	1	83.023	3681.32	184.07	C
100.00-80.00			B	0.2	2.595		0.8	1	83.023			
			C	0.2	2.595		0.8	1	83.023			
T15	10865.45	22432.42	A	0.205	2.581	7	0.8	1	92.940	3871.12	193.56	C
80.00-60.00			B	0.205	2.581		0.8	1	92.940			
			C	0.205	2.581		0.8	1	92.940			
T16	16337.26	33424.13	A	0.191	2.625	8	0.8	1	142.008	6121.57	204.05	C
60.00-30.00			B	0.191	2.625		0.8	1	142.008			
			C	0.191	2.625		0.8	1	142.008			
T17	13683.09	37493.82	A	0.183	2.652	8	0.8	1	149.066	6213.27	207.11	C
30.00-0.00			B	0.183	2.652		0.8	1	149.066			
			C	0.183	2.652		0.8	1	149.066			
Sum Weight:	116731.79	289629.62						OTM	6117.85 kip-ft	47583.92		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	569.18	5434.85	A	0.509	1.889	9	0.85	1	44.554	746.55	46.66	C
320.00-304.00			B	0.509	1.889		0.85	1	44.554			
			C	0.509	1.889		0.85	1	44.554			
T2	155.39	1272.99	A	0.48	1.927	9	0.85	1	10.301	181.32	45.33	C
304.00-300.00			B	0.48	1.927		0.85	1	10.301			
			C	0.48	1.927		0.85	1	10.301			
T3	1331.40	7605.74	A	0.454	1.967	9	0.85	1	55.031	1096.77	54.84	C
300.00-280.00			B	0.454	1.967		0.85	1	55.031			
			C	0.454	1.967		0.85	1	55.031			
T4	2557.39	12926.42	A	0.388	2.089	8	0.85	1	68.479	1651.51	82.58	C
280.00-260.00			B	0.388	2.089		0.85	1	68.479			
			C	0.388	2.089		0.85	1	68.479			
T5	3288.12	14220.37	A	0.361	2.146	8	0.85	1	75.155	1927.42	96.37	C
260.00-240.00			B	0.361	2.146		0.85	1	75.155			
			C	0.361	2.146		0.85	1	75.155			
T6	4163.61	16903.26	A	0.359	2.152	8	0.85	1	86.029	2269.17	113.46	C
240.00-220.00			B	0.359	2.152		0.85	1	86.029			
			C	0.359	2.152		0.85	1	86.029			
T7	5817.03	15557.50	A	0.284	2.34	8	0.85	1	76.861	2590.40	129.52	C
220.00-200.00			B	0.284	2.34		0.85	1	76.861			
			C	0.284	2.34		0.85	1	76.861			
T8	8619.93	17512.14	A	0.283	2.342	8	0.85	1	86.940	3333.32	166.67	C
200.00-180.00			B	0.283	2.342		0.85	1	86.940			
			C	0.283	2.342		0.85	1	86.940			
T9	4459.97	10277.40	A	0.271	2.377	8	0.85	1	44.739	1713.12	171.31	C
180.00-170.00			B	0.271	2.377		0.85	1	44.739			
			C	0.271	2.377		0.85	1	44.739			
T10	4628.97	10469.57	A	0.263	2.398	8	0.85	1	45.582	1759.80	175.98	C
170.00-160.00			B	0.263	2.398		0.85	1	45.582			
			C	0.263	2.398		0.85	1	45.582			
T11	9435.48	21612.45	A	0.271	2.377	8	0.85	1	100.310	3647.41	182.37	C
160.00-140.00			B	0.271	2.377		0.85	1	100.310			
			C	0.271	2.377		0.85	1	100.310			
T12	9821.27	22383.07	A	0.26	2.408	7	0.85	1	104.211	3757.99	187.90	C
140.00-120.00			B	0.26	2.408		0.85	1	104.211			
			C	0.26	2.408		0.85	1	104.211			
T13	10216.69	19669.68	A	0.212	2.555	7	0.85	1	84.015	3572.89	178.64	C
120.00-100.00			B	0.212	2.555		0.85	1	84.015			
			C	0.212	2.555		0.85	1	84.015			
T14	10781.55	20433.81	A	0.2	2.595	7	0.85	1	85.780	3725.21	186.26	C
100.00-80.00			B	0.2	2.595		0.85	1	85.780			
			C	0.2	2.595		0.85	1	85.780			
T15	10865.45	22432.42	A	0.205	2.581	7	0.85	1	96.097	3921.23	196.06	C
80.00-60.00			B	0.205	2.581		0.85	1	96.097			
			C	0.205	2.581		0.85	1	96.097			
T16	16337.26	33424.13	A	0.191	2.625	8	0.85	1	146.741	6201.01	206.70	C
60.00-30.00			B	0.191	2.625		0.85	1	146.741			
			C	0.191	2.625		0.85	1	146.741			
T17	13683.09	37493.82	A	0.183	2.652	8	0.85	1	153.850	6302.48	210.08	C
30.00-0.00			B	0.183	2.652		0.85	1	153.850			
			C	0.183	2.652		0.85	1	153.850			
Sum Weight:	116731.79	289629.62						OTM	6234.90 kip-ft	48397.58		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	15.90	1442.07	A	0.209	2.566	13	1	1	16.223	481.44	30.09	C
320.00-304.00			B	0.209	2.566		1	1	16.223			
			C	0.209	2.566		1	1	16.223			
T2	4.36	349.72	A	0.201	2.592	13	1	1	3.811	114.88	28.72	C
304.00-300.00			B	0.201	2.592		1	1	3.811			
			C	0.201	2.592		1	1	3.811			
T3	43.60	2496.34	A	0.207	2.573	12	1	1	22.547	703.31	35.17	C
300.00-280.00			B	0.207	2.573		1	1	22.547			
			C	0.207	2.573		1	1	22.547			
T4	101.88	5067.66	A	0.237	2.476	12	1	1	51.464	1515.00	75.75	C
280.00-260.00			B	0.237	2.476		1	1	51.464			
			C	0.237	2.476		1	1	51.464			
T5	137.02	5409.17	A	0.219	2.532	12	1	1	56.868	1725.01	86.25	C
260.00-240.00			B	0.219	2.532		1	1	56.868			
			C	0.219	2.532		1	1	56.868			
T6	176.60	6484.36	A	0.223	2.52	12	1	1	66.901	2016.47	100.82	C
240.00-220.00			B	0.223	2.52		1	1	66.901			
			C	0.223	2.52		1	1	66.901			
T7	376.80	6406.00	A	0.181	2.66	12	1	1	61.588	2114.48	105.72	C
220.00-200.00			B	0.181	2.66		1	1	61.588			
			C	0.181	2.66		1	1	61.588			
T8	673.40	7298.65	A	0.187	2.641	11	1	1	71.846	2637.56	131.88	C
200.00-180.00			B	0.187	2.641		1	1	71.846			
			C	0.187	2.641		1	1	71.846			
T9	342.06	4191.71	A	0.177	2.675	11	1	1	36.864	1346.24	134.62	C
180.00-170.00			B	0.177	2.675		1	1	36.864			
			C	0.177	2.675		1	1	36.864			
T10	347.60	4265.58	A	0.171	2.694	11	1	1	37.492	1366.44	136.64	C
170.00-160.00			B	0.171	2.694		1	1	37.492			
			C	0.171	2.694		1	1	37.492			
T11	704.39	9608.59	A	0.181	2.661	11	1	1	84.562	2921.94	146.10	C
160.00-140.00			B	0.181	2.661		1	1	84.562			
			C	0.181	2.661		1	1	84.562			
T12	722.68	9975.29	A	0.173	2.69	11	1	1	87.738	3006.55	150.33	C
140.00-120.00			B	0.173	2.69		1	1	87.738			
			C	0.173	2.69		1	1	87.738			
T13	740.85	9144.95	A	0.131	2.844	11	1	1	60.446	2422.70	121.14	C
120.00-100.00			B	0.131	2.844		1	1	60.446			
			C	0.131	2.844		1	1	60.446			
T14	765.48	9675.54	A	0.122	2.876	10	1	1	61.305	2491.17	124.56	C
100.00-80.00			B	0.122	2.876		1	1	61.305			
			C	0.122	2.876		1	1	61.305			
T15	770.80	10501.98	A	0.13	2.845	10	1	1	71.226	2741.92	137.10	C
80.00-60.00			B	0.13	2.845		1	1	71.226			
			C	0.13	2.845		1	1	71.226			
T16	1156.20	15115.36	A	0.122	2.876	11	1	1	107.677	4327.37	144.25	C
60.00-30.00			B	0.122	2.876		1	1	107.677			
			C	0.122	2.876		1	1	107.677			
T17	963.50	17941.94	A	0.117	2.896	12	1	1	111.292	4616.77	153.89	C
30.00-0.00			B	0.117	2.896		1	1	111.292			
			C	0.117	2.896		1	1	111.292			
Sum Weight:	8043.12	125374.92						OTM	4874.95 kip-ft	36549.24		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	15.90	1442.07	A	0.209	2.566	13	0.825	1	14.558	435.71	27.23	C
320.00-304.00			B	0.209	2.566		0.825	1	14.558			
			C	0.209	2.566		0.825	1	14.558			
T2	4.36	349.72	A	0.201	2.592	13	0.825	1	3.435	104.52	26.13	C
304.00-300.00			B	0.201	2.592		0.825	1	3.435			
			C	0.201	2.592		0.825	1	3.435			
T3	43.60	2496.34	A	0.207	2.573	12	0.825	1	20.343	643.51	32.18	C
300.00-280.00			B	0.207	2.573		0.825	1	20.343			
			C	0.207	2.573		0.825	1	20.343			
T4	101.88	5067.66	A	0.237	2.476	12	0.825	1	42.458	1283.30	64.16	C
280.00-260.00			B	0.237	2.476		0.825	1	42.458			
			C	0.237	2.476		0.825	1	42.458			
T5	137.02	5409.17	A	0.219	2.532	12	0.825	1	46.916	1467.30	73.36	C
260.00-240.00			B	0.219	2.532		0.825	1	46.916			
			C	0.219	2.532		0.825	1	46.916			
T6	176.60	6484.36	A	0.223	2.52	12	0.825	1	55.194	1719.87	85.99	C
240.00-220.00			B	0.223	2.52		0.825	1	55.194			
			C	0.223	2.52		0.825	1	55.194			
T7	376.80	6406.00	A	0.181	2.66	12	0.825	1	50.810	1831.53	91.58	C
220.00-200.00			B	0.181	2.66		0.825	1	50.810			
			C	0.181	2.66		0.825	1	50.810			
T8	673.40	7298.65	A	0.187	2.641	11	0.825	1	59.273	2316.07	115.80	C
200.00-180.00			B	0.187	2.641		0.825	1	59.273			
			C	0.187	2.641		0.825	1	59.273			
T9	342.06	4191.71	A	0.177	2.675	11	0.825	1	30.413	1181.73	118.17	C
180.00-170.00			B	0.177	2.675		0.825	1	30.413			
			C	0.177	2.675		0.825	1	30.413			
T10	347.60	4265.58	A	0.171	2.694	11	0.825	1	30.931	1199.66	119.97	C
170.00-160.00			B	0.171	2.694		0.825	1	30.931			
			C	0.171	2.694		0.825	1	30.931			
T11	704.39	9608.59	A	0.181	2.661	11	0.825	1	69.763	2556.37	127.82	C
160.00-140.00			B	0.181	2.661		0.825	1	69.763			
			C	0.181	2.661		0.825	1	69.763			
T12	722.68	9975.29	A	0.173	2.69	11	0.825	1	72.384	2630.91	131.55	C
140.00-120.00			B	0.173	2.69		0.825	1	72.384			
			C	0.173	2.69		0.825	1	72.384			
T13	740.85	9144.95	A	0.131	2.844	11	0.825	1	52.453	2219.61	110.98	C
120.00-100.00			B	0.131	2.844		0.825	1	52.453			
			C	0.131	2.844		0.825	1	52.453			
T14	765.48	9675.54	A	0.122	2.876	10	0.825	1	53.313	2288.10	114.40	C
100.00-80.00			B	0.122	2.876		0.825	1	53.313			
			C	0.122	2.876		0.825	1	53.313			
T15	770.80	10501.98	A	0.13	2.845	10	0.825	1	61.827	2505.05	125.25	C
80.00-60.00			B	0.13	2.845		0.825	1	61.827			
			C	0.13	2.845		0.825	1	61.827			
T16	1156.20	15115.36	A	0.122	2.876	11	0.825	1	93.585	3954.23	131.81	C
60.00-30.00			B	0.122	2.876		0.825	1	93.585			
			C	0.122	2.876		0.825	1	93.585			
T17	963.50	17941.94	A	0.117	2.896	12	0.825	1	97.033	4198.58	139.95	C
30.00-0.00			B	0.117	2.896		0.825	1	97.033			
			C	0.117	2.896		0.825	1	97.033			
Sum Weight:	8043.12	125374.92						OTM	4284.26 kip-ft	32536.03		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	15.90	1442.07	A	0.209	2.566	13	0.8	1	14.320	429.17	26.82	C
320.00-304.00			B	0.209	2.566		0.8	1	14.320			
			C	0.209	2.566		0.8	1	14.320			
T2	4.36	349.72	A	0.201	2.592	13	0.8	1	3.381	103.04	25.76	C
304.00-300.00			B	0.201	2.592		0.8	1	3.381			
			C	0.201	2.592		0.8	1	3.381			
T3	43.60	2496.34	A	0.207	2.573	12	0.8	1	20.028	634.96	31.75	C
300.00-280.00			B	0.207	2.573		0.8	1	20.028			
			C	0.207	2.573		0.8	1	20.028			
T4	101.88	5067.66	A	0.237	2.476	12	0.8	1	41.171	1250.19	62.51	C
280.00-260.00			B	0.237	2.476		0.8	1	41.171			
			C	0.237	2.476		0.8	1	41.171			
T5	137.02	5409.17	A	0.219	2.532	12	0.8	1	45.494	1430.48	71.52	C
260.00-240.00			B	0.219	2.532		0.8	1	45.494			
			C	0.219	2.532		0.8	1	45.494			
T6	176.60	6484.36	A	0.223	2.52	12	0.8	1	53.521	1677.49	83.87	C
240.00-220.00			B	0.223	2.52		0.8	1	53.521			
			C	0.223	2.52		0.8	1	53.521			
T7	376.80	6406.00	A	0.181	2.66	12	0.8	1	49.270	1791.11	89.56	C
220.00-200.00			B	0.181	2.66		0.8	1	49.270			
			C	0.181	2.66		0.8	1	49.270			
T8	673.40	7298.65	A	0.187	2.641	11	0.8	1	57.477	2270.15	113.51	C
200.00-180.00			B	0.187	2.641		0.8	1	57.477			
			C	0.187	2.641		0.8	1	57.477			
T9	342.06	4191.71	A	0.177	2.675	11	0.8	1	29.491	1158.23	115.82	C
180.00-170.00			B	0.177	2.675		0.8	1	29.491			
			C	0.177	2.675		0.8	1	29.491			
T10	347.60	4265.58	A	0.171	2.694	11	0.8	1	29.994	1175.84	117.58	C
170.00-160.00			B	0.171	2.694		0.8	1	29.994			
			C	0.171	2.694		0.8	1	29.994			
T11	704.39	9608.59	A	0.181	2.661	11	0.8	1	67.649	2504.14	125.21	C
160.00-140.00			B	0.181	2.661		0.8	1	67.649			
			C	0.181	2.661		0.8	1	67.649			
T12	722.68	9975.29	A	0.173	2.69	11	0.8	1	70.190	2577.25	128.86	C
140.00-120.00			B	0.173	2.69		0.8	1	70.190			
			C	0.173	2.69		0.8	1	70.190			
T13	740.85	9144.95	A	0.131	2.844	11	0.8	1	51.311	2190.60	109.53	C
120.00-100.00			B	0.131	2.844		0.8	1	51.311			
			C	0.131	2.844		0.8	1	51.311			
T14	765.48	9675.54	A	0.122	2.876	10	0.8	1	52.171	2259.09	112.95	C
100.00-80.00			B	0.122	2.876		0.8	1	52.171			
			C	0.122	2.876		0.8	1	52.171			
T15	770.80	10501.98	A	0.13	2.845	10	0.8	1	60.484	2471.21	123.56	C
80.00-60.00			B	0.13	2.845		0.8	1	60.484			
			C	0.13	2.845		0.8	1	60.484			
T16	1156.20	15115.36	A	0.122	2.876	11	0.8	1	91.572	3900.93	130.03	C
60.00-30.00			B	0.122	2.876		0.8	1	91.572			
			C	0.122	2.876		0.8	1	91.572			
T17	963.50	17941.94	A	0.117	2.896	12	0.8	1	94.996	4138.84	137.96	C
30.00-0.00			B	0.117	2.896		0.8	1	94.996			
			C	0.117	2.896		0.8	1	94.996			
Sum Weight:	8043.12	125374.92						OTM	4199.88 kip-ft	31962.72		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	15.90	1442.07	A	0.209	2.566	13	0.85	1	14.796	442.24	27.64	C
320.00-304.00			B	0.209	2.566		0.85	1	14.796			
			C	0.209	2.566		0.85	1	14.796			
T2	4.36	349.72	A	0.201	2.592	13	0.85	1	3.489	106.00	26.50	C
304.00-300.00			B	0.201	2.592		0.85	1	3.489			
			C	0.201	2.592		0.85	1	3.489			
T3	43.60	2496.34	A	0.207	2.573	12	0.85	1	20.658	652.05	32.60	C
300.00-280.00			B	0.207	2.573		0.85	1	20.658			
			C	0.207	2.573		0.85	1	20.658			
T4	101.88	5067.66	A	0.237	2.476	12	0.85	1	43.745	1316.40	65.82	C
280.00-260.00			B	0.237	2.476		0.85	1	43.745			
			C	0.237	2.476		0.85	1	43.745			
T5	137.02	5409.17	A	0.219	2.532	12	0.85	1	48.338	1504.11	75.21	C
260.00-240.00			B	0.219	2.532		0.85	1	48.338			
			C	0.219	2.532		0.85	1	48.338			
T6	176.60	6484.36	A	0.223	2.52	12	0.85	1	56.866	1762.24	88.11	C
240.00-220.00			B	0.223	2.52		0.85	1	56.866			
			C	0.223	2.52		0.85	1	56.866			
T7	376.80	6406.00	A	0.181	2.66	12	0.85	1	52.350	1871.95	93.60	C
220.00-200.00			B	0.181	2.66		0.85	1	52.350			
			C	0.181	2.66		0.85	1	52.350			
T8	673.40	7298.65	A	0.187	2.641	11	0.85	1	61.069	2362.00	118.10	C
200.00-180.00			B	0.187	2.641		0.85	1	61.069			
			C	0.187	2.641		0.85	1	61.069			
T9	342.06	4191.71	A	0.177	2.675	11	0.85	1	31.334	1205.23	120.52	C
180.00-170.00			B	0.177	2.675		0.85	1	31.334			
			C	0.177	2.675		0.85	1	31.334			
T10	347.60	4265.58	A	0.171	2.694	11	0.85	1	31.869	1223.49	122.35	C
170.00-160.00			B	0.171	2.694		0.85	1	31.869			
			C	0.171	2.694		0.85	1	31.869			
T11	704.39	9608.59	A	0.181	2.661	11	0.85	1	71.877	2608.59	130.43	C
160.00-140.00			B	0.181	2.661		0.85	1	71.877			
			C	0.181	2.661		0.85	1	71.877			
T12	722.68	9975.29	A	0.173	2.69	11	0.85	1	74.577	2684.58	134.23	C
140.00-120.00			B	0.173	2.69		0.85	1	74.577			
			C	0.173	2.69		0.85	1	74.577			
T13	740.85	9144.95	A	0.131	2.844	11	0.85	1	53.595	2248.63	112.43	C
120.00-100.00			B	0.131	2.844		0.85	1	53.595			
			C	0.131	2.844		0.85	1	53.595			
T14	765.48	9675.54	A	0.122	2.876	10	0.85	1	54.455	2317.11	115.86	C
100.00-80.00			B	0.122	2.876		0.85	1	54.455			
			C	0.122	2.876		0.85	1	54.455			
T15	770.80	10501.98	A	0.13	2.845	10	0.85	1	63.170	2538.88	126.94	C
80.00-60.00			B	0.13	2.845		0.85	1	63.170			
			C	0.13	2.845		0.85	1	63.170			
T16	1156.20	15115.36	A	0.122	2.876	11	0.85	1	95.598	4007.54	133.58	C
60.00-30.00			B	0.122	2.876		0.85	1	95.598			
			C	0.122	2.876		0.85	1	95.598			
T17	963.50	17941.94	A	0.117	2.896	12	0.85	1	99.070	4258.32	141.94	C
30.00-0.00			B	0.117	2.896		0.85	1	99.070			
			C	0.117	2.896		0.85	1	99.070			
Sum Weight:	8043.12	125374.92						OTM	4368.64	33109.35		

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
									kip-ft			

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	73044.53					
Bracing Weight	52330.39					
Total Member Self-Weight	125374.92			52.17	-23.73	
Total Weight	141359.30			52.17	-23.73	
Wind 0 deg - No Ice		-138.26	-136294.69	-19395.51	3.33	157.68
Wind 30 deg - No Ice		62414.10	-108257.89	-15347.66	-8897.50	226.64
Wind 45 deg - No Ice		87017.39	-87029.83	-12319.21	-12392.71	238.89
Wind 60 deg - No Ice		105006.76	-60554.66	-8548.33	-14944.34	234.86
Wind 90 deg - No Ice		125067.67	138.26	79.23	-17818.14	180.16
Wind 120 deg - No Ice		118088.55	68267.08	9799.45	-16876.50	77.19
Wind 135 deg - No Ice		92497.09	92509.53	13239.58	-13208.73	15.90
Wind 150 deg - No Ice		62653.57	108396.15	15479.07	-8944.37	-46.47
Wind 180 deg - No Ice		138.26	121348.79	17300.04	-50.79	-157.68
Wind 210 deg - No Ice		-62414.10	108257.89	15452.01	8850.04	-226.64
Wind 225 deg - No Ice		-87017.39	87029.83	12423.56	12345.25	-238.89
Wind 240 deg - No Ice		-117950.29	68027.61	9752.58	16801.98	-234.86
Wind 270 deg - No Ice		-125067.67	-138.26	25.11	17770.69	-180.16
Wind 300 deg - No Ice		-105145.02	-60794.13	-8595.20	14923.94	-77.19
Wind 315 deg - No Ice		-87212.92	-87225.36	-12357.49	12383.52	-15.90
Wind 330 deg - No Ice		-62653.57	-108396.15	-15374.72	8896.91	46.47
Member Ice	164254.70					
Total Weight Ice	438138.22			642.69	-661.41	
Wind 0 deg - Ice		-34.91	-58077.68	-7514.68	-654.59	161.68
Wind 30 deg - Ice		27786.26	-48165.34	-6114.30	-4558.27	213.40
Wind 45 deg - Ice		39026.11	-39028.73	-4830.95	-6134.55	218.09
Wind 60 deg - Ice		47457.48	-27381.29	-3196.00	-7316.43	207.93
Wind 90 deg - Ice		55632.99	34.91	649.52	-8466.95	146.75
Wind 120 deg - Ice		50310.99	29069.07	4727.29	-7728.71	46.25
Wind 135 deg - Ice		40226.17	40228.79	6291.51	-6309.73	-10.56
Wind 150 deg - Ice		27846.73	48200.25	7406.51	-4570.08	-66.65
Wind 180 deg - Ice		34.91	54823.04	8331.89	-668.23	-161.68
Wind 210 deg - Ice		-27786.26	48165.34	7399.69	3235.45	-213.40
Wind 225 deg - Ice		-39026.11	39028.73	6116.33	4811.73	-218.09
Wind 240 deg - Ice		-50276.08	29008.61	4715.48	6399.07	-207.93
Wind 270 deg - Ice		-55632.99	-34.91	635.87	7144.13	-146.75
Wind 300 deg - Ice		-47492.39	-27441.75	-3207.81	6000.43	-46.25
Wind 315 deg - Ice		-39075.48	-39078.10	-4840.59	4821.38	10.56
Wind 330 deg - Ice		-27846.73	-48200.25	-6121.12	3247.27	66.65
Total Weight	141359.30			52.17	-23.73	
Wind 0 deg - Service		-42.43	-41825.47	-5963.48	5.97	48.39
Wind 30 deg - Service		19153.34	-33221.67	-4721.29	-2725.48	69.55
Wind 45 deg - Service		26703.49	-26707.30	-3791.93	-3798.07	73.31
Wind 60 deg - Service		32223.98	-18582.73	-2634.74	-4581.11	72.07
Wind 90 deg - Service		38380.18	42.43	12.84	-5463.01	55.29
Wind 120 deg - Service		36238.46	20949.48	2995.74	-5174.04	23.69
Wind 135 deg - Service		28385.07	28388.89	4051.43	-4048.49	4.88

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 150 deg - Service		19226.83	33264.10	4738.67	-2739.86	-14.26
Wind 180 deg - Service		42.43	37238.94	5297.48	-10.64	-48.39
Wind 210 deg - Service		-19153.34	33221.67	4730.37	2720.80	-69.55
Wind 225 deg - Service		-26703.49	26707.30	3801.01	3793.39	-73.31
Wind 240 deg - Service		-36196.03	20875.99	2981.35	5161.06	-72.07
Wind 270 deg - Service		-38380.18	-42.43	-3.77	5458.33	-55.29
Wind 300 deg - Service		-32266.41	-18656.22	-2649.13	4584.73	-23.69
Wind 315 deg - Service		-26763.49	-26767.31	-3803.68	3805.14	-4.88
Wind 330 deg - Service		-19226.83	-33264.10	-4729.59	2735.19	14.26

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 45 deg - No Ice
7	0.9 Dead+1.6 Wind 45 deg - No Ice
8	1.2 Dead+1.6 Wind 60 deg - No Ice
9	0.9 Dead+1.6 Wind 60 deg - No Ice
10	1.2 Dead+1.6 Wind 90 deg - No Ice
11	0.9 Dead+1.6 Wind 90 deg - No Ice
12	1.2 Dead+1.6 Wind 120 deg - No Ice
13	0.9 Dead+1.6 Wind 120 deg - No Ice
14	1.2 Dead+1.6 Wind 135 deg - No Ice
15	0.9 Dead+1.6 Wind 135 deg - No Ice
16	1.2 Dead+1.6 Wind 150 deg - No Ice
17	0.9 Dead+1.6 Wind 150 deg - No Ice
18	1.2 Dead+1.6 Wind 180 deg - No Ice
19	0.9 Dead+1.6 Wind 180 deg - No Ice
20	1.2 Dead+1.6 Wind 210 deg - No Ice
21	0.9 Dead+1.6 Wind 210 deg - No Ice
22	1.2 Dead+1.6 Wind 225 deg - No Ice
23	0.9 Dead+1.6 Wind 225 deg - No Ice
24	1.2 Dead+1.6 Wind 240 deg - No Ice
25	0.9 Dead+1.6 Wind 240 deg - No Ice
26	1.2 Dead+1.6 Wind 270 deg - No Ice
27	0.9 Dead+1.6 Wind 270 deg - No Ice
28	1.2 Dead+1.6 Wind 300 deg - No Ice
29	0.9 Dead+1.6 Wind 300 deg - No Ice
30	1.2 Dead+1.6 Wind 315 deg - No Ice
31	0.9 Dead+1.6 Wind 315 deg - No Ice
32	1.2 Dead+1.6 Wind 330 deg - No Ice
33	0.9 Dead+1.6 Wind 330 deg - No Ice
34	1.2 Dead+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
39	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
40	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
41	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
42	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
43	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
44	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
45	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
46	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
47	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
48	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
49	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
50	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
51	Dead+Wind 0 deg - Service
52	Dead+Wind 30 deg - Service
53	Dead+Wind 45 deg - Service
54	Dead+Wind 60 deg - Service
55	Dead+Wind 90 deg - Service
56	Dead+Wind 120 deg - Service
57	Dead+Wind 135 deg - Service
58	Dead+Wind 150 deg - Service
59	Dead+Wind 180 deg - Service
60	Dead+Wind 210 deg - Service
61	Dead+Wind 225 deg - Service
62	Dead+Wind 240 deg - Service
63	Dead+Wind 270 deg - Service
64	Dead+Wind 300 deg - Service
65	Dead+Wind 315 deg - Service
66	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	320 - 304	Leg	Max Tension	29	4478.73	0.03	0.01
			Max. Compression	24	-6064.52	-0.02	-0.01
			Max. Mx	10	-505.28	0.20	0.00
			Max. My	16	-1679.57	-0.01	0.14
			Max. Vy	10	-316.69	0.00	0.00
			Max. Vx	3	395.08	0.00	0.00
		Diagonal	Max Tension	20	1285.02	0.00	0.00
			Max. Compression	4	-1277.30	0.00	0.00
			Max. Mx	40	417.34	0.03	-0.00
			Max. My	16	-204.44	0.00	-0.00
			Max. Vy	40	-34.86	0.03	-0.00
			Max. Vx	16	0.15	0.00	-0.00
		Top Girt	Max Tension	3	95.62	0.00	0.00
			Max. Compression	8	-108.04	0.00	0.00
			Max. Mx	34	-56.16	-0.09	0.00
			Max. Vy	34	55.72	0.00	0.00
T2	304 - 300	Leg	Max Tension	29	6671.84	0.00	0.01
			Max. Compression	24	-8663.70	0.34	-0.03
			Max. Mx	24	-8663.70	0.34	-0.03
			Max. My	2	-8636.36	0.09	0.31
			Max. Vy	24	-142.04	0.34	-0.03
			Max. Vx	2	-138.96	0.09	0.31
		Diagonal	Max Tension	20	1484.81	0.00	0.00
			Max. Compression	4	-1505.04	0.00	0.00
			Max. Mx	40	420.45	0.03	-0.00
			Max. My	4	-1481.40	0.00	0.00
			Max. Vy	40	-34.81	0.03	-0.00
			Max. Vx	4	-0.04	0.00	0.00
T3	300 - 280	Leg	Max Tension	19	20126.05	-0.13	0.03

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	24	-25470.88	0.57	0.12
			Max. Mx	13	-24708.30	0.57	-0.17
			Max. My	14	3397.74	-0.15	-0.63
			Max. Vy	8	-490.47	-0.13	0.03
			Max. Vx	14	-731.98	-0.04	-0.08
		Diagonal	Max Tension	10	3547.65	0.00	0.00
			Max. Compression	10	-3576.36	0.00	0.00
			Max. Mx	43	750.57	0.05	-0.01
			Max. My	47	-1354.17	0.05	0.01
			Max. Vy	43	51.17	0.05	-0.01
			Max. Vx	47	-2.87	0.00	0.00
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	48	-31.37	0.00	0.00
			Max. Mx	34	-24.66	-0.11	0.00
			Max. My	34	-22.59	0.00	0.00
			Max. Vy	34	63.02	0.00	0.00
			Max. Vx	34	-1.86	0.00	0.00
T4	280 - 260	Leg	Max Tension	19	40605.76	-0.33	-0.00
			Max. Compression	12	-51467.45	0.90	-0.08
			Max. Mx	25	-50258.99	0.90	-0.06
			Max. My	16	-4348.10	-0.02	-0.80
			Max. Vy	3	-551.08	0.90	0.14
			Max. Vx	4	794.24	-0.02	-0.56
		Diagonal	Max Tension	10	5433.69	0.00	0.00
			Max. Compression	10	-5467.00	0.00	0.00
			Max. Mx	43	808.48	0.10	0.01
			Max. My	38	-1600.33	0.09	-0.01
			Max. Vy	43	73.72	0.10	0.01
			Max. Vx	38	4.49	0.00	0.00
T5	260 - 240	Leg	Max Tension	19	68345.01	-0.21	-0.46
			Max. Compression	12	-87852.71	2.70	-0.13
			Max. Mx	24	-87109.86	2.71	0.61
			Max. My	20	-7373.31	0.01	2.64
			Max. Vy	3	-785.78	2.70	-0.48
			Max. Vx	20	1393.04	-0.03	-0.45
		Diagonal	Max Tension	26	8615.64	0.00	0.00
			Max. Compression	24	-9061.08	0.00	0.00
			Max. Mx	43	956.17	0.15	0.02
			Max. My	37	-2289.79	0.14	-0.02
			Max. Vy	43	98.92	0.15	0.02
			Max. Vx	37	5.69	0.00	0.00
T6	240 - 220	Leg	Max Tension	19	104907.11	-0.54	-0.02
			Max. Compression	12	-134618.56	2.21	-0.05
			Max. Mx	24	-101194.05	2.71	0.61
			Max. My	20	-7588.85	0.01	2.64
			Max. Vy	25	658.84	2.70	0.61
			Max. Vx	4	-625.03	0.01	-2.64
		Diagonal	Max Tension	26	11044.23	0.00	0.00
			Max. Compression	24	-11675.44	0.00	0.00
			Max. Mx	38	1240.50	0.25	-0.04
			Max. My	44	-2294.58	0.24	0.04
			Max. Vy	38	149.84	0.25	-0.04
			Max. Vx	44	-8.37	0.00	0.00
T7	220 - 200	Leg	Max Tension	9	146866.96	-0.88	-0.18
			Max. Compression	12	-188982.58	2.29	-0.07
			Max. Mx	12	-188982.58	2.29	-0.07
			Max. My	4	-12516.94	-0.14	-3.20
			Max. Vy	28	-2488.54	-1.87	0.05
			Max. Vx	20	2262.68	0.02	0.48
		Diagonal	Max Tension	32	16288.19	0.00	0.00
			Max. Compression	2	-17073.55	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	37	2142.04	0.36	-0.05
			Max. My	36	2759.52	0.34	-0.06
			Max. Vy	37	179.23	0.36	-0.05
			Max. Vx	36	10.42	0.00	0.00
T8	200 - 180	Leg	Max Tension	19	201761.68	-1.64	-0.00
			Max. Compression	12	-257893.40	5.07	-0.16
			Max. Mx	12	-257893.40	5.07	-0.16
			Max. My	20	-18095.08	0.05	3.70
			Max. Vy	28	-2856.05	-1.82	0.07
			Max. Vx	20	2709.92	0.07	-0.25
		Diagonal	Max Tension	26	20518.62	0.00	0.00
			Max. Compression	24	-20801.86	0.00	0.00
			Max. Mx	43	2572.17	0.44	0.06
			Max. My	44	-3883.32	0.42	0.07
			Max. Vy	43	199.72	0.44	0.06
			Max. Vx	44	-11.64	0.00	0.00
T9	180 - 170	Leg	Max Tension	19	230705.85	-4.38	0.38
			Max. Compression	12	-293796.77	2.33	-0.11
			Max. Mx	12	-292556.21	5.07	-0.16
			Max. My	20	-18814.13	0.05	3.70
			Max. Vy	3	829.70	5.04	-0.37
			Max. Vx	24	836.64	-2.46	3.59
		Diagonal	Max Tension	26	22580.67	0.00	0.00
			Max. Compression	24	-23031.66	0.00	0.00
			Max. Mx	43	2695.74	-0.63	-0.09
			Max. My	44	-5466.61	-0.60	-0.10
			Max. Vy	43	-275.70	-0.63	-0.09
			Max. Vx	44	15.93	0.00	0.00
T10	170 - 160	Leg	Max Tension	19	260520.83	-2.26	-0.01
			Max. Compression	12	-330925.97	4.61	-0.08
			Max. Mx	12	-330925.97	4.61	-0.08
			Max. My	20	-21914.12	0.11	3.28
			Max. Vy	3	-715.91	4.58	-0.26
			Max. Vx	24	-704.60	-2.14	3.16
		Diagonal	Max Tension	26	23621.09	0.00	0.00
			Max. Compression	24	-23867.14	0.00	0.00
			Max. Mx	43	2892.36	-0.68	-0.10
			Max. My	37	-4626.70	-0.61	0.10
			Max. Vy	43	-288.79	-0.68	-0.10
			Max. Vx	37	-16.42	0.00	0.00
T11	160 - 140	Leg	Max Tension	19	322291.41	-2.66	-0.16
			Max. Compression	12	-408451.47	5.87	-0.39
			Max. Mx	12	-408451.47	5.87	-0.39
			Max. My	14	63457.53	-0.99	-4.15
			Max. Vy	2	-1005.82	5.85	0.17
			Max. Vx	14	-1187.27	-0.99	-4.15
		Diagonal	Max Tension	26	27767.77	0.00	0.00
			Max. Compression	24	-28675.68	0.00	0.00
			Max. Mx	43	5642.73	0.82	-0.08
			Max. My	45	4684.76	0.80	0.11
			Max. Vy	43	321.22	0.82	-0.08
			Max. Vx	45	-16.30	0.00	0.00
T12	140 - 120	Leg	Max Tension	19	385044.27	-3.02	0.00
			Max. Compression	12	-487928.21	-2.86	0.20
			Max. Mx	12	-448203.35	5.87	-0.39
			Max. My	20	-30482.90	-1.06	6.31
			Max. Vy	2	1050.43	3.12	0.01
			Max. Vx	14	1148.26	-1.01	-5.58
		Diagonal	Max Tension	26	29953.46	0.00	0.00
			Max. Compression	24	-30554.34	0.00	0.00
			Max. Mx	42	5925.36	0.97	-0.13

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	45	3546.64	0.97	0.14
			Max. Vy	42	349.10	0.97	-0.13
			Max. Vx	45	-19.84	0.00	0.00
T13	120 - 100	Leg	Max Tension	19	395981.40	0.87	0.19
			Max. Compression	12	-504576.86	-14.82	0.09
			Max. Mx	12	-503817.96	21.64	0.30
			Max. My	20	-33488.63	-2.54	13.83
			Max. Vy	12	4649.17	21.64	0.30
			Max. Vx	20	-2810.72	-2.54	13.83
		Diagonal	Max Tension	27	48108.08	-0.22	-0.04
			Max. Compression	24	-50451.40	0.00	0.00
			Max. Mx	43	5577.50	-0.40	0.00
			Max. My	26	-49441.70	-0.16	-0.19
			Max. Vy	43	-162.43	-0.40	0.00
			Max. Vx	26	15.26	-0.16	-0.19
		Horizontal	Max Tension	26	26902.40	-0.19	0.00
			Max. Compression	25	-26940.89	-0.19	-0.03
			Max. Mx	43	-1991.92	-0.53	-0.01
			Max. My	2	3234.73	-0.12	0.06
			Max. Vy	43	193.13	-0.53	-0.01
			Max. Vx	2	-4.81	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	12	8763.95	0.00	0.00
			Max. Compression	12	-8763.95	0.00	0.00
			Max. Mx	34	1854.38	0.07	0.00
			Max. Vy	34	-43.97	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	12	7951.20	0.00	0.00
			Max. Compression	12	-7951.20	0.00	0.00
			Max. Mx	34	1202.70	0.13	0.00
			Max. Vy	34	-46.35	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	27	23.26	0.00	0.00
			Max. Compression	10	-49.09	0.00	0.00
			Max. Mx	34	-26.50	0.07	0.00
			Max. Vy	34	-43.97	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	35	112.30	0.00	0.00
			Max. Compression	47	-127.85	0.00	0.00
			Max. Mx	34	93.14	0.43	0.00
			Max. Vy	34	114.42	0.00	0.00
		Inner Bracing	Max Tension	27	7.75	0.00	0.00
			Max. Compression	35	-31.43	0.00	0.00
			Max. Mx	34	-26.93	0.48	0.00
			Max. Vy	34	-151.57	0.00	0.00
T14	100 - 80	Leg	Max Tension	19	449673.89	9.11	1.35
			Max. Compression	12	-573259.14	-18.65	-0.58
			Max. Mx	12	-572125.95	24.85	0.38
			Max. My	20	-35457.22	-2.54	13.83
			Max. Vy	12	4715.13	24.85	0.38
			Max. Vx	20	2579.82	-2.54	13.83
		Diagonal	Max Tension	27	50210.51	-0.26	-0.04
			Max. Compression	24	-53273.34	0.00	0.00
			Max. Mx	43	5942.54	-0.45	0.00
			Max. My	26	-49358.85	-0.17	-0.18
			Max. Vy	43	176.20	-0.45	0.00
			Max. Vx	26	-14.41	-0.17	-0.18
		Horizontal	Max Tension	26	29611.54	-0.31	0.00
			Max. Compression	24	-30615.48	-0.36	-0.03
			Max. Mx	43	1260.04	-0.71	-0.01
			Max. My	2	5464.39	-0.22	0.06

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	43	-239.08	-0.71	-0.01
			Max. Vx	2	-4.54	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	12	9957.64	0.00	0.00
			Max. Compression	12	-9957.64	0.00	0.00
			Max. Mx	34	1494.90	0.08	0.00
			Max. Vy	34	47.92	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	12	8445.06	0.00	0.00
			Max. Compression	12	-8445.06	0.00	0.00
			Max. Mx	34	1267.45	0.17	0.00
			Max. Vy	34	-56.55	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	27	21.07	0.00	0.00
			Max. Compression	10	-47.87	0.00	0.00
			Max. Mx	34	-27.26	0.08	0.00
			Max. Vy	34	-47.92	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	35	109.74	0.00	0.00
			Max. Compression	47	-124.80	0.00	0.00
			Max. Mx	34	92.35	0.50	0.00
			Max. Vy	34	-124.44	0.00	0.00
		Inner Bracing	Max Tension	27	4.55	0.00	0.00
			Max. Compression	35	-32.92	0.00	0.00
			Max. Mx	34	-28.69	0.58	0.00
			Max. Vy	34	-165.67	0.00	0.00
T15	80 - 60	Leg	Max Tension	19	506805.65	12.33	1.25
			Max. Compression	12	-645786.49	-15.08	-1.05
			Max. Mx	12	-645207.78	26.36	0.75
			Max. My	20	-42103.71	-3.78	24.96
			Max. Vy	12	-4925.04	26.36	0.75
			Max. Vx	20	-4124.80	-3.78	24.96
		Diagonal	Max Tension	27	47379.70	-0.18	-0.04
			Max. Compression	24	-51194.73	0.00	0.00
			Max. Mx	43	5416.15	-0.42	0.00
			Max. My	26	-47682.27	-0.13	-0.22
			Max. Vy	43	159.76	-0.42	0.00
			Max. Vx	26	-16.94	0.00	0.00
		Horizontal	Max Tension	26	30054.73	-0.65	0.00
			Max. Compression	24	-31059.52	-0.72	-0.02
			Max. Mx	43	-3462.57	-1.13	-0.01
			Max. My	2	263.37	-0.55	0.05
			Max. Vy	43	354.54	-1.13	-0.01
			Max. Vx	2	-3.24	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	12	11220.10	0.00	0.00
			Max. Compression	12	-11220.10	0.00	0.00
			Max. Mx	34	2313.54	0.12	0.00
			Max. Vy	34	60.81	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	12	8973.17	0.00	0.00
			Max. Compression	12	-8973.17	0.00	0.00
			Max. Mx	34	1324.43	0.19	0.00
			Max. Vy	34	61.38	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	27	29.10	0.00	0.00
			Max. Compression	2	-52.30	0.00	0.00
			Max. Mx	34	-27.96	0.10	0.00
			Max. Vy	34	-51.86	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	35	132.75	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	47	-152.41	0.00	0.00
			Max. Mx	34	108.48	0.68	0.00
			Max. Vy	34	-160.29	0.00	0.00
		Inner Bracing	Max Tension	27	4.91	0.00	0.00
			Max. Compression	35	-40.78	0.00	0.00
			Max. Mx	34	-34.97	0.68	0.00
			Max. Vy	34	-179.62	0.00	0.00
T16	60 - 30	Leg	Max Tension	19	560976.75	7.42	2.34
			Max. Compression	12	-715226.69	4.45	0.70
			Max. Mx	12	-705365.37	36.36	0.94
			Max. My	4	-46506.00	-5.60	-36.07
			Max. Vy	12	6597.76	36.36	0.94
			Max. Vx	4	5406.16	-5.60	-36.07
		Diagonal	Max Tension	27	69213.73	-0.36	-0.08
			Max. Compression	24	-74980.00	0.00	0.00
			Max. Mx	18	51055.96	-0.49	0.39
			Max. My	26	-71847.25	0.24	-0.69
			Max. Vy	47	134.66	-0.32	0.10
			Max. Vx	24	92.78	-0.33	0.43
		Horizontal	Max Tension	10	35787.05	0.00	0.00
			Max. Compression	25	-35715.56	-0.49	-0.04
			Max. Mx	43	-2789.54	-1.16	-0.02
			Max. My	3	-1068.58	-0.24	0.08
			Max. Vy	43	325.31	-1.16	-0.02
			Max. Vx	3	-4.80	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	12	12440.47	0.00	0.00
			Max. Compression	12	-12440.47	0.00	0.00
			Max. Mx	34	2598.89	0.05	0.00
			Max. Vy	34	-37.68	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	12	12440.47	0.00	0.00
			Max. Compression	12	-12440.47	0.00	0.00
			Max. Mx	34	2598.89	0.34	0.00
			Max. Vy	34	-124.02	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	12	12553.93	0.00	0.00
			Max. Compression	12	-12553.93	0.00	0.00
			Max. Mx	34	2172.10	0.12	0.00
			Max. Vy	34	-43.52	0.00	0.00
		Redund Diag 2 Bracing	Max Tension	12	8141.39	0.00	0.00
			Max. Compression	12	-8141.39	0.00	0.00
			Max. Mx	34	1332.79	0.37	0.00
			Max. Vy	34	103.69	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	25	169.41	0.00	0.00
			Max. Compression	10	-177.22	0.00	0.00
			Max. Mx	34	-12.78	0.05	0.00
			Max. Vy	34	-37.68	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	25	71.94	0.00	0.00
			Max. Compression	10	-97.57	0.00	0.00
			Max. Mx	34	-36.93	0.24	0.00
			Max. Vy	34	-88.35	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	10	356.36	0.00	0.00
			Max. Compression	26	-367.70	0.00	0.00
			Max. Mx	34	72.26	0.28	0.00
			Max. Vy	34	79.48	0.00	0.00
		Redund Hip	Max Tension	8	121.93	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal 2 Bracing					
			Max. Compression	24	-142.44	0.00	0.00
			Max. Mx	34	67.28	0.53	0.00
			Max. Vy	34	118.85	0.00	0.00
		Inner Bracing	Max Tension	25	43.99	0.00	0.00
			Max. Compression	8	-60.28	0.00	0.00
			Max. Mx	34	-28.83	0.81	0.00
			Max. Vy	34	-195.66	0.00	0.00
T17	30 - 0	Leg	Max Tension	19	644883.54	13.38	4.24
			Max. Compression	12	-822463.00	4.12	0.84
			Max. Mx	12	-817652.11	32.30	1.31
			Max. My	4	-50474.23	-5.59	-36.06
			Max. Vy	12	3712.42	32.30	1.31
			Max. Vx	4	-5249.02	-5.59	-36.06
		Diagonal	Max Tension	27	71155.07	-0.29	-0.08
			Max. Compression	24	-74412.70	0.00	0.00
			Max. Mx	18	48953.28	-0.45	0.33
			Max. My	26	-70459.12	0.13	-0.63
			Max. Vy	47	148.60	-0.35	0.10
			Max. Vx	24	82.42	-0.36	0.40
		Horizontal	Max Tension	11	38627.14	0.00	0.00
			Max. Compression	24	-42078.35	-0.88	-0.06
			Max. Mx	43	251.95	-1.53	-0.03
			Max. My	2	10158.06	-0.60	0.11
			Max. Vy	43	-407.07	-1.53	-0.03
			Max. Vx	2	6.15	-0.60	0.11
		Redund Horz 1 Bracing	Max Tension	12	14327.25	0.00	0.00
			Max. Compression	12	-14327.25	0.00	0.00
			Max. Mx	34	3048.59	0.06	0.00
			Max. Vy	34	-42.04	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	12	14327.25	0.00	0.00
			Max. Compression	12	-14327.25	0.00	0.00
			Max. Mx	34	3008.14	0.42	0.00
			Max. Vy	34	-136.01	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	12	13328.58	0.00	0.00
			Max. Compression	12	-13328.58	0.00	0.00
			Max. Mx	34	2027.10	0.16	0.00
			Max. Vy	34	-54.79	0.00	0.00
		Redund Diag 2 Bracing	Max Tension	12	8954.81	0.00	0.00
			Max. Compression	12	-8954.81	0.00	0.00
			Max. Mx	34	1613.88	0.44	0.00
			Max. Vy	34	115.85	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	25	147.10	0.00	0.00
			Max. Compression	10	-159.91	0.00	0.00
			Max. Mx	34	-17.79	0.06	0.00
			Max. Vy	34	-42.04	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	27	63.61	0.00	0.00
			Max. Compression	10	-92.17	0.00	0.00
			Max. Mx	34	-41.10	0.30	0.00
			Max. Vy	34	-98.52	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	10	322.90	0.00	0.00
			Max. Compression	26	-335.83	0.00	0.00
			Max. Mx	34	91.31	0.41	0.00
			Max. Vy	34	-109.79	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Redund Hip Diagonal 2 Bracing	Max Tension	8	118.63	0.00	0.00
			Max. Compression	35	-142.31	0.00	0.00
			Max. Mx	34	84.00	0.79	0.00
			Max. Vy	34	164.31	0.00	0.00
		Inner Bracing	Max Tension	25	40.26	0.00	0.00
			Max. Compression	8	-62.96	0.00	0.00
			Max. Mx	34	-35.48	1.00	0.00
			Max. Vy	34	217.99	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	24	921238.62	113553.50	-59347.80
	Max. H_x	24	921238.62	113553.50	-59347.80
	Max. H_z	7	-708979.86	-89702.62	51630.09
	Min. Vert	9	-723306.24	-94108.71	48192.95
	Min. H_x	9	-723306.24	-94108.71	48192.95
	Min. H_z	24	921238.62	113553.50	-59347.80
Leg B	Max. Vert	12	924766.37	-111977.33	-62596.20
	Max. H_x	29	-724384.82	92506.72	51396.31
	Max. H_z	33	-643193.73	75818.96	56908.89
	Min. Vert	29	-724384.82	92506.72	51396.31
	Min. H_x	12	924766.37	-111977.33	-62596.20
	Min. H_z	14	859679.30	-100607.55	-64060.73
Leg A	Max. Vert	2	920453.57	3598.82	128107.96
	Max. H_x	26	55995.84	16542.90	5122.95
	Max. H_z	2	920453.57	3598.82	128107.96
	Min. Vert	19	-725960.20	-3573.01	-105753.22
	Min. H_x	13	-392832.00	-17600.03	-57934.44
	Min. H_z	19	-725960.20	-3573.01	-105753.22

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	141359.30	0.00	0.00	52.17	-23.73	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	169631.16	-221.22	-218233.57	-30442.95	14.83	251.80
0.9 Dead+1.6 Wind 0 deg - No Ice	127223.37	-221.22	-218233.57	-30458.60	21.94	251.80
1.2 Dead+1.6 Wind 30 deg - No Ice	169631.16	99943.59	-173352.97	-24076.40	-13937.41	362.63
0.9 Dead+1.6 Wind 30 deg - No Ice	127223.37	99943.59	-173352.97	-24092.05	-13930.29	362.63
1.2 Dead+1.6 Wind 45 deg - No Ice	169631.16	139342.42	-139362.33	-19326.60	-19413.83	382.49
0.9 Dead+1.6 Wind 45 deg - No Ice	127223.37	139342.42	-139362.33	-19342.25	-19406.71	382.49
1.2 Dead+1.6 Wind 60 deg - No	169631.16	168151.18	-96968.49	-13414.52	-23410.11	376.29

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Ice 0.9 Dead+1.6 Wind 60 deg - No Ice	127223.37	168151.18	-96968.49	-13430.17	-23402.99	376.29
1.2 Dead+1.6 Wind 90 deg - No Ice	169631.16	200270.33	221.21	105.90	-27921.34	289.12
0.9 Dead+1.6 Wind 90 deg - No Ice	127223.37	200270.33	221.21	90.25	-27914.22	289.12
1.2 Dead+1.6 Wind 120 deg - No Ice	169631.16	189082.04	109308.36	15352.88	-26463.99	124.49
0.9 Dead+1.6 Wind 120 deg - No Ice	127223.37	189082.04	109308.36	15337.23	-26456.87	124.49
1.2 Dead+1.6 Wind 135 deg - No Ice	169631.16	148109.94	148129.85	20742.11	-20704.12	26.39
0.9 Dead+1.6 Wind 135 deg - No Ice	127223.37	148109.94	148129.85	20726.46	-20697.01	26.39
1.2 Dead+1.6 Wind 150 deg - No Ice	169631.16	100326.75	173574.19	24244.91	-14012.41	-73.50
0.9 Dead+1.6 Wind 150 deg - No Ice	127223.37	100326.75	173574.19	24229.25	-14005.29	-73.50
1.2 Dead+1.6 Wind 180 deg - No Ice	169631.16	221.22	194320.13	27091.84	-71.77	-251.80
0.9 Dead+1.6 Wind 180 deg - No Ice	127223.37	221.22	194320.13	27076.19	-64.65	-251.80
1.2 Dead+1.6 Wind 210 deg - No Ice	169631.16	-99943.59	173352.97	24201.61	13880.46	-362.63
0.9 Dead+1.6 Wind 210 deg - No Ice	127223.37	-99943.59	173352.97	24185.96	13887.58	-362.63
1.2 Dead+1.6 Wind 225 deg - No Ice	169631.16	-139342.42	139362.33	19451.81	19356.88	-382.49
0.9 Dead+1.6 Wind 225 deg - No Ice	127223.37	-139342.42	139362.33	19436.16	19364.00	-382.49
1.2 Dead+1.6 Wind 240 deg - No Ice	169631.16	-188860.82	108925.21	15277.89	26363.74	-376.29
0.9 Dead+1.6 Wind 240 deg - No Ice	127223.37	-188860.82	108925.21	15262.23	26370.86	-376.29
1.2 Dead+1.6 Wind 270 deg - No Ice	169631.16	-200270.33	-221.21	19.31	27864.39	-289.12
0.9 Dead+1.6 Wind 270 deg - No Ice	127223.37	-200270.33	-221.21	3.66	27871.51	-289.12
1.2 Dead+1.6 Wind 300 deg - No Ice	169631.16	-168372.39	-97351.64	-13489.51	23396.46	-124.49
0.9 Dead+1.6 Wind 300 deg - No Ice	127223.37	-168372.39	-97351.64	-13505.16	23403.58	-124.49
1.2 Dead+1.6 Wind 315 deg - No Ice	169631.16	-139655.26	-139675.17	-19387.84	19418.11	-26.39
0.9 Dead+1.6 Wind 315 deg - No Ice	127223.37	-139655.26	-139675.17	-19403.49	19425.23	-26.39
1.2 Dead+1.6 Wind 330 deg - No Ice	169631.16	-100326.75	-173574.19	-24119.70	13955.46	73.50
0.9 Dead+1.6 Wind 330 deg - No Ice	127223.37	-100326.75	-173574.19	-24135.35	13962.58	73.50
1.2 Dead+1.0 Ice+1.0 Temp	466410.08	0.00	0.00	653.13	-666.15	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	466410.08	-34.91	-58077.69	-7252.46	-659.33	161.68
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	466410.08	27786.27	-48165.35	-5891.44	-4440.37	213.40
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp	466410.08	39026.11	-39028.74	-4647.83	-5966.62	218.09
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	466410.08	47457.48	-27381.29	-3064.00	-7110.62	207.93
1.2 Dead+1.0 Wind 90 deg+1.0	466410.08	55633.00	34.91	659.95	-8226.40	146.75

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Ice+1.0 Temp						
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	466410.08	50311.00	29069.08	4611.83	-7515.40	46.25
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	466410.08	40226.17	40228.79	6126.20	-6138.73	-10.56
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	466410.08	27846.73	48200.26	7204.51	-4452.18	-66.65
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	466410.08	34.91	54823.05	8099.19	-672.98	-161.68
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	466410.08	-27786.27	48165.35	7197.69	3108.06	-213.40
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	466410.08	-39026.11	39028.74	5954.08	4634.31	-218.09
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	466410.08	-50276.09	29008.61	4600.01	6176.27	-207.93
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	466410.08	-55633.00	-34.91	646.30	6894.09	-146.75
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	466410.08	-47492.39	-27441.75	-3075.82	5785.13	-46.25
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	466410.08	-39075.48	-39078.10	-4657.48	4643.95	10.56
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	466410.08	-27846.73	-48200.25	-5898.26	3119.88	66.65
Dead+Wind 0 deg - Service	141359.30	-42.43	-41856.56	-5798.70	-15.42	48.29
Dead+Wind 30 deg - Service	141359.30	19168.89	-33248.59	-4577.62	-2691.42	69.55
Dead+Wind 45 deg - Service	141359.30	26725.47	-26729.28	-3666.62	-3741.78	73.36
Dead+Wind 60 deg - Service	141359.30	32250.90	-18598.27	-2532.70	-4508.26	72.17
Dead+Wind 90 deg - Service	141359.30	38411.26	42.43	60.48	-5373.50	55.45
Dead+Wind 120 deg - Service	141359.30	36265.38	20965.02	2984.80	-5093.98	23.88
Dead+Wind 135 deg - Service	141359.30	28407.05	28410.87	4018.44	-3989.26	5.06
Dead+Wind 150 deg - Service	141359.30	19242.37	33291.02	4690.27	-2705.80	-14.10
Dead+Wind 180 deg - Service	141359.30	42.43	37270.03	5236.30	-32.03	-48.29
Dead+Wind 210 deg - Service	141359.30	-19168.89	33248.59	4681.96	2643.97	-69.55
Dead+Wind 225 deg - Service	141359.30	-26725.47	26729.28	3770.96	3694.33	-73.36
Dead+Wind 240 deg - Service	141359.30	-36222.95	20891.53	2970.42	5038.22	-72.17
Dead+Wind 270 deg - Service	141359.30	-38411.26	-42.43	43.87	5326.04	-55.45
Dead+Wind 300 deg - Service	141359.30	-32293.33	-18671.76	-2547.09	4469.11	-23.88
Dead+Wind 315 deg - Service	141359.30	-26785.47	-26789.29	-3678.37	3706.07	-5.06
Dead+Wind 330 deg - Service	141359.30	-19242.37	-33291.02	-4585.92	2658.35	14.10

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-141359.30	0.00	-0.00	141359.30	-0.00	0.000%
2	-221.22	-169631.16	-218233.55	221.22	169631.16	218233.57	0.000%
3	-221.22	-127223.37	-218233.55	221.22	127223.37	218233.57	0.000%
4	99943.58	-169631.16	-173352.96	-99943.59	169631.16	173352.97	0.000%
5	99943.58	-127223.37	-173352.96	-99943.59	127223.37	173352.97	0.000%
6	139342.41	-169631.16	-139362.32	-139342.42	169631.16	139362.33	0.000%
7	139342.41	-127223.37	-139362.32	-139342.42	127223.37	139362.33	0.000%
8	168151.16	-169631.16	-96968.48	-168151.18	169631.16	96968.49	0.000%
9	168151.16	-127223.37	-96968.48	-168151.18	127223.37	96968.49	0.000%
10	200270.32	-169631.16	221.22	-200270.33	169631.16	-221.21	0.000%
11	200270.32	-127223.37	221.22	-200270.33	127223.37	-221.21	0.000%
12	189082.02	-169631.16	109308.35	-189082.04	169631.16	-109308.36	0.000%
13	189082.02	-127223.37	109308.35	-189082.04	127223.37	-109308.36	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
14	148109.93	-169631.16	148129.84	-148109.94	169631.16	-148129.85	0.000%
15	148109.93	-127223.37	148129.84	-148109.94	127223.37	-148129.85	0.000%
16	100326.74	-169631.16	173574.17	-100326.75	169631.16	-173574.19	0.000%
17	100326.74	-127223.37	173574.17	-100326.75	127223.37	-173574.19	0.000%
18	221.22	-169631.16	194320.11	-221.22	169631.16	-194320.13	0.000%
19	221.22	-127223.37	194320.11	-221.22	127223.37	-194320.13	0.000%
20	-99943.58	-169631.16	173352.96	99943.59	169631.16	-173352.97	0.000%
21	-99943.58	-127223.37	173352.96	99943.59	127223.37	-173352.97	0.000%
22	-139342.41	-169631.16	139362.32	139342.42	169631.16	-139362.33	0.000%
23	-139342.41	-127223.37	139362.32	139342.42	127223.37	-139362.33	0.000%
24	-188860.81	-169631.16	108925.20	188860.82	169631.16	-108925.21	0.000%
25	-188860.81	-127223.37	108925.20	188860.82	127223.37	-108925.21	0.000%
26	-200270.32	-169631.16	-221.22	200270.33	169631.16	221.21	0.000%
27	-200270.32	-127223.37	-221.22	200270.33	127223.37	221.21	0.000%
28	-168372.38	-169631.16	-97351.64	168372.39	169631.16	97351.64	0.000%
29	-168372.38	-127223.37	-97351.64	168372.39	127223.37	97351.64	0.000%
30	-139655.25	-169631.16	-139675.16	139655.26	169631.16	139675.17	0.000%
31	-139655.25	-127223.37	-139675.16	139655.26	127223.37	139675.17	0.000%
32	-100326.74	-169631.16	-173574.17	100326.75	169631.16	173574.19	0.000%
33	-100326.74	-127223.37	-173574.17	100326.75	127223.37	173574.19	0.000%
34	0.00	-466410.08	0.00	-0.00	466410.08	-0.00	0.000%
35	-34.91	-466410.08	-58077.68	34.91	466410.08	58077.69	0.000%
36	27786.26	-466410.08	-48165.34	-27786.27	466410.08	48165.35	0.000%
37	39026.11	-466410.08	-39028.73	-39026.11	466410.08	39028.74	0.000%
38	47457.48	-466410.08	-27381.29	-47457.48	466410.08	27381.29	0.000%
39	55632.99	-466410.08	34.91	-55633.00	466410.08	-34.91	0.000%
40	50310.99	-466410.08	29069.07	-50311.00	466410.08	-29069.08	0.000%
41	40226.17	-466410.08	40228.79	-40226.17	466410.08	-40228.79	0.000%
42	27846.73	-466410.08	48200.25	-27846.73	466410.08	-48200.26	0.000%
43	34.91	-466410.08	54823.04	-34.91	466410.08	-54823.05	0.000%
44	-27786.26	-466410.08	48165.34	27786.27	466410.08	-48165.35	0.000%
45	-39026.11	-466410.08	39028.73	39026.11	466410.08	-39028.74	0.000%
46	-50276.08	-466410.08	29008.61	50276.09	466410.08	-29008.61	0.000%
47	-55632.99	-466410.08	-34.91	55633.00	466410.08	34.91	0.000%
48	-47492.39	-466410.08	-27441.75	47492.39	466410.08	27441.75	0.000%
49	-39075.48	-466410.08	-39078.10	39075.48	466410.08	39078.10	0.000%
50	-27846.73	-466410.08	-48200.25	27846.73	466410.08	48200.25	0.000%
51	-42.43	-141359.30	-41856.55	42.43	141359.30	41856.56	0.000%
52	19168.88	-141359.30	-33248.59	-19168.89	141359.30	33248.59	0.000%
53	26725.46	-141359.30	-26729.28	-26725.47	141359.30	26729.28	0.000%
54	32250.90	-141359.30	-18598.27	-32250.90	141359.30	18598.27	0.000%
55	38411.26	-141359.30	42.43	-38411.26	141359.30	-42.43	0.000%
56	36265.37	-141359.30	20965.02	-36265.38	141359.30	-20965.02	0.000%
57	28407.05	-141359.30	28410.87	-28407.05	141359.30	-28410.87	0.000%
58	19242.37	-141359.30	33291.02	-19242.37	141359.30	-33291.02	0.000%
59	42.43	-141359.30	37270.03	-42.43	141359.30	-37270.03	0.000%
60	-19168.88	-141359.30	33248.59	19168.89	141359.30	-33248.59	0.000%
61	-26725.46	-141359.30	26729.28	26725.47	141359.30	-26729.28	0.000%
62	-36222.95	-141359.30	20891.53	36222.95	141359.30	-20891.53	0.000%
63	-38411.26	-141359.30	-42.43	38411.26	141359.30	42.43	0.000%
64	-32293.33	-141359.30	-18671.76	32293.33	141359.30	18671.76	0.000%
65	-26785.47	-141359.30	-26789.28	26785.47	141359.30	26789.29	0.000%
66	-19242.37	-141359.30	-33291.02	19242.37	141359.30	33291.02	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	320 - 304	4.570	56	0.1032	0.0478
T2	304 - 300	4.221	56	0.1026	0.0481
T3	300 - 280	4.133	56	0.1021	0.0483
T4	280 - 260	3.702	56	0.0993	0.0470
T5	260 - 240	3.276	56	0.0976	0.0442
T6	240 - 220	2.856	56	0.0946	0.0395
T7	220 - 200	2.451	56	0.0900	0.0356
T8	200 - 180	2.067	56	0.0841	0.0325
T9	180 - 170	1.701	56	0.0779	0.0291
T10	170 - 160	1.531	56	0.0742	0.0278
T11	160 - 140	1.367	56	0.0703	0.0264
T12	140 - 120	1.067	56	0.0617	0.0241
T13	120 - 100	0.803	56	0.0522	0.0218
T14	100 - 80	0.583	56	0.0428	0.0182
T15	80 - 60	0.404	56	0.0329	0.0153
T16	60 - 30	0.256	51	0.0241	0.0120
T17	30 - 0	0.094	51	0.0110	0.0060

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
325.00	Dual Lights	56	4.570	0.1032	0.0478	Inf
322.00	PD128-1	56	4.570	0.1032	0.0478	Inf
320.00	6' Side Mount Standoff	56	4.570	0.1032	0.0478	Inf
318.00	BA1012-0	56	4.526	0.1032	0.0478	Inf
316.50	ANT450F6	56	4.494	0.1031	0.0478	Inf
315.00	6' Side Mount Standoff	56	4.461	0.1031	0.0479	Inf
311.50	4'x4" Pipe Mount	56	4.385	0.1030	0.0479	Inf
297.00	SC479-HF1LDF	56	4.068	0.1017	0.0483	355676
293.00	6' Side Mount Standoff	56	3.981	0.1011	0.0481	413836
290.00	PD340-1	56	3.916	0.1007	0.0480	481703
285.00	DB809T3E-XC	56	3.809	0.1000	0.0475	662889
284.50	6' Side Mount Standoff	56	3.798	0.0999	0.0475	688773
284.00	6' Side Mount Standoff	56	3.788	0.0998	0.0474	713189
283.00	SC479-HF1LDF	56	3.766	0.0997	0.0473	765494
261.50	PD440-2	56	3.308	0.0977	0.0445	Inf
261.00	SC479-HF1LDF(D00-E6085)	56	3.298	0.0977	0.0444	Inf
248.00	PD1142-1	56	3.023	0.0960	0.0415	404203
246.00	SC479-HF1LDF(D00I-E6085) (Inverted)	56	2.981	0.0956	0.0410	351838
244.00	PD1142-1	56	2.939	0.0953	0.0405	311579
235.00	531-70HD Exposed Dipole Antenna	56	2.753	0.0936	0.0384	242259
220.00	Valmont VFA-10-U V-Frame	56	2.451	0.0900	0.0356	219859
200.00	PiROD 12' Lightweight T-Frame	56	2.067	0.0841	0.0325	355590
176.00	DB586-Y	56	1.632	0.0765	0.0285	143178
174.00	DB586-Y (inverted)	56	1.598	0.0757	0.0283	162647
164.00	L-810 Obstruction Lighting (1)	56	1.432	0.0719	0.0270	146367
153.00	ANT450F6	56	1.258	0.0675	0.0255	129439
145.00	Commscope PAR6-59W-PXA/A	56	1.139	0.0640	0.0247	144392
137.00	PD156S	56	1.025	0.0603	0.0238	142539
134.00	DB212-1	56	0.984	0.0589	0.0235	132020
120.00	HPD3-4.7	56	0.803	0.0522	0.0218	99665
113.00	Andrew 2' w/Radome	56	0.721	0.0489	0.0206	102777
106.00	PA8-65	56	0.644	0.0456	0.0193	108651
105.00	PD458	56	0.634	0.0452	0.0191	109546

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
103.00	PD688S-4	56	0.613	0.0442	0.0188	111434
91.00	PD688S-4	56	0.498	0.0383	0.0169	136266

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	320 - 304	23.616	12	0.5320	0.2491
T2	304 - 300	21.815	12	0.5286	0.2509
T3	300 - 280	21.364	12	0.5261	0.2516
T4	280 - 260	19.142	12	0.5118	0.2450
T5	260 - 240	16.948	12	0.5026	0.2306
T6	240 - 220	14.778	12	0.4873	0.2061
T7	220 - 200	12.692	12	0.4643	0.1856
T8	200 - 180	10.708	12	0.4338	0.1696
T9	180 - 170	8.818	12	0.4020	0.1516
T10	170 - 160	7.937	12	0.3834	0.1447
T11	160 - 140	7.091	12	0.3634	0.1377
T12	140 - 120	5.539	12	0.3187	0.1258
T13	120 - 100	4.171	12	0.2695	0.1138
T14	100 - 80	3.033	12	0.2210	0.0951
T15	80 - 60	2.106	12	0.1701	0.0799
T16	60 - 30	1.334	13	0.1246	0.0623
T17	30 - 0	0.489	2	0.0566	0.0311

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
325.00	Dual Lights	12	23.616	0.5320	0.2491	741966
322.00	PD128-1	12	23.616	0.5320	0.2491	741966
320.00	6' Side Mount Standoff	12	23.616	0.5320	0.2491	741966
318.00	BA1012-0	12	23.391	0.5319	0.2493	741966
316.50	ANT450F6	12	23.222	0.5318	0.2494	741966
315.00	6' Side Mount Standoff	12	23.053	0.5317	0.2495	741966
311.50	4'x4" Pipe Mount	12	22.660	0.5312	0.2498	436448
297.00	SC479-HF1LDF	12	21.027	0.5239	0.2516	69899
293.00	6' Side Mount Standoff	12	20.580	0.5209	0.2509	81843
290.00	PD340-1	12	20.247	0.5186	0.2500	95941
285.00	DB809T3E-XC	12	19.693	0.5150	0.2477	134579
284.50	6' Side Mount Standoff	12	19.638	0.5147	0.2475	140219
284.00	6' Side Mount Standoff	12	19.583	0.5143	0.2472	146307
283.00	SC479-HF1LDF	12	19.473	0.5137	0.2467	159833
261.50	PD440-2	12	17.113	0.5033	0.2321	415827
261.00	SC479-HF1LDF(D00-E6085)	12	17.058	0.5031	0.2316	404985
248.00	PD1142-1	12	15.640	0.4944	0.2163	80126
246.00	SC479-HF1LDF(D00I-E6085) (Inverted)	12	15.423	0.4928	0.2137	69579
244.00	PD1142-1	12	15.207	0.4910	0.2112	61505
235.00	531-70HD Exposed Dipole Antenna	12	14.247	0.4824	0.2003	47553

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
220.00	Valmont VFA-10-U V-Frame	12	12.692	0.4643	0.1856	42882
200.00	PiROD 12' Lightweight T-Frame	12	10.708	0.4338	0.1696	70904
176.00	DB586-Y	12	8.461	0.3948	0.1487	27807
174.00	DB586-Y (inverted)	12	8.285	0.3910	0.1474	31665
164.00	L-810 Obstruction Lighting (1)	12	7.424	0.3715	0.1405	28473
153.00	ANT450F6	12	6.527	0.3485	0.1332	25087
145.00	Commscope PAR6-59W-PXA/A	12	5.910	0.3305	0.1285	27959
137.00	PD156S	12	5.322	0.3115	0.1243	27638
134.00	DB212-1	12	5.108	0.3041	0.1227	25641
120.00	HPD3-4.7	12	4.171	0.2695	0.1138	19449
113.00	Andrew 2' w/Radome	12	3.746	0.2527	0.1075	19985
106.00	PA8-65	12	3.350	0.2358	0.1007	21028
105.00	PD458	12	3.296	0.2334	0.0997	21185
103.00	PD688S-4	12	3.189	0.2285	0.0978	21520
91.00	PD688S-4	12	2.594	0.1979	0.0879	26353

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	320	Leg	A325N	1.0000	6	746.46	53014.40	0.014 ✓	1	Bolt Tension
		Diagonal	A325X	0.6250	1	1285.02	5811.33	0.221 ✓	1	Member Block Shear
T2	304	Diagonal	A325X	0.6250	1	1484.81	5811.33	0.256 ✓	1	Member Block Shear
T3	300	Leg	A325N	1.0000	8	2518.85	53014.40	0.048 ✓	1	Bolt Tension
		Diagonal	A325X	0.6250	1	3547.65	9107.81	0.390 ✓	1	Member Block Shear
T4	280	Leg	A325N	1.0000	8	5075.72	53014.40	0.096 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	1	5433.69	11962.50	0.454 ✓	1	Member Block Shear
T5	260	Leg	A325N	1.0000	8	8543.13	53014.40	0.161 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	1	8615.64	14137.50	0.609 ✓	1	Member Bearing
T6	240	Leg	A325N	1.0000	8	13113.40	53014.40	0.247 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	1	11044.20	17671.90	0.625 ✓	1	Member Bearing
T7	220	Leg	A325N	1.0000	12	12238.90	53014.40	0.231 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	1	17073.60	21868.40	0.781 ✓	1	Bolt Shear
T8	200	Leg	A325N	1.0000	12	16813.50	53014.40	0.317 ✓	1	Bolt Tension
		Diagonal	A325X	0.8750	1	20518.60	24862.50	0.825 ✓	1	Member Bearing
T9	180	Leg	A325N	1.0000	12	19225.50	53014.40	0.363 ✓	1	Bolt Tension
		Diagonal	A325X	0.8750	1	22580.70	33150.00	0.681 ✓	1	Member Bearing
T10	170	Diagonal	A325X	0.8750	1	23621.10	33150.00	0.713 ✓	1	Member Bearing
T11	160	Leg	A325N	1.0000	12	26857.60	53014.40	0.507 ✓	1	Bolt Tension
		Diagonal	A490X	0.8750	1	27767.80	33150.00	0.838 ✓	1	Member Bearing
T12	140	Leg	A325N	1.0000	12	32087.00	53014.40	0.605 ✓	1	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A490X	0.8750	1	29953.50	33150.00	0.904 ✔	1	Member Bearing
T13	120	Leg	A325N	1.0000	12	32913.60	53014.40	0.621 ✔	1	Bolt Tension
		Diagonal	A325X	0.7500	3	16817.10	21868.40	0.769 ✔	1	Bolt Shear
		Horizontal	A325X	0.7500	2	13470.40	21868.40	0.616 ✔	1	Bolt Shear
T14	100	Leg	A325N	1.0000	16	28037.30	53014.40	0.529 ✔	1	Bolt Tension
		Diagonal	A325X	0.7500	3	17757.80	21868.40	0.812 ✔	1	Bolt Shear
		Horizontal	A325X	0.7500	2	15307.70	21868.40	0.700 ✔	1	Bolt Shear
T15	80	Leg	A325N	1.0000	16	31600.00	53014.40	0.596 ✔	1	Bolt Tension
		Diagonal	A325X	0.7500	3	17064.90	21868.40	0.780 ✔	1	Bolt Shear
		Horizontal	A325X	0.7500	2	15529.80	21868.40	0.710 ✔	1	Bolt Shear
T16	60	Leg	A325N	1.0000	16	34432.50	53014.40	0.649 ✔	1	Bolt Tension
		Diagonal	A325X	0.8750	3	24993.30	29765.40	0.840 ✔	1	Bolt Shear
		Horizontal	A325X	0.7500	2	17893.50	21868.40	0.818 ✔	1	Bolt Shear
T17	30	Leg	A325N	1.0000	24	26538.90	53014.40	0.501 ✔	1	Bolt Tension
		Diagonal	A325X	0.8750	3	24804.20	29765.40	0.833 ✔	1	Bolt Shear
		Horizontal	A490X	0.7500	2	21039.20	27335.50	0.770 ✔	1	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	320 - 304	ROHN 5 EH	16.00	4.00	26.1 K=1.00	6.1120	-6064.52	261674.00	0.023 [1] ✔
T2	304 - 300	ROHN 5 EH	4.00	4.00	26.1 K=1.00	6.1120	-8663.70	261674.00	0.033 [1] ✔
T3	300 - 280	ROHN 6 EH	20.03	5.01	27.4 K=1.00	8.4049	-25470.90	358043.00	0.071 [1] ✔
T4	280 - 260	ROHN 8 EH w/ angle 8x8x0.5	20.04	6.68	27.0 K=1.00	20.5036	-51467.40	874859.00	0.059 [1] ✔
T5	260 - 240	ROHN 8 EH w/ angle 8x8x0.5	20.03	6.68	27.0 K=1.00	20.5036	-87852.70	874884.00	0.100 [1] ✔
T6	240 - 220	ROHN 8 EH w/ angle 8x8x0.5	20.03	6.68	27.0 K=1.00	20.5036	-134619.00	874888.00	0.154 [1] ✔
T7	220 - 200	ROHN 8 EH w/ angle 8x8x0.5	20.03	10.02	40.4 K=1.00	20.5036	-188983.00	818638.00	0.231 [1] ✔
T8	200 - 180	ROHN 10 EH w/ angle 8x8x0.5	20.04	10.02	34.6 K=1.00	23.8453	-257893.00	982914.00	0.262 [1] ✔
T9	180 - 170	ROHN 10 EH w/ angle 8x8x0.5	10.02	10.02	34.6 K=1.00	23.8453	-293797.00	982929.00	0.299 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T10	170 - 160	ROHN 10 EH w/ angle 8x8x0.5	10.02	10.02	34.6 K=1.00	23.8453	-330926.00	982929.00	0.337 [1]
T11	160 - 140	ROHN 10 EH w/ angle 8x8x0.5	20.03	10.02	34.6 K=1.00	23.8453	-408451.00	982978.00	0.416 [1]
T12	140 - 120	ROHN 10 EH w/ angle 8x8x0.5	20.04	10.02	34.6 K=1.00	23.8453	-487928.00	982899.00	0.496 [1]
T13	120 - 100	ROHN 10 EH w/ angle 8x8x0.5	20.06	10.03	34.7 K=1.00	23.8453	-504577.00	982763.00	0.513 [1]
T14	100 - 80	ROHN 10 EH w/ angle 8x8x0.5	20.05	10.03	34.7 K=1.00	23.8453	-573259.00	982792.00	0.583 [1]
T15	80 - 60	ROHN 12 EH w/ angle 8x8x0.5	20.06	10.03	29.9 K=1.00	26.9670	-645787.00	1136630.00	0.568 [1]
T16	60 - 30	ROHN 12 EH w/ angle 8x8x0.5	30.07	10.02	29.9 K=1.00	26.9670	-715227.00	1136700.00	0.629 [1]
T17	30 - 0	ROHN 12 EHS w Angle 8x8x0.625	30.08	10.03	30.2 K=1.00	33.3120	-822463.00	1402320.00	0.587 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	320 - 304	L1 3/4x1 3/4x3/16	7.90	3.56	124.4 K=1.00	0.6211	-1277.30	8910.59	0.143 [1]
T2	304 - 300	L1 3/4x1 3/4x3/16	7.90	3.56	124.4 K=1.00	0.6211	-1505.04	8910.59	0.169 [1]
T3	300 - 280	L2x2x1/4	9.94	4.68	143.7 K=1.00	0.9380	-3576.36	10268.60	0.348 [1]
T4	280 - 260	L2 1/2x2 1/2x1/4	12.59	5.83	142.4 K=1.00	1.1900	-5467.00	13248.50	0.413 [1]
T5	260 - 240	L3x3x1/4	14.38	6.72	136.3 K=1.00	1.4400	-9061.08	17507.10	0.518 [1]
T6	240 - 220	L4x4x5/16	16.19	7.64	116.9 K=1.01	2.4000	-11675.40	39677.10	0.294 [1]
T7	220 - 200	L4x4x3/8	19.37	9.30	141.7 K=1.00	2.8600	-17073.60	32190.20	0.530 [1]
T8	200 - 180	L4x4x3/8	21.20	10.21	155.6 K=1.00	2.8600	-20801.90	26701.10	0.779 [1]
T9	180 - 170	2L4x4x1/4	22.13	10.68	102.5 K=1.00	3.8800	-23031.70	76901.90	0.299 [1]
T10	170 - 160	2L4x4x1/4	23.06	11.15	107.0 K=1.00	3.8800	-23867.10	72580.70	0.329 [1]
T11	160 - 140	L5x5x1/2	24.84	12.01	146.6 K=1.00	4.7500	-28675.70	49897.30	0.575 [1]
T12	140 - 120	L5x5x1/2	26.78	13.03	159.0 K=1.00	4.7500	-30554.30	42434.90	0.720 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	120 - 100	ROHN 3 XXS	24.42	12.21	139.9 K=1.00	5.4664	-50451.40	63081.40	0.800 [1] ✔
T14	100 - 80	ROHN 3 XXS	25.15	12.58	144.1 K=1.00	5.4664	-53273.30	59442.80	0.896 [1] ✔
T15	80 - 60	ROHN 3.5 EH	25.98	12.99	119.3 K=1.00	3.6784	-51194.70	58371.00	0.877 [1] ✔
T16	60 - 30	ROHN 4 X-STR	35.21	11.74	95.4 K=1.00	4.4074	-74980.00	101988.00	0.735 [1] ✔
T17	30 - 0	ROHN 4 X-STR	36.27	12.09	98.2 K=1.00	4.4074	-74412.70	97939.00	0.760 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	120 - 100	ROHN 3 STD	25.39	12.22	126.1 K=1.00	2.2285	-26940.90	31679.40	0.850 [1] ✔
T14	100 - 80	ROHN 3 X-STR	27.97	13.51	142.7 K=1.00	3.0159	-30615.50	33455.50	0.915 [1] ✔
T15	80 - 60	ROHN 3 XXS	30.47	14.76	169.2 K=1.00	5.4664	-31059.50	43132.20	0.720 [1] ✔
T16	60 - 30	ROHN 3.5 EH	33.14	16.04	147.3 K=1.00	3.6784	-35715.60	38300.30	0.933 [1] ✔
T17	30 - 0	ROHN 4 X-STR	36.80	17.87	145.2 K=1.00	4.4074	-42078.40	47220.90	0.891 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	320 - 304	L1 3/4x1 3/4x3/16	6.81	6.35	182.6 K=0.82	0.6211	-108.04	4209.52	0.026 [1] ✔
T3	300 - 280	L2x2x1/4	6.81	6.35	166.0 K=0.85	0.9380	-31.37	7691.25	0.004 [1] ✔

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T13	120 - 100	ROHN 1.5 STD	6.35	5.88	113.3 K=1.00	0.7995	-8763.95	14083.10	0.622 [1] ✔
T14	100 - 80	P1.5x.145	6.99	6.52	125.7 K=1.00	0.7995	-9957.64	11432.70	0.871 [1] ✔
T15	80 - 60	ROHN 2 STD	7.62	7.09	108.0 K=1.00	1.0745	-11220.10	20598.10	0.545 [1] ✔
T16	60 - 30	ROHN 1.5 STD	5.52	4.99	96.2 K=1.00	0.7995	-12440.50	18282.30	0.680 [1] ✔
T17	30 - 0	P1.5x.145	6.13	5.60	108.0 K=1.00	0.7995	-14327.20	15339.00	0.934 [1] ✔

[1] P_u / ϕP_n controls

Redundant Horizontal (2) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T16	60 - 30	ROHN 2 XXS	11.05	10.52	179.6 K=1.00	2.6559	-12440.50	18604.80	0.669 [1] ✔
T17	30 - 0	ROHN 2.5 EH	12.27	11.74	152.4 K=1.00	2.2535	-14327.20	21919.90	0.654 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T13	120 - 100	ROHN 2 STD	11.52	10.57	161.1 K=1.00	1.0745	-7951.20	9352.65	0.850 [1] ✔
T14	100 - 80	ROHN 2 EH	11.86	10.98	171.6 K=1.00	1.4807	-8445.06	11364.10	0.743 [1] ✔
T15	80 - 60	ROHN 2 EH	12.18	11.36	177.4 K=1.00	1.4807	-8973.17	10626.30	0.844 [1] ✔
T16	60 - 30	ROHN 2 EH	11.15	9.95	155.3 K=1.00	1.4807	-12553.90	13862.10	0.906 [1] ✔
T17	30 - 0	ROHN 2.5 STD	11.41	10.31	130.6 K=1.00	1.7040	-13328.60	22579.60	0.590 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (2) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T16	60 - 30	ROHN 2.5 STD	14.46	13.72	173.8 K=1.00	1.7040	-8141.39	12742.30	0.639 [1] ✔
T17	30 - 0	ROHN 2.5 STD	15.33	14.63	185.3 K=1.00	1.7040	-8954.81	11206.60	0.799 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T13	120 - 100	ROHN 1.5 STD	6.35	6.35	122.3 K=1.00	0.7995	-49.09	12066.60	0.004 [1] ✔
T14	100 - 80	ROHN 1.5 STD	6.99	6.99	134.8 K=1.00	0.7995	-47.87	9943.20	0.005 [1] ✔
T15	80 - 60	ROHN 1.5 STD	7.62	7.62	146.8 K=1.00	0.7995	-52.30	8378.50	0.006 [1] ✔
T16	60 - 30	ROHN 1.5 STD	5.52	5.52	106.5 K=1.00	0.7995	-177.22	15708.50	0.011 [1] ✔
T17	30 - 0	ROHN 1.5 STD	6.13	6.13	118.2 K=1.00	0.7995	-159.91	12924.00	0.012 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Hip (2) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T16	60 - 30	ROHN 2 STD	11.05	11.05	168.4 K=1.00	1.0745	-97.57	8559.02	0.011 [1] ✔
T17	30 - 0	ROHN 2 STD	12.27	12.27	187.0 K=1.00	1.0745	-92.17	6941.18	0.013 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Hip Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	120 - 100	ROHN 2.5 STD	15.15	15.15	191.9 K=1.00	1.7040	-127.85	10450.60	0.012 [1] ✔
T14	100 - 80	ROHN 2.5 STD	16.00	16.00	202.6 K=1.00	1.7040	-124.80	9375.46	0.013 [1] ✔
T15	80 - 60	ROHN 3 STD	16.88	16.88	174.1 K=1.00	2.2285	-152.41	16617.70	0.009 [1] ✔
T16	60 - 30	ROHN 2 STD	14.10	14.10	214.9 K=1.00	1.0745	-367.70	5254.92	0.070 [1] ✔
T17	30 - 0	ROHN 2.5 STD	14.88	14.88	188.4 K=1.00	1.7040	-335.83	10840.00	0.031 [1] ✔

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T16	60 - 30	ROHN 2 STD	17.91	17.91	273.1 K=1.00	1.0745	-142.44	3255.91	0.044 [1] ✔
T17	30 - 0	KL/R > 250 (C) - 357 ROHN 2.5 STD	19.28	19.28	244.2 K=1.00	1.7040	-142.31	6453.40	0.022 [1] ✔

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	120 - 100	ROHN 3 STD	12.69	12.69	130.9 K=1.00	2.2285	-31.43	29370.40	0.001 [1] ✔
T14	100 - 80	ROHN 3 STD	13.99	13.99	144.2 K=1.00	2.2285	-32.92	24201.90	0.001 [1] ✔
T15	80 - 60	ROHN 3 STD	15.24	15.24	157.1 K=1.00	2.2285	-40.78	20393.40	0.002 [1] ✔
T16	60 - 30	ROHN 3 STD	16.57	16.57	170.9 K=1.00	2.2285	-60.28	17239.70	0.003 [1] ✔
T17	30 - 0	ROHN 3 STD	18.40	18.40	189.8 K=1.00	2.2285	-62.96	13981.00	0.005 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	320 - 304	ROHN 5 EH	16.00	4.00	26.1	6.1120	4478.73	275039.00	0.016 [1] ✔
T2	304 - 300	ROHN 5 EH	4.00	4.00	26.1	6.1120	6671.84	275039.00	0.024 [1] ✔
T3	300 - 280	ROHN 6 EH	20.03	5.01	27.4	8.4049	20150.80	378222.00	0.053 [1] ✔
T4	280 - 260	ROHN 8 EH w/ angle 8x8x0.5	20.04	6.68	27.0	20.5036	40605.80	922662.00	0.044 [1] ✔
T5	260 - 240	ROHN 8 EH w/ angle 8x8x0.5	20.03	6.68	27.0	20.5036	68345.00	922662.00	0.074 [1] ✔
T6	240 - 220	ROHN 8 EH w/ angle 8x8x0.5	20.03	6.68	27.0	20.5036	104907.00	922662.00	0.114 [1] ✔
T7	220 - 200	ROHN 8 EH w/ angle 8x8x0.5	20.03	10.02	40.4	20.5036	146867.00	922662.00	0.159 [1] ✔
T8	200 - 180	ROHN 10 EH w/ angle 8x8x0.5	20.04	10.02	34.6	23.8453	201762.00	1073040.00	0.188 [1] ✔
T9	180 - 170	ROHN 10 EH w/ angle 8x8x0.5	10.02	10.02	34.6	23.8453	230706.00	1073040.00	0.215 [1] ✔
T10	170 - 160	ROHN 10 EH w/ angle 8x8x0.5	10.02	10.02	34.6	23.8453	260521.00	1073040.00	0.243 [1] ✔
T11	160 - 140	ROHN 10 EH w/ angle 8x8x0.5	20.03	10.02	34.6	23.8453	322291.00	1073040.00	0.300 [1] ✔
T12	140 - 120	ROHN 10 EH w/ angle 8x8x0.5	20.04	10.02	34.6	23.8453	385044.00	1073040.00	0.359 [1] ✔
T13	120 - 100	ROHN 10 EH w/ angle 8x8x0.5	20.06	10.03	34.7	23.8453	395984.00	1073040.00	0.369 [1] ✔
T14	100 - 80	ROHN 10 EH w/ angle 8x8x0.5	20.05	10.03	34.7	23.8453	449674.00	1073040.00	0.419 [1] ✔
T15	80 - 60	ROHN 12 EH w/ angle 8x8x0.5	20.06	10.03	29.9	26.9670	506806.00	1213520.00	0.418 [1] ✔
T16	60 - 30	ROHN 12 EH w/ angle 8x8x0.5	30.07	10.02	29.9	26.9670	560977.00	1213520.00	0.462 [1] ✔
T17	30 - 0	ROHN 12 EHS w Angle 8x8x0.625	30.08	10.03	30.2	33.3120	644884.00	1499040.00	0.430 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	320 - 304	L1 3/4x1 3/4x3/16	7.90	3.56	82.2	0.3604	1285.02	15675.30	0.082 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	304 - 300	L1 3/4x1 3/4x3/16	7.90	3.56	82.2	0.3604	1484.81	15675.30	0.095 [1]
T3	300 - 280	L2x2x1/4	9.94	4.68	94.6	0.5629	3547.65	24485.10	0.145 [1]
T4	280 - 260	L2 1/2x2 1/2x1/4	12.59	5.83	93.1	0.7284	5433.69	31687.00	0.171 [1]
T5	260 - 240	L3x3x1/4	14.38	6.72	88.5	0.9159	8615.64	44652.00	0.193 [1]
T6	240 - 220	L4x4x5/16	16.19	7.64	75.2	1.5949	11044.20	77752.40	0.142 [1]
T7	220 - 200	L4x4x3/8	19.37	9.30	92.1	1.8989	16288.20	92571.70	0.176 [1]
T8	200 - 180	L4x4x3/8	21.20	10.21	101.1	1.8637	20518.60	90857.80	0.226 [1]
T9	180 - 170	2L4x4x1/4	22.13	10.68	104.0	2.5350	22580.70	123581.00	0.183 [1]
T10	170 - 160	2L4x4x1/4	23.06	11.15	108.4	2.5350	23621.10	123581.00	0.191 [1]
T11	160 - 140	L5x5x1/2	24.84	12.01	94.8	3.1875	27767.80	155391.00	0.179 [1]
T12	140 - 120	L5x5x1/2	26.78	13.03	102.7	3.1875	29953.50	155391.00	0.193 [1]
T13	120 - 100	ROHN 3 XXS	24.42	12.21	139.9	5.4664	48108.10	245987.00	0.196 [1]
T14	100 - 80	ROHN 3 XXS	25.15	12.58	144.1	5.4664	50210.50	245987.00	0.204 [1]
T15	80 - 60	ROHN 3.5 EH	25.98	12.99	119.3	3.6784	47379.70	165529.00	0.286 [1]
T16	60 - 30	ROHN 4 X-STR	35.21	11.74	95.4	4.4074	69213.70	198335.00	0.349 [1]
T17	30 - 0	ROHN 4 X-STR	36.27	12.09	98.2	4.4074	71155.10	198335.00	0.359 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	120 - 100	ROHN 3 STD	25.39	12.22	126.1	2.2285	26902.40	100281.00	0.268 [1]
T14	100 - 80	ROHN 3 X-STR	27.97	13.51	142.7	3.0159	29611.50	135717.00	0.218 [1]
T15	80 - 60	ROHN 3 XXS	30.47	14.76	169.2	5.4664	30054.70	245987.00	0.122 [1]
T16	60 - 30	ROHN 3.5 EH	33.14	16.04	147.3	3.6784	35787.10	165529.00	0.216 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T17	30 - 0	ROHN 4 X-STR	36.80	17.87	145.2	4.4074	38627.10	198335.00	0.195 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	320 - 304	L1 3/4x1 3/4x3/16	6.81	6.35	141.8	0.6211	95.62	20123.40	0.005 [1] ✔

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	120 - 100	ROHN 1.5 STD	6.35	5.88	113.3	0.7995	8763.95	35975.60	0.244 [1] ✔
T14	100 - 80	P1.5x.145	6.99	6.52	125.7	0.7995	9957.64	35975.60	0.277 [1] ✔
T15	80 - 60	ROHN 2 STD	7.62	7.09	108.0	1.0745	11220.10	48353.90	0.232 [1] ✔
T16	60 - 30	ROHN 1.5 STD	5.52	4.99	96.2	0.7995	12440.50	35975.60	0.346 [1] ✔
T17	30 - 0	P1.5x.145	6.13	5.60	108.0	0.7995	14327.20	35975.60	0.398 [1] ✔

[1] P_u / ϕP_n controls

Redundant Horizontal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T16	60 - 30	ROHN 2 XXS	11.05	10.52	179.6	2.6559	12440.50	119516.00	0.104 [1] ✔
T17	30 - 0	ROHN 2.5 EH	12.27	11.74	152.4	2.2535	14327.20	101409.00	0.141 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	120 - 100	ROHN 2 STD	11.52	10.57	161.1	1.0745	7951.20	48353.90	0.164 [1] ✔
T14	100 - 80	ROHN 2 EH	11.86	10.98	171.6	1.4807	8445.06	66630.70	0.127 [1] ✔
T15	80 - 60	ROHN 2 EH	12.18	11.36	177.4	1.4807	8973.17	66630.70	0.135 [1] ✔
T16	60 - 30	ROHN 2 EH	11.15	9.95	155.3	1.4807	12553.90	66630.70	0.188 [1] ✔
T17	30 - 0	ROHN 2.5 STD	11.41	10.31	130.6	1.7040	13328.60	76682.30	0.174 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T16	60 - 30	ROHN 2.5 STD	14.46	13.72	173.8	1.7040	8141.39	76682.30	0.106 [1] ✔
T17	30 - 0	ROHN 2.5 STD	15.33	14.63	185.3	1.7040	8954.81	76682.30	0.117 [1] ✔

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	120 - 100	ROHN 1.5 STD	6.35	6.35	122.3	0.7995	23.26	35975.60	0.001 [1] ✔
T14	100 - 80	ROHN 1.5 STD	6.99	6.99	134.8	0.7995	21.07	35975.60	0.001 [1] ✔
T15	80 - 60	ROHN 1.5 STD	7.62	7.62	146.8	0.7995	29.10	35975.60	0.001 [1] ✔
T16	60 - 30	ROHN 1.5 STD	5.52	5.52	106.5	0.7995	169.41	35975.60	0.005 [1] ✔
T17	30 - 0	ROHN 1.5 STD	6.13	6.13	118.2	0.7995	147.10	35975.60	0.004 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

Redundant Hip (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T16	60 - 30	ROHN 2 STD	11.05	11.05	168.4	1.0745	71.94	48353.90	0.001 [1] ✔
T17	30 - 0	ROHN 2 STD	12.27	12.27	187.0	1.0745	63.61	48353.90	0.001 [1] ✔

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	120 - 100	ROHN 2.5 STD	15.15	15.15	191.9	1.7040	112.30	76682.30	0.001 [1] ✔
T14	100 - 80	ROHN 2.5 STD	16.00	16.00	202.6	1.7040	109.74	76682.30	0.001 [1] ✔
T15	80 - 60	ROHN 3 STD	16.88	16.88	174.1	2.2285	132.75	100281.00	0.001 [1] ✔
T16	60 - 30	ROHN 2 STD	14.10	14.10	214.9	1.0745	356.36	48353.90	0.007 [1] ✔
T17	30 - 0	ROHN 2.5 STD	14.88	14.88	188.4	1.7040	322.90	76682.30	0.004 [1] ✔

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T16	60 - 30	ROHN 2 STD	17.91	17.91	273.1	1.0745	121.93	48353.90	0.003 [1] ✔
T17	30 - 0	ROHN 2.5 STD	19.28	19.28	244.2	1.7040	118.63	76682.30	0.002 [1] ✔

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	120 - 100	ROHN 3 STD	12.69	12.69	130.9	2.2285	7.75	100281.00	0.000 [1]
T14	100 - 80	ROHN 3 STD	13.99	13.99	144.2	2.2285	4.55	100281.00	0.000 [1]
T15	80 - 60	ROHN 3 STD	15.24	15.24	157.1	2.2285	4.91	100281.00	0.000 [1]
T16	60 - 30	ROHN 3 STD	16.57	16.57	170.9	2.2285	43.99	100281.00	0.000 [1]
T17	30 - 0	ROHN 3 STD	18.40	18.40	189.8	2.2285	40.26	100281.00	0.000 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	320 - 304	Leg	ROHN 5 EH	1	-6064.52	261674.00	2.3	Pass
		Leg	ROHN 5 EH	2	-5996.41	261674.00	2.3	Pass
		Leg	ROHN 5 EH	3	-6036.34	261674.00	2.3	Pass
T2	304 - 300	Leg	ROHN 5 EH	31	-8663.70	261674.00	3.3	Pass
		Leg	ROHN 5 EH	32	-8599.88	261674.00	3.3	Pass
		Leg	ROHN 5 EH	33	-8636.36	261674.00	3.3	Pass
T3	300 - 280	Leg	ROHN 6 EH	40	-25470.90	358043.00	7.1	Pass
		Leg	ROHN 6 EH	41	-25260.70	358043.00	7.1	Pass
		Leg	ROHN 6 EH	42	-24921.30	358043.00	7.0	Pass
T4	280 - 260	Leg	ROHN 8 EH w/ angle 8x8x0.5	70	-51346.00	874859.00	5.9 9.5 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	71	-51467.40	874859.00	5.9 9.5 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	72	-50867.90	874859.00	5.8 9.6 (b)	Pass
T5	260 - 240	Leg	ROHN 8 EH w/ angle 8x8x0.5	91	-87109.90	874884.00	10.0 16.1 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	92	-87852.70	874884.00	10.0 16.0 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	93	-86548.30	874884.00	9.9 16.1 (b)	Pass
T6	240 - 220	Leg	ROHN 8 EH w/ angle 8x8x0.5	112	-133834.00	874888.00	15.3 24.7 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	113	-134619.00	874888.00	15.4 24.6 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	114	-133545.00	874888.00	15.3 24.7 (b)	Pass
T7	220 - 200	Leg	ROHN 8 EH w/ angle 8x8x0.5	133	-187832.00	818638.00	22.9 23.1 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Leg	ROHN 8 EH w/ angle 8x8x0.5	134	-188983.00	818638.00	23.1	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	135	-187665.00	818638.00	22.9 23.1 (b)	Pass
T8	200 - 180	Leg	ROHN 10 EH w/ angle 8x8x0.5	148	-256055.00	982914.00	26.1 31.7 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	149	-257893.00	982914.00	26.2 31.5 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	150	-255918.00	982914.00	26.0 31.7 (b)	Pass
T9	180 - 170	Leg	ROHN 10 EH w/ angle 8x8x0.5	163	-291755.00	982929.00	29.7 36.2 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	164	-293797.00	982929.00	29.9 36.1 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	165	-291535.00	982929.00	29.7 36.3 (b)	Pass
T10	170 - 160	Leg	ROHN 10 EH w/ angle 8x8x0.5	172	-328730.00	982929.00	33.4	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	173	-330926.00	982929.00	33.7	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	174	-328498.00	982929.00	33.4	Pass
T11	160 - 140	Leg	ROHN 10 EH w/ angle 8x8x0.5	181	-406341.00	982978.00	41.3 50.5 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	182	-408451.00	982978.00	41.6 50.5 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	183	-405766.00	982978.00	41.3 50.7 (b)	Pass
T12	140 - 120	Leg	ROHN 10 EH w/ angle 8x8x0.5	196	-485703.00	982899.00	49.4 60.3 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	197	-487928.00	982899.00	49.6 60.3 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	198	-484926.00	982899.00	49.3 60.5 (b)	Pass
T13	120 - 100	Leg	ROHN 10 EH w/ angle 8x8x0.5	211	-502064.00	982763.00	51.1 61.8 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	212	-504577.00	982763.00	51.3 61.9 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	213	-501437.00	982763.00	51.0 62.1 (b)	Pass
T14	100 - 80	Leg	ROHN 10 EH w/ angle 8x8x0.5	244	-570551.00	982792.00	58.1	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	245	-573259.00	982792.00	58.3	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	246	-569828.00	982792.00	58.0	Pass
T15	80 - 60	Leg	ROHN 12 EH w/ angle 8x8x0.5	277	-642838.00	1136630.00	56.6 59.4 (b)	Pass
		Leg	ROHN 12 EH w/ angle 8x8x0.5	278	-645787.00	1136630.00	56.8 59.5 (b)	Pass
		Leg	ROHN 12 EH w/ angle 8x8x0.5	279	-642064.00	1136630.00	56.5 59.6 (b)	Pass
T16	60 - 30	Leg	ROHN 12 EH w/ angle 8x8x0.5	310	-712131.00	1136700.00	62.6 64.7 (b)	Pass
		Leg	ROHN 12 EH w/ angle 8x8x0.5	311	-715227.00	1136700.00	62.9 64.8 (b)	Pass
		Leg	ROHN 12 EH w/ angle 8x8x0.5	312	-711408.00	1136700.00	62.6 64.9 (b)	Pass
T17	30 - 0	Leg	ROHN 12 EHS w Angle 8x8x0.625	361	-819071.00	1402320.00	58.4	Pass
		Leg	ROHN 12 EHS w Angle 8x8x0.625	362	-822463.00	1402320.00	58.7	Pass
		Leg	ROHN 12 EHS w Angle 8x8x0.625	363	-818240.00	1402320.00	58.3	Pass
T1	320 - 304	Diagonal	L1 3/4x1 3/4x3/16	7	-1270.13	8910.59	14.3 22.0 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	8	-1269.11	8910.59	14.2 22.0 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Diagonal	L1 3/4x1 3/4x3/16	9	-1253.16	8910.59	14.1 21.5 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	10	-1242.00	8910.59	13.9 21.5 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	11	-1277.30	8910.59	14.3 22.1 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	12	-1276.58	8910.59	14.3 22.1 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	13	-1030.63	8910.59	11.6 17.7 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	14	-1031.03	8910.59	11.6 17.7 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	15	-1020.09	8910.59	11.4 17.3 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	16	-1007.48	8910.59	11.3 17.3 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	17	-1076.87	8910.59	12.1 18.5 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	18	-1077.16	8910.59	12.1 18.5 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	19	-776.95	8910.59	8.7 13.4 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	20	-791.39	8910.59	8.9 13.4 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	21	-707.58	8910.59	7.9 11.9 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	22	-683.55	8910.59	7.7 11.8 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	23	-809.15	8910.59	9.1 13.9 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	24	-807.60	8910.59	9.1 13.9 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	25	-481.27	8910.59	5.4 8.2 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	26	-555.65	8910.59	6.2 9.2 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	27	-241.61	8910.59	2.7 3.8 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	28	-248.39	8910.59	2.8 4.0 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	29	-548.54	8910.59	6.2 9.1 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	30	-469.10	8910.59	5.3 8.0 (b)	Pass
T2	304 - 300	Diagonal	L1 3/4x1 3/4x3/16	34	-1429.03	8910.59	16.0 24.2 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	35	-1428.20	8910.59	16.0 24.2 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	36	-1468.56	8910.59	16.5 24.4 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	37	-1435.55	8910.59	16.1 24.4 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	38	-1505.04	8910.59	16.9 25.6 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	39	-1504.88	8910.59	16.9 25.5 (b)	Pass
T3	300 - 280	Diagonal	L2x2x1/4	46	-3572.28	10268.60	34.8 39.0 (b)	Pass
		Diagonal	L2x2x1/4	47	-3576.36	10268.60	34.8 38.9 (b)	Pass
		Diagonal	L2x2x1/4	48	-2509.55	10268.60	24.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Diagonal	L2x2x1/4	49	-2719.56	10268.60	27.4 (b) 26.5	Pass
		Diagonal	L2x2x1/4	50	-2901.39	10268.60	27.5 (b) 28.3	Pass
		Diagonal	L2x2x1/4	51	-2667.81	10268.60	29.4 (b) 26.0	Pass
		Diagonal	L2x2x1/4	52	-2691.65	11287.50	29.2 (b) 23.8	Pass
		Diagonal	L2x2x1/4	53	-2690.71	11287.50	29.4 (b) 23.8	Pass
		Diagonal	L2x2x1/4	54	-2124.43	11287.50	29.4 (b) 18.8	Pass
		Diagonal	L2x2x1/4	55	-2214.40	11287.50	23.3 (b) 19.6	Pass
		Diagonal	L2x2x1/4	56	-2236.74	11287.50	23.2 (b) 19.8	Pass
		Diagonal	L2x2x1/4	57	-2145.44	11287.50	23.4 (b) 19.0	Pass
		Diagonal	L2x2x1/4	58	-2095.87	12397.20	23.5 (b) 16.9	Pass
		Diagonal	L2x2x1/4	59	-2128.16	12397.20	23.0 (b) 17.2	Pass
		Diagonal	L2x2x1/4	60	-1615.59	12397.20	22.9 (b) 13.0	Pass
		Diagonal	L2x2x1/4	61	-1592.51	12397.20	17.3 (b) 12.8	Pass
		Diagonal	L2x2x1/4	62	-2065.82	12397.20	17.3 (b) 16.7	Pass
		Diagonal	L2x2x1/4	63	-1986.70	12397.20	21.8 (b) 16.0	Pass
		Diagonal	L2x2x1/4	64	-1637.23	13499.80	21.8 (b) 12.1	Pass
		Diagonal	L2x2x1/4	65	-1640.80	13499.80	17.6 (b) 12.2	Pass
		Diagonal	L2x2x1/4	66	-1499.10	13499.80	17.5 (b) 11.1	Pass
		Diagonal	L2x2x1/4	67	-1479.37	13499.80	15.7 (b) 11.0	Pass
		Diagonal	L2x2x1/4	68	-1574.54	13499.80	15.7 (b) 11.7	Pass
		Diagonal	L2x2x1/4	69	-1545.48	13499.80	16.5 (b) 11.4	Pass
T4	280 - 260	Diagonal	L2 1/2x2 1/2x1/4	73	-5465.71	13248.50	16.6 (b) 41.3	Pass
		Diagonal	L2 1/2x2 1/2x1/4	74	-5467.00	13248.50	45.4 (b) 41.3	Pass
		Diagonal	L2 1/2x2 1/2x1/4	75	-4465.28	13248.50	45.4 (b) 33.7	Pass
		Diagonal	L2 1/2x2 1/2x1/4	76	-4802.42	13248.50	37.2 (b) 36.2	Pass
		Diagonal	L2 1/2x2 1/2x1/4	77	-4443.48	13248.50	37.0 (b) 33.5	Pass
		Diagonal	L2 1/2x2 1/2x1/4	78	-4156.50	13248.50	34.5 (b) 31.4	Pass
		Diagonal	L2 1/2x2 1/2x1/4	79	-4975.94	14735.30	34.6 (b) 33.8	Pass
		Diagonal	L2 1/2x2 1/2x1/4	80	-4981.93	14735.30	41.3 (b) 33.8	Pass
		Diagonal	L2 1/2x2 1/2x1/4	81	-3820.95	14735.30	41.3 (b) 25.9 31.7 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Diagonal	L2 1/2x2 1/2x1/4	82	-4099.42	14735.30	27.8 31.6 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	83	-4098.81	14735.30	27.8 31.6 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	84	-3819.08	14735.30	25.9 31.8 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	85	-4571.81	16299.00	28.0 38.0 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	86	-4580.07	16299.00	28.1 38.0 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	87	-3199.23	16299.00	19.6 26.6 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	88	-3466.68	16299.00	21.3 26.5 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	89	-3692.14	16299.00	22.7 28.1 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	90	-3392.00	16299.00	20.8 28.3 (b)	Pass
T5	260 - 240	Diagonal	L3x3x1/4	94	-9061.08	17507.10	51.8 60.7 (b)	Pass
		Diagonal	L3x3x1/4	95	-8655.81	17507.10	49.4 60.9 (b)	Pass
		Diagonal	L3x3x1/4	96	-7820.27	17507.10	44.7 56.4 (b)	Pass
		Diagonal	L3x3x1/4	97	-8587.11	17507.10	49.0 54.8 (b)	Pass
		Diagonal	L3x3x1/4	98	-6077.52	17507.10	34.7 39.7 (b)	Pass
		Diagonal	L3x3x1/4	99	-5676.54	17507.10	32.4 39.9 (b)	Pass
		Diagonal	L3x3x1/4	100	-7439.20	19162.60	38.8 51.2 (b)	Pass
		Diagonal	L3x3x1/4	101	-7269.67	19162.60	37.9 51.2 (b)	Pass
		Diagonal	L3x3x1/4	102	-6458.88	19162.60	33.7 46.3 (b)	Pass
		Diagonal	L3x3x1/4	103	-6978.00	19162.60	36.4 45.4 (b)	Pass
		Diagonal	L3x3x1/4	104	-5545.76	19162.60	28.9 36.8 (b)	Pass
		Diagonal	L3x3x1/4	105	-5231.41	19162.60	27.3 36.9 (b)	Pass
		Diagonal	L3x3x1/4	106	-6671.05	21034.60	31.7 46.6 (b)	Pass
		Diagonal	L3x3x1/4	107	-6624.17	21034.60	31.5 46.7 (b)	Pass
		Diagonal	L3x3x1/4	108	-5686.08	21034.60	27.0 40.6 (b)	Pass
		Diagonal	L3x3x1/4	109	-6137.53	21034.60	29.2 40.0 (b)	Pass
		Diagonal	L3x3x1/4	110	-5115.96	21034.60	24.3 33.8 (b)	Pass
		Diagonal	L3x3x1/4	111	-4812.57	21034.60	22.9 33.9 (b)	Pass
T6	240 - 220	Diagonal	L4x4x5/16	115	-11675.40	39677.10	29.4 62.3 (b)	Pass
		Diagonal	L4x4x5/16	116	-11034.50	39677.10	27.8 62.5 (b)	Pass
		Diagonal	L4x4x5/16	117	-10796.00	39677.10	27.2 61.2 (b)	Pass
		Diagonal	L4x4x5/16	118	-11543.00	39677.10	29.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Diagonal	L4x4x5/16	119	-8379.30	39677.10	61.0 (b) 21.1	Pass
		Diagonal	L4x4x5/16	120	-8237.23	39677.10	45.6 (b) 20.8	Pass
		Diagonal	L4x4x5/16	121	-10830.80	42138.30	45.6 (b) 25.7	Pass
		Diagonal	L4x4x5/16	122	-10455.60	42138.30	58.9 (b) 24.8	Pass
		Diagonal	L4x4x5/16	123	-10156.00	42138.30	59.7 (b) 24.1	Pass
		Diagonal	L4x4x5/16	124	-10659.40	42138.30	58.8 (b) 25.3	Pass
		Diagonal	L4x4x5/16	125	-7541.85	42138.30	57.1 (b) 17.9	Pass
		Diagonal	L4x4x5/16	126	-7489.16	42138.30	42.1 (b) 17.8	Pass
		Diagonal	L4x4x5/16	127	-10801.20	44552.90	42.1 (b) 24.2	Pass
		Diagonal	L4x4x5/16	128	-10321.60	44552.90	58.0 (b) 23.2	Pass
		Diagonal	L4x4x5/16	129	-9512.57	44552.90	58.2 (b) 21.4	Pass
		Diagonal	L4x4x5/16	130	-10342.80	44552.90	55.2 (b) 23.2	Pass
		Diagonal	L4x4x5/16	131	-7179.50	44552.90	53.4 (b) 16.1	Pass
		Diagonal	L4x4x5/16	132	-6806.80	44552.90	38.1 (b) 15.3	Pass
T7	220 - 200	Diagonal	L4x4x3/8	136	-17047.60	32190.20	38.2 (b) 53.0	Pass
		Diagonal	L4x4x3/8	137	-16307.10	32190.20	78.0 (b) 50.7	Pass
		Diagonal	L4x4x3/8	138	-16320.90	32190.20	76.7 (b) 50.7	Pass
		Diagonal	L4x4x3/8	139	-17073.60	32190.20	76.8 (b) 53.0	Pass
		Diagonal	L4x4x3/8	140	-12565.50	32190.20	78.1 (b) 39.0	Pass
		Diagonal	L4x4x3/8	141	-12540.80	32190.20	58.3 (b) 39.0	Pass
		Diagonal	L4x4x3/8	142	-15887.50	35301.80	58.2 (b) 45.0	Pass
		Diagonal	L4x4x3/8	143	-15218.80	35301.80	72.7 (b) 43.1	Pass
		Diagonal	L4x4x3/8	144	-15155.90	35301.80	71.4 (b) 42.9	Pass
		Diagonal	L4x4x3/8	145	-15862.20	35301.80	71.1 (b) 44.9	Pass
		Diagonal	L4x4x3/8	146	-11767.70	35301.80	72.5 (b) 33.3	Pass
		Diagonal	L4x4x3/8	147	-11711.70	35301.80	54.4 (b) 33.2	Pass
T8	200 - 180	Diagonal	L4x4x3/8	151	-20801.90	26701.10	54.4 (b) 77.9	Pass
		Diagonal	L4x4x3/8	152	-20546.30	26701.10	82.3 (b) 76.9	Pass
		Diagonal	L4x4x3/8	153	-20250.80	26701.10	82.5 (b) 75.8	Pass
		Diagonal	L4x4x3/8	154	-20678.50	26701.10	81.4 (b) 77.4 81.1 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Diagonal	L4x4x3/8	155	-15949.70	26701.10	59.7 63.8 (b)	Pass
		Diagonal	L4x4x3/8	156	-15946.50	26701.10	59.7 63.8 (b)	Pass
		Diagonal	L4x4x3/8	157	-20209.20	29291.80	69.0 77.5 (b)	Pass
		Diagonal	L4x4x3/8	158	-19454.30	29291.80	66.4 77.9 (b)	Pass
		Diagonal	L4x4x3/8	159	-19466.30	29291.80	66.5 78.0 (b)	Pass
		Diagonal	L4x4x3/8	160	-20268.60	29291.80	69.2 77.7 (b)	Pass
		Diagonal	L4x4x3/8	161	-15064.20	29291.80	51.4 59.5 (b)	Pass
		Diagonal	L4x4x3/8	162	-14970.00	29291.80	51.1 59.5 (b)	Pass
T9	180 - 170	Diagonal	2L4x4x1/4	166	-23031.70	76901.90	29.9 67.9 (b)	Pass
		Diagonal	2L4x4x1/4	167	-22662.40	76901.90	29.5 68.1 (b)	Pass
		Diagonal	2L4x4x1/4	168	-21965.70	76901.90	28.6 66.1 (b)	Pass
		Diagonal	2L4x4x1/4	169	-22682.00	76901.90	29.5 65.8 (b)	Pass
		Diagonal	2L4x4x1/4	170	-17612.30	76901.90	22.9 52.6 (b)	Pass
		Diagonal	2L4x4x1/4	171	-17564.10	76901.90	22.8 52.6 (b)	Pass
T10	170 - 160	Diagonal	2L4x4x1/4	175	-23867.10	72580.70	32.9 71.1 (b)	Pass
		Diagonal	2L4x4x1/4	176	-23690.20	72580.70	32.6 71.3 (b)	Pass
		Diagonal	2L4x4x1/4	177	-22675.80	72580.70	31.2 68.3 (b)	Pass
		Diagonal	2L4x4x1/4	178	-23336.00	72580.70	32.2 68.0 (b)	Pass
		Diagonal	2L4x4x1/4	179	-18383.00	72580.70	25.3 55.0 (b)	Pass
		Diagonal	2L4x4x1/4	180	-18362.70	72580.70	25.3 55.1 (b)	Pass
T11	160 - 140	Diagonal	L5x5x1/2	184	-28675.70	49897.30	57.5 83.6 (b)	Pass
		Diagonal	L5x5x1/2	185	-28078.30	49897.30	56.3 83.8 (b)	Pass
		Diagonal	L5x5x1/2	186	-26353.90	49897.30	52.8 78.7 (b)	Pass
		Diagonal	L5x5x1/2	187	-27739.30	49897.30	55.6 78.5 (b)	Pass
		Diagonal	L5x5x1/2	188	-23003.70	49897.30	46.1 66.1 (b)	Pass
		Diagonal	L5x5x1/2	189	-22239.50	49897.30	44.6 66.1 (b)	Pass
		Diagonal	L5x5x1/2	190	-26165.20	53704.40	48.7 78.8 (b)	Pass
		Diagonal	L5x5x1/2	191	-26106.80	53704.40	48.6 78.9 (b)	Pass
		Diagonal	L5x5x1/2	192	-24912.90	53704.40	46.4 75.8 (b)	Pass
		Diagonal	L5x5x1/2	193	-25466.20	53704.40	47.4 75.2 (b)	Pass
		Diagonal	L5x5x1/2	194	-20465.30	53704.40	38.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
							61.7 (b)	
		Diagonal	L5x5x1/2	195	-20443.90	53704.40	38.1	Pass
							61.7 (b)	
T12	140 - 120	Diagonal	L5x5x1/2	199	-30554.30	42434.90	72.0	Pass
							90.2 (b)	
		Diagonal	L5x5x1/2	200	-30119.10	42434.90	71.0	Pass
							90.4 (b)	
		Diagonal	L5x5x1/2	201	-27268.20	42434.90	64.3	Pass
							82.0 (b)	
		Diagonal	L5x5x1/2	202	-28983.30	42434.90	68.3	Pass
							81.7 (b)	
		Diagonal	L5x5x1/2	203	-24814.70	42434.90	58.5	Pass
							70.8 (b)	
		Diagonal	L5x5x1/2	204	-23642.70	42434.90	55.7	Pass
							70.9 (b)	
		Diagonal	L5x5x1/2	205	-28137.30	45905.00	61.3	Pass
							84.7 (b)	
		Diagonal	L5x5x1/2	206	-28092.30	45905.00	61.2	Pass
							84.8 (b)	
		Diagonal	L5x5x1/2	207	-25638.90	45905.00	55.9	Pass
							79.3 (b)	
		Diagonal	L5x5x1/2	208	-26190.70	45905.00	57.1	Pass
							77.3 (b)	
		Diagonal	L5x5x1/2	209	-21993.10	45905.00	47.9	Pass
							66.1 (b)	
		Diagonal	L5x5x1/2	210	-21941.90	45905.00	47.8	Pass
							66.4 (b)	
T13	120 - 100	Diagonal	ROHN 3 XXS	215	-50451.40	63081.40	80.0	Pass
		Diagonal	ROHN 3 XXS	218	-49655.90	63081.40	78.7	Pass
		Diagonal	ROHN 3 XXS	222	-45955.30	63081.40	72.9	Pass
		Diagonal	ROHN 3 XXS	225	-48512.60	63081.40	76.9	Pass
		Diagonal	ROHN 3 XXS	231	-40703.50	63081.40	64.5	Pass
		Diagonal	ROHN 3 XXS	234	-39265.60	63081.40	62.2	Pass
T14	100 - 80	Diagonal	ROHN 3 XXS	248	-53273.30	59442.80	89.6	Pass
		Diagonal	ROHN 3 XXS	251	-52072.80	59442.80	87.6	Pass
		Diagonal	ROHN 3 XXS	255	-49396.90	59442.80	83.1	Pass
		Diagonal	ROHN 3 XXS	258	-51833.10	59442.80	87.2	Pass
		Diagonal	ROHN 3 XXS	264	-43600.90	59442.80	73.3	Pass
		Diagonal	ROHN 3 XXS	267	-42201.80	59442.80	71.0	Pass
T15	80 - 60	Diagonal	ROHN 3.5 EH	281	-51194.70	58371.00	87.7	Pass
		Diagonal	ROHN 3.5 EH	284	-49528.60	58371.00	84.9	Pass
		Diagonal	ROHN 3.5 EH	288	-46824.10	58371.00	80.2	Pass
		Diagonal	ROHN 3.5 EH	291	-49653.50	58371.00	85.1	Pass
		Diagonal	ROHN 3.5 EH	297	-41621.30	58371.00	71.3	Pass
		Diagonal	ROHN 3.5 EH	300	-39850.70	58371.00	68.3	Pass
T16	60 - 30	Diagonal	ROHN 4 X-STR	314	-74980.00	101988.00	73.5	Pass
							84.0 (b)	
		Diagonal	ROHN 4 X-STR	319	-72164.20	101988.00	70.8	Pass
							80.8 (b)	
		Diagonal	ROHN 4 X-STR	325	-68571.70	101988.00	67.2	Pass
							76.8 (b)	
		Diagonal	ROHN 4 X-STR	330	-72846.60	101988.00	71.4	Pass
							81.6 (b)	
		Diagonal	ROHN 4 X-STR	340	-61859.90	101988.00	60.7	Pass
							69.3 (b)	
		Diagonal	ROHN 4 X-STR	345	-59455.20	101988.00	58.3	Pass
							66.6 (b)	
T17	30 - 0	Diagonal	ROHN 4 X-STR	365	-74412.70	97939.00	76.0	Pass
							83.3 (b)	
		Diagonal	ROHN 4 X-STR	370	-73494.00	97939.00	75.0	Pass
							82.3 (b)	

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Diagonal	ROHN 4 X-STR	376	-67979.90	97939.00	69.4 76.1 (b)	Pass
		Diagonal	ROHN 4 X-STR	381	-71655.70	97939.00	73.2 80.2 (b)	Pass
		Diagonal	ROHN 4 X-STR	391	-58797.40	97939.00	60.0 65.8 (b)	Pass
		Diagonal	ROHN 4 X-STR	396	-57188.50	97939.00	58.4 64.0 (b)	Pass
T13	120 - 100	Horizontal	ROHN 3 STD	214	-26940.90	31679.40	85.0	Pass
		Horizontal	ROHN 3 STD	221	-25564.00	31679.40	80.7	Pass
		Horizontal	ROHN 3 STD	230	-20998.90	31679.40	66.3	Pass
T14	100 - 80	Horizontal	ROHN 3 X-STR	247	-30615.50	33455.50	91.5	Pass
		Horizontal	ROHN 3 X-STR	254	-29713.00	33455.50	88.8	Pass
		Horizontal	ROHN 3 X-STR	263	-24507.90	33455.50	73.3	Pass
T15	80 - 60	Horizontal	ROHN 3 XXS	280	-31059.50	43132.20	72.0	Pass
		Horizontal	ROHN 3 XXS	287	-29920.10	43132.20	69.4	Pass
		Horizontal	ROHN 3 XXS	296	-24346.20	43132.20	56.4	Pass
T16	60 - 30	Horizontal	ROHN 3.5 EH	313	-35715.60	38300.30	93.3	Pass
		Horizontal	ROHN 3.5 EH	324	-34342.80	38300.30	89.7	Pass
		Horizontal	ROHN 3.5 EH	339	-28014.50	38300.30	73.1	Pass
T17	30 - 0	Horizontal	ROHN 4 X-STR	364	-42078.40	47220.90	89.1	Pass
		Horizontal	ROHN 4 X-STR	375	-40365.00	47220.90	85.5	Pass
		Horizontal	ROHN 4 X-STR	390	-32810.10	47220.90	69.5	Pass
T1	320 - 304	Top Girt	L1 3/4x1 3/4x3/16	4	-107.11	4209.52	2.5	Pass
		Top Girt	L1 3/4x1 3/4x3/16	5	-108.04	4209.52	2.6	Pass
		Top Girt	L1 3/4x1 3/4x3/16	6	-107.27	4209.52	2.5	Pass
T3	300 - 280	Top Girt	L2x2x1/4	43	-26.86	7691.25	0.6	Pass
		Top Girt	L2x2x1/4	44	-28.87	7691.25	0.6	Pass
		Top Girt	L2x2x1/4	45	-31.37	7691.25	0.6	Pass
T13	120 - 100	Redund Horz 1 Bracing	ROHN 1.5 STD	216	-8720.31	14083.10	61.9	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	219	-8763.95	14083.10	62.2	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	223	-8763.95	14083.10	62.2	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	226	-8709.44	14083.10	61.8	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	232	-8709.44	14083.10	61.8	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	235	-8720.31	14083.10	61.9	Pass
T14	100 - 80	Redund Horz 1 Bracing	P1.5x.145	249	-9910.62	11432.70	86.7	Pass
		Redund Horz 1 Bracing	P1.5x.145	252	-9957.64	11432.70	87.1	Pass
		Redund Horz 1 Bracing	P1.5x.145	256	-9957.64	11432.70	87.1	Pass
		Redund Horz 1 Bracing	P1.5x.145	259	-9898.07	11432.70	86.6	Pass
		Redund Horz 1 Bracing	P1.5x.145	265	-9898.07	11432.70	86.6	Pass
		Redund Horz 1 Bracing	P1.5x.145	268	-9910.62	11432.70	86.7	Pass
T15	80 - 60	Redund Horz 1 Bracing	ROHN 2 STD	282	-11168.90	20598.10	54.2	Pass
		Redund Horz 1 Bracing	ROHN 2 STD	285	-11220.10	20598.10	54.5	Pass
		Redund Horz 1 Bracing	ROHN 2 STD	289	-11220.10	20598.10	54.5	Pass
		Redund Horz 1 Bracing	ROHN 2 STD	292	-11155.50	20598.10	54.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Redund Horz 1 Bracing	ROHN 2 STD	298	-11155.50	20598.10	54.2	Pass
		Redund Horz 1 Bracing	ROHN 2 STD	301	-11168.90	20598.10	54.2	Pass
T16	60 - 30	Redund Horz 1 Bracing	ROHN 1.5 STD	315	-12384.50	18282.30	67.7	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	320	-12440.50	18282.30	68.0	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	326	-12440.50	18282.30	68.0	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	331	-12368.20	18282.30	67.7	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	341	-12368.20	18282.30	67.7	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	346	-12384.50	18282.30	67.7	Pass
T17	30 - 0	Redund Horz 1 Bracing	P1.5x.145	366	-14266.20	15339.00	93.0	Pass
		Redund Horz 1 Bracing	P1.5x.145	371	-14327.20	15339.00	93.4	Pass
		Redund Horz 1 Bracing	P1.5x.145	377	-14327.20	15339.00	93.4	Pass
		Redund Horz 1 Bracing	P1.5x.145	382	-14248.30	15339.00	92.9	Pass
		Redund Horz 1 Bracing	P1.5x.145	392	-14248.30	15339.00	92.9	Pass
		Redund Horz 1 Bracing	P1.5x.145	397	-14266.20	15339.00	93.0	Pass
T16	60 - 30	Redund Horz 2 Bracing	ROHN 2 XXS	316	-12384.50	18604.80	66.6	Pass
		Redund Horz 2 Bracing	ROHN 2 XXS	321	-12440.50	18604.80	66.9	Pass
		Redund Horz 2 Bracing	ROHN 2 XXS	327	-12440.50	18604.80	66.9	Pass
		Redund Horz 2 Bracing	ROHN 2 XXS	332	-12368.20	18604.80	66.5	Pass
		Redund Horz 2 Bracing	ROHN 2 XXS	342	-12368.20	18604.80	66.5	Pass
		Redund Horz 2 Bracing	ROHN 2 XXS	347	-12384.50	18604.80	66.6	Pass
T17	30 - 0	Redund Horz 2 Bracing	ROHN 2.5 EH	367	-14266.20	21919.90	65.1	Pass
		Redund Horz 2 Bracing	ROHN 2.5 EH	372	-14327.20	21919.90	65.4	Pass
		Redund Horz 2 Bracing	ROHN 2.5 EH	378	-14327.20	21919.90	65.4	Pass
		Redund Horz 2 Bracing	ROHN 2.5 EH	383	-14248.30	21919.90	65.0	Pass
		Redund Horz 2 Bracing	ROHN 2.5 EH	393	-14248.30	21919.90	65.0	Pass
		Redund Horz 2 Bracing	ROHN 2.5 EH	398	-14266.20	21919.90	65.1	Pass
T13	120 - 100	Redund Diag 1 Bracing	ROHN 2 STD	217	-7911.60	9352.65	84.6	Pass
		Redund Diag 1 Bracing	ROHN 2 STD	220	-7951.20	9352.65	85.0	Pass
		Redund Diag 1 Bracing	ROHN 2 STD	224	-7951.20	9352.65	85.0	Pass
		Redund Diag 1 Bracing	ROHN 2 STD	227	-7901.74	9352.65	84.5	Pass
		Redund Diag 1	ROHN 2 STD	233	-7901.74	9352.65	84.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Bracing						
		Redund Diag 1 Bracing	ROHN 2 STD	236	-7911.60	9352.65	84.6	Pass
T14	100 - 80	Redund Diag 1 Bracing	ROHN 2 EH	250	-8405.18	11364.10	74.0	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	253	-8445.06	11364.10	74.3	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	257	-8445.06	11364.10	74.3	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	260	-8394.54	11364.10	73.9	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	266	-8394.54	11364.10	73.9	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	269	-8405.18	11364.10	74.0	Pass
T15	80 - 60	Redund Diag 1 Bracing	ROHN 2 EH	283	-8932.20	10626.30	84.1	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	286	-8973.17	10626.30	84.4	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	290	-8973.17	10626.30	84.4	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	293	-8921.47	10626.30	84.0	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	299	-8921.47	10626.30	84.0	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	302	-8932.20	10626.30	84.1	Pass
T16	60 - 30	Redund Diag 1 Bracing	ROHN 2 EH	317	-12497.50	13862.10	90.2	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	322	-12553.90	13862.10	90.6	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	328	-12553.90	13862.10	90.6	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	333	-12481.00	13862.10	90.0	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	343	-12481.00	13862.10	90.0	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	348	-12497.50	13862.10	90.2	Pass
T17	30 - 0	Redund Diag 1 Bracing	ROHN 2.5 STD	368	-13271.80	22579.60	58.8	Pass
		Redund Diag 1 Bracing	ROHN 2.5 STD	373	-13328.60	22579.60	59.0	Pass
		Redund Diag 1 Bracing	ROHN 2.5 STD	379	-13328.60	22579.60	59.0	Pass
		Redund Diag 1 Bracing	ROHN 2.5 STD	384	-13255.20	22579.60	58.7	Pass
		Redund Diag 1 Bracing	ROHN 2.5 STD	394	-13255.20	22579.60	58.7	Pass
		Redund Diag 1 Bracing	ROHN 2.5 STD	399	-13271.80	22579.60	58.8	Pass
T16	60 - 30	Redund Diag 2 Bracing	ROHN 2.5 STD	318	-8104.77	12742.30	63.6	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	323	-8141.39	12742.30	63.9	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	329	-8141.39	12742.30	63.9	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	334	-8094.09	12742.30	63.5	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	344	-8094.09	12742.30	63.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Redund Diag 2 Bracing	ROHN 2.5 STD	349	-8104.77	12742.30	63.6	Pass
T17	30 - 0	Redund Diag 2 Bracing	ROHN 2.5 STD	369	-8916.67	11206.60	79.6	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	374	-8954.81	11206.60	79.9	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	380	-8954.81	11206.60	79.9	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	385	-8905.48	11206.60	79.5	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	395	-8905.48	11206.60	79.5	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	400	-8916.67	11206.60	79.6	Pass
T13	120 - 100	Redund Hip 1 Bracing	ROHN 1.5 STD	228	-47.89	12066.60	0.4	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	237	-39.84	12066.60	0.3	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	239	-49.09	12066.60	0.4	Pass
T14	100 - 80	Redund Hip 1 Bracing	ROHN 1.5 STD	261	-47.09	9943.20	0.5	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	270	-40.54	9943.20	0.4	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	272	-47.87	9943.20	0.5	Pass
T15	80 - 60	Redund Hip 1 Bracing	ROHN 1.5 STD	294	-52.30	8378.50	0.6	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	303	-40.83	8378.50	0.5	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	305	-50.65	8378.50	0.6	Pass
T16	60 - 30	Redund Hip 1 Bracing	ROHN 1.5 STD	335	-166.87	15708.50	1.1	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	350	-143.06	15708.50	0.9	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	354	-177.22	15708.50	1.1	Pass
T17	30 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	386	-149.16	12924.00	1.2	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	401	-125.93	12924.00	1.0	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	405	-159.91	12924.00	1.2	Pass
T16	60 - 30	Redund Hip 2 Bracing	ROHN 2 STD	336	-92.22	8559.02	1.1	Pass
		Redund Hip 2 Bracing	ROHN 2 STD	351	-79.47	8559.02	0.9	Pass
		Redund Hip 2 Bracing	ROHN 2 STD	355	-97.57	8559.02	1.1	Pass
T17	30 - 0	Redund Hip 2 Bracing	ROHN 2 STD	387	-86.75	6941.18	1.2	Pass
		Redund Hip 2 Bracing	ROHN 2 STD	402	-74.27	6941.18	1.1	Pass
		Redund Hip 2 Bracing	ROHN 2 STD	406	-92.17	6941.18	1.3	Pass
T13	120 - 100	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	229	-126.08	10450.60	1.2	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	238	-115.78	10450.60	1.1	Pass
		Redund Hip Diagonal	ROHN 2.5 STD	240	-127.85	10450.60	1.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		1 Bracing						
T14	100 - 80	Redund Hip Diagonal	ROHN 2.5 STD	262	-123.54	9375.46	1.3	Pass
		1 Bracing						
		Redund Hip Diagonal	ROHN 2.5 STD	271	-114.12	9375.46	1.2	Pass
		1 Bracing						
		Redund Hip Diagonal	ROHN 2.5 STD	273	-124.80	9375.46	1.3	Pass
		1 Bracing						
T15	80 - 60	Redund Hip Diagonal	ROHN 3 STD	295	-150.55	16617.70	0.9	Pass
		1 Bracing						
		Redund Hip Diagonal	ROHN 3 STD	304	-136.59	16617.70	0.8	Pass
		1 Bracing						
		Redund Hip Diagonal	ROHN 3 STD	306	-152.41	16617.70	0.9	Pass
		1 Bracing						
T16	60 - 30	Redund Hip Diagonal	ROHN 2 STD	337	-339.49	5254.92	6.5	Pass
		1 Bracing						
		Redund Hip Diagonal	ROHN 2 STD	352	-279.90	5254.92	5.3	Pass
		1 Bracing						
		Redund Hip Diagonal	ROHN 2 STD	356	-367.70	5254.92	7.0	Pass
		1 Bracing						
T17	30 - 0	Redund Hip Diagonal	ROHN 2.5 STD	388	-308.07	10840.00	2.8	Pass
		1 Bracing						
		Redund Hip Diagonal	ROHN 2.5 STD	403	-252.91	10840.00	2.3	Pass
		1 Bracing						
		Redund Hip Diagonal	ROHN 2.5 STD	407	-335.83	10840.00	3.1	Pass
		1 Bracing						
T16	60 - 30	Redund Hip Diagonal	ROHN 2 STD	338	-141.17	3255.91	4.3	Pass
		2 Bracing						
		Redund Hip Diagonal	ROHN 2 STD	353	-141.09	3255.91	4.3	Pass
		2 Bracing						
		Redund Hip Diagonal	ROHN 2 STD	357	-142.44	3255.91	4.4	Pass
		2 Bracing						
T17	30 - 0	Redund Hip Diagonal	ROHN 2.5 STD	389	-139.45	6453.40	2.2	Pass
		2 Bracing						
		Redund Hip Diagonal	ROHN 2.5 STD	404	-142.31	6453.40	2.2	Pass
		2 Bracing						
		Redund Hip Diagonal	ROHN 2.5 STD	408	-141.97	6453.40	2.2	Pass
		2 Bracing						
T13	120 - 100	Inner Bracing	ROHN 3 STD	241	-31.43	29370.40	0.3	Pass
		Inner Bracing	ROHN 3 STD	242	-27.40	29370.40	0.3	Pass
		Inner Bracing	ROHN 3 STD	243	-29.88	29370.40	0.3	Pass
T14	100 - 80	Inner Bracing	ROHN 3 STD	274	-32.92	24201.90	0.3	Pass
		Inner Bracing	ROHN 3 STD	275	-29.20	24201.90	0.3	Pass
		Inner Bracing	ROHN 3 STD	276	-31.43	24201.90	0.4	Pass
T15	80 - 60	Inner Bracing	ROHN 3 STD	307	-40.78	20393.40	0.4	Pass
		Inner Bracing	ROHN 3 STD	308	-35.95	20393.40	0.4	Pass
		Inner Bracing	ROHN 3 STD	309	-38.85	20393.40	0.4	Pass
T16	60 - 30	Inner Bracing	ROHN 3 STD	358	-60.05	17239.70	0.4	Pass
		Inner Bracing	ROHN 3 STD	359	-59.72	17239.70	0.4	Pass
		Inner Bracing	ROHN 3 STD	360	-60.28	17239.70	0.4	Pass
T17	30 - 0	Inner Bracing	ROHN 3 STD	409	-62.76	13981.00	0.5	Pass
		Inner Bracing	ROHN 3 STD	410	-62.47	13981.00	0.5	Pass
		Inner Bracing	ROHN 3 STD	411	-62.96	13981.00	0.5	Pass
							Summary	
						Leg (T16)	64.9	Pass
						Diagonal (T12)	90.4	Pass
						Horizontal (T16)	93.3	Pass
						Top Girt (T1)	2.6	Pass
						Redund	93.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						Horz 1 Bracing (T17)		
						Redund	66.9	Pass
						Horz 2 Bracing (T16)		
						Redund	90.6	Pass
						Diag 1 Bracing (T16)		
						Redund	79.9	Pass
						Diag 2 Bracing (T17)		
						Redund Hip 1 Bracing (T17)	1.2	Pass
						Redund Hip 2 Bracing (T17)	1.3	Pass
						Redund Hip Diagonal 1 Bracing (T16)	7.0	Pass
						Redund Hip Diagonal 2 Bracing (T16)	4.4	Pass
						Inner Bracing (T17)	0.5	Pass
						Bolt Checks	90.4	Pass
						RATING =	**93.4**	**Pass**

ANCHOR BOLT EVALUATION

ANCHOR BOLT ANALYSIS

Input Data

Tower Reactions:

Uplift:	Uplift := 725.960·kips	*user input*	
Shear:	Shear := 128.286·kips	*user input*	
Compression:	Compression := 924.766·kips	*user input*	

Anchor Bolt Data:

Use ASTM A354 Grade BC

Number of Anchor Bolts = N	N := 24	*user input*	
Bolt Ultimate Strength:	F_u := 125·ksi	*user input*	
Bolt Yield Strength:	Fy := 109·ksi	*user input*	
Bolt Modulus:	E := 29000·ksi	*user input*	
Thickness of Anchor Bolts	D := 1.0in	*user input*	
Threads per Inch:	n := 8	*user input*	
Coefficient of Friction:	μ := 0.55	*user input*	(for baseplate with grout ASCE 10-15)
Length from top of pier to bottom of leveling nut:	L_{ar} := 0in	*user input*	
Bolt Modulus:	E := 29000·ksi	*user input*	

Anchor Bolt Section Properties:

Gross Area of Bolt:

$$A_g := \frac{\pi}{4}\cdot D^2 \qquad A_g = 0.79\cdot in^2$$

Net Area of Bolt:

$$A_n := \frac{\pi}{4}\cdot\left(D - \frac{0.9743\cdot in}{n}\right)^2 \qquad A_n = 0.61\cdot in^2$$

Net Diameter:

$$D_n := D - \frac{0.9743 in}{n} \qquad D_n = 0.88\cdot in$$

Radius of Gyration of Bolt:

$$r := \frac{D_n}{4} \qquad r = 0.22\cdot in$$

Plastic Section Modulus of Bolt:

$$Z_x := \frac{D_n^3}{6} \qquad Z_x = 0.11\cdot in^3$$

Forces:

Tension Force:

$$T_u := \frac{Uplift}{N}$$

$T_u = 30.25\cdot kip$ $\qquad T_{ub} := T_u$

Shear Force:

$$V_u := \frac{Shear}{N}$$

$V_u = 5.35\cdot kip$ $\qquad V_{ub} := V_u$

Resistance Factor for Flexure (ANSI/TIA-222-G 4.7):

$\phi_f := 0.9$

Resistance Factor for Anchor Bolt (ANSI/TIA-222-G 4.5.4.2):

$\phi_b := 0.80$

Resistance Factor for Tension (ANSI/TIA-222-G 4.9.6.1):

$\phi_t := 0.75$

Resistance Factor for Shear (ANSI/TIA-222-G 4.9.6.3):

$\phi_v := 0.75$

ANSI/TIA-222-G 4.7.1 Flexural Members:

Nominal Flexure Strength, Mn:

$M_n := Fy \cdot Z_x$

$M_n = 1.03 \cdot ft \cdot kip$

$\phi_f \cdot M_n = 0.92 \cdot ft \cdot kip$

Applied Moment due to Shear (worst case lever arm), Mu:

$M_u := L_{ar} \cdot V_u$

$M_u = 0 \cdot ft \cdot kip$

Flexure Check:

$FlexureCheck := if(M_u \le \phi_f \cdot M_n, "OK", "NO GOOD")$

FlexureCheck = "OK"

$\frac{M_u}{\phi_f \cdot M_n} = 0 \cdot \%$

ANSI/TIA-222-G 4.9.6.1 Tensile Strength:

Design Tensile Strength, Rnt:

$R_{nt} := F_u \cdot A_n$

$R_{nt} = 75.72 \cdot ft \cdot kip$

$\phi_t \cdot R_{nt} = 56.79 \cdot ft \cdot kip$

Tension Check:

$TensionCheck := if(T_u \le \phi_t \cdot R_{nt}, "OK", "NO GOOD")$

TensionCheck = "OK"

$\frac{T_u}{\phi_t \cdot R_{nt}} = 53.26 \cdot \%$

ANSI/TIA-222-G 4.9.6.3 Design Shear Strength:

Design Shear Strength, Rnv:

$R_{nv} := 0.45 \cdot F_u \cdot A_g$

$R_{nv} = 44.18 \cdot ft \cdot kip$

$\phi_v \cdot R_{nv} = 33.13 \cdot ft \cdot kip$

Shear Check:

$ShearCheck := if(V_u \le \phi_v \cdot R_{nv}, "OK", "NO GOOD")$

ShearCheck = "OK"

$\frac{V_u}{\phi_v \cdot R_{nv}} = 16.13 \cdot \%$

ANSI/TIA-222-G 4.9.6.4 Combined Shear and Tension:

$$\left[\frac{V_{ub}}{(\phi_v \cdot R_{nv})}\right]^2 + \left[\frac{T_{ub}}{(\phi_t \cdot R_{nt})}\right]^2 \le 1$$

$$\left[\frac{V_{ub}}{(\phi_v \cdot R_{nv})}\right]^2 + \left[\frac{T_{ub}}{(\phi_t \cdot R_{nt})}\right]^2 = 0.31$$

Combined Shear and Tension Check:

$$\text{ShearAndTensionCheck} := \text{if}\left[\left[\frac{V_{ub}}{(\phi_v \cdot R_{nv})}\right]^2 + \left[\frac{T_{ub}}{(\phi_t \cdot R_{nt})}\right]^2 \le 1, \text{"OK"}, \text{"NO GOOD"}\right]$$

ShearAndTensionCheck = "OK"

ANSI/TIA-222-G 4.9.9 Anchor Rods (Capacity):

$$\frac{\left[T_u + \left(\frac{V_u}{\eta}\right)\right]}{\phi_b \cdot P_n} \le 1$$

$\eta := 0.55$ *user input from ANSI/TIA-222-G 4.9.9*

$$\frac{\left[T_u + \left(\frac{V_u}{\eta}\right)\right]}{\phi_b \cdot F_u \cdot A_n} = 0.660$$

Capacity Check:

$$\text{CapacityCheck} := \text{if}\left[\frac{\left[T_u + \left(\frac{V_u}{\eta}\right)\right]}{\phi_b \cdot F_u \cdot A_n} \le 1, \text{"OK"}, \text{"NO GOOD"}\right]$$

CapacityCheck = "OK"

FOUNDATION EVALUATION

AECOM

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Job	320' Rohn SSVMW - Colchester, CT	Project No.	EMP-008 / VZW-217	Sheet 1	of 2
Description	Evaluation of Drilled Pier Caisson	Computed by	MCD	Date	02/22/19
	Proposed Inventory - MODification Analysis	Checked by		Date	

3 SIDED SELF SUPPORTING TOWER FOUNDATION DRILLED PIER

Compression:	DownLoad := 924.766 kips	γc := 150 pcf	Concrete unit weight
Uplift:	uplift := 725.960 kips	γw := 62.4 pcf	Water unit weight
Depth Neglected for Skin Friction at the top	Depthunbond := 4 ft	γs := 120 pcf	Soil unit weight
Drill Caisson length	CasissonLength := 35.5 ft	Pierϕ := 7.5 ft	Pier diameter
Water Table Below grade:	Wd := 10 ft (Per BL Companies Report 9.13.2000)	hg := 0.5 ft	Height of Pier Above grade
Ave allowable Shear at Depth of 4' to 10'	f1 := (380 psf)·2.0	SoilBearingCapacity := (6.7 ksf)·2.0	
Ave allowable Shear at Depth of 10' to 35'	f2 := (700 psf)·2.0	Allowable Bearing Pressure at Depth 35' x 2 for Ultimate Bearing Capacity (TIA-222-G)	

NOTE: Values are indicated as "Allowable Stress" figures. Per TIA-222-G Section 9.4 (Design Strength), Allowable values may be multiplied to obtain Design Strength values before applying reduction factors.

Loading:

$$TotalDownLoad := DownLoad + 1.2\cdot\left[\pi\cdot\frac{Pier\phi^2}{4}\cdot(CasissonLength\cdot\gamma c)\right]$$

$$TotalDownLoad = 1207.07\cdot kips$$

$$Pierweight := 0.9\cdot\left[\pi\cdot\frac{Pier\phi^2}{4}\cdot[(Wd + hg)\cdot\gamma c + (CasissonLength - Wd - hg)\cdot(\gamma c - \gamma w)]\right]$$

$$Pierweight = 149.7\cdot kips$$

$$Soilshear := \pi\cdot Pier\phi\cdot[f1\cdot(Wd - Depthunbond) + f2\cdot(CasissonLength - Wd - hg)]$$

$$Soilshear = 932.11\cdot kips$$

Compression Capacity:

$$TotalDownLoadCapacity := 0.75\cdot Soilshear + 0.75 SoilBearingCapacity\cdot\left(\pi\cdot\frac{Pier\phi^2}{4}\right)$$

$$TotalDownLoadCapacity = 1143.08\cdot kips$$

Tension Capacity:

$$TotalUpLiftCapacity := 0.75 Soilshear + 0.75 Pierweight$$

$$TotalUpLiftCapacity = 811.36\cdot kips$$

AECOM

				Page	of
Job	320' Rohn SSVMW - Colchester, CT	Project No.	EMP-008 / VZW-217	Sheet 2	of 2
Description	Evaluation of Drilled Pier Caisson	Computed by	MCD	Date	02/22/19
	Proposed Inventory - MODification Analysis	Checked by		Date	

Check Cone Failure

$$ConeFailureCapacity := \frac{[(CasissonLength - hg)\cdot\tan(30\cdot deg)\cdot 2 + Pier\phi]^2\cdot\pi}{4}\cdot\frac{CasissonLength - hg}{3}\cdot(69pcf)$$

NOTE: "69 pcf" is the appoximate average of submerged soil (25 ft) and dry soil (10.5 ft) considered in uplifting failure cone.

$ConeFailureCapacity = 1451.51\cdot kips$

$CheckConeFailureCapacity := if(uplift < ConeFailureCapacity, "Okay", "No Good")$

$CheckConeFailureCapacity = "Okay"$

$$\frac{uplift}{0.75ConeFailureCapacity} = 66.7\cdot\%$$

Foundation Check (Previous foundation Mod. designed by URS dated 7/13/2012 (VZ5-122)):

Add Concrete around existing caisson foundations

$L_{modification} := 12ft$ $Depth_{modification} := 4ft$

$$Area_{modification} := L_{modification}^2 - \pi\cdot\frac{Pier\phi^2}{4} \qquad Area_{modification} = 99.82\,ft^2$$

$Weight_{modification} := Area_{modification}\cdot Depth_{modification}\cdot\gamma c$ $Weight_{modification} = 59.89\cdot kip$

$SoilBearingCapacity_{4ft} := (2ksf)\cdot 2.0$ Ultimate Soil Bearing Capacity at 4' Below --> Based on Boring Logs

$TotalDownLoad_2 := TotalDownLoad + 1.2Weight_{modification}$ $TotalDownLoad_2 = 1278.94\cdot kip$

$TotalDownLoadCapacity_2 := TotalDownLoadCapacity + 0.75Area_{modification}\cdot SoilBearingCapacity_{4ft}$

$TotalDownLoadCapacity_2 = 1442.54\cdot kip$

$CheckDownLoadCapacity_2 := if(TotalDownLoad_2 < TotalDownLoadCapacity_2, "Okay", "No Good")$

$CheckDownLoadCapacity_2 = "Okay"$

$$\frac{TotalDownLoad_2}{TotalDownLoadCapacity_2} = 88.7\cdot\%$$

$TotalUpLiftCapacity_2 := TotalUpLiftCapacity + 0.9Weight_{modification}$

$TotalUpLiftCapacity_2 = 865.26\cdot kips$

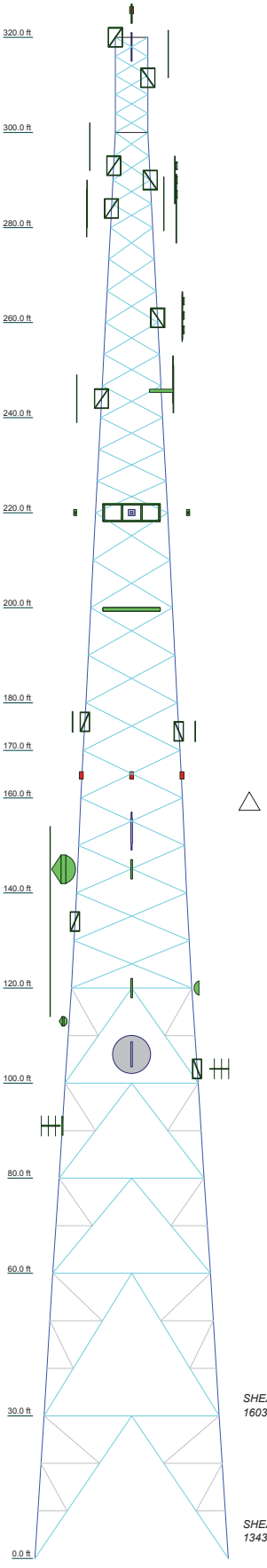
$CheckUpLiftCapacity_2 := if(uplift < TotalUpLiftCapacity_2, "Okay", "No Good")$

$CheckUpLiftCapacity_2 = "Okay"$

$$\frac{uplift}{TotalUpLiftCapacity_2} = 83.90\cdot\%$$

ANALYSIS UNDER TIA-222-F DESIGN CRITERIA (DESPP / CSP)

Section	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 12 EHS w/ Angle 8.4x8x0.625	ROHN 12 EH w/ angle 8x8x0.5			ROHN 10 EH w/ angle 8x8x0.5							ROHN 8 EH w/ angle 8x8x0.5			ROHN 6 EH	ROHN 5 EH
Leg Grade	A572-50															
Diagonals	ROHN 4 X-STR		ROHN 3.5 EH	ROHN 3 XXS		L 5x5x1/2		2L4x4x1/4		L 4x4x3/8		L 4x4x5/16	L 3x3x1/4	L2 1/2x2 1/2x1/4	L2x2x1/4	L 1 3/4x1 3/4x3/16
Diagonal Grade						A572-50									A36	
Top Girts						N.A.									L2x2x1/4	L 1 3/4x1 3/4x3/16
Horizontals	ROHN 4 X-STR	ROHN 3.5 EH	ROHN 3 XXS	ROHN 3 X-STR	ROHN 3 STD					N.A.						
Red. Horizontals	P1.5x.145	ROHN 1.5 STD	ROHN 2 STD	P1.5x.145	ROHN 1.5 STD					N.A.						
Red. Diagonals	ROHN 2.5 STD		ROHN 2 EH		ROHN 2 STD					N.A.						
Red. Hips			ROHN 1.5 STD							N.A.						
Inner Bracing			ROHN 3 STD							N.A.						
Face Width (ft)	40.68	36.8	33.14	30.47	27.97	25.38	23.21	21.3	20.26	19.22	17.09	15.04	13.08	11.04	8.85	6.81
# Panels @ (ft)		2 @ 30			3 @ 20			10 @ 10				9 @ 6.66667			4 @ 5	5 @ 4
Weight (lb)	125,374.9	17941.9	15115.4	12032.0	9675.5	9145.9	9003.6	4189.6	4189.7	7238.6	6480.0	6480.4	5491.2	5007.7	2466.3	1730.8



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Dual Lights (HTS-34)	325	RFV01U-D1A RRH Unit (Verizon RRH)	220
Lightning Rod 5/8x4' (HTS-35)	325	RFV01U-D2A RRH Unit (Verizon RRH)	220
PD128-1 (HTS-33)	322	CBC78T-DS-43-2X Diplexer (Verizon)	220
6' Side Mount Standoff (HTS-33)	320	CBC78T-DS-43-2X Diplexer (Verizon)	220
BA1012-0 (HTS-32)	318	CBC78T-DS-43-2X Diplexer (Verizon)	220
ANT450F6 (HTS-31)	316.5	7770.00 (ATI)	200
6' Side Mount Standoff (HTS-32)	315	(2) LGP21401 TMA Unit (ATI)	200
4'x4" Pipe Mount (HTS-31)	311.5	HPA-65R-BUU-H6 Panel (ATI)	200
SC479-HF1LDF (HTS-30)	297	(2) LGP21401 TMA Unit (ATI)	200
6' Side Mount Standoff (HTS-30)	293	RRUS-11 (ATI)	200
PD340-1 (HTS-29)	290	7770.00 (ATI)	200
6' Side Mount Standoff (HTS-29)	290	RRUS-32 (ATI)	200
DB809T3E-XC (HTS-26)	285	7770.00 (ATI)	200
OGT9-840 (HTS-28)	285	HPA-65R-BUU-H8 Panel (ATI)	200
6' Side Mount Standoff (HTS-27,28,TTA)	284.5	RRUS-11 (ATI)	200
TMA (TMA/TTA)	284.5	7770.00 (ATI)	200
6' Side Mount Standoff (HTS-25,26,TTA)	284	HPA-65R-BUU-H8 Panel (ATI)	200
TMA (TMA/TTA)	284	RRUS-32 (ATI)	200
SC479-HF1LDF (HTS-27)	284	7770.00 (ATI)	200
SC479-HF1LDF (HTS-25)	283	(2) LGP21401 TMA Unit (ATI)	200
PD440-2 (HTS-24)	261.5	PiROD 12' Lightweight T-Frame (ATI)	200
SC479-HF1LDF(D00-E6085) (HTS-23)	261	7770.00 (ATI)	200
6' Side Mount Standoff (HTS-23, 24)	261	PiROD 12' Lightweight T-Frame (ATI)	200
PD1142-1 (HTS-22)	248	PiROD 12' Lightweight T-Frame (ATI)	200
SC479-HF1LDF(D00I-E6085) (Inverted) (HTS-21a)	246	STK-U Stiffener Side Arm Attachment (ATI)	200
		STK-U Stiffener Side Arm Attachment (ATI)	200
SC479-HF1LDF(D00I-E6085) (Inverted) (HTS-21b)	246	DC6-48-60-0-8C Squid / Surge Arrestor (ATI)	200
		STK-U Stiffener Side Arm Attachment (ATI)	200
Sabre T-Boom (1) (HTS-21 (a,b) - HTS 22)	246	RRUS-11 (ATI)	200
PD1142-1 (HTS-20)	244	RRUS-32 (ATI)	200
6' Side Mount Standoff (HTS-20)	244	DB586-Y (HTS-12)	176
531-70HD Exposed Dipole Antenna (HTS-19)	235	Pirod 4' Side Mount Standoff (1) (HTS-12)	176
6' Side Mount Standoff (HTS-19)	235	DB586-Y (inverted) (HTS-13)	174
Valmont VFA-10-U V-Frame (Verizon)	220	Pirod 4' Side Mount Standoff (1) (HTS-13,14,TTA)	174
Valmont VFA-10-U V-Frame (Verizon)	220	430-94C-09168-M-11048 TTA (TMA/TTA Control Unit)	174
Valmont VFA-10-U V-Frame (Verizon)	220	DB586-Y (HTS-14)	174
JAHH-65B-R3B Panel Antenna (Verizon-AWS)	220	L-810 Obstruction Lighting (1) (HTS-11b)	164
JAHH-65B-R3B Panel Antenna (Verizon-PCS)	220	L-810 Obstruction Lighting (1) (HTS-11c)	164
LNX-6512DS-VTM (Verizon-850)	220	L-810 Obstruction Lighting (1) (HTS-11a)	164
BSAMNT-SBS-2-2 (JAHH Antenna Bracket (for 2)) (Verizon-PCS/AWS)	220	5'3"x4" Pipe Mount (HTS-10)	153
		ANT450F6 (HTS-10)	153
RFV01U-D1A RRH Unit (Verizon RRH)	220	4'x4" Pipe Mount (CSP Dish Mt. @ 145)	145
RFV01U-D2A RRH Unit (Verizon RRH)	220	Commscope PAR6-59W-PXA/A (CSP Proposed)	145
DB-B1-6C-12AB-0Z / DC-3315-PF-48 Dist. Box (Verizon)	220	PD156S (HTS-9)	137
		DB212-1 (HTS-8)	134
JAHH-65B-R3B Panel Antenna (Verizon-AWS)	220	6' Side Mount Standoff (HTS-8 ,9)	134
JAHH-65B-R3B Panel Antenna (Verizon-PCS)	220	4'x4" Pipe Mount (CSP Dish Mt. @ 120)	120
LNX-6512DS-VTM (Verizon-850)	220	HPD3-4.7 (CSP Proposed)	120
BSAMNT-SBS-2-2 (JAHH Antenna Bracket (for 2)) (Verizon-PCS/AWS)	220	Andrew 2' w/Radome (HTS-5)	113
		PA8-65 (HTS-4)	106
RFV01U-D1A RRH Unit (Verizon RRH)	220	5'3"x4" Pipe Mount (HTS-4)	106
RFV01U-D2A RRH Unit (Verizon RRH)	220	PD458 (HTS-3)	105
DB-B1-6C-12AB-0Z / DC-3315-PF-48 Dist. Box (Verizon)	220	Pirod 4' Side Mount Standoff (1) (HTS-2 ,3)	103
		PD688S-4 (HTS-2)	103
JAHH-65B-R3B Panel Antenna (Verizon-AWS)	220	PD688S-4 (HTS-1)	91
JAHH-65B-R3B Panel Antenna (Verizon-PCS)	220	4'x4" Pipe Mount (HTS-1)	91
LNX-6512DS-VTM (Verizon-850)	220		
BSAMNT-SBS-2-2 (JAHH Antenna Bracket (for 2)) (Verizon-PCS/AWS)	220		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 90 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 90 mph wind.
4. TOWER RATING: 94.8%

MAX. CORNER REACTIONS AT BASE:
DOWN: 766054 lb
SHEAR: 97325 lb

UPLIFT: -583462 lb
SHEAR: 80251 lb

AXIAL
191606 lb

SHEAR
160358 lb

MOMENT
24744 kip-ft

TORQUE 662 kip-ft
90 mph WIND - 0.5000 in ICE

AXIAL
141290 lb

SHEAR
134362 lb

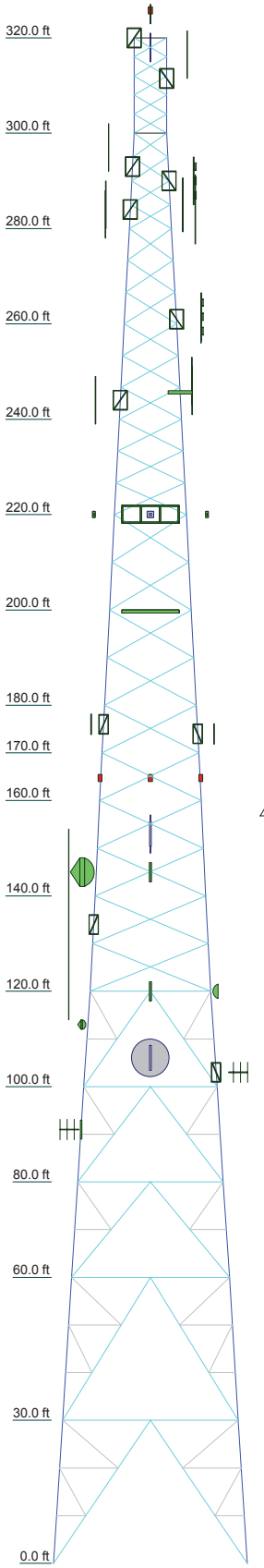
MOMENT
20782 kip-ft

TORQUE 365 kip-ft
REACTIONS - 90 mph WIND

AECOM
500 Enterprise Drive, Suite 3B
Rocky Hill, CT
Phone: 860-529-8882
FAX: 860-529-3991

Job:	*320' Rohn SSVMW*
Project:	*CSP Tower - Colchester, CT*
Client:	(MODification) DESPP Loads / VZW-217 / EMP-008 - "F"
Drawn by:	MCD
App'd:	
Code:	TIA/EIA-222-F
Date:	02/22/19
Scale:	NTS
Path:	
Dwg No.	E-1

Section	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	A	ROHN 12 EH w/ angle 8x8x0.5			ROHN 10 EH w/ angle 8x8x0.5							ROHN 8 EH w/ angle 8x8x0.5			ROHN 6 EH	ROHN 5 EH
Leg Grade							A572-50									
Diagonals	ROHN 4 X-STR		ROHN 3.5 EH	ROHN 3 XXS		L5x5x1/2		2L4x4x1/4		L4x4x3/8		L4x4x5/16	L3x3x1/4	C	L2x2x1/4	B
Diagonal Grade						A572-50									A36	
Top Girts						N.A.									L2x2x1/4	B
Horizontals	ROHN 4 X-STR	ROHN 3.5 EH	ROHN 3 XXS	D	ROHN 3 STD						N.A.					
Red. Horizontals	P1.5x.145	ROHN 1.5 STD	ROHN 2 STD	P1.5x.145	ROHN 1.5 STD						N.A.					
Red. Diagonals	ROHN 2.5 STD		ROHN 2 EH		ROHN 2 STD						N.A.					
Red. Hips			ROHN 1.5 STD								N.A.					
Inner Bracing			ROHN 3 STD								N.A.					
Face Width (ft)	40.69	36.8	33.14	30.47	27.97	25.39	23.21	21.3	20.26	19.22	17.09	15.09	13.08	11.04	8.85	6.81
# Panels @ (ft)		2 @ 30		3 @ 20				10 @ 10					9 @ 6.66667		4 @ 5	5 @ 4
Weight (lb)	125374.9	17941.9	15115.4	10502.0	9675.5	9144.9	9975.3	9608.6	4265.6	4191.7	7238.6	6406.0	6484.4	5409.2	5067.7	2496.3	1791.8



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 12 EHS w Angle 8x8x0.625	C	L2 1/2x2 1/2x1/4
B	L1 3/4x1 3/4x3/16	D	ROHN 3 X-STR

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 90 mph basic wind with 0.50 in ice.
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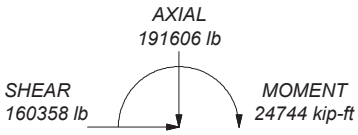
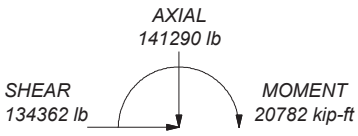
MAX. CORNER REACTIONS AT BASE:
DOWN: 766054 lb
SHEAR: 97325 lb

UPLIFT: -583462 lb
SHEAR: 80251 lb



TORQUE 662 kip-ft
90 mph WIND - 0.5000 in ICE



TORQUE 365 kip-ft
REACTIONS - 90 mph WIND

AECOM
500 Enterprise Drive, Suite 3B
Rocky Hill, CT
Phone: 860-529-8882
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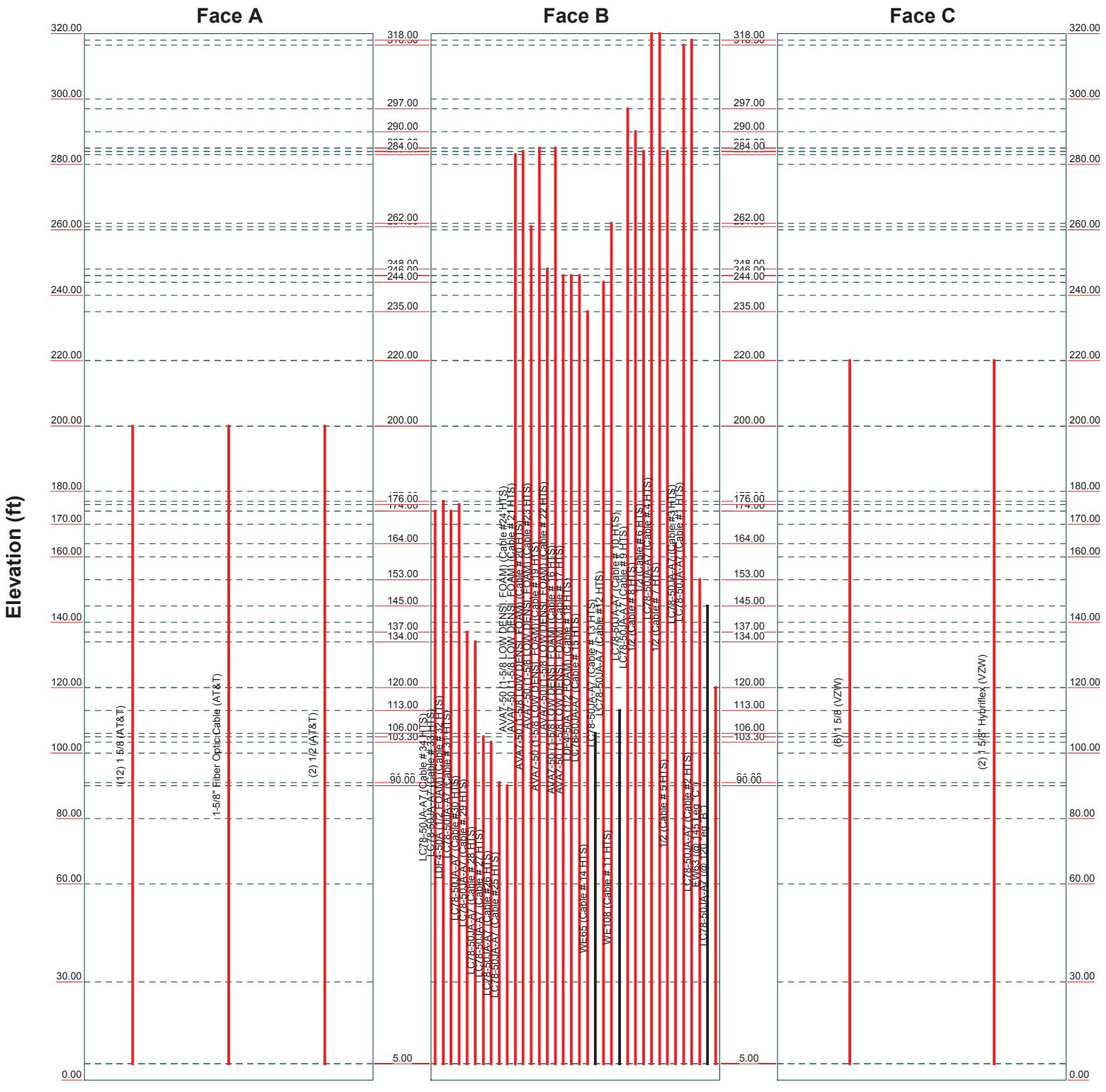
Job:	***320' Rohn SSVMW***		
Project:	***CSP Tower - Colchester, CT***		
Client:	(MODification) DESPP Loads / VZW-217 / EMP-008 - "F"	Drawn by: MCD	App'd:
Code:	TIA/EIA-222-F	Date: 02/22/19	Scale: NTS
Path:			Dwg No. E-1

Feed Line Distribution Chart
0' - 320'

Round | Flat | App In Face | App Out Face | Truss Leg



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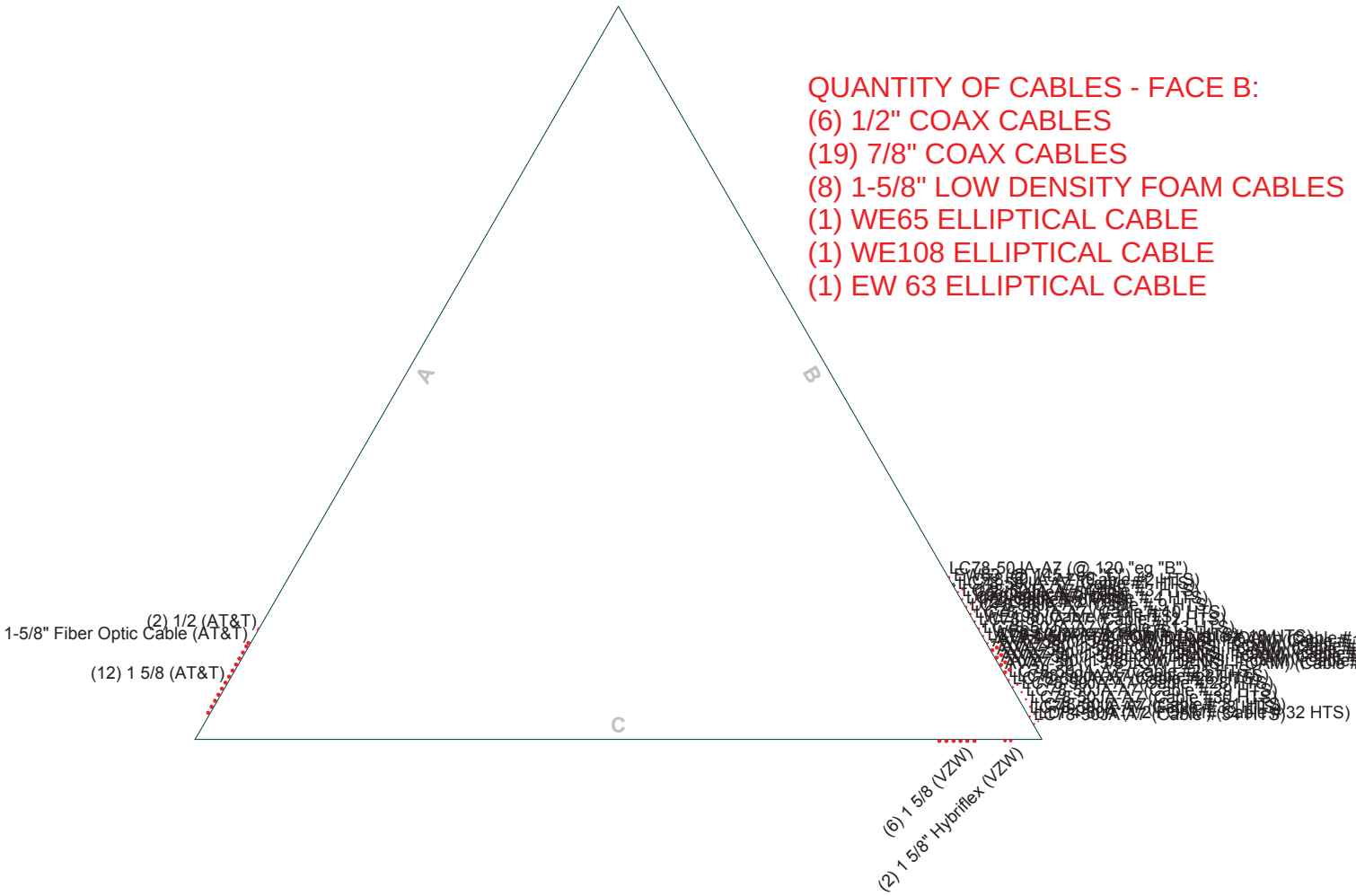
Code:	TIA/EIA-222-F	Date: 02/22/19	Scale: NTS
Path:			Dwg No. E-7

Feed Line Plan

Round Flat App In Face App Out Face



QUANTITY OF CABLES - FACE B:
(6) 1/2" COAX CABLES
(19) 7/8" COAX CABLES
(8) 1-5/8" LOW DENSITY FOAM CABLES
(1) WE65 ELLIPTICAL CABLE
(1) WE108 ELLIPTICAL CABLE
(1) EW 63 ELLIPTICAL CABLE

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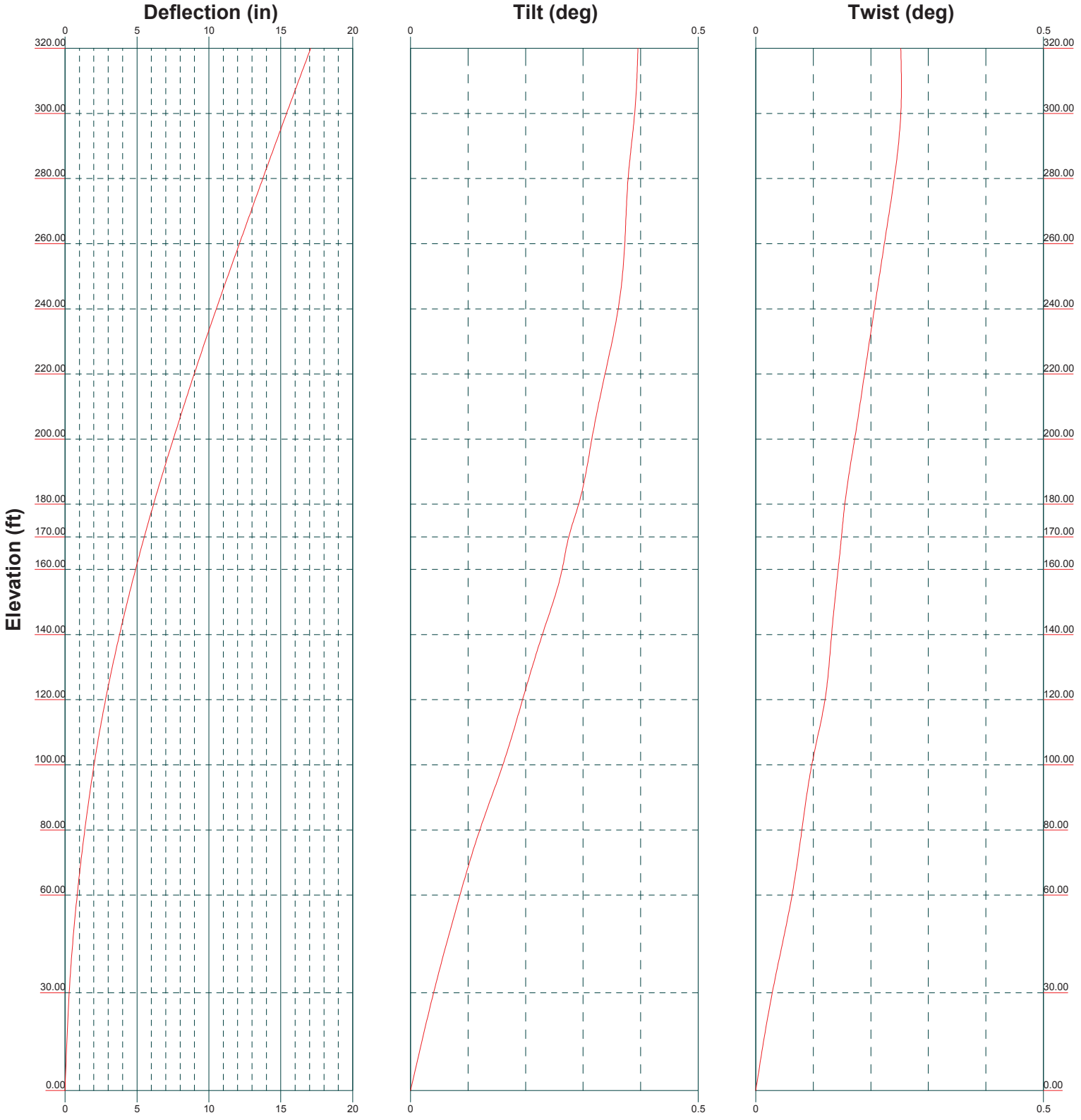
Project:	***CSP Tower - Colchester, CT***		
Client:	(MODification) DESPP Loads / VZW-217 / EMP-008 - "F"	Drawn by: MCD	App'd:
Code:	TIA/EIA-222-F	Date: 02/22/19	Scale: NTS
Path:			Dwg No. E-7

TIA/EIA-222-F - Service - 90 mph

Maximum Values



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500 Enterprise Drive, Suite 3B
Rocky Hill, CT
Phone: 860-529-8882
FAX: 860-529-3991

Job: ***320' Rohn SSVMW***			
Project: ***CSP Tower - Colchester, CT***			
Client: (MODification) DESPP Loads / VZW-217 / EMP-008 - "F"	Drawn by: MCD	App'd:	
Code: TIA/EIA-222-F	Date: 02/22/19	Scale: NTS	
Path:		Dwg No. E-5	

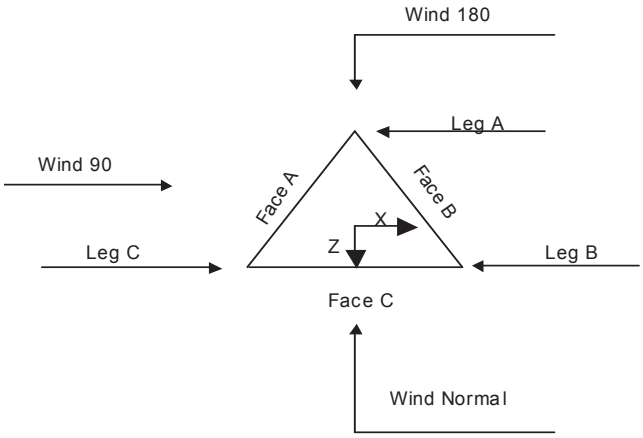
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 320.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 6.81 ft at the top and 40.69 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Basic wind speed of 90 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 90 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 90 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz		Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	320.00-300.00			6.81	1	20.00
T2	300.00-280.00			6.81	1	20.00
T3	280.00-260.00			8.85	1	20.00
T4	260.00-240.00			11.04	1	20.00
T5	240.00-220.00			13.08	1	20.00
T6	220.00-200.00			15.09	1	20.00
T7	200.00-180.00			17.09	1	20.00
T8	180.00-170.00			19.22	1	10.00
T9	170.00-160.00			20.26	1	10.00
T10	160.00-140.00			21.30	1	20.00
T11	140.00-120.00			23.21	1	20.00
T12	120.00-100.00			25.39	1	20.00
T13	100.00-80.00			27.97	1	20.00
T14	80.00-60.00			30.47	1	20.00
T15	60.00-30.00			33.14	1	30.00
T16	30.00-0.00			36.80	1	30.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	320.00-300.00	4.00	X Brace	No	No	0.0000	0.0000
T2	300.00-280.00	5.00	X Brace	No	No	0.0000	0.0000
T3	280.00-260.00	6.67	X Brace	No	No	0.0000	0.0000
T4	260.00-240.00	6.67	X Brace	No	No	0.0000	0.0000
T5	240.00-220.00	6.67	X Brace	No	No	0.0000	0.0000
T6	220.00-200.00	10.00	X Brace	No	No	0.0000	0.0000
T7	200.00-180.00	10.00	X Brace	No	No	0.0000	0.0000
T8	180.00-170.00	10.00	X Brace	No	No	0.0000	0.0000
T9	170.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T10	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T11	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T12	120.00-100.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T13	100.00-80.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T14	80.00-60.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T15	60.00-30.00	30.00	K2 Down	No	Yes	0.0000	0.0000
T16	30.00-0.00	30.00	K2 Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 320.00-300.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 300.00-280.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 280.00-260.00	Arbitrary Shape	ROHN 8 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 260.00-240.00	Arbitrary Shape	ROHN 8 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T5 240.00-220.00	Arbitrary Shape	ROHN 8 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T6 220.00-200.00	Arbitrary Shape	ROHN 8 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T7 200.00-180.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T8 180.00-170.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Double Equal Angle	2L4x4x1/4	A572-50 (50 ksi)
T9 170.00-160.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Double Equal Angle	2L4x4x1/4	A572-50 (50 ksi)
T10 160.00-140.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L5x5x1/2	A572-50 (50 ksi)
T11 140.00-120.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Equal Angle	L5x5x1/2	A572-50 (50 ksi)
T12 120.00-100.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Pipe	ROHN 3 XXS	A572-50 (50 ksi)
T13 100.00-80.00	Arbitrary Shape	ROHN 10 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Pipe	ROHN 3 XXS	A572-50 (50 ksi)
T14 80.00-60.00	Arbitrary Shape	ROHN 12 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)
T15 60.00-30.00	Arbitrary Shape	ROHN 12 EH w/ angle 8x8x0.5	A572-50 (50 ksi)	Pipe	ROHN 4 X-STR	A572-50 (50 ksi)
T16 30.00-0.00	Arbitrary Shape	ROHN 12 EHS w Angle 8x8x0.625	A572-50 (50 ksi)	Pipe	ROHN 4 X-STR	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	*Top Girt Type*	*Top Girt Size*	*Top Girt Grade*	*Bottom Girt Type*	*Bottom Girt Size*	*Bottom Girt Grade*
T1 320.00-300.00	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 300.00-280.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	*No. of Mid Girts*	*Mid Girt Type*	*Mid Girt Size*	*Mid Girt Grade*	*Horizontal Type*	*Horizontal Size*	*Horizontal Grade*
T12 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 X-STR	A572-50 (50 ksi)
T14 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 XXS	A572-50 (50 ksi)
T15 60.00-30.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)
T16 30.00-0.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 4 X-STR	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	*Secondary Horizontal Type*	*Secondary Horizontal Size*	*Secondary Horizontal Grade*	*Inner Bracing Type*	*Inner Bracing Size*	*Inner Bracing Grade*
T12 120.00-100.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 100.00-80.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T14 80.00-60.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T15 60.00-30.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T16 30.00-0.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T12	A572-50	Horizontal (1)	Pipe	ROHN 1.5 STD	1
120.00-100.00	(50 ksi)	Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
T13	A572-50	Horizontal (1)	Pipe	P1.5x.145	1
100.00-80.00	(50 ksi)	Diagonal (1)	Pipe	ROHN 2 EH	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
T14	A572-50	Horizontal (1)	Pipe	ROHN 2 STD	1
80.00-60.00	(50 ksi)	Diagonal (1)	Pipe	ROHN 2 EH	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 3 STD	1
T15	A572-50	Horizontal (1)	Pipe	ROHN 1.5 STD	1
60.00-30.00	(50 ksi)	Horizontal (2)		ROHN 2 XXS	
		Diagonal (1)	Pipe	ROHN 2 EH	1
		Diagonal (2)		ROHN 2.5 STD	
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip (2)		ROHN 2 STD	
		Hip Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip Diagonal (2)		ROHN 2 STD	1
T16	A572-50	Horizontal (1)	Pipe	P1.5x.145	1
30.00-0.00	(50 ksi)	Horizontal (2)		ROHN 2.5 EH	
		Diagonal (1)	Pipe	ROHN 2.5 STD	1
		Diagonal (2)		ROHN 2.5 STD	
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip (2)		ROHN 2 STD	
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
		Hip Diagonal (2)		ROHN 2.5 STD	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
320.00-300.00			(36 ksi)						
T2	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
300.00-280.00			(36 ksi)						
T3	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
280.00-260.00			(36 ksi)						
T4	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
260.00-240.00			(36 ksi)						
T5	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
240.00-220.00			(36 ksi)						
T6	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
220.00-200.00			(36 ksi)						
T7	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
200.00-180.00			(36 ksi)						
T8	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
180.00-170.00			(36 ksi)						
T9	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
170.00-160.00			(36 ksi)						
T10	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
160.00-140.00			(36 ksi)						
T11	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
140.00-120.00			(36 ksi)						
T12	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
120.00-100.00			(36 ksi)						
T13	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
100.00-80.00			(36 ksi)						
T14	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
80.00-60.00			(36 ksi)						
T15	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
60.00-30.00			(36 ksi)						
T16 30.00-0.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
320.00-300.00				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
300.00-280.00				1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	1	1
280.00-260.00				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
260.00-240.00				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
240.00-220.00				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1
220.00-200.00				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1
200.00-180.00				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
180.00-170.00				1	1	1	1	1	1	1
T9	Yes	No	1	1	1	1	1	1	1	1
170.00-160.00				1	1	1	1	1	1	1
T10	Yes	No	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T11	Yes	No	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T12	No	No	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T13	No	No	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T14	No	No	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T15	No	No	1	1	1	1	1	1	1	1
60.00-30.00				1	1	1	1	1	1	1
T16	No	No	1	1	1	1	1	1	1	1
30.00-0.00				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 320.00-300.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 300.00-280.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 280.00-260.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 260.00-240.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 240.00-220.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 220.00-200.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 200.00-180.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 180.00-170.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 170.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 60.00-30.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 30.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 320.00-300.00	Flange	1.0000 A325N	6	0.6250 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 300.00-280.00	Flange	1.0000 A325N	8	0.6250 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 280.00-260.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 260.00-240.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T5 240.00-220.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 220.00-200.00	Flange	1.0000 A325N	12	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 200.00-180.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 180.00-170.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 170.00-160.00	Flange	1.0000 A325N	0	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 160.00-140.00	Flange	1.0000 A325N	12	0.8750 A490X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 140.00-120.00	Flange	1.0000 A325N	12	0.8750 A490X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 120.00-100.00	Flange	1.0000 A325N	12	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T13 100.00-80.00	Flange	1.0000 A325N	16	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T14 80.00-60.00	Flange	1.0000 A325N	16	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T15 60.00-30.00	Flange	1.0000 A325N	16	0.8750 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T16 30.00-0.00	Flange	1.0000 A325N	24	0.8750 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A490X	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (AT&T)	A	Yes	No	Ar (CfAe)	200.00 - 5.00	0.0000	-0.42	12	12	1.9800	1.9800		1.04
1 5/8 (VZW)	C	Yes	No	Ar (CfAe)	220.00 - 5.00	0.0000	-0.4	6	6	1.9800	1.9800		1.04
1 5/8" Hybriflex (VZW)	C	Yes	No	Ar (CfAe)	220.00 - 5.00	0.0000	-0.46	2	2	1.6000	1.6000		1.85
LC78-50JA-A7 (Cable # 34 HTS)	B	Yes	No	Ar (CfAe)	174.00 - 5.00	0.0000	0.48	1	1	1.0900	1.0900		0.28
LC78-50JA-A7 (Cable # 33 HTS)	B	Yes	No	Ar (CfAe)	177.00 - 5.00	0.0000	0.47	1	1	1.0900	1.0900		0.28
LDF4-50A (1/2 FOAM) (Cable # 32 HTS)	B	Yes	No	Ar (CfAe)	174.00 - 5.00	3.0000	0.48	1	1	0.6300	0.6300		0.15
LC78-50JA-A7 (Cable # 31 HTS)	B	Yes	No	Ar (CfAe)	176.00 - 5.00	3.0000	0.47	1	1	1.0900	1.0900		0.28

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LC78-50JA-A 7 (Cable #30 HTS)	B	Yes	No	Ar (CfAe)	137.00 - 5.00	3.0000	0.46	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable # 29 HTS)	B	Yes	No	Ar (CfAe)	134.00 - 5.00	3.0000	0.45	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable # 28 HTS)	B	Yes	No	Ar (CfAe)	105.00 - 5.00	3.0000	0.44	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable # 27 HTS)	B	Yes	No	Ar (CfAe)	103.30 - 5.00	3.0000	0.43	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable #26 HTS)	B	Yes	No	Ar (CfAe)	91.00 - 5.00	0.0000	0.43	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable #25 HTS)	B	Yes	No	Ar (CfAe)	90.00 - 5.00	0.0000	0.42	1	1	1.0900	1.0900		0.28
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable #24 HTS)	B	Yes	No	Ar (CfAe)	283.00 - 5.00	3.0000	0.41	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 21 HTS)	B	Yes	No	Ar (CfAe)	284.00 - 5.00	0.0000	0.41	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 20 HTS)	B	Yes	No	Ar (CfAe)	261.00 - 5.00	0.0000	0.4	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable #23 HTS)	B	Yes	No	Ar (CfAe)	285.00 - 5.00	3.0000	0.4	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 19 HTS)	B	Yes	No	Ar (CfAe)	248.00 - 5.00	0.0000	0.39	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 22 HTS)	B	Yes	No	Ar (CfAe)	285.00 - 5.00	3.0000	0.39	1	1	1.9800	1.9800		0.72

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 16 HTS)	B	Yes	No	Ar (CfAe)	246.00 - 5.00	0.0000	0.38	1	1	1.9800	1.9800		0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM) (Cable # 17 HTS)	B	Yes	No	Ar (CfAe)	246.00 - 5.00	3.0000	0.38	1	1	1.9800	1.9800		0.72
LDF4-50A (1/2 FOAM) (Cable # 18 HTS)	B	Yes	No	Ar (CfAe)	246.00 - 5.00	6.0000	0.38	1	1	0.6300	0.6300		0.15
LC78-50JA-A 7 (Cable # 15 HTS)	B	Yes	No	Ar (CfAe)	235.00 - 5.00	0.0000	0.37	1	1	1.0900	1.0900		0.28
WE65 (Cable # 14 HTS)	B	Yes	No	Af (CfAe)	106.00 - 5.00	3.0000	0.37	1	1	1.5836	1.5836	5.1284	0.53
LC78-50JA-A 7 (Cable # 13 HTS)	B	Yes	No	Ar (CfAe)	244.00 - 5.00	0.0000	0.36	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable #12 HTS)	B	Yes	No	Ar (CfAe)	262.00 - 5.00	0.0000	0.35	1	1	1.0900	1.0900		0.28
WE108 (Cable # 11 HTS)	B	Yes	No	Af (CfAe)	113.00 - 5.00	3.0000	0.35	1	1	1.0149	1.0149	3.4851	0.35
LC78-50JA-A 7 (Cable # 10 HTS)	B	Yes	No	Ar (CfAe)	297.00 - 5.00	0.0000	0.34	1	1	1.0900	1.0900		0.28
LC78-50JA-A 7 (Cable # 9 HTS)	B	Yes	No	Ar (CfAe)	290.00 - 5.00	0.0000	0.33	1	1	1.0900	1.0900		0.28
1/2 (Cable # 8 HTS)	B	Yes	No	Ar (CfAe)	284.00 - 5.00	3.0000	0.33	1	1	0.5800	0.5800		0.25
1/2 (Cable # 6 HTS)	B	Yes	No	Ar (CfAe)	320.00 - 5.00	6.0000	0.33	1	1	0.5800	0.5800		0.25
LC78-50JA-A 7 (Cable # 4 HTS)	B	Yes	No	Ar (CfAe)	320.00 - 5.00	0.0000	0.32	1	1	1.0900	1.0900		0.28
1/2 (Cable # 7 HTS)	B	Yes	No	Ar (CfAe)	284.00 - 5.00	3.0000	0.32	1	1	0.5800	0.5800		0.25
1/2 (Cable # 5 HTS)	B	Yes	No	Ar (CfAe)	164.00 - 5.00	6.0000	0.32	1	1	0.5800	0.5800		0.25
LC78-50JA-A 7	B	Yes	No	Ar (CfAe)	316.50 - 5.00	0.0000	0.31	1	1	1.0900	1.0900		0.28

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(Cable #3 HTS) LC78-50JA-A 7	B	Yes	No	Ar (CfAe)	318.00 - 5.00	0.0000	0.3	1	1	1.0900	1.0900		0.28
(Cable #1 HTS) LC78-50JA-A 7	B	Yes	No	Ar (CfAe)	153.00 - 5.00	3.0000	0.3	1	1	1.0900	1.0900		0.28
(Cable #2 HTS) * CSP Proposed Cables EW63 (@ 145 Leg "C")	B	Yes	No	Af (CfAe)	145.00 - 5.00	0.0000	0.29	1	1	1.5742	1.5742	5.0668	0.51
LC78-50JA-A 7 (@ 120 "eg "B")	B	Yes	No	Ar (CfAe)	120.00 - 5.00	0.0000	0.28	1	1	1.0900	1.0900		0.28
1-5/8" Fiber Optic Cable (AT&T)	A	Yes	No	Ar (CfAe)	200.00 - 5.00	0.0000	-0.37	1	1	1.9800	1.9800		1.30
1/2 (AT&T)	A	Yes	No	Ar (CfAe)	200.00 - 5.00	0.0000	-0.35	2	2	0.5800	0.5800		0.25

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	320.00-300.00	A	0.000	0.000	0.000	0.000	0.00
		B	5.917	0.000	0.000	0.000	20.26
		C	0.000	0.000	0.000	0.000	0.00
T2	300.00-280.00	A	0.000	0.000	0.000	0.000	0.00
		B	12.061	0.000	0.000	0.000	43.60
		C	0.000	0.000	0.000	0.000	0.00
T3	280.00-260.00	A	0.000	0.000	0.000	0.000	0.00
		B	25.530	0.000	0.000	0.000	101.88
		C	0.000	0.000	0.000	0.000	0.00
T4	260.00-240.00	A	0.000	0.000	0.000	0.000	0.00
		B	34.278	0.000	0.000	0.000	137.02
		C	0.000	0.000	0.000	0.000	0.00
T5	240.00-220.00	A	0.000	0.000	0.000	0.000	0.00
		B	44.429	0.000	0.000	0.000	176.60
		C	0.000	0.000	0.000	0.000	0.00
T6	220.00-200.00	A	0.000	0.000	0.000	0.000	0.00
		B	44.883	0.000	0.000	0.000	178.00
		C	25.133	0.000	0.000	0.000	198.80
T7	200.00-180.00	A	44.833	0.000	0.000	0.000	285.60
		B	44.883	0.000	0.000	0.000	178.00
		C	25.133	0.000	0.000	0.000	198.80
T8	180.00-170.00	A	22.417	0.000	0.000	0.000	142.80
		B	24.196	0.000	0.000	0.000	94.36
		C	12.567	0.000	0.000	0.000	99.40
T9	170.00-160.00	A	22.417	0.000	0.000	0.000	142.80

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B	25.885	0.000	0.000	0.000	99.90
		C	12.567	0.000	0.000	0.000	99.40
T10	160.00-140.00	A	44.833	0.000	0.000	0.000	285.60
		B	53.531	0.656	0.000	0.000	208.99
		C	25.133	0.000	0.000	0.000	198.80
T11	140.00-120.00	A	44.833	0.000	0.000	0.000	285.60
		B	56.983	2.624	0.000	0.000	227.28
		C	25.133	0.000	0.000	0.000	198.80
T12	120.00-100.00	A	44.833	0.000	0.000	0.000	285.60
		B	60.371	4.515	0.000	0.000	245.45
		C	25.133	0.000	0.000	0.000	198.80
T13	100.00-80.00	A	44.833	0.000	0.000	0.000	285.60
		B	65.157	6.954	0.000	0.000	270.08
		C	25.133	0.000	0.000	0.000	198.80
T14	80.00-60.00	A	44.833	0.000	0.000	0.000	285.60
		B	66.883	6.954	0.000	0.000	275.40
		C	25.133	0.000	0.000	0.000	198.80
T15	60.00-30.00	A	67.250	0.000	0.000	0.000	428.40
		B	100.325	10.432	0.000	0.000	413.10
		C	37.700	0.000	0.000	0.000	298.20
T16	30.00-0.00	A	56.042	0.000	0.000	0.000	357.00
		B	83.604	8.693	0.000	0.000	344.25
		C	31.417	0.000	0.000	0.000	248.50

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	320.00-300.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		12.125	0.000	0.000	0.000	86.39
		C		0.000	0.000	0.000	0.000	0.00
T2	300.00-280.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		23.061	0.000	0.000	0.000	172.33
		C		0.000	0.000	0.000	0.000	0.00
T3	280.00-260.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		45.780	0.000	0.000	0.000	363.24
		C		0.000	0.000	0.000	0.000	0.00
T4	260.00-240.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		60.112	0.000	0.000	0.000	482.98
		C		0.000	0.000	0.000	0.000	0.00
T5	240.00-220.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		77.346	0.000	0.000	0.000	622.93
		C		0.000	0.000	0.000	0.000	0.00
T6	220.00-200.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		78.217	0.000	0.000	0.000	629.19
		C		38.467	0.000	0.000	0.000	431.91
T7	200.00-180.00	A	0.500	67.200	1.933	0.000	0.000	704.88
		B		78.217	0.000	0.000	0.000	629.19
		C		38.467	0.000	0.000	0.000	431.91
T8	180.00-170.00	A	0.500	33.600	0.967	0.000	0.000	352.44
		B		42.612	0.000	0.000	0.000	339.23
		C		19.233	0.000	0.000	0.000	215.95
T9	170.00-160.00	A	0.500	33.600	0.967	0.000	0.000	352.44
		B		46.218	0.000	0.000	0.000	364.17
		C		19.233	0.000	0.000	0.000	215.95
T10	160.00-140.00	A	0.500	67.200	1.933	0.000	0.000	704.88
		B		96.281	0.934	0.000	0.000	764.84

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C		38.467	0.000	0.000	0.000	431.91
T11	140.00-120.00	A	0.500	67.200	1.933	0.000	0.000	704.88
		B		102.899	3.735	0.000	0.000	840.34
		C		38.467	0.000	0.000	0.000	431.91
T12	120.00-100.00	A	0.500	67.200	1.933	0.000	0.000	704.88
		B		109.396	6.682	0.000	0.000	916.53
		C		38.467	0.000	0.000	0.000	431.91
T13	100.00-80.00	A	0.500	67.200	1.933	0.000	0.000	704.88
		B		118.574	10.288	0.000	0.000	1018.77
		C		38.467	0.000	0.000	0.000	431.91
T14	80.00-60.00	A	0.500	67.200	1.933	0.000	0.000	704.88
		B		121.883	10.288	0.000	0.000	1042.55
		C		38.467	0.000	0.000	0.000	431.91
T15	60.00-30.00	A	0.500	100.800	2.900	0.000	0.000	1057.32
		B		182.825	15.432	0.000	0.000	1563.82
		C		57.700	0.000	0.000	0.000	647.86
T16	30.00-0.00	A	0.500	84.000	2.417	0.000	0.000	881.10
		B		152.354	12.860	0.000	0.000	1303.19
		C		48.083	0.000	0.000	0.000	539.88

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	320.00-300.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.636	0.544	1.114
		C	0.000	0.000	0.000	0.000
T2	300.00-280.00	A	0.000	0.000	0.000	0.000
		B	0.000	1.010	1.056	2.020
		C	0.000	0.000	0.000	0.000
T3	280.00-260.00	A	0.000	0.000	0.000	0.000
		B	0.000	1.380	1.924	3.450
		C	0.000	0.000	0.000	0.000
T4	260.00-240.00	A	0.000	0.000	0.000	0.000
		B	0.000	1.718	2.939	5.155
		C	0.000	0.000	0.000	0.000
T5	240.00-220.00	A	0.000	0.000	0.000	0.000
		B	0.000	2.140	4.917	8.560
		C	0.000	0.000	0.000	0.000
T6	220.00-200.00	A	0.000	0.000	0.000	0.000
		B	0.000	1.535	3.524	6.141
		C	0.000	0.755	1.973	3.020
T7	200.00-180.00	A	0.000	1.316	3.413	5.263
		B	0.000	1.489	3.417	5.955
		C	0.000	0.732	1.913	2.928
T8	180.00-170.00	A	0.000	0.646	1.675	2.583
		B	0.000	0.796	1.808	3.184
		C	0.000	0.359	0.939	1.437
T9	170.00-160.00	A	0.000	0.639	1.658	2.557
		B	0.000	0.855	1.915	3.419
		C	0.000	0.356	0.930	1.423
T10	160.00-140.00	A	0.000	1.263	4.096	6.317
		B	0.000	1.779	4.951	8.895
		C	0.000	0.703	2.296	3.515
T11	140.00-120.00	A	0.000	1.246	4.040	6.230
		B	0.000	1.932	5.372	9.660

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
		C	0.000	0.693	2.265	3.467
T12	120.00-100.00	A	3.043	6.351	0.000	0.000
		B	4.404	10.763	0.000	0.000
		C	1.706	3.534	0.000	0.000
T13	100.00-80.00	A	2.914	6.080	0.000	0.000
		B	4.687	11.479	0.000	0.000
		C	1.633	3.383	0.000	0.000
T14	80.00-60.00	A	3.046	6.229	0.000	0.000
		B	5.017	12.059	0.000	0.000
		C	1.708	3.466	0.000	0.000
T15	60.00-30.00	A	4.901	10.023	0.000	0.000
		B	8.072	19.404	0.000	0.000
		C	2.748	5.577	0.000	0.000
T16	30.00-0.00	A	4.210	8.454	0.000	0.000
		B	6.934	16.367	0.000	0.000
		C	2.360	4.704	0.000	0.000

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	320.00-300.00	3.1883	0.9662	5.2573	1.5377
T2	300.00-280.00	7.0465	2.4665	11.0297	3.7075
T3	280.00-260.00	9.9455	4.1968	16.1046	6.5391
T4	260.00-240.00	14.1730	6.2584	22.4886	9.5878
T5	240.00-220.00	17.6789	7.9565	28.0497	12.2442
T6	220.00-200.00	29.6035	16.7114	43.9595	23.6735
T7	200.00-180.00	9.3246	27.1037	17.3347	37.5867
T8	180.00-170.00	11.5231	29.5041	21.3023	41.3041
T9	170.00-160.00	13.5350	31.3485	25.1234	44.3142
T10	160.00-140.00	13.9624	30.4474	26.0879	43.5491
T11	140.00-120.00	17.0559	32.9639	31.1485	47.3431
T12	120.00-100.00	27.5792	46.2980	46.9614	63.4311
T13	100.00-80.00	34.6984	52.0622	57.9839	71.5618
T14	80.00-60.00	34.4474	50.7864	58.3729	71.0221
T15	60.00-30.00	36.5723	53.9330	61.8039	75.2395
T16	30.00-0.00	32.4892	47.9976	55.1855	67.3591

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
*** EMP-005 AT&T Inventory									
PiROD 12' Lightweight T-Frame	A	None		0.0000	200.00	No Ice 1/2" Ice	10.20 16.20	10.20 16.20	253.00 355.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(AT&T)									
PiROD 12' Lightweight T-Frame (AT&T)	B	None		0.0000	200.00	No Ice 1/2" Ice	10.20 16.20	10.20 16.20	253.00 355.00
PiROD 12' Lightweight T-Frame (AT&T)	C	None		0.0000	200.00	No Ice 1/2" Ice	10.20 16.20	10.20 16.20	253.00 355.00
7770.00 (AT&T)	A	From Leg	3.00 -6.00 0.00	0.0000	200.00	No Ice 1/2" Ice	10.03 10.61	5.60 6.15	20.00 70.47
7770.00 (AT&T)	A	From Leg	3.00 -2.00 0.00	0.0000	200.00	No Ice 1/2" Ice	10.03 10.61	5.60 6.15	20.00 70.47
HPA-65R-BUU-H8 Panel (AT&T)	A	From Leg	3.00 6.00 0.00	0.0000	200.00	No Ice 1/2" Ice	12.99 13.69	7.48 8.06	68.00 140.41
(2) LGP21401 TMA Unit (AT&T)	A	From Leg	3.00 4.00 0.00	0.0000	200.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	14.10 21.26
RRUS-32 (AT&T)	A	From Leg	3.00 6.00 1.50	0.0000	200.00	No Ice 1/2" Ice	3.20 3.46	1.85 2.08	60.00 81.11
RRUS-11 (AT&T)	A	From Leg	3.00 6.00 -1.50	0.0000	200.00	No Ice 1/2" Ice	2.99 3.23	1.25 1.41	50.00 69.57
7770.00 (AT&T)	B	From Leg	3.00 -6.00 0.00	0.0000	200.00	No Ice 1/2" Ice	10.03 10.61	5.60 6.15	20.00 70.47
7770.00 (AT&T)	B	From Leg	3.00 -6.00 0.00	0.0000	200.00	No Ice 1/2" Ice	10.03 10.61	5.60 6.15	20.00 70.47
HPA-65R-BUU-H8 Panel (AT&T)	B	From Leg	3.00 6.00 0.00	0.0000	200.00	No Ice 1/2" Ice	12.99 13.69	7.48 8.06	68.00 140.41
(2) LGP21401 TMA Unit (AT&T)	B	From Leg	3.00 4.00 0.00	0.0000	200.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	14.10 21.26
RRUS-32 (AT&T)	B	From Leg	3.00 6.00 1.50	0.0000	200.00	No Ice 1/2" Ice	3.20 3.46	1.85 2.08	60.00 81.11
RRUS-11 (AT&T)	B	From Leg	3.00 6.00 -1.50	0.0000	200.00	No Ice 1/2" Ice	2.99 3.23	1.25 1.41	50.00 69.57
7770.00 (AT&T)	C	From Leg	3.00 -6.00 0.00	0.0000	200.00	No Ice 1/2" Ice	10.03 10.61	5.60 6.15	20.00 70.47
7770.00 (AT&T)	C	From Leg	3.00 -2.00 0.00	0.0000	200.00	No Ice 1/2" Ice	10.03 10.61	5.60 6.15	20.00 70.47
HPA-65R-BUU-H6 Panel (AT&T)	C	From Leg	3.00 6.00 0.00	0.0000	200.00	No Ice 1/2" Ice	10.12 10.69	5.49 5.94	48.00 105.33
(2) LGP21401 TMA Unit (AT&T)	B	From Leg	3.00 4.00 0.00	0.0000	200.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	14.10 21.26
RRUS-32 (AT&T)	B	From Leg	3.00 6.00	0.0000	200.00	No Ice 1/2" Ice	3.20 3.46	1.85 2.08	60.00 81.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			1.50						
RRUS-11	B	From Leg	3.00	0.0000	200.00	No Ice	2.99	1.25	50.00
(AT&T)			6.00			1/2" Ice	3.23	1.41	69.57
			-1.50						
DC6-48-60-0-8C Squid / Surge Arrestor	C	None		0.0000	200.00	No Ice	1.79	1.79	27.00
(AT&T)						1/2" Ice	2.02	2.02	47.39
STK-U Stiffener Side Arm Attachment	A	None		0.0000	200.00	No Ice	0.07	4.01	63.79
(AT&T)						1/2" Ice	0.11	5.00	95.84
STK-U Stiffener Side Arm Attachment	B	None		0.0000	200.00	No Ice	0.07	4.01	63.79
(AT&T)						1/2" Ice	0.11	5.00	95.84
STK-U Stiffener Side Arm Attachment	C	None		0.0000	200.00	No Ice	0.07	4.01	63.79
(AT&T)						1/2" Ice	0.11	5.00	95.84
*** EMP-005 AT&T Inventory									
* CSP Antenna Inventory - via Hightower Solutions									
PD688S-4	C	From Leg	0.50	0.0000	91.00	No Ice	0.35	0.35	3.75
(HTS-1)			0.00			1/2" Ice	0.63	0.63	4.88
			0.00						
4'x4" Pipe Mount	C	From Leg	0.00	0.0000	91.00	No Ice	1.32	1.32	44.00
(HTS-1)			0.00			1/2" Ice	1.58	1.58	56.99
			0.00						
PD688S-4	B	From Leg	3.00	0.0000	103.00	No Ice	0.35	0.35	3.75
(HTS-2)			0.00			1/2" Ice	0.63	0.63	4.88
			0.00						
Pirod 4' Side Mount Standoff	B	From Leg	0.00	0.0000	103.00	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
(HTS-2 & 3)			0.00						
PD458	B	From Leg	3.00	0.0000	105.00	No Ice	2.88	2.88	20.00
(HTS-3)			0.00			1/2" Ice	4.34	4.34	46.22
			0.00						
5'3"x4" Pipe Mount	A	From Leg	0.00	0.0000	106.00	No Ice	1.88	1.88	57.00
(HTS-4)			0.00			1/2" Ice	2.21	2.21	73.81
			0.00						
* Ice Shield - Place Holder HTS-6 / Leg A / 118'									
* Ice Shield - Place Holder HTS-7 / Leg C / 118'									
DB212-1	C	From Leg	6.00	0.0000	134.00	No Ice	4.40	4.40	31.00
(HTS-8)			0.00			1/2" Ice	8.42	8.42	70.21
			0.00						
6' Side Mount Standoff	C	From Leg	0.00	0.0000	134.00	No Ice	6.50	6.50	100.00
(HTS-8 & 9)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00						
PD156S	C	From Leg	6.00	0.0000	137.00	No Ice	0.44	0.44	5.00
(HTS-9)			0.00			1/2" Ice	0.79	0.79	6.50
			0.00						
ANT450F6	A	From Leg	0.50	0.0000	153.00	No Ice	1.90	1.90	8.00
(HTS-10)			0.00			1/2" Ice	2.73	2.73	22.34
			0.00						
5'3"x4" Pipe Mount	A	From Leg	0.00	0.0000	153.00	No Ice	1.88	1.88	57.00
(HTS-10)			0.00			1/2" Ice	2.21	2.21	73.81
			0.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
L-810 Obstruction Lighting	A	From Leg	0.25	0.0000	164.00	No Ice	0.36	0.36	6.65
(1)			0.00			1/2" Ice	0.52	0.52	12.44
(HTS-11a)			0.00						
L-810 Obstruction Lighting	B	From Leg	0.25	0.0000	164.00	No Ice	0.36	0.36	6.65
(1)			0.00			1/2" Ice	0.52	0.52	12.44
(HTS-11b)			0.00						
L-810 Obstruction Lighting	C	From Leg	0.25	0.0000	164.00	No Ice	0.36	0.36	6.65
(1)			0.00			1/2" Ice	0.52	0.52	12.44
(HTS-11c)			0.00						
DB586-Y	C	From Leg	3.00	0.0000	176.00	No Ice	1.01	1.01	8.25
(HTS-12)			0.00			1/2" Ice	1.28	1.28	16.59
			0.00						
Pirod 4' Side Mount Standoff	C	From Leg	0.00	0.0000	176.00	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
(HTS-12)			0.00						
DB586-Y (inverted)	B	From Leg	4.00	0.0000	174.00	No Ice	1.01	1.01	8.25
(HTS-13)			0.00			1/2" Ice	1.28	1.28	16.59
			0.00						
Pirod 4' Side Mount Standoff	B	From Leg	0.00	0.0000	174.00	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
(HTS-13,14,TTA)			0.00						
430-94C-09168-M-11048	B	From Leg	2.00	0.0000	174.00	No Ice	1.63	0.95	30.00
TTA			0.00			1/2" Ice	1.81	1.09	37.44
(TMA/TTA Control Unit)			0.00						
DB586-Y	B	From Leg	4.00	0.0000	174.00	No Ice	1.01	1.01	8.25
(HTS-14)			0.00			1/2" Ice	1.28	1.28	16.59
			0.00						
* HTS 15-18 Are VZw/AT&T Carrier Antennas									
531-70HD Exposed Dipole	A	From Leg	6.00	0.0000	235.00	No Ice	5.91	5.91	50.00
Antenna			0.00			1/2" Ice	7.68	7.68	79.03
(HTS-19)			0.00						
6' Side Mount Standoff	A	From Leg	0.00	0.0000	235.00	No Ice	6.50	6.50	100.00
(HTS-19)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00						
PD1142-1	C	From Leg	6.00	0.0000	244.00	No Ice	1.32	1.32	10.00
(HTS-20)			0.00			1/2" Ice	3.21	3.21	23.85
			0.00						
6' Side Mount Standoff	C	From Leg	0.00	0.0000	244.00	No Ice	6.50	6.50	100.00
(HTS-20)			0.00			1/2" Ice	8.50	8.50	170.00
			0.00						
SC479-HF1LDF(D00I-E6085	B	From Leg	3.00	0.0000	246.00	No Ice	5.06	5.06	34.00
) (Inverted)			0.00			1/2" Ice	6.54	6.54	69.82
(HTS-21a)			0.00						
SC479-HF1LDF(D00I-E6085	B	From Leg	3.00	0.0000	246.00	No Ice	5.06	5.06	34.00
) (Inverted)			0.00			1/2" Ice	6.54	6.54	69.82
(HTS-21b)			0.00						
Sabre T-Boom (1)	B	From Leg	0.00	0.0000	246.00	No Ice	35.40	35.40	471.00
(HTS-21 (a,b) - HTS 22)			0.00			1/2" Ice	46.90	46.90	690.00
			0.00						
PD1142-1	B	From Leg	3.00	0.0000	248.00	No Ice	1.32	1.32	10.00
(HTS-22)			0.00			1/2" Ice	3.21	3.21	23.85
			0.00						
SC479-HF1LDF(D00-E6085)	B	From Leg	6.00	0.0000	261.00	No Ice	5.06	5.06	34.00
(HTS-23)			0.00			1/2" Ice	6.54	6.54	69.82
			0.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
6' Side Mount Standoff	B	From Leg	0.00	0.00	0.0000	261.00	No Ice	6.50	6.50	100.00
(HTS-23, 24)			0.00				1/2" Ice	8.50	8.50	170.00
PD440-2	B	From Leg	6.00	0.00	0.0000	261.50	No Ice	1.38	1.38	19.00
(HTS-24)			0.00				1/2" Ice	2.48	2.48	24.70
SC479-HF1LDF	C	From Leg	6.00	0.00	0.0000	283.00	No Ice	5.06	5.06	34.00
(HTS-25)			0.00				1/2" Ice	6.54	6.54	69.82
6' Side Mount Standoff	C	From Leg	0.00	0.00	0.0000	284.00	No Ice	6.50	6.50	100.00
(HTS-25,26,TTA)			0.00				1/2" Ice	8.50	8.50	170.00
DB809T3E-XC	C	From Leg	6.00	0.00	0.0000	285.00	No Ice	4.25	4.25	39.00
(HTS-26)			0.00				1/2" Ice	5.70	5.70	69.70
TMA	C	From Leg	3.00	0.00	0.0000	284.00	No Ice	1.06	0.45	20.00
(TMA/TTA)			0.00				1/2" Ice	1.21	0.57	26.53
SC479-HF1LDF	B	From Leg	6.00	0.00	0.0000	284.00	No Ice	5.06	5.06	34.00
(HTS-27)			0.00				1/2" Ice	6.54	6.54	69.82
6' Side Mount Standoff	B	None			0.0000	284.50	No Ice	6.50	6.50	100.00
(HTS-27,28,TTA)							1/2" Ice	8.50	8.50	170.00
TMA	B	None			0.0000	284.50	No Ice	1.06	0.45	20.00
(TMA/TTA)							1/2" Ice	1.21	0.57	26.53
OGT9-840	B	From Leg	3.00	0.00	0.0000	285.00	No Ice	2.27	2.27	18.50
(HTS-28)			0.00				1/2" Ice	3.44	3.44	36.09
PD340-1	B	From Leg	6.00	0.00	0.0000	290.00	No Ice	3.30	3.30	40.00
(HTS-29)			0.00				1/2" Ice	5.94	5.94	52.00
6' Side Mount Standoff	B	From Leg	0.00	0.00	0.0000	290.00	No Ice	6.50	6.50	100.00
(HTS-29)			0.00				1/2" Ice	8.50	8.50	170.00
SC479-HF1LDF	C	From Leg	6.00	0.00	0.0000	297.00	No Ice	5.06	5.06	34.00
(HTS-30)			0.00				1/2" Ice	6.54	6.54	69.82
6' Side Mount Standoff	C	From Leg	0.00	0.00	0.0000	293.00	No Ice	6.50	6.50	100.00
(HTS-30)			0.00				1/2" Ice	8.50	8.50	170.00
ANT450F6	B	From Leg	5.00	0.00	0.0000	316.50	No Ice	1.90	1.90	8.00
(HTS-31)			0.00				1/2" Ice	2.73	2.73	22.34
4'x4" Pipe Mount	B	From Leg	0.00	0.00	0.0000	311.50	No Ice	1.32	1.32	44.00
(HTS-31)			0.00				1/2" Ice	1.58	1.58	56.99
BA1012-0	A	From Leg	6.00	0.00	0.0000	318.00	No Ice	0.47	0.47	2.20
(HTS-32)			0.00				1/2" Ice	0.96	0.96	6.61
6' Side Mount Standoff	A	From Leg	0.00	0.00	0.0000	315.00	No Ice	6.50	6.50	100.00
(HTS-32)			0.00				1/2" Ice	8.50	8.50	170.00
PD128-1	C	From Leg	6.00	0.00	0.0000	322.00	No Ice	1.00	1.00	13.00
(HTS-33)			0.00				1/2" Ice	1.80	1.80	16.90
6' Side Mount Standoff	C	From Leg	0.00	0.00	0.0000	320.00	No Ice	6.50	6.50	100.00
(HTS-33)			0.00				1/2" Ice	8.50	8.50	170.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
Dual Lights	A	None		0.0000	325.00	No Ice	4.00	4.00	250.00
(HTS-34)						1/2" Ice	4.80	4.80	400.00
Lightning Rod 5/8x4'	C	None		0.0000	325.00	No Ice	0.25	0.25	31.00
(HTS-35)						1/2" Ice	0.66	0.66	33.82
* CSP Proposed									
4'x4" Pipe Mount	C	None		0.0000	145.00	No Ice	1.32	1.32	44.00
(CSP Dish Mt. @ 145)						1/2" Ice	1.58	1.58	56.99
4'x4" Pipe Mount	B	None		0.0000	120.00	No Ice	1.32	1.32	44.00
(CSP Dish Mt. @ 120)						1/2" Ice	1.58	1.58	56.99
* VZW Proposed 12/07/2018									
Valmont VFA-10-U V-Frame	A	None		0.0000	220.00	No Ice	7.95	4.45	285.00
(Verizon)						1/2" Ice	8.33	4.74	343.57
Valmont VFA-10-U V-Frame	B	None		0.0000	220.00	No Ice	7.95	4.45	285.00
(Verizon)						1/2" Ice	8.33	4.74	343.57
Valmont VFA-10-U V-Frame	C	None		0.0000	220.00	No Ice	7.95	4.45	285.00
(Verizon)						1/2" Ice	8.33	4.74	343.57
JAHH-65B-R3B Panel	A	From Leg	5.00	0.0000	220.00	No Ice	9.66	5.98	126.30
Antenna			6.00			1/2" Ice	10.22	6.44	184.38
(Verizon-AWS)			0.00						
JAHH-65B-R3B Panel	A	From Leg	5.00	0.0000	220.00	No Ice	9.66	5.98	126.30
Antenna			5.50			1/2" Ice	10.22	6.44	184.38
(Verizon-PCS)			0.00						
LNX-6512DS-VTM	A	From Leg	5.00	0.0000	220.00	No Ice	5.61	3.30	30.00
(Verizon-850)			-3.00			1/2" Ice	6.01	3.66	63.32
			0.00						
BSAMNT-SBS-2-2 (JAHH	A	From Leg	5.00	0.0000	220.00	No Ice	3.78	3.56	116.83
Antenna Bracket (for 2))			6.00			1/2" Ice	4.84	4.62	175.06
(Verizon-PCS/AWS)			0.00						
RFV01U-D1A RRH Unit	A	From Leg	5.00	0.0000	220.00	No Ice	2.19	1.46	97.50
(Verizon RRH)			0.00			1/2" Ice	2.39	1.62	115.84
			0.00						
RFV01U-D2A RRH Unit	A	From Leg	5.00	0.0000	220.00	No Ice	2.19	1.18	82.00
(Verizon RRH)			0.00			1/2" Ice	2.39	1.34	98.43
			0.00						
DB-B1-6C-12AB-0Z /	A	From Leg	5.00	0.0000	220.00	No Ice	4.42	2.90	32.00
DC-3315-PF-48 Dist. Box			0.00			1/2" Ice	4.72	3.16	63.48
(Verizon)			0.00						
JAHH-65B-R3B Panel	B	From Leg	5.00	0.0000	220.00	No Ice	9.66	5.98	126.30
Antenna			6.00			1/2" Ice	10.22	6.44	184.38
(Verizon-AWS)			0.00						
JAHH-65B-R3B Panel	B	From Leg	5.00	0.0000	220.00	No Ice	9.66	5.98	126.30
Antenna			5.50			1/2" Ice	10.22	6.44	184.38
(Verizon-PCS)			0.00						
LNX-6512DS-VTM	B	From Leg	5.00	0.0000	220.00	No Ice	5.61	3.30	30.00
(Verizon-850)			-3.00			1/2" Ice	6.01	3.66	63.32
			0.00						
BSAMNT-SBS-2-2 (JAHH	B	From Leg	5.00	0.0000	220.00	No Ice	3.78	3.56	116.83
Antenna Bracket (for 2))			6.00			1/2" Ice	4.84	4.62	175.06
(Verizon-PCS/AWS)			0.00						
RFV01U-D1A RRH Unit	B	From Leg	5.00	0.0000	220.00	No Ice	2.19	1.46	97.50
(Verizon RRH)			0.00			1/2" Ice	2.39	1.62	115.84
			0.00						
RFV01U-D2A RRH Unit	B	From Leg	5.00	0.0000	220.00	No Ice	2.19	1.18	82.00
(Verizon RRH)			0.00			1/2" Ice	2.39	1.34	98.43
			0.00						
DB-B1-6C-12AB-0Z /	B	From Leg	5.00	0.0000	220.00	No Ice	4.42	2.90	32.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
DC-3315-PF-48 Dist. Box (Verizon)			0.00 0.00			1/2" Ice	4.72	3.16	63.48
JAHH-65B-R3B Panel Antenna (Verizon-AWS)	C	From Leg	5.00 6.00 0.00	0.0000	220.00	No Ice 1/2" Ice	9.66 10.22	5.98 6.44	126.30 184.38
JAHH-65B-R3B Panel Antenna (Verizon-PCS)	C	From Leg	5.00 5.50 0.00	0.0000	220.00	No Ice 1/2" Ice	9.66 10.22	5.98 6.44	126.30 184.38
LNX-6512DS-VTM (Verizon-850)	C	From Leg	5.00 -3.00 0.00	0.0000	220.00	No Ice 1/2" Ice	5.61 6.01	3.30 3.66	30.00 63.32
BSAMNT-SBS-2-2 (JAHH Antenna Bracket (for 2)) (Verizon-PCS/AWS)	C	From Leg	5.00 6.00 0.00	0.0000	220.00	No Ice 1/2" Ice	3.78 4.84	3.56 4.62	116.83 175.06
RFV01U-D1A RRH Unit (Verizon RRH)	C	From Leg	5.00 0.00 0.00	0.0000	220.00	No Ice 1/2" Ice	2.19 2.39	1.46 1.62	97.50 115.84
RFV01U-D2A RRH Unit (Verizon RRH)	C	From Leg	5.00 0.00 0.00	0.0000	220.00	No Ice 1/2" Ice	2.19 2.39	1.18 1.34	82.00 98.43
CBC78T-DS-43-2X Diplexer (Verizon)	A	From Leg	5.00 0.00 0.00	0.0000	220.00	No Ice 1/2" Ice	0.43 0.52	0.60 0.71	22.00 28.34
CBC78T-DS-43-2X Diplexer (Verizon)	B	From Leg	5.00 0.00 0.00	0.0000	220.00	No Ice 1/2" Ice	0.43 0.52	0.60 0.71	22.00 28.34
CBC78T-DS-43-2X Diplexer (Verizon)	C	From Leg	5.00 0.00 0.00	0.0000	220.00	No Ice 1/2" Ice	0.43 0.52	0.60 0.71	22.00 28.34
* VZW Proposed 12/07/2018									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
* CSP Inventory from HighTower Solutions Climb											
PA8-65 (HTS-4)	A	Paraboloid w/Shroud (HP)	From Leg	0.50 0.00 0.00	Worst		106.00	8.00	No Ice 1/2" Ice	50.27 51.29	285.00 548.30
Andrew 2' w/Radome (HTS-5)	C	Paraboloid w/Radome	From Leg	0.50 0.00 0.00	Worst		113.00	2.00	No Ice 1/2" Ice	3.14 3.41	70.00 282.00
* CSP Proposed Commscope PAR6-59W-PXA/A (CSP Proposed)	C	Paraboloid w/Radome	From Leg	0.50 0.00 0.00	Worst		145.00	6.00	No Ice 1/2" Ice	28.27 29.07	310.00 460.00

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft °	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
HPD3-4.7 (CSP Proposed)	B	Paraboloid w/o Radome	From Leg	0.50 0.00 0.00	Worst		120.00	3.00	No Ice 1/2" Ice	7.07 7.47	105.00 143.35

Tower Pressures - No Ice

$G_H = 1.084$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg % %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1 320.00-300.00	310.00	1.897	39	145.472	A B C	11.659 11.116 11.659	18.543 24.460 18.543	18.543	61.40 52.12 61.40	0.000 0.000 0.000	0.000 0.000 0.000
T2 300.00-280.00	290.00	1.861	39	167.656	A B C	12.596 11.540 12.596	22.122 34.182 22.122	22.122	63.72 48.38 63.72	0.000 0.000 0.000	0.000 0.000 0.000
T3 280.00-260.00	270.00	1.823	38	216.829	A B C	51.464 49.540 51.464	0.000 25.530 0.000	37.788	73.43 50.34 73.43	0.000 0.000 0.000	0.000 0.000 0.000
T4 260.00-240.00	250.00	1.783	37	259.126	A B C	56.868 53.929 56.868	0.000 34.278 0.000	37.778	66.43 42.83 66.43	0.000 0.000 0.000	0.000 0.000 0.000
T5 240.00-220.00	230.00	1.741	36	299.625	A B C	66.901 61.984 66.901	0.000 44.429 0.000	37.776	56.46 35.50 56.46	0.000 0.000 0.000	0.000 0.000 0.000
T6 220.00-200.00	210.00	1.697	35	339.725	A B C	61.588 58.064 59.614	0.000 44.883 25.133	37.775	61.34 36.69 44.57	0.000 0.000 0.000	0.000 0.000 0.000
T7 200.00-180.00	190.00	1.649	34	385.076	A B C	68.433 68.429 69.932	44.833 44.883 25.133	45.633	40.29 40.27 48.00	0.000 0.000 0.000	0.000 0.000 0.000
T8 180.00-170.00	175.00	1.611	33	208.387	A B C	35.189 35.056 35.925	22.417 24.196 12.567	22.815	39.61 38.50 47.05	0.000 0.000 0.000	0.000 0.000 0.000
T9 170.00-160.00	165.00	1.584	33	218.787	A B C	35.834 35.577 36.563	22.417 25.885 12.567	22.815	39.17 37.12 46.44	0.000 0.000 0.000	0.000 0.000 0.000
T10 160.00-140.00	150.00	1.541	32	467.070	A B C	80.465 80.267 82.265	44.833 53.531 25.133	45.617	36.41 34.09 42.47	0.000 0.000 0.000	0.000 0.000 0.000
T11 140.00-120.00	130.00	1.48	31	507.978	A B C	83.697 84.990 85.473	44.833 56.983 25.133	45.637	35.51 32.15 41.26	0.000 0.000 0.000	0.000 0.000 0.000
T12 120.00-100.00	110.00	1.411	29	555.591	A B C	45.673 50.188 45.673	68.728 82.904 50.365	45.673	39.92 34.32 47.56	0.000 0.000 0.000	0.000 0.000 0.000
T13 100.00-80.00	90.00	1.332	28	606.388	A B C	45.666 52.620 45.666	70.443 88.994 52.023	45.666	39.33 32.25 46.75	0.000 0.000 0.000	0.000 0.000 0.000
T14 80.00-60.00	70.00	1.24	26	662.098	A B C	53.708 60.663 53.708	74.478 94.557 56.116	53.708	41.90 34.60 48.90	0.000 0.000 0.000	0.000 0.000 0.000
T15	45.00	1.093	23	1088.08	A	80.523	114.950	80.523	41.19	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
60.00-30.00				3	B	90.955	144.854		34.15	0.000	0.000
					C	80.523	87.554		47.91	0.000	0.000
T16 30.00-0.00	15.00	1	21	1202.12	A	81.480	111.072	81.480	42.32	0.000	0.000
				2	B	90.173	135.911		36.04	0.000	0.000
					C	81.480	88.297		47.99	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.084$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	310.00	1.897	39	0.5000	147.138	A	11.659	28.539	21.877	54.42	0.000	0.000
320.00-300.00						B	10.545	40.028		43.26	0.000	0.000
						C	11.659	28.539		54.42	0.000	0.000
T2	290.00	1.861	39	0.5000	169.325	A	12.596	31.759	25.461	57.40	0.000	0.000
300.00-280.00						B	10.576	53.810		39.54	0.000	0.000
						C	12.596	31.759		57.40	0.000	0.000
T3	270.00	1.823	38	0.5000	218.499	A	53.691	5.471	40.014	67.64	0.000	0.000
280.00-260.00						B	50.241	49.871		39.97	0.000	0.000
						C	53.691	5.471		67.64	0.000	0.000
T4	250.00	1.783	37	0.5000	260.795	A	59.094	6.363	40.004	61.11	0.000	0.000
260.00-240.00						B	53.939	64.757		33.70	0.000	0.000
						C	59.094	6.363		61.11	0.000	0.000
T5	230.00	1.741	36	0.5000	301.294	A	69.127	7.281	40.002	52.35	0.000	0.000
240.00-220.00						B	60.567	82.487		27.96	0.000	0.000
						C	69.127	7.281		52.35	0.000	0.000
T6	210.00	1.697	35	0.5000	341.394	A	63.814	5.953	40.001	57.34	0.000	0.000
220.00-200.00						B	57.672	82.634		28.51	0.000	0.000
						C	60.793	43.665		38.29	0.000	0.000
T7	190.00	1.649	34	0.5000	386.745	A	70.743	72.437	47.860	33.43	0.000	0.000
200.00-180.00						B	68.118	83.281		31.61	0.000	0.000
						C	71.144	44.288		41.46	0.000	0.000
T8	175.00	1.611	33	0.5000	209.222	A	36.360	36.466	23.928	32.86	0.000	0.000
180.00-170.00						B	34.792	45.329		29.86	0.000	0.000
						C	36.540	22.386		40.61	0.000	0.000
T9	165.00	1.584	33	0.5000	219.622	A	37.015	36.630	23.928	32.49	0.000	0.000
170.00-160.00						B	35.186	49.033		28.41	0.000	0.000
						C	37.183	22.547		40.06	0.000	0.000
T10	150.00	1.541	32	0.5000	468.739	A	82.404	73.726	47.842	30.64	0.000	0.000
160.00-140.00						B	78.826	102.291		26.42	0.000	0.000
						C	83.273	45.553		37.14	0.000	0.000
T11	130.00	1.48	31	0.5000	509.647	A	85.667	74.374	47.864	29.91	0.000	0.000
140.00-120.00						B	84.039	109.387		24.75	0.000	0.000
						C	86.498	46.193		36.07	0.000	0.000
T12	110.00	1.411	29	0.5000	557.261	A	49.835	96.497	47.902	32.74	0.000	0.000
120.00-100.00						B	54.583	134.280		25.36	0.000	0.000
						C	47.902	70.581		40.43	0.000	0.000
T13	90.00	1.332	28	0.5000	608.058	A	49.827	98.876	47.894	32.21	0.000	0.000
100.00-80.00						B	58.182	144.851		23.59	0.000	0.000
						C	47.894	72.839		39.67	0.000	0.000
T14 80.00-60.00	70.00	1.24	26	0.5000	663.769	A	57.870	103.388	55.937	34.69	0.000	0.000
						B	66.225	152.242		25.60	0.000	0.000
						C	55.937	77.418		41.95	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T15 60.00-30.00	45.00	1.093	23	0.5000	1090.588	A	86.765	158.280	83.865	34.22	0.000	0.000
						B	99.296	230.924		25.40	0.000	0.000
						C	83.865	119.626		41.21	0.000	0.000
T16 30.00-0.00	15.00	1	21	0.5000	1204.627	A	87.239	150.697	84.823	35.65	0.000	0.000
						B	97.682	211.139		27.47	0.000	0.000
						C	84.823	118.531		41.71	0.000	0.000

Tower Pressure - Service

$G_H = 1.084$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	310.00	1.897	39	145.472	A	11.659	18.543	18.543	61.40	0.000	0.000
320.00-300.00					B	11.116	24.460		52.12	0.000	0.000
					C	11.659	18.543		61.40	0.000	0.000
T2	290.00	1.861	39	167.656	A	12.596	22.122	22.122	63.72	0.000	0.000
300.00-280.00					B	11.540	34.182		48.38	0.000	0.000
					C	12.596	22.122		63.72	0.000	0.000
T3	270.00	1.823	38	216.829	A	51.464	0.000	37.788	73.43	0.000	0.000
280.00-260.00					B	49.540	25.530		50.34	0.000	0.000
					C	51.464	0.000		73.43	0.000	0.000
T4	250.00	1.783	37	259.126	A	56.868	0.000	37.778	66.43	0.000	0.000
260.00-240.00					B	53.929	34.278		42.83	0.000	0.000
					C	56.868	0.000		66.43	0.000	0.000
T5	230.00	1.741	36	299.625	A	66.901	0.000	37.776	56.46	0.000	0.000
240.00-220.00					B	61.984	44.429		35.50	0.000	0.000
					C	66.901	0.000		56.46	0.000	0.000
T6	210.00	1.697	35	339.725	A	61.588	0.000	37.775	61.34	0.000	0.000
220.00-200.00					B	58.064	44.883		36.69	0.000	0.000
					C	59.614	25.133		44.57	0.000	0.000
T7	190.00	1.649	34	385.076	A	68.433	44.833	45.633	40.29	0.000	0.000
200.00-180.00					B	68.429	44.883		40.27	0.000	0.000
					C	69.932	25.133		48.00	0.000	0.000
T8	175.00	1.611	33	208.387	A	35.189	22.417	22.815	39.61	0.000	0.000
180.00-170.00					B	35.056	24.196		38.50	0.000	0.000
					C	35.925	12.567		47.05	0.000	0.000
T9	165.00	1.584	33	218.787	A	35.834	22.417	22.815	39.17	0.000	0.000
170.00-160.00					B	35.577	25.885		37.12	0.000	0.000
					C	36.563	12.567		46.44	0.000	0.000
T10	150.00	1.541	32	467.070	A	80.465	44.833	45.617	36.41	0.000	0.000
160.00-140.00					B	80.267	53.531		34.09	0.000	0.000
					C	82.265	25.133		42.47	0.000	0.000
T11	130.00	1.48	31	507.978	A	83.697	44.833	45.637	35.51	0.000	0.000
140.00-120.00					B	84.990	56.983		32.15	0.000	0.000
					C	85.473	25.133		41.26	0.000	0.000
T12	110.00	1.411	29	555.591	A	45.673	68.728	45.673	39.92	0.000	0.000
120.00-100.00					B	50.188	82.904		34.32	0.000	0.000
					C	45.673	50.365		47.56	0.000	0.000
T13	90.00	1.332	28	606.388	A	45.666	70.443	45.666	39.33	0.000	0.000
100.00-80.00					B	52.620	88.994		32.25	0.000	0.000
					C	45.666	52.023		46.75	0.000	0.000
T14	70.00	1.24	26	662.098	A	53.708	74.478	53.708	41.90	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
80.00-60.00					B	60.663	94.557		34.60	0.000	0.000
					C	53.708	56.116		48.90	0.000	0.000
T15	45.00	1.093	23	1088.08	A	80.523	114.950	80.523	41.19	0.000	0.000
60.00-30.00				3	B	90.955	144.854		34.15	0.000	0.000
					C	80.523	87.554		47.91	0.000	0.000
T16 30.00-0.00	15.00	1	21	1202.12	A	81.480	111.072	81.480	42.32	0.000	0.000
				2	B	90.173	135.911		36.04	0.000	0.000
					C	81.480	88.297		47.99	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	20.26	1791.79	A	0.208	2.571	0.592	1	1	22.637	2698.66	134.93	B
320.00-300.00			B	0.245	2.454	0.601	1	1	25.804			
			C	0.208	2.571	0.592	1	1	22.637			
T2	43.60	2496.34	A	0.207	2.573	0.592	1	1	25.689	3204.39	160.22	B
300.00-280.00			B	0.273	2.371	0.608	1	1	32.320			
			C	0.207	2.573	0.592	1	1	25.689			
T3	101.88	5067.66	A	0.237	2.476	0.599	1	1	51.464	5864.49	293.22	B
280.00-260.00			B	0.346	2.18	0.631	1	1	65.653			
			C	0.237	2.476	0.599	1	1	51.464			
T4	137.02	5409.17	A	0.219	2.532	0.595	1	1	56.868	6638.40	331.92	B
260.00-240.00			B	0.34	2.194	0.629	1	1	75.493			
			C	0.219	2.532	0.595	1	1	56.868			
T5	176.60	6484.36	A	0.223	2.52	0.595	1	1	66.901	7620.51	381.03	B
240.00-220.00			B	0.355	2.16	0.634	1	1	90.167			
			C	0.223	2.52	0.595	1	1	66.901			
T6	376.80	6406.00	A	0.181	2.66	0.587	1	1	61.588	7480.83	374.04	B
220.00-200.00			B	0.303	2.288	0.617	1	1	85.749			
			C	0.249	2.439	0.602	1	1	74.738			
T7	662.40	7298.65	A	0.294	2.312	0.614	1	1	95.966	8221.84	411.09	B
200.00-180.00			B	0.294	2.311	0.614	1	1	95.994			
			C	0.247	2.447	0.601	1	1	85.040			
T8	336.56	4191.71	A	0.276	2.361	0.609	1	1	48.840	4218.96	421.90	B
180.00-170.00			B	0.284	2.339	0.611	1	1	49.845			
			C	0.233	2.49	0.598	1	1	43.435			
T9	342.10	4265.58	A	0.266	2.39	0.606	1	1	49.422	4293.20	429.32	B
170.00-160.00			B	0.281	2.348	0.61	1	1	51.374			
			C	0.225	2.516	0.596	1	1	44.049			
T10	693.39	9608.59	A	0.268	2.384	0.607	1	1	107.666	9131.02	456.55	B
160.00-140.00			B	0.286	2.333	0.612	1	1	113.020			
			C	0.23	2.499	0.597	1	1	97.269			
T11	711.68	9975.29	A	0.253	2.428	0.603	1	1	110.716	9363.50	468.17	B
140.00-120.00			B	0.279	2.352	0.61	1	1	119.740			
			C	0.218	2.538	0.594	1	1	100.407			
T12	729.85	9144.95	A	0.206	2.576	0.592	1	1	86.335	7816.79	390.84	B
120.00-100.00			B	0.24	2.469	0.599	1	1	99.870			
			C	0.173	2.689	0.585	1	1	75.149			
T13	754.48	9675.54	A	0.191	2.625	0.589	1	1	87.135	7880.03	394.00	B
100.00-80.00			B	0.234	2.488	0.598	1	1	105.822			
			C	0.161	2.731	0.583	1	1	76.008			
T14	759.80	10501.98	A	0.194	2.617	0.589	1	1	97.584	8114.19	405.71	B
80.00-60.00			B	0.234	2.485	0.598	1	1	117.211			
			C	0.166	2.714	0.584	1	1	86.482			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T15	1139.70	15115.36	A	0.18	2.665	0.586	1	1	147.937	11043.33	368.11	B
60.00-30.00			B	0.217	2.541	0.594	1	1	176.991			
			C	0.154	2.755	0.582	1	1	131.494			
T16	949.75	17941.94	A	0.16	2.734	0.583	1	1	146.244	10076.91	335.90	B
30.00-0.00			B	0.188	2.636	0.588	1	1	170.094			
			C	0.141	2.804	0.58	1	1	132.707			
Sum Weight:	7935.87	125374.92						OTM	16713.46 kip-ft	113667.06		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	20.26	1791.79	A	0.208	2.571	0.592	0.825	1	20.596	2495.22	124.76	B
320.00-300.00			B	0.245	2.454	0.601	0.825	1	23.859			
			C	0.208	2.571	0.592	0.825	1	20.596			
T2	43.60	2496.34	A	0.207	2.573	0.592	0.825	1	23.485	3004.17	150.21	B
300.00-280.00			B	0.273	2.371	0.608	0.825	1	30.301			
			C	0.207	2.573	0.592	0.825	1	23.485			
T3	101.88	5067.66	A	0.237	2.476	0.599	0.825	1	42.458	5090.08	254.50	B
280.00-260.00			B	0.346	2.18	0.631	0.825	1	56.984			
			C	0.237	2.476	0.599	0.825	1	42.458			
T4	137.02	5409.17	A	0.219	2.532	0.595	0.825	1	46.916	5808.52	290.43	B
260.00-240.00			B	0.34	2.194	0.629	0.825	1	66.055			
			C	0.219	2.532	0.595	0.825	1	46.916			
T5	176.60	6484.36	A	0.223	2.52	0.595	0.825	1	55.194	6703.75	335.19	B
240.00-220.00			B	0.355	2.16	0.634	0.825	1	79.320			
			C	0.223	2.52	0.595	0.825	1	55.194			
T6	376.80	6406.00	A	0.181	2.66	0.587	0.825	1	50.810	6594.36	329.72	B
220.00-200.00			B	0.303	2.288	0.617	0.825	1	75.588			
			C	0.249	2.439	0.602	0.825	1	64.306			
T7	662.40	7298.65	A	0.294	2.312	0.614	0.825	1	83.990	7196.19	359.81	B
200.00-180.00			B	0.294	2.311	0.614	0.825	1	84.019			
			C	0.247	2.447	0.601	0.825	1	72.802			
T8	336.56	4191.71	A	0.276	2.361	0.609	0.825	1	42.682	3699.71	369.97	B
180.00-170.00			B	0.284	2.339	0.611	0.825	1	43.710			
			C	0.233	2.49	0.598	0.825	1	37.148			
T9	342.10	4265.58	A	0.266	2.39	0.606	0.825	1	43.151	3772.90	377.29	B
170.00-160.00			B	0.281	2.348	0.61	0.825	1	45.148			
			C	0.225	2.516	0.596	0.825	1	37.650			
T10	693.39	9608.59	A	0.268	2.384	0.607	0.825	1	93.584	7996.17	399.81	B
160.00-140.00			B	0.286	2.333	0.612	0.825	1	98.973			
			C	0.23	2.499	0.597	0.825	1	82.873			
T11	711.68	9975.29	A	0.253	2.428	0.603	0.825	1	96.069	8200.43	410.02	B
140.00-120.00			B	0.279	2.352	0.61	0.825	1	104.867			
			C	0.218	2.538	0.594	0.825	1	85.449			
T12	729.85	9144.95	A	0.206	2.576	0.592	0.825	1	78.342	7129.35	356.47	B
120.00-100.00			B	0.24	2.469	0.599	0.825	1	91.087			
			C	0.173	2.689	0.585	0.825	1	67.156			
T13	754.48	9675.54	A	0.191	2.625	0.589	0.825	1	79.144	7194.32	359.72	B
100.00-80.00			B	0.234	2.488	0.598	0.825	1	96.614			
			C	0.161	2.731	0.583	0.825	1	68.016			
T14	759.80	10501.98	A	0.194	2.617	0.589	0.825	1	88.185	7379.27	368.96	B
80.00-60.00			B	0.234	2.485	0.598	0.825	1	106.595			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
			C	0.166	2.714	0.584	0.825	1	77.083			
T15	1139.70	15115.36	A	0.18	2.665	0.586	0.825	1	133.845	10050.19	335.01	B
60.00-30.00			B	0.217	2.541	0.594	0.825	1	161.074			
			C	0.154	2.755	0.582	0.825	1	117.403			
T16	949.75	17941.94	A	0.16	2.734	0.583	0.825	1	131.985	9142.03	304.73	B
30.00-0.00			B	0.188	2.636	0.588	0.825	1	154.313			
			C	0.141	2.804	0.58	0.825	1	118.448			
Sum Weight:	7935.87	125374.92						OTM	14838.25 kip-ft	101456.68		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	20.26	1791.79	A	0.208	2.571	0.592	0.8	1	20.305	2466.16	123.31	B
320.00-300.00			B	0.245	2.454	0.601	0.8	1	23.581			
			C	0.208	2.571	0.592	0.8	1	20.305			
T2	43.60	2496.34	A	0.207	2.573	0.592	0.8	1	23.170	2975.57	148.78	B
300.00-280.00			B	0.273	2.371	0.608	0.8	1	30.012			
			C	0.207	2.573	0.592	0.8	1	23.170			
T3	101.88	5067.66	A	0.237	2.476	0.599	0.8	1	41.171	4979.45	248.97	B
280.00-260.00			B	0.346	2.18	0.631	0.8	1	55.745			
			C	0.237	2.476	0.599	0.8	1	41.171			
T4	137.02	5409.17	A	0.219	2.532	0.595	0.8	1	45.494	5689.97	284.50	B
260.00-240.00			B	0.34	2.194	0.629	0.8	1	64.707			
			C	0.219	2.532	0.595	0.8	1	45.494			
T5	176.60	6484.36	A	0.223	2.52	0.595	0.8	1	53.521	6572.79	328.64	B
240.00-220.00			B	0.355	2.16	0.634	0.8	1	77.770			
			C	0.223	2.52	0.595	0.8	1	53.521			
T6	376.80	6406.00	A	0.181	2.66	0.587	0.8	1	49.270	6467.73	323.39	B
220.00-200.00			B	0.303	2.288	0.617	0.8	1	74.136			
			C	0.249	2.439	0.602	0.8	1	62.815			
T7	662.40	7298.65	A	0.294	2.312	0.614	0.8	1	82.279	7049.67	352.48	B
200.00-180.00			B	0.294	2.311	0.614	0.8	1	82.309			
			C	0.247	2.447	0.601	0.8	1	71.053			
T8	336.56	4191.71	A	0.276	2.361	0.609	0.8	1	41.802	3625.53	362.55	B
180.00-170.00			B	0.284	2.339	0.611	0.8	1	42.834			
			C	0.233	2.49	0.598	0.8	1	36.250			
T9	342.10	4265.58	A	0.266	2.39	0.606	0.8	1	42.255	3698.57	369.86	B
170.00-160.00			B	0.281	2.348	0.61	0.8	1	44.258			
			C	0.225	2.516	0.596	0.8	1	36.736			
T10	693.39	9608.59	A	0.268	2.384	0.607	0.8	1	91.573	7834.05	391.70	B
160.00-140.00			B	0.286	2.333	0.612	0.8	1	96.966			
			C	0.23	2.499	0.597	0.8	1	80.816			
T11	711.68	9975.29	A	0.253	2.428	0.603	0.8	1	93.977	8034.28	401.71	B
140.00-120.00			B	0.279	2.352	0.61	0.8	1	102.742			
			C	0.218	2.538	0.594	0.8	1	83.312			
T12	729.85	9144.95	A	0.206	2.576	0.592	0.8	1	77.200	7031.14	351.56	B
120.00-100.00			B	0.24	2.469	0.599	0.8	1	89.832			
			C	0.173	2.689	0.585	0.8	1	66.014			
T13	754.48	9675.54	A	0.191	2.625	0.589	0.8	1	78.002	7096.36	354.82	B
100.00-80.00			B	0.234	2.488	0.598	0.8	1	95.298			
			C	0.161	2.731	0.583	0.8	1	66.875			
T14	759.80	10501.98	A	0.194	2.617	0.589	0.8	1	86.843	7274.29	363.71	B

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
80.00-60.00			B	0.234	2.485	0.598	0.8	1	105.078			
			C	0.166	2.714	0.584	0.8	1	75.740			
T15	1139.70	15115.36	A	0.18	2.665	0.586	0.8	1	131.832	9908.31	330.28	B
60.00-30.00			B	0.217	2.541	0.594	0.8	1	158.801			
			C	0.154	2.755	0.582	0.8	1	115.390			
T16	949.75	17941.94	A	0.16	2.734	0.583	0.8	1	129.948	9008.48	300.28	B
30.00-0.00			B	0.188	2.636	0.588	0.8	1	152.059			
			C	0.141	2.804	0.58	0.8	1	116.411			
Sum Weight:	7935.87	125374.92						OTM	14570.36 kip-ft	99712.34		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	20.26	1791.79	A	0.208	2.571	0.592	0.85	1	20.888	2524.29	126.21	B
320.00-300.00			B	0.245	2.454	0.601	0.85	1	24.137			
			C	0.208	2.571	0.592	0.85	1	20.888			
T2	43.60	2496.34	A	0.207	2.573	0.592	0.85	1	23.800	3032.77	151.64	B
300.00-280.00			B	0.273	2.371	0.608	0.85	1	30.589			
			C	0.207	2.573	0.592	0.85	1	23.800			
T3	101.88	5067.66	A	0.237	2.476	0.599	0.85	1	43.745	5200.71	260.04	B
280.00-260.00			B	0.346	2.18	0.631	0.85	1	58.222			
			C	0.237	2.476	0.599	0.85	1	43.745			
T4	137.02	5409.17	A	0.219	2.532	0.595	0.85	1	48.338	5927.08	296.35	B
260.00-240.00			B	0.34	2.194	0.629	0.85	1	67.404			
			C	0.219	2.532	0.595	0.85	1	48.338			
T5	176.60	6484.36	A	0.223	2.52	0.595	0.85	1	56.866	6834.72	341.74	B
240.00-220.00			B	0.355	2.16	0.634	0.85	1	80.869			
			C	0.223	2.52	0.595	0.85	1	56.866			
T6	376.80	6406.00	A	0.181	2.66	0.587	0.85	1	52.350	6721.00	336.05	B
220.00-200.00			B	0.303	2.288	0.617	0.85	1	77.040			
			C	0.249	2.439	0.602	0.85	1	65.796			
T7	662.40	7298.65	A	0.294	2.312	0.614	0.85	1	85.701	7342.71	367.14	B
200.00-180.00			B	0.294	2.311	0.614	0.85	1	85.730			
			C	0.247	2.447	0.601	0.85	1	74.550			
T8	336.56	4191.71	A	0.276	2.361	0.609	0.85	1	43.561	3773.89	377.39	B
180.00-170.00			B	0.284	2.339	0.611	0.85	1	44.586			
			C	0.233	2.49	0.598	0.85	1	38.046			
T9	342.10	4265.58	A	0.266	2.39	0.606	0.85	1	44.047	3847.23	384.72	B
170.00-160.00			B	0.281	2.348	0.61	0.85	1	46.037			
			C	0.225	2.516	0.596	0.85	1	38.564			
T10	693.39	9608.59	A	0.268	2.384	0.607	0.85	1	95.596	8158.29	407.91	B
160.00-140.00			B	0.286	2.333	0.612	0.85	1	100.980			
			C	0.23	2.499	0.597	0.85	1	84.929			
T11	711.68	9975.29	A	0.253	2.428	0.603	0.85	1	98.162	8366.59	418.33	B
140.00-120.00			B	0.279	2.352	0.61	0.85	1	106.991			
			C	0.218	2.538	0.594	0.85	1	87.586			
T12	729.85	9144.95	A	0.206	2.576	0.592	0.85	1	79.483	7227.56	361.38	B
120.00-100.00			B	0.24	2.469	0.599	0.85	1	92.342			
			C	0.173	2.689	0.585	0.85	1	68.298			
T13	754.48	9675.54	A	0.191	2.625	0.589	0.85	1	80.286	7292.28	364.61	B
100.00-80.00			B	0.234	2.488	0.598	0.85	1	97.929			
			C	0.161	2.731	0.583	0.85	1	69.158			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T14	759.80	10501.98	A	0.194	2.617	0.589	0.85	1	89.528	7484.26	374.21	B
80.00-60.00			B	0.234	2.485	0.598	0.85	1	108.111			
			C	0.166	2.714	0.584	0.85	1	78.426			
T15	1139.70	15115.36	A	0.18	2.665	0.586	0.85	1	135.858	10192.07	339.74	B
60.00-30.00			B	0.217	2.541	0.594	0.85	1	163.348			
			C	0.154	2.755	0.582	0.85	1	119.416			
T16	949.75	17941.94	A	0.16	2.734	0.583	0.85	1	134.022	9275.59	309.19	B
30.00-0.00			B	0.188	2.636	0.588	0.85	1	156.568			
			C	0.141	2.804	0.58	0.85	1	120.485			
Sum Weight:	7935.87	125374.92						OTM	15106.14 kip-ft	103201.02		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	86.39	2462.58	A	0.273	2.37	0.608	1	1	29.013	3333.08	166.65	B
320.00-300.00			B	0.344	2.186	0.63	1	1	35.773			
			C	0.273	2.37	0.608	1	1	29.013			
T2	172.33	3229.77	A	0.262	2.402	0.605	1	1	31.810	3978.70	198.94	B
300.00-280.00			B	0.38	2.104	0.644	1	1	45.215			
			C	0.262	2.402	0.605	1	1	31.810			
T3	363.24	6496.99	A	0.271	2.377	0.607	1	1	57.014	6746.74	337.34	B
280.00-260.00			B	0.458	1.96	0.677	1	1	84.007			
			C	0.271	2.377	0.607	1	1	57.014			
T4	482.98	7010.32	A	0.251	2.435	0.602	1	1	62.926	7694.21	384.71	B
260.00-240.00			B	0.455	1.965	0.676	1	1	97.692			
			C	0.251	2.435	0.602	1	1	62.926			
T5	622.93	8391.73	A	0.254	2.427	0.603	1	1	73.517	8864.62	443.23	B
240.00-220.00			B	0.475	1.935	0.685	1	1	117.068			
			C	0.254	2.427	0.603	1	1	73.517			
T6	1061.09	8127.65	A	0.204	2.582	0.591	1	1	67.334	8714.99	435.75	B
220.00-200.00			B	0.411	2.043	0.656	1	1	111.892			
			C	0.306	2.28	0.618	1	1	87.767			
T7	1765.97	9251.50	A	0.37	2.126	0.64	1	1	117.095	9415.79	470.79	B
200.00-180.00			B	0.391	2.081	0.648	1	1	122.097			
			C	0.298	2.3	0.615	1	1	98.400			
T8	907.62	5414.12	A	0.348	2.176	0.632	1	1	59.400	4863.21	486.32	B
180.00-170.00			B	0.383	2.099	0.645	1	1	64.020			
			C	0.282	2.346	0.61	1	1	50.205			
T9	932.57	5516.65	A	0.335	2.206	0.627	1	1	59.995	4988.10	498.81	B
170.00-160.00			B	0.383	2.098	0.645	1	1	66.812			
			C	0.272	2.373	0.608	1	1	50.885			
T10	1901.63	11942.62	A	0.333	2.212	0.627	1	1	128.599	10498.36	524.92	B
160.00-140.00			B	0.386	2.092	0.646	1	1	144.920			
			C	0.275	2.365	0.609	1	1	110.993			
T11	1977.13	12406.11	A	0.314	2.259	0.62	1	1	131.801	10812.62	540.63	B
140.00-120.00			B	0.38	2.106	0.643	1	1	154.426			
			C	0.26	2.407	0.605	1	1	114.425			
T12	2053.32	11165.81	A	0.263	2.4	0.605	1	1	108.232	9682.13	484.11	B
120.00-100.00			B	0.339	2.198	0.629	1	1	138.989			
			C	0.213	2.554	0.593	1	1	89.760			
T13	2155.56	11752.95	A	0.245	2.454	0.601	1	1	109.202	9853.90	492.69	B
100.00-80.00			B	0.334	2.21	0.627	1	1	148.983			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
			C	0.199	2.601	0.59	1	1	90.877			
T14	2179.34	12848.65	A	0.243	2.459	0.6	1	1	119.914	9988.86	499.44	B
80.00-60.00			B	0.329	2.221	0.625	1	1	161.414			
			C	0.201	2.593	0.591	1	1	101.659			
T15	3269.00	18692.57	A	0.225	2.516	0.596	1	1	181.060	13583.41	452.78	B
60.00-30.00			B	0.303	2.289	0.617	1	1	241.720			
			C	0.187	2.641	0.588	1	1	154.176			
T16	2724.17	21738.94	A	0.198	2.604	0.59	1	1	176.135	12234.51	407.82	B
30.00-0.00			B	0.256	2.419	0.604	1	1	225.108			
			C	0.169	2.703	0.585	1	1	154.108			
Sum Weight:	22655.26	156448.95						OTM	19690.63 kip-ft	135253.21		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	86.39	2462.58	A	0.273	2.37	0.608	0.825	1	26.972	3161.14	158.06	B
320.00-300.00			B	0.344	2.186	0.63	0.825	1	33.928			
			C	0.273	2.37	0.608	0.825	1	26.972			
T2	172.33	3229.77	A	0.262	2.402	0.605	0.825	1	29.606	3815.84	190.79	B
300.00-280.00			B	0.38	2.104	0.644	0.825	1	43.365			
			C	0.262	2.402	0.605	0.825	1	29.606			
T3	363.24	6496.99	A	0.271	2.377	0.607	0.825	1	47.618	6040.62	302.03	B
280.00-260.00			B	0.458	1.96	0.677	0.825	1	75.215			
			C	0.271	2.377	0.607	0.825	1	47.618			
T4	482.98	7010.32	A	0.251	2.435	0.602	0.825	1	52.584	6950.76	347.54	B
260.00-240.00			B	0.455	1.965	0.676	0.825	1	88.253			
			C	0.251	2.435	0.602	0.825	1	52.584			
T5	622.93	8391.73	A	0.254	2.427	0.603	0.825	1	61.419	8062.03	403.10	B
240.00-220.00			B	0.475	1.935	0.685	0.825	1	106.469			
			C	0.254	2.427	0.603	0.825	1	61.419			
T6	1061.09	8127.65	A	0.204	2.582	0.591	0.825	1	56.166	7928.90	396.45	B
220.00-200.00			B	0.411	2.043	0.656	0.825	1	101.800			
			C	0.306	2.28	0.618	0.825	1	77.128			
T7	1765.97	9251.50	A	0.37	2.126	0.64	0.825	1	104.715	8496.50	424.83	B
200.00-180.00			B	0.391	2.081	0.648	0.825	1	110.176			
			C	0.298	2.3	0.615	0.825	1	85.950			
T8	907.62	5414.12	A	0.348	2.176	0.632	0.825	1	53.037	4400.69	440.07	B
180.00-170.00			B	0.383	2.099	0.645	0.825	1	57.931			
			C	0.282	2.346	0.61	0.825	1	43.811			
T9	932.57	5516.65	A	0.335	2.206	0.627	0.825	1	53.517	4528.38	452.84	B
170.00-160.00			B	0.383	2.098	0.645	0.825	1	60.655			
			C	0.272	2.373	0.608	0.825	1	44.378			
T10	1901.63	11942.62	A	0.333	2.212	0.627	0.825	1	114.179	9499.06	474.95	B
160.00-140.00			B	0.386	2.092	0.646	0.825	1	131.126			
			C	0.275	2.365	0.609	0.825	1	96.420			
T11	1977.13	12406.11	A	0.314	2.259	0.62	0.825	1	116.809	9782.87	489.14	B
140.00-120.00			B	0.38	2.106	0.643	0.825	1	139.719			
			C	0.26	2.407	0.605	0.825	1	99.288			
T12	2053.32	11165.81	A	0.263	2.4	0.605	0.825	1	99.511	9016.72	450.84	B
120.00-100.00			B	0.339	2.198	0.629	0.825	1	129.437			
			C	0.213	2.554	0.593	0.825	1	81.377			
T13	2155.56	11752.95	A	0.245	2.454	0.601	0.825	1	100.482	9180.46	459.02	B

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
100.00-80.00			B	0.334	2.21	0.627	0.825	1	138.801			
			C	0.199	2.601	0.59	0.825	1	82.495			
T14	2179.34	12848.65	A	0.243	2.459	0.6	0.825	1	109.787	9271.67	463.58	B
80.00-60.00			B	0.329	2.221	0.625	0.825	1	149.824			
			C	0.201	2.593	0.591	0.825	1	91.870			
T15	3269.00	18692.57	A	0.225	2.516	0.596	0.825	1	165.876	12606.92	420.23	B
60.00-30.00			B	0.303	2.289	0.617	0.825	1	224.344			
			C	0.187	2.641	0.588	0.825	1	139.499			
T16	2724.17	21738.94	A	0.198	2.604	0.59	0.825	1	160.868	11305.44	376.85	B
30.00-0.00			B	0.256	2.419	0.604	0.825	1	208.014			
			C	0.169	2.703	0.585	0.825	1	139.264			
Sum Weight:	22655.26	156448.95						OTM	18006.80 kip-ft	124048.00		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	86.39	2462.58	A	0.273	2.37	0.608	0.8	1	26.681	3136.57	156.83	B
320.00-300.00			B	0.344	2.186	0.63	0.8	1	33.664			
			C	0.273	2.37	0.608	0.8	1	26.681			
T2	172.33	3229.77	A	0.262	2.402	0.605	0.8	1	29.291	3792.58	189.63	B
300.00-280.00			B	0.38	2.104	0.644	0.8	1	43.100			
			C	0.262	2.402	0.605	0.8	1	29.291			
T3	363.24	6496.99	A	0.271	2.377	0.607	0.8	1	46.275	5939.75	296.99	B
280.00-260.00			B	0.458	1.96	0.677	0.8	1	73.959			
			C	0.271	2.377	0.607	0.8	1	46.275			
T4	482.98	7010.32	A	0.251	2.435	0.602	0.8	1	51.107	6844.56	342.23	B
260.00-240.00			B	0.455	1.965	0.676	0.8	1	86.904			
			C	0.251	2.435	0.602	0.8	1	51.107			
T5	622.93	8391.73	A	0.254	2.427	0.603	0.8	1	59.691	7947.37	397.37	B
240.00-220.00			B	0.475	1.935	0.685	0.8	1	104.955			
			C	0.254	2.427	0.603	0.8	1	59.691			
T6	1061.09	8127.65	A	0.204	2.582	0.591	0.8	1	54.571	7816.60	390.83	B
220.00-200.00			B	0.411	2.043	0.656	0.8	1	100.358			
			C	0.306	2.28	0.618	0.8	1	75.608			
T7	1765.97	9251.50	A	0.37	2.126	0.64	0.8	1	102.947	8365.18	418.26	B
200.00-180.00			B	0.391	2.081	0.648	0.8	1	108.473			
			C	0.298	2.3	0.615	0.8	1	84.171			
T8	907.62	5414.12	A	0.348	2.176	0.632	0.8	1	52.128	4334.61	433.46	B
180.00-170.00			B	0.383	2.099	0.645	0.8	1	57.061			
			C	0.282	2.346	0.61	0.8	1	42.897			
T9	932.57	5516.65	A	0.335	2.206	0.627	0.8	1	52.592	4462.71	446.27	B
170.00-160.00			B	0.383	2.098	0.645	0.8	1	59.775			
			C	0.272	2.373	0.608	0.8	1	43.448			
T10	1901.63	11942.62	A	0.333	2.212	0.627	0.8	1	112.118	9356.30	467.81	B
160.00-140.00			B	0.386	2.092	0.646	0.8	1	129.155			
			C	0.275	2.365	0.609	0.8	1	94.338			
T11	1977.13	12406.11	A	0.314	2.259	0.62	0.8	1	114.667	9635.76	481.79	B
140.00-120.00			B	0.38	2.106	0.643	0.8	1	137.618			
			C	0.26	2.407	0.605	0.8	1	97.125			
T12	2053.32	11165.81	A	0.263	2.4	0.605	0.8	1	98.265	8921.67	446.08	B
120.00-100.00			B	0.339	2.198	0.629	0.8	1	128.073			
			C	0.213	2.554	0.593	0.8	1	80.180			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T13	2155.56	11752.95	A	0.245	2.454	0.601	0.8	1	99.237	9084.25	454.21	B
100.00-80.00			B	0.334	2.21	0.627	0.8	1	137.346			
			C	0.199	2.601	0.59	0.8	1	81.298			
T14	2179.34	12848.65	A	0.243	2.459	0.6	0.8	1	108.340	9169.21	458.46	B
80.00-60.00			B	0.329	2.221	0.625	0.8	1	148.169			
			C	0.201	2.593	0.591	0.8	1	90.472			
T15	3269.00	18692.57	A	0.225	2.516	0.596	0.8	1	163.707	12467.42	415.58	B
60.00-30.00			B	0.303	2.289	0.617	0.8	1	221.861			
			C	0.187	2.641	0.588	0.8	1	137.403			
T16	2724.17	21738.94	A	0.198	2.604	0.59	0.8	1	158.687	11172.71	372.42	B
30.00-0.00			B	0.256	2.419	0.604	0.8	1	205.572			
			C	0.169	2.703	0.585	0.8	1	137.143			
Sum Weight:	22655.26	156448.95						OTM	17766.26 kip-ft	122447.25		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	86.39	2462.58	A	0.273	2.37	0.608	0.85	1	27.264	3185.70	159.29	B
320.00-300.00			B	0.344	2.186	0.63	0.85	1	34.191			
			C	0.273	2.37	0.608	0.85	1	27.264			
T2	172.33	3229.77	A	0.262	2.402	0.605	0.85	1	29.920	3839.11	191.96	B
300.00-280.00			B	0.38	2.104	0.644	0.85	1	43.629			
			C	0.262	2.402	0.605	0.85	1	29.920			
T3	363.24	6496.99	A	0.271	2.377	0.607	0.85	1	48.960	6141.49	307.07	B
280.00-260.00			B	0.458	1.96	0.677	0.85	1	76.471			
			C	0.271	2.377	0.607	0.85	1	48.960			
T4	482.98	7010.32	A	0.251	2.435	0.602	0.85	1	54.062	7056.97	352.85	B
260.00-240.00			B	0.455	1.965	0.676	0.85	1	89.601			
			C	0.251	2.435	0.602	0.85	1	54.062			
T5	622.93	8391.73	A	0.254	2.427	0.603	0.85	1	63.147	8176.68	408.83	B
240.00-220.00			B	0.475	1.935	0.685	0.85	1	107.983			
			C	0.254	2.427	0.603	0.85	1	63.147			
T6	1061.09	8127.65	A	0.204	2.582	0.591	0.85	1	57.762	8041.20	402.06	B
220.00-200.00			B	0.411	2.043	0.656	0.85	1	103.241			
			C	0.306	2.28	0.618	0.85	1	78.648			
T7	1765.97	9251.50	A	0.37	2.126	0.64	0.85	1	106.484	8627.83	431.39	B
200.00-180.00			B	0.391	2.081	0.648	0.85	1	111.879			
			C	0.298	2.3	0.615	0.85	1	87.728			
T8	907.62	5414.12	A	0.348	2.176	0.632	0.85	1	53.946	4466.76	446.68	B
180.00-170.00			B	0.383	2.099	0.645	0.85	1	58.801			
			C	0.282	2.346	0.61	0.85	1	44.724			
T9	932.57	5516.65	A	0.335	2.206	0.627	0.85	1	54.442	4594.05	459.41	B
170.00-160.00			B	0.383	2.098	0.645	0.85	1	61.534			
			C	0.272	2.373	0.608	0.85	1	45.308			
T10	1901.63	11942.62	A	0.333	2.212	0.627	0.85	1	116.239	9641.81	482.09	B
160.00-140.00			B	0.386	2.092	0.646	0.85	1	133.097			
			C	0.275	2.365	0.609	0.85	1	98.502			
T11	1977.13	12406.11	A	0.314	2.259	0.62	0.85	1	118.951	9929.98	496.50	B
140.00-120.00			B	0.38	2.106	0.643	0.85	1	141.820			
			C	0.26	2.407	0.605	0.85	1	101.450			
T12	2053.32	11165.81	A	0.263	2.4	0.605	0.85	1	100.757	9111.78	455.59	B
120.00-100.00			B	0.339	2.198	0.629	0.85	1	130.802			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.213	2.554	0.593	0.85	1	82.575			
T13	2155.56	11752.95	A	0.245	2.454	0.601	0.85	1	101.728	9276.67	463.83	B
100.00-80.00			B	0.334	2.21	0.627	0.85	1	140.255			
			C	0.199	2.601	0.59	0.85	1	83.693			
T14	2179.34	12848.65	A	0.243	2.459	0.6	0.85	1	111.233	9374.12	468.71	B
80.00-60.00			B	0.329	2.221	0.625	0.85	1	151.480			
			C	0.201	2.593	0.591	0.85	1	93.268			
T15	3269.00	18692.57	A	0.225	2.516	0.596	0.85	1	168.045	12746.42	424.88	B
60.00-30.00			B	0.303	2.289	0.617	0.85	1	226.826			
			C	0.187	2.641	0.588	0.85	1	141.596			
T16	2724.17	21738.94	A	0.198	2.604	0.59	0.85	1	163.049	11438.16	381.27	B
30.00-0.00			B	0.256	2.419	0.604	0.85	1	210.456			
			C	0.169	2.703	0.585	0.85	1	141.384			
Sum Weight:	22655.26	156448.95						OTM	18247.35 kip-ft	125648.74		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	20.26	1791.79	A	0.208	2.571	0.592	1	1	22.637	2698.66	134.93	B
320.00-300.00			B	0.245	2.454	0.601	1	1	25.804			
			C	0.208	2.571	0.592	1	1	22.637			
T2	43.60	2496.34	A	0.207	2.573	0.592	1	1	25.689	3204.39	160.22	B
300.00-280.00			B	0.273	2.371	0.608	1	1	32.320			
			C	0.207	2.573	0.592	1	1	25.689			
T3	101.88	5067.66	A	0.237	2.476	0.599	1	1	51.464	5864.49	293.22	B
280.00-260.00			B	0.346	2.18	0.631	1	1	65.653			
			C	0.237	2.476	0.599	1	1	51.464			
T4	137.02	5409.17	A	0.219	2.532	0.595	1	1	56.868	6638.40	331.92	B
260.00-240.00			B	0.34	2.194	0.629	1	1	75.493			
			C	0.219	2.532	0.595	1	1	56.868			
T5	176.60	6484.36	A	0.223	2.52	0.595	1	1	66.901	7620.51	381.03	B
240.00-220.00			B	0.355	2.16	0.634	1	1	90.167			
			C	0.223	2.52	0.595	1	1	66.901			
T6	376.80	6406.00	A	0.181	2.66	0.587	1	1	61.588	7480.83	374.04	B
220.00-200.00			B	0.303	2.288	0.617	1	1	85.749			
			C	0.249	2.439	0.602	1	1	74.738			
T7	662.40	7298.65	A	0.294	2.312	0.614	1	1	95.966	8221.84	411.09	B
200.00-180.00			B	0.294	2.311	0.614	1	1	95.994			
			C	0.247	2.447	0.601	1	1	85.040			
T8	336.56	4191.71	A	0.276	2.361	0.609	1	1	48.840	4218.96	421.90	B
180.00-170.00			B	0.284	2.339	0.611	1	1	49.845			
			C	0.233	2.49	0.598	1	1	43.435			
T9	342.10	4265.58	A	0.266	2.39	0.606	1	1	49.422	4293.20	429.32	B
170.00-160.00			B	0.281	2.348	0.61	1	1	51.374			
			C	0.225	2.516	0.596	1	1	44.049			
T10	693.39	9608.59	A	0.268	2.384	0.607	1	1	107.666	9131.02	456.55	B
160.00-140.00			B	0.286	2.333	0.612	1	1	113.020			
			C	0.23	2.499	0.597	1	1	97.269			
T11	711.68	9975.29	A	0.253	2.428	0.603	1	1	110.716	9363.50	468.17	B
140.00-120.00			B	0.279	2.352	0.61	1	1	119.740			
			C	0.218	2.538	0.594	1	1	100.407			
T12	729.85	9144.95	A	0.206	2.576	0.592	1	1	86.335	7816.79	390.84	B

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
120.00-100.00			B	0.24	2.469	0.599	1	1	99.870			
			C	0.173	2.689	0.585	1	1	75.149			
T13	754.48	9675.54	A	0.191	2.625	0.589	1	1	87.135	7880.03	394.00	B
100.00-80.00			B	0.234	2.488	0.598	1	1	105.822			
			C	0.161	2.731	0.583	1	1	76.008			
T14	759.80	10501.98	A	0.194	2.617	0.589	1	1	97.584	8114.19	405.71	B
80.00-60.00			B	0.234	2.485	0.598	1	1	117.211			
			C	0.166	2.714	0.584	1	1	86.482			
T15	1139.70	15115.36	A	0.18	2.665	0.586	1	1	147.937	11043.33	368.11	B
60.00-30.00			B	0.217	2.541	0.594	1	1	176.991			
			C	0.154	2.755	0.582	1	1	131.494			
T16	949.75	17941.94	A	0.16	2.734	0.583	1	1	146.244	10076.91	335.90	B
30.00-0.00			B	0.188	2.636	0.588	1	1	170.094			
			C	0.141	2.804	0.58	1	1	132.707			
Sum Weight:	7935.87	125374.92						OTM	16713.46 kip-ft	113667.06		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	20.26	1791.79	A	0.208	2.571	0.592	0.825	1	20.596	2495.22	124.76	B
320.00-300.00			B	0.245	2.454	0.601	0.825	1	23.859			
			C	0.208	2.571	0.592	0.825	1	20.596			
T2	43.60	2496.34	A	0.207	2.573	0.592	0.825	1	23.485	3004.17	150.21	B
300.00-280.00			B	0.273	2.371	0.608	0.825	1	30.301			
			C	0.207	2.573	0.592	0.825	1	23.485			
T3	101.88	5067.66	A	0.237	2.476	0.599	0.825	1	42.458	5090.08	254.50	B
280.00-260.00			B	0.346	2.18	0.631	0.825	1	56.984			
			C	0.237	2.476	0.599	0.825	1	42.458			
T4	137.02	5409.17	A	0.219	2.532	0.595	0.825	1	46.916	5808.52	290.43	B
260.00-240.00			B	0.34	2.194	0.629	0.825	1	66.055			
			C	0.219	2.532	0.595	0.825	1	46.916			
T5	176.60	6484.36	A	0.223	2.52	0.595	0.825	1	55.194	6703.75	335.19	B
240.00-220.00			B	0.355	2.16	0.634	0.825	1	79.320			
			C	0.223	2.52	0.595	0.825	1	55.194			
T6	376.80	6406.00	A	0.181	2.66	0.587	0.825	1	50.810	6594.36	329.72	B
220.00-200.00			B	0.303	2.288	0.617	0.825	1	75.588			
			C	0.249	2.439	0.602	0.825	1	64.306			
T7	662.40	7298.65	A	0.294	2.312	0.614	0.825	1	83.990	7196.19	359.81	B
200.00-180.00			B	0.294	2.311	0.614	0.825	1	84.019			
			C	0.247	2.447	0.601	0.825	1	72.802			
T8	336.56	4191.71	A	0.276	2.361	0.609	0.825	1	42.682	3699.71	369.97	B
180.00-170.00			B	0.284	2.339	0.611	0.825	1	43.710			
			C	0.233	2.49	0.598	0.825	1	37.148			
T9	342.10	4265.58	A	0.266	2.39	0.606	0.825	1	43.151	3772.90	377.29	B
170.00-160.00			B	0.281	2.348	0.61	0.825	1	45.148			
			C	0.225	2.516	0.596	0.825	1	37.650			
T10	693.39	9608.59	A	0.268	2.384	0.607	0.825	1	93.584	7996.17	399.81	B
160.00-140.00			B	0.286	2.333	0.612	0.825	1	98.973			
			C	0.23	2.499	0.597	0.825	1	82.873			
T11	711.68	9975.29	A	0.253	2.428	0.603	0.825	1	96.069	8200.43	410.02	B
140.00-120.00			B	0.279	2.352	0.61	0.825	1	104.867			
			C	0.218	2.538	0.594	0.825	1	85.449			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T12	729.85	9144.95	A	0.206	2.576	0.592	0.825	1	78.342	7129.35	356.47	B
120.00-100.00			B	0.24	2.469	0.599	0.825	1	91.087			
			C	0.173	2.689	0.585	0.825	1	67.156			
T13	754.48	9675.54	A	0.191	2.625	0.589	0.825	1	79.144	7194.32	359.72	B
100.00-80.00			B	0.234	2.488	0.598	0.825	1	96.614			
			C	0.161	2.731	0.583	0.825	1	68.016			
T14	759.80	10501.98	A	0.194	2.617	0.589	0.825	1	88.185	7379.27	368.96	B
80.00-60.00			B	0.234	2.485	0.598	0.825	1	106.595			
			C	0.166	2.714	0.584	0.825	1	77.083			
T15	1139.70	15115.36	A	0.18	2.665	0.586	0.825	1	133.845	10050.19	335.01	B
60.00-30.00			B	0.217	2.541	0.594	0.825	1	161.074			
			C	0.154	2.755	0.582	0.825	1	117.403			
T16	949.75	17941.94	A	0.16	2.734	0.583	0.825	1	131.985	9142.03	304.73	B
30.00-0.00			B	0.188	2.636	0.588	0.825	1	154.313			
			C	0.141	2.804	0.58	0.825	1	118.448			
Sum Weight:	7935.87	125374.92						OTM	14838.25 kip-ft	101456.68		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	20.26	1791.79	A	0.208	2.571	0.592	0.8	1	20.305	2466.16	123.31	B
320.00-300.00			B	0.245	2.454	0.601	0.8	1	23.581			
			C	0.208	2.571	0.592	0.8	1	20.305			
T2	43.60	2496.34	A	0.207	2.573	0.592	0.8	1	23.170	2975.57	148.78	B
300.00-280.00			B	0.273	2.371	0.608	0.8	1	30.012			
			C	0.207	2.573	0.592	0.8	1	23.170			
T3	101.88	5067.66	A	0.237	2.476	0.599	0.8	1	41.171	4979.45	248.97	B
280.00-260.00			B	0.346	2.18	0.631	0.8	1	55.745			
			C	0.237	2.476	0.599	0.8	1	41.171			
T4	137.02	5409.17	A	0.219	2.532	0.595	0.8	1	45.494	5689.97	284.50	B
260.00-240.00			B	0.34	2.194	0.629	0.8	1	64.707			
			C	0.219	2.532	0.595	0.8	1	45.494			
T5	176.60	6484.36	A	0.223	2.52	0.595	0.8	1	53.521	6572.79	328.64	B
240.00-220.00			B	0.355	2.16	0.634	0.8	1	77.770			
			C	0.223	2.52	0.595	0.8	1	53.521			
T6	376.80	6406.00	A	0.181	2.66	0.587	0.8	1	49.270	6467.73	323.39	B
220.00-200.00			B	0.303	2.288	0.617	0.8	1	74.136			
			C	0.249	2.439	0.602	0.8	1	62.815			
T7	662.40	7298.65	A	0.294	2.312	0.614	0.8	1	82.279	7049.67	352.48	B
200.00-180.00			B	0.294	2.311	0.614	0.8	1	82.309			
			C	0.247	2.447	0.601	0.8	1	71.053			
T8	336.56	4191.71	A	0.276	2.361	0.609	0.8	1	41.802	3625.53	362.55	B
180.00-170.00			B	0.284	2.339	0.611	0.8	1	42.834			
			C	0.233	2.49	0.598	0.8	1	36.250			
T9	342.10	4265.58	A	0.266	2.39	0.606	0.8	1	42.255	3698.57	369.86	B
170.00-160.00			B	0.281	2.348	0.61	0.8	1	44.258			
			C	0.225	2.516	0.596	0.8	1	36.736			
T10	693.39	9608.59	A	0.268	2.384	0.607	0.8	1	91.573	7834.05	391.70	B
160.00-140.00			B	0.286	2.333	0.612	0.8	1	96.966			
			C	0.23	2.499	0.597	0.8	1	80.816			
T11	711.68	9975.29	A	0.253	2.428	0.603	0.8	1	93.977	8034.28	401.71	B
140.00-120.00			B	0.279	2.352	0.61	0.8	1	102.742			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
			C	0.218	2.538	0.594	0.8	1	83.312			
T12	729.85	9144.95	A	0.206	2.576	0.592	0.8	1	77.200	7031.14	351.56	B
120.00-100.00			B	0.24	2.469	0.599	0.8	1	89.832			
			C	0.173	2.689	0.585	0.8	1	66.014			
T13	754.48	9675.54	A	0.191	2.625	0.589	0.8	1	78.002	7096.36	354.82	B
100.00-80.00			B	0.234	2.488	0.598	0.8	1	95.298			
			C	0.161	2.731	0.583	0.8	1	66.875			
T14	759.80	10501.98	A	0.194	2.617	0.589	0.8	1	86.843	7274.29	363.71	B
80.00-60.00			B	0.234	2.485	0.598	0.8	1	105.078			
			C	0.166	2.714	0.584	0.8	1	75.740			
T15	1139.70	15115.36	A	0.18	2.665	0.586	0.8	1	131.832	9908.31	330.28	B
60.00-30.00			B	0.217	2.541	0.594	0.8	1	158.801			
			C	0.154	2.755	0.582	0.8	1	115.390			
T16	949.75	17941.94	A	0.16	2.734	0.583	0.8	1	129.948	9008.48	300.28	B
30.00-0.00			B	0.188	2.636	0.588	0.8	1	152.059			
			C	0.141	2.804	0.58	0.8	1	116.411			
Sum Weight:	7935.87	125374.92						OTM	14570.36 kip-ft	99712.34		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	20.26	1791.79	A	0.208	2.571	0.592	0.85	1	20.888	2524.29	126.21	B
320.00-300.00			B	0.245	2.454	0.601	0.85	1	24.137			
			C	0.208	2.571	0.592	0.85	1	20.888			
T2	43.60	2496.34	A	0.207	2.573	0.592	0.85	1	23.800	3032.77	151.64	B
300.00-280.00			B	0.273	2.371	0.608	0.85	1	30.589			
			C	0.207	2.573	0.592	0.85	1	23.800			
T3	101.88	5067.66	A	0.237	2.476	0.599	0.85	1	43.745	5200.71	260.04	B
280.00-260.00			B	0.346	2.18	0.631	0.85	1	58.222			
			C	0.237	2.476	0.599	0.85	1	43.745			
T4	137.02	5409.17	A	0.219	2.532	0.595	0.85	1	48.338	5927.08	296.35	B
260.00-240.00			B	0.34	2.194	0.629	0.85	1	67.404			
			C	0.219	2.532	0.595	0.85	1	48.338			
T5	176.60	6484.36	A	0.223	2.52	0.595	0.85	1	56.866	6834.72	341.74	B
240.00-220.00			B	0.355	2.16	0.634	0.85	1	80.869			
			C	0.223	2.52	0.595	0.85	1	56.866			
T6	376.80	6406.00	A	0.181	2.66	0.587	0.85	1	52.350	6721.00	336.05	B
220.00-200.00			B	0.303	2.288	0.617	0.85	1	77.040			
			C	0.249	2.439	0.602	0.85	1	65.796			
T7	662.40	7298.65	A	0.294	2.312	0.614	0.85	1	85.701	7342.71	367.14	B
200.00-180.00			B	0.294	2.311	0.614	0.85	1	85.730			
			C	0.247	2.447	0.601	0.85	1	74.550			
T8	336.56	4191.71	A	0.276	2.361	0.609	0.85	1	43.561	3773.89	377.39	B
180.00-170.00			B	0.284	2.339	0.611	0.85	1	44.586			
			C	0.233	2.49	0.598	0.85	1	38.046			
T9	342.10	4265.58	A	0.266	2.39	0.606	0.85	1	44.047	3847.23	384.72	B
170.00-160.00			B	0.281	2.348	0.61	0.85	1	46.037			
			C	0.225	2.516	0.596	0.85	1	38.564			
T10	693.39	9608.59	A	0.268	2.384	0.607	0.85	1	95.596	8158.29	407.91	B
160.00-140.00			B	0.286	2.333	0.612	0.85	1	100.980			
			C	0.23	2.499	0.597	0.85	1	84.929			
T11	711.68	9975.29	A	0.253	2.428	0.603	0.85	1	98.162	8366.59	418.33	B

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
140.00-120.00			B	0.279	2.352	0.61	0.85	1	106.991			
			C	0.218	2.538	0.594	0.85	1	87.586			
T12	729.85	9144.95	A	0.206	2.576	0.592	0.85	1	79.483	7227.56	361.38	B
120.00-100.00			B	0.24	2.469	0.599	0.85	1	92.342			
			C	0.173	2.689	0.585	0.85	1	68.298			
T13	754.48	9675.54	A	0.191	2.625	0.589	0.85	1	80.286	7292.28	364.61	B
100.00-80.00			B	0.234	2.488	0.598	0.85	1	97.929			
			C	0.161	2.731	0.583	0.85	1	69.158			
T14	759.80	10501.98	A	0.194	2.617	0.589	0.85	1	89.528	7484.26	374.21	B
80.00-60.00			B	0.234	2.485	0.598	0.85	1	108.111			
			C	0.166	2.714	0.584	0.85	1	78.426			
T15	1139.70	15115.36	A	0.18	2.665	0.586	0.85	1	135.858	10192.07	339.74	B
60.00-30.00			B	0.217	2.541	0.594	0.85	1	163.348			
			C	0.154	2.755	0.582	0.85	1	119.416			
T16	949.75	17941.94	A	0.16	2.734	0.583	0.85	1	134.022	9275.59	309.19	B
30.00-0.00			B	0.188	2.636	0.588	0.85	1	156.568			
			C	0.141	2.804	0.58	0.85	1	120.485			
Sum Weight:	7935.87	125374.92						OTM	15106.14 kip-ft	103201.02		

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	73044.53					
Bracing Weight	52330.39					
Total Member Self-Weight	125374.92			51.74	-25.33	
Total Weight	141290.45			51.74	-25.33	
Wind 0 deg - No Ice		-208.88	-134217.56	-20966.58	15.73	218.45
Wind 30 deg - No Ice		61684.46	-107067.52	-16738.15	-9693.27	307.98
Wind 45 deg - No Ice		86109.68	-86124.41	-13455.45	-13529.69	326.73
Wind 60 deg - No Ice		104028.21	-59950.53	-9350.31	-16347.75	322.73
Wind 90 deg - No Ice		123730.70	208.88	92.80	-19432.32	269.40
Wind 120 deg - No Ice		116322.22	67289.67	10596.46	-18244.79	146.77
Wind 135 deg - No Ice		86405.08	86419.80	13616.99	-13587.76	48.08
Wind 150 deg - No Ice		62046.24	107276.40	16882.68	-9764.39	-38.59
Wind 180 deg - No Ice		208.88	120262.84	18926.96	-66.39	-193.98
Wind 210 deg - No Ice		-61684.46	107067.52	16841.62	9642.61	-307.98
Wind 225 deg - No Ice		-86109.68	86124.41	13558.92	13479.03	-326.73
Wind 240 deg - No Ice		-116113.35	66927.89	10525.34	18153.08	-365.22
Wind 270 deg - No Ice		-123730.70	-208.88	10.67	19381.67	-269.40
Wind 300 deg - No Ice		-104237.08	-60312.31	-9421.43	16338.16	-128.75
Wind 315 deg - No Ice		-86405.08	-86419.80	-13513.52	13537.10	-48.08
Wind 330 deg - No Ice		-62046.24	-107276.40	-16779.21	9713.73	38.59
Member Ice	31074.03					
Total Weight Ice	191606.33			135.81	-92.38	
Wind 0 deg - Ice		-217.95	-160218.16	-24864.26	-49.55	437.79
Wind 30 deg - Ice		75107.76	-130326.31	-20243.55	-11831.71	592.11
Wind 45 deg - Ice		105199.33	-105213.95	-16320.98	-16546.37	618.29
Wind 60 deg - Ice		127535.83	-73517.35	-11364.94	-20051.68	602.00
Wind 90 deg - Ice		150593.02	217.95	178.64	-23645.22	476.30
Wind 120 deg - Ice		138844.07	80297.83	12672.94	-21761.07	223.58
Wind 135 deg - Ice		105507.56	105522.18	16653.17	-16606.95	47.14
Wind 150 deg - Ice		75485.26	130544.26	20558.00	-11905.90	-115.81

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 180 deg - Ice		217.95	147412.20	23211.50	-135.22	-399.02
Wind 210 deg - Ice		-75107.76	130326.31	20515.17	11646.94	-592.11
Wind 225 deg - Ice		-105199.33	105213.95	16592.59	16361.60	-618.29
Wind 240 deg - Ice		-138626.12	79920.33	12598.75	21533.47	-661.37
Wind 270 deg - Ice		-150593.02	-217.95	92.98	23460.45	-476.30
Wind 300 deg - Ice		-127753.78	-73894.85	-11439.13	19909.75	-202.98
Wind 315 deg - Ice		-105507.56	-105522.18	-16381.55	16422.18	-47.14
Wind 330 deg - Ice		-75485.26	-130544.26	-20286.39	11721.13	115.81
Total Weight	141290.45			51.74	-25.33	
Wind 0 deg - Service		-208.88	-134217.56	-21013.69	38.44	218.45
Wind 30 deg - Service		61684.46	-107067.52	-16785.26	-9670.56	307.98
Wind 45 deg - Service		86109.68	-86124.41	-13502.56	-13506.98	326.73
Wind 60 deg - Service		104028.21	-59950.53	-9397.42	-16325.05	322.73
Wind 90 deg - Service		123730.70	208.88	45.69	-19409.62	269.40
Wind 120 deg - Service		116322.22	67289.67	10549.35	-18222.09	146.77
Wind 135 deg - Service		86405.08	86419.80	13569.88	-13565.05	48.08
Wind 150 deg - Service		62046.24	107276.40	16835.57	-9741.68	-38.59
Wind 180 deg - Service		208.88	120262.84	18879.85	-43.69	-193.98
Wind 210 deg - Service		-61684.46	107067.52	16794.51	9665.31	-307.98
Wind 225 deg - Service		-86109.68	86124.41	13511.81	13501.73	-326.73
Wind 240 deg - Service		-116113.35	66927.89	10478.23	18175.78	-365.22
Wind 270 deg - Service		-123730.70	-208.88	-36.43	19404.37	-269.40
Wind 300 deg - Service		-104237.08	-60312.31	-9468.54	16360.86	-128.75
Wind 315 deg - Service		-86405.08	-86419.80	-13560.63	13559.80	-48.08
Wind 330 deg - Service		-62046.24	-107276.40	-16826.32	9736.43	38.59

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 45 deg - No Ice
5	Dead+Wind 60 deg - No Ice
6	Dead+Wind 90 deg - No Ice
7	Dead+Wind 120 deg - No Ice
8	Dead+Wind 135 deg - No Ice
9	Dead+Wind 150 deg - No Ice
10	Dead+Wind 180 deg - No Ice
11	Dead+Wind 210 deg - No Ice
12	Dead+Wind 225 deg - No Ice
13	Dead+Wind 240 deg - No Ice
14	Dead+Wind 270 deg - No Ice
15	Dead+Wind 300 deg - No Ice
16	Dead+Wind 315 deg - No Ice
17	Dead+Wind 330 deg - No Ice
18	Dead+Ice+Temp
19	Dead+Wind 0 deg+Ice+Temp
20	Dead+Wind 30 deg+Ice+Temp
21	Dead+Wind 45 deg+Ice+Temp
22	Dead+Wind 60 deg+Ice+Temp
23	Dead+Wind 90 deg+Ice+Temp
24	Dead+Wind 120 deg+Ice+Temp
25	Dead+Wind 135 deg+Ice+Temp
26	Dead+Wind 150 deg+Ice+Temp

Comb. No.	Description
27	Dead+Wind 180 deg+Ice+Temp
28	Dead+Wind 210 deg+Ice+Temp
29	Dead+Wind 225 deg+Ice+Temp
30	Dead+Wind 240 deg+Ice+Temp
31	Dead+Wind 270 deg+Ice+Temp
32	Dead+Wind 300 deg+Ice+Temp
33	Dead+Wind 315 deg+Ice+Temp
34	Dead+Wind 330 deg+Ice+Temp
35	Dead+Wind 0 deg - Service
36	Dead+Wind 30 deg - Service
37	Dead+Wind 45 deg - Service
38	Dead+Wind 60 deg - Service
39	Dead+Wind 90 deg - Service
40	Dead+Wind 120 deg - Service
41	Dead+Wind 135 deg - Service
42	Dead+Wind 150 deg - Service
43	Dead+Wind 180 deg - Service
44	Dead+Wind 210 deg - Service
45	Dead+Wind 225 deg - Service
46	Dead+Wind 240 deg - Service
47	Dead+Wind 270 deg - Service
48	Dead+Wind 300 deg - Service
49	Dead+Wind 315 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	320 - 300	Leg	Max Tension	32	6943.25	-0.00	0.00
			Max. Compression	30	-9269.38	0.36	-0.03
			Max. Mx	22	6806.68	-0.37	-0.09
			Max. My	19	-9262.76	0.13	0.32
			Max. Vy	31	327.81	0.00	0.00
			Max. Vx	19	404.77	0.00	-0.00
		Diagonal	Max Tension	28	1583.87	0.00	0.00
			Max. Compression	28	-1613.17	0.00	0.00
			Max. Mx	30	1326.06	0.01	-0.00
			Max. My	26	218.91	0.01	-0.00
			Max. Vy	30	-8.51	0.01	-0.00
			Max. Vx	33	-0.17	0.01	0.00
		Top Girt	Max Tension	24	96.36	0.00	0.00
			Max. Compression	22	-120.21	0.00	0.00
			Max. Mx	18	-13.16	-0.02	0.00
			Max. My	28	-9.46	0.00	0.00
			Max. Vy	18	-13.13	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
T2	300 - 280	Leg	Max Tension	27	21665.33	-0.13	0.03
			Max. Compression	30	-27469.70	0.56	0.14
			Max. Mx	24	-27255.74	0.57	-0.16
			Max. My	25	3286.12	-0.15	-0.62
			Max. Vy	22	-486.02	-0.12	0.03
			Max. Vx	25	-723.45	-0.04	-0.06
		Diagonal	Max Tension	23	3912.95	0.00	0.00
			Max. Compression	23	-3951.58	0.00	0.00
			Max. Mx	32	2233.14	0.02	0.00
			Max. My	31	-3884.37	0.01	0.01
			Max. Vy	32	14.58	0.02	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	31	-1.43	0.00	0.00
		Top Girt	Max Tension	22	18.45	0.00	0.00
			Max. Compression	30	-43.43	0.00	0.00
			Max. Mx	30	5.62	-0.03	0.00
			Max. My	28	10.00	0.00	0.00
			Max. Vy	30	17.46	0.00	0.00
			Max. Vx	28	-0.51	0.00	0.00
T3	280 - 260	Leg	Max Tension	27	42857.31	-0.31	-0.03
			Max. Compression	24	-54205.47	0.79	-0.08
			Max. Mx	27	42377.06	-0.80	-0.11
			Max. My	26	-4813.40	-0.01	-0.72
			Max. Vy	32	444.01	-0.79	0.07
			Max. Vx	20	755.41	-0.01	-0.52
		Diagonal	Max Tension	31	5657.57	0.00	0.00
			Max. Compression	31	-5697.94	0.00	0.00
			Max. Mx	26	2474.20	0.03	0.00
			Max. My	22	-4930.40	0.02	-0.01
			Max. Vy	32	22.41	0.03	0.01
			Max. Vx	22	2.34	0.00	0.00
T4	260 - 240	Leg	Max Tension	27	69857.95	-0.19	-0.49
			Max. Compression	24	-89457.16	2.48	-0.12
			Max. Mx	30	-88013.98	2.49	0.81
			Max. My	28	-9251.04	0.04	2.76
			Max. Vy	32	-690.13	-0.17	-0.00
			Max. Vx	28	1293.38	-0.03	-0.57
		Diagonal	Max Tension	31	8749.91	0.00	0.00
			Max. Compression	30	-9259.72	0.00	0.00
			Max. Mx	26	3066.61	0.05	0.01
			Max. My	21	-7124.87	0.04	-0.02
			Max. Vy	27	31.90	0.05	0.01
			Max. Vx	21	4.21	0.00	0.00
T5	240 - 220	Leg	Max Tension	27	104557.32	-0.53	-0.03
			Max. Compression	24	-133439.03	1.88	-0.03
			Max. Mx	30	-101313.41	2.49	0.81
			Max. My	28	-9590.28	0.03	2.76
			Max. Vy	30	507.20	2.49	0.81
			Max. Vx	20	-612.29	0.04	-2.76
		Diagonal	Max Tension	30	11089.62	0.00	0.00
			Max. Compression	30	-11725.45	0.00	0.00
			Max. Mx	30	5817.79	0.11	0.03
			Max. My	21	-8661.87	0.07	-0.04
			Max. Vy	27	57.12	0.11	0.03
			Max. Vx	21	7.00	0.00	0.00
T6	220 - 200	Leg	Max Tension	22	142484.42	-0.71	-0.30
			Max. Compression	24	-182955.73	1.92	-0.08
			Max. Mx	24	-182955.73	1.92	-0.08
			Max. My	20	-15494.02	-0.15	-2.89
			Max. Vy	32	-2013.41	-1.70	0.04
			Max. Vx	28	1923.89	0.04	0.71
		Diagonal	Max Tension	19	15801.63	0.00	0.00
			Max. Compression	19	-16731.46	0.00	0.00
			Max. Mx	30	8389.14	0.18	0.04
			Max. My	21	-11988.30	0.12	-0.06
			Max. Vy	21	74.02	0.17	-0.04
			Max. Vx	21	8.37	0.00	0.00
T7	200 - 180	Leg	Max Tension	27	190247.01	-1.57	0.02
			Max. Compression	24	-243785.19	4.29	-0.25
			Max. Mx	24	-243785.19	4.29	-0.25
			Max. My	28	-22516.97	0.11	3.53
			Max. Vy	32	-2485.55	-1.59	0.09
			Max. Vx	20	-2396.37	0.11	0.23

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max Tension	30	19198.72	0.00	0.00
			Max. Compression	30	-19639.42	0.00	0.00
			Max. Mx	27	10076.51	0.21	0.04
			Max. My	21	-14745.87	0.15	-0.07
			Max. Vy	27	82.62	0.21	0.04
			Max. Vx	21	9.17	0.00	0.00
T8	180 - 170	Leg	Max Tension	27	214707.50	-3.85	0.58
			Max. Compression	24	-274397.74	1.91	-0.16
			Max. Mx	24	-273006.07	4.29	-0.25
			Max. My	28	-23483.53	0.11	3.53
			Max. Vy	19	547.09	4.28	-0.63
			Max. Vx	30	764.70	-2.00	3.37
		Diagonal	Max Tension	31	20692.79	0.00	0.00
			Max. Compression	30	-21568.99	0.00	0.00
			Max. Mx	27	10972.75	-0.31	-0.07
			Max. My	21	-16798.73	-0.24	0.10
			Max. Vy	27	-120.42	-0.31	-0.07
			Max. Vx	21	-12.55	0.00	0.00
T9	170 - 160	Leg	Max Tension	27	239374.95	-2.11	0.02
			Max. Compression	24	-305606.28	3.80	-0.19
			Max. Mx	24	-305606.28	3.80	-0.19
			Max. My	28	-27225.12	0.17	3.04
			Max. Vy	2	-415.11	3.27	-0.26
			Max. Vx	30	-621.90	-1.67	2.86
		Diagonal	Max Tension	30	21555.81	0.00	0.00
			Max. Compression	30	-22148.95	0.00	0.00
			Max. Mx	27	11244.96	-0.34	-0.07
			Max. My	21	-17433.92	-0.27	0.11
			Max. Vy	27	-126.41	-0.34	-0.07
			Max. Vx	21	-12.75	0.00	0.00
T10	160 - 140	Leg	Max Tension	27	289436.19	-2.44	-0.04
			Max. Compression	24	-369374.77	4.99	-0.41
			Max. Mx	24	-369374.77	4.99	-0.41
			Max. My	26	-24662.31	-0.35	-3.42
			Max. Vy	19	-672.23	4.95	0.06
			Max. Vx	30	852.89	-1.43	3.14
		Diagonal	Max Tension	31	24673.06	0.00	0.00
			Max. Compression	30	-26117.70	0.00	0.00
			Max. Mx	30	12367.62	0.48	0.07
			Max. My	21	-19107.59	0.31	-0.11
			Max. Vy	27	155.50	0.47	0.07
			Max. Vx	21	12.41	0.00	0.00
T11	140 - 120	Leg	Max Tension	27	338572.14	-2.82	0.02
			Max. Compression	24	-433129.26	-3.53	-0.01
			Max. Mx	24	-401206.23	4.99	-0.41
			Max. My	28	-37388.54	-1.14	5.64
			Max. Vy	19	795.17	2.52	-0.01
			Max. Vx	30	-958.30	-1.59	4.44
		Diagonal	Max Tension	31	26235.61	0.00	0.00
			Max. Compression	30	-27492.52	0.00	0.00
			Max. Mx	30	12424.95	0.56	0.09
			Max. My	30	-24814.52	0.26	0.14
			Max. Vy	28	168.74	0.53	0.09
			Max. Vx	22	15.13	0.00	0.00
T12	120 - 100	Leg	Max Tension	27	345994.12	0.60	0.45
			Max. Compression	24	-447089.01	-15.94	-0.85
			Max. Mx	24	-446056.90	20.91	0.80
			Max. My	28	-40815.76	-2.96	12.81
			Max. Vy	24	4289.45	20.91	0.80
			Max. Vx	28	-2614.94	-2.96	12.81
		Diagonal	Max Tension	31	41568.44	-0.26	-0.06

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	30	-45218.14	0.00	0.00
			Max. Mx	31	10943.39	-0.36	0.01
			Max. My	31	-43135.25	-0.14	-0.18
			Max. Vy	31	103.25	-0.36	0.01
			Max. Vx	30	-15.09	-0.10	-0.18
		Horizontal	Max Tension	30	23405.24	-0.24	-0.02
			Max. Compression	30	-24198.63	-0.25	-0.02
			Max. Mx	27	-4538.37	-0.27	-0.04
			Max. My	19	4930.99	-0.15	0.05
			Max. Vy	27	85.23	-0.27	-0.04
			Max. Vx	19	-3.94	-0.15	0.05
		Redund Horz 1 Bracing	Max Tension	24	7759.88	0.00	0.00
			Max. Compression	24	-7759.88	0.00	0.00
			Max. Mx	18	681.41	0.02	0.00
			Max. My	20	6351.32	0.00	-0.00
			Max. Vy	18	13.29	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	24	7040.24	0.00	0.00
			Max. Compression	24	-7040.24	0.00	0.00
			Max. Mx	23	5880.40	0.04	0.00
			Max. My	30	3018.99	0.00	0.00
			Max. Vy	23	-15.58	0.00	0.00
			Max. Vx	30	-0.15	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	23	-97.02	0.00	0.00
			Max. Mx	18	-14.16	0.02	0.00
			Max. My	30	-11.52	0.00	0.00
			Max. Vy	18	-13.29	0.00	0.00
			Max. Vx	30	-0.00	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	23	153.03	0.00	0.00
			Max. Compression	30	-109.21	0.00	0.00
			Max. Mx	24	120.91	0.17	0.00
			Max. My	30	66.26	0.00	0.00
			Max. Vy	24	-44.88	0.00	0.00
			Max. Vx	30	-0.20	0.00	0.00
		Inner Bracing	Max Tension	22	10.04	0.00	0.00
			Max. Compression	23	-41.59	0.00	0.00
			Max. Mx	18	-12.03	0.20	0.00
			Max. My	30	-3.85	0.00	0.00
			Max. Vy	18	-63.64	0.00	0.00
			Max. Vx	30	-0.27	0.00	0.00
T13	100 - 80	Leg	Max Tension	27	385526.82	8.45	2.32
			Max. Compression	24	-500110.04	-18.96	-1.25
			Max. Mx	24	-499341.90	23.68	0.97
			Max. My	28	-42967.26	-2.98	12.80
			Max. Vy	24	4401.47	23.68	0.97
			Max. Vx	28	2436.87	-2.98	12.80
		Diagonal	Max Tension	31	43666.16	-0.29	-0.06
			Max. Compression	30	-48150.47	0.00	0.00
			Max. Mx	31	12425.89	-0.39	0.02
			Max. My	30	-47939.68	-0.12	-0.18
			Max. Vy	31	111.68	-0.39	0.02
			Max. Vx	30	14.40	-0.12	-0.18
		Horizontal	Max Tension	31	25729.29	-0.32	0.00
			Max. Compression	30	-27843.64	-0.36	-0.02
			Max. Mx	27	4333.42	-0.39	-0.04
			Max. My	19	7115.04	-0.25	0.05

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	27	-117.00	-0.39	-0.04
			Max. Vx	19	-3.85	-0.25	0.05
		Redund Horz 1 Bracing	Max Tension	24	8679.04	0.00	0.00
			Max. Compression	24	-8679.04	0.00	0.00
			Max. Mx	18	762.20	0.03	0.00
			Max. My	20	7099.28	0.00	-0.00
			Max. Vy	18	14.64	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	24	7360.68	0.00	0.00
			Max. Compression	24	-7360.68	0.00	0.00
			Max. Mx	23	6140.87	0.06	0.00
			Max. My	30	3692.59	0.00	0.00
			Max. Vy	23	-21.80	0.00	0.00
			Max. Vx	30	0.16	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	23	-98.47	0.00	0.00
			Max. Mx	18	-14.69	0.03	0.00
			Max. My	30	-13.37	0.00	0.00
			Max. Vy	18	-14.64	0.00	0.00
			Max. Vx	30	-0.00	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	23	147.14	0.00	0.00
			Max. Compression	30	-105.39	0.00	0.00
			Max. Mx	24	114.39	0.20	0.00
			Max. My	30	73.53	0.00	0.00
			Max. Vy	24	-49.19	0.00	0.00
			Max. Vx	30	-0.17	0.00	0.00
		Inner Bracing	Max Tension	22	8.33	0.00	0.00
			Max. Compression	19	-42.41	0.00	0.00
			Max. Mx	18	-13.35	0.25	0.00
			Max. My	30	-7.11	0.00	0.00
			Max. Vy	18	-70.11	0.00	0.00
			Max. Vx	30	-0.24	0.00	0.00
T14	80 - 60	Leg	Max Tension	27	428205.25	10.87	2.18
			Max. Compression	24	-556237.12	-17.11	-2.28
			Max. Mx	24	-554791.04	25.61	1.71
			Max. My	28	-50617.69	-4.65	22.75
			Max. Vy	24	-4604.27	25.61	1.72
			Max. Vx	28	-3796.39	-4.65	22.75
		Diagonal	Max Tension	30	42127.65	0.00	0.00
			Max. Compression	30	-46418.58	0.00	0.00
			Max. Mx	31	7055.65	-0.32	-0.01
			Max. My	31	-43409.38	-0.14	-0.22
			Max. Vy	31	88.16	-0.32	-0.01
			Max. Vx	31	16.59	-0.14	-0.22
		Horizontal	Max Tension	31	26190.63	-0.62	0.00
			Max. Compression	30	-28447.30	-0.67	-0.02
			Max. Mx	27	4823.80	-0.71	-0.03
			Max. My	19	7481.08	-0.53	0.04
			Max. Vy	27	-206.84	-0.71	-0.03
			Max. Vx	19	-3.04	-0.53	0.04
		Redund Horz 1 Bracing	Max Tension	24	9655.72	0.00	0.00
			Max. Compression	24	-9655.72	0.00	0.00
			Max. Mx	18	852.16	0.04	0.00
			Max. My	20	7898.30	0.00	-0.00
			Max. Vy	18	20.62	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Redund Diag 1 Bracing	Max Tension	24	7722.07	0.00	0.00
			Max. Compression	24	-7722.07	0.00	0.00
			Max. Mx	23	6438.45	0.07	0.00
			Max. My	30	4783.30	0.00	0.00
			Max. Vy	23	-23.76	0.00	0.00
			Max. Vx	30	-0.13	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	23	-111.64	0.00	0.00
			Max. Mx	18	-12.90	0.03	0.00
			Max. My	30	-6.71	0.00	0.00
			Max. Vy	18	15.95	0.00	0.00
			Max. Vx	30	0.00	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	23	186.20	0.00	0.00
			Max. Compression	30	-140.05	0.00	0.00
			Max. Mx	24	146.38	0.29	0.00
			Max. My	30	82.21	0.00	0.00
			Max. Vy	24	-68.26	0.00	0.00
			Max. Vx	30	-0.17	0.00	0.00
		Inner Bracing	Max Tension	22	5.76	0.00	0.00
			Max. Compression	23	-52.01	0.00	0.00
			Max. Mx	18	-17.31	0.29	0.00
			Max. My	30	-13.37	0.00	0.00
			Max. Vy	18	-76.38	0.00	0.00
			Max. Vx	30	-0.21	0.00	0.00
T15	60 - 30	Leg	Max Tension	27	467883.96	6.70	3.81
			Max. Compression	24	-610763.65	5.01	1.48
			Max. Mx	24	-604154.31	34.94	2.03
			Max. My	20	-56468.59	-2.13	-32.73
			Max. Vy	24	6065.14	34.94	2.03
			Max. Vx	20	4846.99	-2.13	-32.73
		Diagonal	Max Tension	30	59796.67	0.00	0.00
			Max. Compression	30	-65668.46	0.00	0.00
			Max. Mx	27	35122.23	-0.45	0.25
			Max. My	30	-61840.83	0.29	-0.66
			Max. Vy	30	-106.81	-0.32	0.32
			Max. Vx	30	84.38	0.29	-0.66
		Horizontal	Max Tension	30	30864.88	-0.61	-0.03
			Max. Compression	30	-31987.32	-0.62	-0.03
			Max. Mx	27	-6224.33	-0.67	-0.05
			Max. My	19	6963.77	-0.41	0.06
			Max. Vy	27	167.08	-0.67	-0.05
			Max. Vx	19	-3.89	-0.41	0.06
		Redund Horz 1 Bracing	Max Tension	24	10598.38	0.00	0.00
			Max. Compression	24	-10598.38	0.00	0.00
			Max. Mx	18	974.39	0.02	0.00
			Max. My	30	-900.07	0.00	-0.00
			Max. Vy	18	-11.56	0.00	0.00
			Max. Vx	30	0.00	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	24	10598.38	0.00	0.00
			Max. Compression	24	-10598.38	0.00	0.00
			Max. Mx	18	974.39	0.16	0.00
			Max. My	30	10498.14	0.00	0.00
			Max. Vy	18	-59.62	0.00	0.00
			Max. Vx	30	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	24	10695.04	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	24	-10695.04	0.00	0.00
			Max. Mx	23	8910.75	0.05	0.00
			Max. My	30	5682.81	0.00	0.00
			Max. Vy	23	-16.82	0.00	0.00
			Max. Vx	30	0.09	0.00	0.00
		Redund Diag 2 Bracing	Max Tension	24	6935.87	0.00	0.00
			Max. Compression	24	-6935.87	0.00	0.00
			Max. Mx	30	6870.27	0.15	0.00
			Max. My	30	6870.27	0.00	0.00
			Max. Vy	30	-41.14	0.00	0.00
			Max. Vx	30	-0.11	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	19	43.23	0.00	0.00
			Max. Compression	23	-289.49	0.00	0.00
			Max. Mx	18	-6.18	0.02	0.00
			Max. My	23	8.82	0.00	-0.00
			Max. Vy	18	-11.56	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	31	47.74	0.00	0.00
			Max. Compression	27	-95.63	0.00	0.00
			Max. Mx	18	-16.76	0.08	0.00
			Max. My	28	10.26	0.00	0.00
			Max. Vy	18	29.90	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	23	509.76	0.00	0.00
			Max. Compression	30	-240.55	0.00	0.00
			Max. Mx	19	433.43	0.09	0.00
			Max. My	30	-28.05	0.00	0.00
			Max. Vy	19	-26.93	0.00	0.00
			Max. Vx	30	-0.07	0.00	0.00
		Redund Hip Diagonal 2 Bracing	Max Tension	31	191.42	0.00	0.00
			Max. Compression	31	-166.16	0.00	0.00
			Max. Mx	30	142.41	0.18	0.00
			Max. My	20	0.93	0.00	-0.00
			Max. Vy	30	40.24	0.00	0.00
			Max. Vx	20	0.07	0.00	0.00
		Inner Bracing	Max Tension	30	45.67	0.00	0.00
			Max. Compression	30	-80.09	0.00	0.00
			Max. Mx	18	-13.28	0.34	0.00
			Max. My	30	45.66	0.00	0.00
			Max. Vy	18	83.07	0.00	0.00
			Max. Vx	30	0.17	0.00	0.00
T16	30 - 0	Leg	Max Tension	27	528521.20	17.22	6.57
			Max. Compression	24	-693189.26	5.07	1.59
			Max. Mx	24	-690083.84	32.18	2.66
			Max. My	20	-60405.49	-2.13	-32.72
			Max. Vy	24	3335.86	32.18	2.66
			Max. Vx	20	-4554.70	-2.13	-32.72
		Diagonal	Max Tension	30	58443.62	0.00	0.00
			Max. Compression	30	-63188.57	0.00	0.00
			Max. Mx	27	30329.01	-0.43	0.20
			Max. My	30	-60401.75	0.18	-0.59
			Max. Vy	30	-103.44	-0.33	0.28
			Max. Vx	30	71.96	0.18	-0.59
		Horizontal	Max Tension	22	31537.37	0.00	0.00
			Max. Compression	30	-35870.49	-0.80	-0.04
			Max. Mx	27	6034.32	-0.87	-0.07

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	19	10842.02	-0.57	0.08
			Max. Vy	27	-213.11	-0.87	-0.07
			Max. Vx	19	-4.66	-0.57	0.08
		Redund Horz 1 Bracing	Max Tension	24	12031.56	0.00	0.00
			Max. Compression	24	-12031.56	0.00	0.00
			Max. Mx	20	9854.94	0.02	0.00
			Max. Vy	20	-12.84	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	24	12031.56	0.00	0.00
			Max. Compression	24	-12031.56	0.00	0.00
			Max. Mx	32	6057.79	0.18	0.00
			Max. My	22	-808.07	0.00	0.00
			Max. Vy	32	-59.68	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	24	11192.91	0.00	0.00
			Max. Compression	24	-11192.91	0.00	0.00
			Max. Mx	30	11088.50	0.06	0.00
			Max. My	30	2553.42	0.00	0.00
			Max. Vy	30	-21.66	0.00	0.00
			Max. Vx	30	-0.06	0.00	0.00
		Redund Diag 2 Bracing	Max Tension	24	7519.96	0.00	0.00
			Max. Compression	24	-7519.96	0.00	0.00
			Max. Mx	30	7449.81	0.18	0.00
			Max. My	30	7449.81	0.00	0.00
			Max. Vy	30	-45.74	0.00	0.00
			Max. Vx	30	-0.06	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	19	35.80	0.00	0.00
			Max. Compression	23	-256.40	0.00	0.00
			Max. Mx	18	-8.82	0.02	0.00
			Max. Vy	18	-12.84	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	31	37.95	0.00	0.00
			Max. Compression	22	-82.50	0.00	0.00
			Max. Mx	18	-18.01	0.10	0.00
			Max. My	20	-75.42	0.00	0.00
			Max. Vy	18	-33.20	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	23	440.66	0.00	0.00
			Max. Compression	30	-231.02	0.00	0.00
			Max. Mx	19	377.67	0.16	0.00
			Max. My	21	351.16	0.00	-0.00
			Max. Vy	19	-43.33	0.00	0.00
			Max. Vx	21	0.05	0.00	0.00
		Redund Hip Diagonal 2 Bracing	Max Tension	31	172.30	0.00	0.00
			Max. Compression	31	-158.91	0.00	0.00
			Max. Mx	30	131.26	0.31	0.00
			Max. My	28	125.47	0.00	0.00
			Max. Vy	30	-64.81	0.00	0.00
			Max. Vx	28	0.04	0.00	0.00
		Inner Bracing	Max Tension	22	35.09	0.00	0.00
			Max. Compression	30	-81.65	0.00	0.00
			Max. Mx	18	-16.87	0.42	0.00
			Max. My	30	30.99	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	18	-92.24	0.00	0.00
			Max. Vx	30	-0.11	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	30	759400.64	88532.48	-40576.65
	Max. H_x	30	759400.64	88532.48	-40576.65
	Max. H_z	21	-563246.66	-69989.39	34229.31
	Min. Vert	22	-578809.38	-73533.41	32347.35
	Min. H_x	22	-578809.38	-73533.41	32347.35
	Min. H_z	30	759400.64	88532.48	-40576.65
Leg B	Max. Vert	24	766053.91	-85785.40	-45966.97
	Max. H_x	32	-576358.85	70747.85	37459.83
	Max. H_z	34	-501942.07	56340.16	42687.99
	Min. Vert	32	-576358.85	70747.85	37459.83
	Min. H_x	24	766053.91	-85785.40	-45966.97
	Min. H_z	26	638079.95	-65535.21	-47227.25
Leg A	Max. Vert	19	757018.34	6040.22	97020.62
	Max. H_x	33	520590.80	8663.26	65945.56
	Max. H_z	19	757018.34	6040.22	97020.62
	Min. Vert	27	-583461.57	-5819.35	-80039.51
	Min. H_x	24	-289549.00	-9610.30	-40854.08
	Min. H_z	27	-583461.57	-5819.35	-80039.51

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	141290.45	-0.00	-0.00	51.66	-25.29	0.00
Dead+Wind 0 deg - No Ice	141290.29	-209.67	-134197.32	-20649.64	15.66	218.52
Dead+Wind 30 deg - No Ice	141290.33	61675.53	-107052.30	-16485.02	-9547.70	308.12
Dead+Wind 45 deg - No Ice	141290.34	86097.60	-86112.94	-13251.74	-13326.59	326.87
Dead+Wind 60 deg - No Ice	141290.34	104013.63	-59943.43	-9208.40	-16102.40	322.87
Dead+Wind 90 deg - No Ice	141290.33	123712.96	206.90	92.67	-19140.50	269.51
Dead+Wind 120 deg - No Ice	141290.29	116304.80	67279.03	10438.21	-17970.51	146.84
Dead+Wind 135 deg - No Ice	141290.32	86391.75	86407.28	13413.63	-13384.03	48.12
Dead+Wind 150 deg - No Ice	141290.33	62036.28	107261.59	16630.18	-9618.25	-38.58
Dead+Wind 180 deg - No Ice	141290.34	208.11	120246.60	18643.65	-66.54	-194.04
Dead+Wind 210 deg - No Ice	141290.32	-61675.71	107052.14	16589.13	9496.20	-308.11
Dead+Wind 225 deg - No Ice	141290.32	-86097.08	86111.34	13355.56	13275.05	-326.86
Dead+Wind 240 deg - No Ice	141290.29	-116096.30	66916.66	10367.07	17878.57	-365.37
Dead+Wind 270 deg - No Ice	141290.33	-123712.93	-210.82	10.43	19089.71	-269.51
Dead+Wind 300 deg - No Ice	141290.34	-104222.85	-60304.65	-9279.68	16092.70	-128.82
Dead+Wind 315 deg - No Ice	141290.34	-86393.70	-86407.67	-13309.96	13333.90	-48.12
Dead+Wind 330 deg - No Ice	141290.33	-62038.46	-107260.59	-16526.20	9568.05	38.59
Dead+Ice+Temp	191606.33	-0.01	-0.01	135.74	-92.33	-0.00
Dead+Wind 0 deg+Ice+Temp	191606.02	-219.77	-160185.46	-24425.61	-50.03	437.94
Dead+Wind 30 deg+Ice+Temp	191606.08	75092.14	-130301.39	-19887.54	-11627.40	592.35
Dead+Wind 45 deg+Ice+Temp	191606.10	105178.23	-105195.25	-16033.67	-16260.28	618.56

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
Dead+Wind 60 deg+Ice+Temp	191606.11	127510.60	-73505.86	-11164.23	-19704.90	602.28
Dead+Wind 90 deg+Ice+Temp	191606.08	150563.15	214.55	178.38	-23235.04	476.52
Dead+Wind 120 deg+Ice+Temp	191606.01	138815.73	80280.54	12453.93	-21381.63	223.68
Dead+Wind 135 deg+Ice+Temp	191606.06	105485.32	105501.18	16366.45	-16319.67	47.20
Dead+Wind 150 deg+Ice+Temp	191606.07	75468.59	130519.41	20203.08	-11700.40	-115.81
Dead+Wind 180 deg+Ice+Temp	191606.11	216.13	147384.51	22811.00	-135.39	-399.17
Dead+Wind 210 deg+Ice+Temp	191606.08	-75093.78	130300.23	20160.41	11441.07	-592.35
Dead+Wind 225 deg+Ice+Temp	191606.07	-105178.76	105191.56	16306.08	16073.90	-618.55
Dead+Wind 240 deg+Ice+Temp	191606.02	-138598.64	79901.61	12380.03	21153.58	-661.64
Dead+Wind 270 deg+Ice+Temp	191606.08	-150563.29	-221.43	92.88	23049.79	-476.52
Dead+Wind 300 deg+Ice+Temp	191606.11	-127729.67	-73882.08	-11238.38	19562.38	-203.11
Dead+Wind 315 deg+Ice+Temp	191606.10	-105488.40	-105501.93	-16094.24	16135.40	-47.20
Dead+Wind 330 deg+Ice+Temp	191606.08	-75472.34	-130517.97	-19930.39	11516.02	115.81
Dead+Wind 0 deg - Service	141290.29	-209.67	-134197.32	-20649.64	15.66	218.52
Dead+Wind 30 deg - Service	141290.33	61675.53	-107052.30	-16485.02	-9547.70	308.12
Dead+Wind 45 deg - Service	141290.34	86097.60	-86112.94	-13251.74	-13326.59	326.87
Dead+Wind 60 deg - Service	141290.34	104013.63	-59943.43	-9208.40	-16102.40	322.87
Dead+Wind 90 deg - Service	141290.33	123712.96	206.90	92.67	-19140.50	269.51
Dead+Wind 120 deg - Service	141290.29	116304.80	67279.03	10438.21	-17970.51	146.84
Dead+Wind 135 deg - Service	141290.32	86391.75	86407.28	13413.63	-13384.03	48.12
Dead+Wind 150 deg - Service	141290.33	62036.28	107261.59	16630.18	-9618.25	-38.58
Dead+Wind 180 deg - Service	141290.34	208.11	120246.60	18643.65	-66.54	-194.04
Dead+Wind 210 deg - Service	141290.32	-61675.71	107052.14	16589.13	9496.20	-308.11
Dead+Wind 225 deg - Service	141290.32	-86097.08	86111.34	13355.56	13275.05	-326.86
Dead+Wind 240 deg - Service	141290.29	-116096.30	66916.66	10367.07	17878.57	-365.37
Dead+Wind 270 deg - Service	141290.33	-123712.93	-210.82	10.43	19089.71	-269.51
Dead+Wind 300 deg - Service	141290.34	-104222.85	-60304.65	-9279.68	16092.70	-128.82
Dead+Wind 315 deg - Service	141290.34	-86393.70	-86407.67	-13309.96	13333.90	-48.12
Dead+Wind 330 deg - Service	141290.33	-62038.46	-107260.59	-16526.20	9568.05	38.59

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	-0.00	-141290.45	-0.00	0.00	141290.45	0.00	0.000%
2	-208.88	-141290.45	-134217.56	209.67	141290.29	134197.32	0.010%
3	61684.46	-141290.45	-107067.52	-61675.53	141290.33	107052.30	0.009%
4	86109.68	-141290.45	-86124.41	-86097.60	141290.34	86112.94	0.009%
5	104028.21	-141290.45	-59950.53	-104013.63	141290.34	59943.43	0.009%
6	123730.70	-141290.45	208.88	-123712.96	141290.33	-206.90	0.010%
7	116322.22	-141290.45	67289.67	-116304.80	141290.29	-67279.03	0.010%
8	86405.08	-141290.45	86419.80	-86391.75	141290.32	-86407.28	0.010%
9	62046.24	-141290.45	107276.40	-62036.28	141290.33	-107261.59	0.009%
10	208.88	-141290.45	120262.84	-208.11	141290.34	-120246.60	0.009%
11	-61684.46	-141290.45	107067.52	61675.71	141290.32	-107052.14	0.009%
12	-86109.68	-141290.45	86124.41	86097.08	141290.32	-86111.34	0.010%
13	-116113.35	-141290.45	66927.89	116096.30	141290.29	-66916.66	0.010%
14	-123730.70	-141290.45	-208.88	123712.93	141290.33	210.82	0.010%
15	-104237.08	-141290.45	-60312.31	104222.85	141290.34	60304.65	0.009%
16	-86405.08	-141290.45	-86419.80	86393.70	141290.34	86407.67	0.009%
17	-62046.24	-141290.45	-107276.40	62038.46	141290.33	107260.59	0.009%
18	-0.00	-191606.33	0.00	0.01	191606.33	0.01	0.000%
19	-217.95	-191606.33	-160218.16	219.77	191606.02	160185.46	0.013%
20	75107.76	-191606.33	-130326.31	-75092.14	191606.08	130301.39	0.012%
21	105199.33	-191606.33	-105213.95	-105178.23	191606.10	105195.25	0.012%
22	127535.83	-191606.33	-73517.35	-127510.60	191606.11	73505.86	0.011%
23	150593.02	-191606.33	217.95	-150563.15	191606.08	-214.55	0.012%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
24	138844.07	-191606.33	80297.83	-138815.73	191606.01	-80280.54	0.013%
25	105507.56	-191606.33	105522.18	-105485.32	191606.06	-105501.18	0.013%
26	75485.26	-191606.33	130544.26	-75468.59	191606.07	-130519.41	0.012%
27	217.95	-191606.33	147412.20	-216.13	191606.11	-147384.51	0.011%
28	-75107.76	-191606.33	130326.31	75093.78	191606.08	-130300.23	0.012%
29	-105199.33	-191606.33	105213.95	105178.76	191606.07	-105191.56	0.013%
30	-138626.12	-191606.33	79920.33	138598.64	191606.02	-79901.61	0.013%
31	-150593.02	-191606.33	-217.95	150563.29	191606.08	221.43	0.012%
32	-127753.79	-191606.33	-73894.85	127729.67	191606.11	73882.08	0.011%
33	-105507.56	-191606.33	-105522.18	105488.40	191606.10	105501.93	0.011%
34	-75485.26	-191606.33	-130544.26	75472.34	191606.08	130517.97	0.012%
35	-208.88	-141290.45	-134217.56	209.67	141290.29	134197.32	0.010%
36	61684.46	-141290.45	-107067.52	-61675.53	141290.33	107052.30	0.009%
37	86109.68	-141290.45	-86124.41	-86097.60	141290.34	86112.94	0.009%
38	104028.21	-141290.45	-59950.53	-104013.63	141290.34	59943.43	0.009%
39	123730.70	-141290.45	208.88	-123712.96	141290.33	-206.90	0.010%
40	116322.22	-141290.45	67289.67	-116304.80	141290.29	-67279.03	0.010%
41	86405.08	-141290.45	86419.80	-86391.75	141290.32	-86407.28	0.010%
42	62046.24	-141290.45	107276.40	-62036.28	141290.33	-107261.59	0.009%
43	208.88	-141290.45	120262.84	-208.11	141290.34	-120246.60	0.009%
44	-61684.46	-141290.45	107067.52	61675.71	141290.32	-107052.14	0.009%
45	-86109.68	-141290.45	86124.41	86097.08	141290.32	-86111.34	0.010%
46	-116113.35	-141290.45	66927.89	116096.30	141290.29	-66916.66	0.010%
47	-123730.70	-141290.45	-208.88	123712.93	141290.33	210.82	0.010%
48	-104237.08	-141290.45	-60312.31	104222.85	141290.34	60304.65	0.009%
49	-86405.08	-141290.45	-86419.80	86393.70	141290.34	86407.67	0.009%
50	-62046.24	-141290.45	-107276.40	62038.46	141290.33	107260.59	0.009%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00021166	0.00043039
3	Yes	4	0.00019707	0.00040082
4	Yes	4	0.00018733	0.00038098
5	Yes	4	0.00018408	0.00037436
6	Yes	4	0.00019847	0.00040359
7	Yes	4	0.00021181	0.00043074
8	Yes	4	0.00020656	0.00042005
9	Yes	4	0.00019768	0.00040202
10	Yes	4	0.00018367	0.00037353
11	Yes	4	0.00019688	0.00040036
12	Yes	4	0.00020648	0.00041974
13	Yes	4	0.00021302	0.00043304
14	Yes	4	0.00019939	0.00040537
15	Yes	4	0.00018347	0.00037309
16	Yes	4	0.00018683	0.00037995
17	Yes	4	0.00019668	0.00039996
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00028792	0.00058668
20	Yes	4	0.00026989	0.00055007
21	Yes	4	0.00025866	0.00052722
22	Yes	4	0.00025519	0.00052014
23	Yes	4	0.00027302	0.00055640
24	Yes	4	0.00028793	0.00058670

25	Yes	4	0.00028157	0.00057394
26	Yes	4	0.00027069	0.00055174
27	Yes	4	0.00025374	0.00051714
28	Yes	4	0.00027014	0.00055029
29	Yes	4	0.00028298	0.00057638
30	Yes	4	0.00029143	0.00059337
31	Yes	4	0.00027431	0.00055896
32	Yes	4	0.00025252	0.00051497
33	Yes	4	0.00025646	0.00052302
34	Yes	4	0.00026901	0.00054853
35	Yes	4	0.00021166	0.00043039
36	Yes	4	0.00019707	0.00040082
37	Yes	4	0.00018733	0.00038098
38	Yes	4	0.00018408	0.00037436
39	Yes	4	0.00019847	0.00040359
40	Yes	4	0.00021181	0.00043074
41	Yes	4	0.00020656	0.00042005
42	Yes	4	0.00019768	0.00040202
43	Yes	4	0.00018367	0.00037353
44	Yes	4	0.00019688	0.00040036
45	Yes	4	0.00020648	0.00041974
46	Yes	4	0.00021302	0.00043304
47	Yes	4	0.00019939	0.00040537
48	Yes	4	0.00018347	0.00037309
49	Yes	4	0.00018683	0.00037995
50	Yes	4	0.00019668	0.00039996

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	320 - 300	17.080	40	0.3960	0.2502
T2	300 - 280	15.402	40	0.3912	0.2505
T3	280 - 260	13.748	40	0.3793	0.2417
T4	260 - 240	12.120	40	0.3715	0.2259
T5	240 - 220	10.515	40	0.3590	0.2041
T6	220 - 200	8.979	40	0.3406	0.1867
T7	200 - 180	7.526	40	0.3165	0.1728
T8	180 - 170	6.151	40	0.2919	0.1566
T9	170 - 160	5.513	40	0.2777	0.1500
T10	160 - 140	4.903	40	0.2626	0.1433
T11	140 - 120	3.790	40	0.2293	0.1315
T12	120 - 100	2.815	40	0.1932	0.1189
T13	100 - 80	2.017	40	0.1576	0.0990
T14	80 - 60	1.372	40	0.1209	0.0824
T15	60 - 30	0.844	40	0.0883	0.0632
T16	30 - 0	0.287	35	0.0400	0.0305

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
325.00	Dual Lights	40	17.080	0.3960	0.2502	637440
322.00	PD128-1	40	17.080	0.3960	0.2502	637440

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
320.00	6' Side Mount Standoff	40	17.080	0.3960	0.2502	637440
318.00	BA1012-0	40	16.912	0.3957	0.2504	637440
316.50	ANT450F6	40	16.786	0.3955	0.2506	637440
315.00	6' Side Mount Standoff	40	16.660	0.3953	0.2507	637440
311.50	4'x4" Pipe Mount	40	16.365	0.3947	0.2510	374967
297.00	SC479-HF1LDF	40	15.152	0.3896	0.2498	159938
293.00	6' Side Mount Standoff	40	14.820	0.3873	0.2484	159707
290.00	PD340-1	40	14.571	0.3853	0.2472	159855
285.00	DB809T3E-XC	40	14.159	0.3821	0.2446	160104
284.50	6' Side Mount Standoff	40	14.117	0.3818	0.2444	160134
284.00	6' Side Mount Standoff	40	14.076	0.3815	0.2441	160195
283.00	SC479-HF1LDF	40	13.994	0.3809	0.2435	160535
261.50	PD440-2	40	12.241	0.3721	0.2274	400070
261.00	SC479-HF1LDF(D00-E6085)	40	12.201	0.3719	0.2269	397311
248.00	PD1142-1	40	11.151	0.3648	0.2129	95064
246.00	SC479-HF1LDF(D00I-E6085) (Inverted)	40	10.991	0.3634	0.2107	83087
244.00	PD1142-1	40	10.832	0.3620	0.2084	73812
235.00	531-70HD Exposed Dipole Antenna	40	10.123	0.3550	0.1991	58117
220.00	Valmont VFA-10-U V-Frame	40	8.979	0.3406	0.1867	53679
200.00	PiROD 12' Lightweight T-Frame	40	7.526	0.3165	0.1728	80912
176.00	DB586-Y	40	5.892	0.2864	0.1539	35709
174.00	DB586-Y (inverted)	40	5.765	0.2836	0.1526	40337
164.00	L-810 Obstruction Lighting (1)	40	5.143	0.2687	0.1460	36985
153.00	ANT450F6	40	4.497	0.2514	0.1389	33255
145.00	Commscope PAR6-59W-PXA/A	40	4.055	0.2380	0.1343	37274
137.00	PD156S	40	3.634	0.2240	0.1299	36586
134.00	DB212-1	40	3.481	0.2186	0.1283	33633
120.00	HPD3-4.7	40	2.815	0.1932	0.1189	24896
113.00	Andrew 2' w/Radome	40	2.515	0.1808	0.1123	26317
106.00	PA8-65	40	2.238	0.1684	0.1050	28769
105.00	PD458	40	2.200	0.1666	0.1040	29158
103.00	PD688S-4	40	2.126	0.1631	0.1019	29969
91.00	PD688S-4	40	1.711	0.1409	0.0912	36476

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	320 - 300	20.524	24	0.4804	0.4306
T2	300 - 280	18.487	24	0.4742	0.4303
T3	280 - 260	16.482	24	0.4589	0.4150
T4	260 - 240	14.512	24	0.4489	0.3891
T5	240 - 220	12.574	24	0.4331	0.3542
T6	220 - 200	10.722	24	0.4102	0.3261
T7	200 - 180	8.977	24	0.3805	0.3031
T8	180 - 170	7.328	24	0.3504	0.2766
T9	170 - 160	6.564	24	0.3331	0.2659
T10	160 - 140	5.834	24	0.3148	0.2548
T11	140 - 120	4.502	24	0.2746	0.2352
T12	120 - 100	3.338	24	0.2312	0.2139
T13	100 - 80	2.391	24	0.1884	0.1796
T14	80 - 60	1.625	24	0.1443	0.1494
T15	60 - 30	0.998	19	0.1054	0.1146
T16	30 - 0	0.340	19	0.0477	0.0553

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
325.00	Dual Lights	24	20.524	0.4804	0.4306	494559
322.00	PD128-1	24	20.524	0.4804	0.4306	494559
320.00	6' Side Mount Standoff	24	20.524	0.4804	0.4306	494559
318.00	BA1012-0	24	20.319	0.4801	0.4309	494559
316.50	ANT450F6	24	20.166	0.4798	0.4312	494559
315.00	6' Side Mount Standoff	24	20.013	0.4795	0.4314	494559
311.50	4'x4" Pipe Mount	24	19.656	0.4787	0.4317	290917
297.00	SC479-HF1LDF	24	18.184	0.4722	0.4290	123405
293.00	6' Side Mount Standoff	24	17.781	0.4691	0.4266	122359
290.00	PD340-1	24	17.479	0.4667	0.4244	121819
285.00	DB809T3E-XC	24	16.979	0.4626	0.4200	120929
284.50	6' Side Mount Standoff	24	16.930	0.4622	0.4195	120844
284.00	6' Side Mount Standoff	24	16.880	0.4618	0.4190	120782
283.00	SC479-HF1LDF	24	16.780	0.4610	0.4180	120622
261.50	PD440-2	24	14.659	0.4498	0.3915	261787
261.00	SC479-HF1LDF(D00-E6085)	24	14.610	0.4495	0.3907	260511
248.00	PD1142-1	24	13.342	0.4404	0.3682	74945
246.00	SC479-HF1LDF(D00I-E6085) (Inverted)	24	13.149	0.4387	0.3646	66126
244.00	PD1142-1	24	12.956	0.4369	0.3611	59180
235.00	531-70HD Exposed Dipole Antenna	24	12.101	0.4281	0.3462	46642
220.00	Valmont VFA-10-U V-Frame	24	10.722	0.4102	0.3261	42063
200.00	PiROD 12' Lightweight T-Frame	24	8.977	0.3805	0.3031	64767
176.00	DB586-Y	24	7.018	0.3437	0.2722	29453
174.00	DB586-Y (inverted)	24	6.865	0.3402	0.2701	33216
164.00	L-810 Obstruction Lighting (1)	24	6.121	0.3222	0.2592	30471
153.00	ANT450F6	24	5.349	0.3012	0.2474	27550
145.00	Commscope PAR6-59W-PXA/A	24	4.820	0.2851	0.2397	31028
137.00	PD156S	24	4.316	0.2682	0.2325	30339
134.00	DB212-1	24	4.133	0.2617	0.2297	27724
120.00	HPD3-4.7	24	3.338	0.2312	0.2139	20195
113.00	Andrew 2' w/Radome	24	2.982	0.2163	0.2026	21621
106.00	PA8-65	24	2.653	0.2014	0.1901	24076
105.00	PD458	24	2.608	0.1992	0.1883	24473
103.00	PD688S-4	24	2.520	0.1949	0.1847	25303
91.00	PD688S-4	24	2.028	0.1683	0.1656	30940

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	320	Leg	A325N	1.0000	6	1157.21	34557.50	0.033 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.6250	1	1583.87	3874.22	0.409 ✔	1.333	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T2	300	Leg	A325N	1.0000	8	2713.77	34557.40	0.079 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.6250	1	3912.95	6071.88	0.644 ✓	1.333	Member Block Shear
T3	280	Leg	A325N	1.0000	8	5357.16	34557.20	0.155 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	5657.57	7975.00	0.709 ✓	1.333	Member Block Shear
T4	260	Leg	A325N	1.0000	8	8732.24	34556.90	0.253 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	8749.91	9140.63	0.957 ✓	1.333	Member Bearing
T5	240	Leg	A325N	1.0000	8	13069.70	34557.40	0.378 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	11089.60	11425.80	0.971 ✓	1.333	Member Bearing
T6	220	Leg	A325N	1.0000	12	11873.70	34557.50	0.344 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	16731.50	13253.60	1.262 ✓	1.333	Bolt Shear
T7	200	Leg	A325N	1.0000	12	15853.90	34557.40	0.459 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.8750	1	19198.70	15996.10	1.200 ✓	1.333	Member Bearing
T8	180	Leg	A325N	1.0000	12	17892.30	34557.40	0.518 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.8750	1	20692.80	21328.10	0.970 ✓	1.333	Member Bearing
T9	170	Diagonal	A325X	0.8750	1	21555.80	21328.10	1.011 ✓	1.333	Member Bearing
T10	160	Leg	A325N	1.0000	12	24119.70	34557.40	0.698 ✓	1.333	Bolt Tension
		Diagonal	A490X	0.8750	1	24673.10	21328.10	1.157 ✓	1.333	Member Bearing
T11	140	Leg	A325N	1.0000	12	28214.30	34557.40	0.816 ✓	1.333	Bolt Tension
		Diagonal	A490X	0.8750	1	26235.60	21328.10	1.230 ✓	1.333	Member Bearing
T12	120	Leg	A325N	1.0000	12	28741.30	34553.50	0.832 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.7500	3	15072.70	13253.60	1.137 ✓	1.333	Bolt Shear
		Horizontal	A325X	0.7500	2	12099.30	13253.60	0.913 ✓	1.333	Bolt Shear
T13	100	Leg	A325N	1.0000	16	24023.50	34555.40	0.695 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.7500	3	16050.20	13253.60	1.211 ✓	1.333	Bolt Shear
		Horizontal	A325X	0.7500	2	13921.80	13253.60	1.050 ✓	1.333	Bolt Shear
T14	80	Leg	A325N	1.0000	16	26681.00	34555.70	0.772 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.7500	3	15472.90	13253.60	1.167 ✓	1.333	Bolt Shear
		Horizontal	A325X	0.7500	2	14223.70	13253.60	1.073 ✓	1.333	Bolt Shear
T15	60	Leg	A325N	1.0000	16	28604.30	34552.80	0.828 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.8750	3	21889.50	18039.60	1.213 ✓	1.333	Bolt Shear
		Horizontal	A325X	0.7500	2	15993.70	13253.60	1.207 ✓	1.333	Bolt Shear
T16	30	Leg	A325N	1.0000	24	21696.00	34556.90	0.628 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.8750	3	21062.90	18039.60	1.168 ✓	1.333	Bolt Shear
		Horizontal	A490X	0.7500	2	17935.20	17671.50	1.015 ✓	1.333	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	320 - 300	ROHN 5 EH	20.00	4.00	26.1 K=1.00	27.622	6.1120	-9269.38	168822.00	0.055 ✔
T2	300 - 280	ROHN 6 EH	20.03	5.01	27.4 K=1.00	27.470	8.4049	-27469.70	230886.00	0.119 ✔
T3	280 - 260	ROHN 8 EH w/ angle 8x8x0.5	20.04	6.68	27.0 K=1.00	27.519	20.5036	-54205.50	564236.00	0.096 ✔
T4	260 - 240	ROHN 8 EH w/ angle 8x8x0.5	20.03	6.68	27.0 K=1.00	27.520	20.5036	-89457.20	564253.00	0.159 ✔
T5	240 - 220	ROHN 8 EH w/ angle 8x8x0.5	20.03	6.68	27.0 K=1.00	27.520	20.5036	-133439.00	564256.00	0.236 ✔
T6	220 - 200	ROHN 8 EH w/ angle 8x8x0.5	20.03	10.02	40.4 K=1.00	25.769	20.5036	-182956.00	528360.00	0.346 ✔
T7	200 - 180	ROHN 10 EH w/ angle 8x8x0.5	20.04	10.02	34.6 K=1.00	26.561	23.8453	-243785.00	633353.00	0.385 ✔
T8	180 - 170	ROHN 10 EH w/ angle 8x8x0.5	10.02	10.02	34.6 K=1.00	26.561	23.8453	-274398.00	633363.00	0.433 ✔
T9	170 - 160	ROHN 10 EH w/ angle 8x8x0.5	10.02	10.02	34.6 K=1.00	26.561	23.8453	-305606.00	633363.00	0.483 ✔
T10	160 - 140	ROHN 10 EH w/ angle 8x8x0.5	20.03	10.02	34.6 K=1.00	26.563	23.8453	-369375.00	633393.00	0.583 ✔
T11	140 - 120	ROHN 10 EH w/ angle 8x8x0.5	20.04	10.02	34.6 K=1.00	26.561	23.8453	-433129.00	633344.00	0.684 ✔
T12	120 - 100	ROHN 10 EH w/ angle 8x8x0.5	20.06	10.03	34.7 K=1.00	26.557	23.8453	-447089.00	633258.00	0.706 ✔
T13	100 - 80	ROHN 10 EH w/ angle 8x8x0.5	20.05	10.03	34.7 K=1.00	26.558	23.8453	-500110.00	633276.00	0.790 ✔
T14	80 - 60	ROHN 12 EH w/ angle 8x8x0.5	20.06	10.03	29.9 K=1.00	27.163	26.9670	-556237.00	732498.00	0.759 ✔
T15	60 - 30	ROHN 12 EH w/ angle 8x8x0.5	30.07	10.02	29.9 K=1.00	27.165	26.9670	-610764.00	732546.00	0.834 ✔
T16	30 - 0	ROHN 12 EHS w Angle 8x8x0.625	30.08	10.03	30.2 K=1.00	27.128	33.3120	-693189.00	903675.00	0.767 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	320 - 300	L1 3/4x1 3/4x3/16	7.90	3.56	124.4 K=1.00	9.644	0.6211	-1613.17	5989.57	0.269 ✔
T2	300 - 280	L2x2x1/4	9.94	4.68	143.7 K=1.00	7.236	0.9380	-3951.58	6787.70	0.582 ✔
T3	280 - 260	L2 1/2x2 1/2x1/4	12.59	5.83	142.4 K=1.00	7.359	1.1900	-5697.94	8757.44	0.651 ✔
T4	260 - 240	L3x3x1/4	14.38	6.72	136.3 K=1.00	8.036	1.4400	-9259.72	11572.50	0.800 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	240 - 220	L4x4x5/16	16.19	7.64	116.9 K=1.01	10.928	2.4000	-11725.40	26227.20	0.447 ✔
T6	220 - 200	L4x4x3/8	19.37	9.30	141.7 K=1.00	7.440	2.8600	-16731.50	21278.20	0.786 ✔
T7	200 - 180	L4x4x3/8	21.20	10.21	155.6 K=1.00	6.171	2.8600	-19639.40	17649.80	1.113 ✔
T8	180 - 170	2L4x4x1/4	22.13	10.68	102.5 K=1.00	13.501	3.8800	-21569.00	52381.80	0.412 ✔
T9	170 - 160	2L4x4x1/4	23.06	11.15	107.0 K=1.00	12.723	3.8800	-22149.00	49366.20	0.449 ✔
T10	160 - 140	L5x5x1/2	24.84	12.01	146.6 K=1.00	6.944	4.7500	-26117.70	32982.90	0.792 ✔
T11	140 - 120	L5x5x1/2	26.78	13.03	159.0 K=1.00	5.905	4.7500	-27492.50	28050.10	0.980 ✔
T12	120 - 100	ROHN 3 XXS	24.42	12.21	139.9 K=1.00	7.628	5.4664	-45218.10	41697.80	1.084 ✔
T13	100 - 80	ROHN 3 XXS	25.15	12.58	144.1 K=1.00	7.188	5.4664	-48150.50	39292.60	1.225 ✔
T14	80 - 60	ROHN 3.5 EH	25.98	12.99	119.3 K=1.00	10.489	3.6784	-46418.60	38584.10	1.203 ✔
T15	60 - 30	ROHN 4 X-STR	35.21	11.74	95.4 K=1.00	15.759	4.4074	-65668.50	69454.90	0.945 ✔
T16	30 - 0	ROHN 4 X-STR	36.27	12.09	98.2 K=1.00	15.112	4.4074	-63188.60	66603.40	0.949 ✔

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T12	120 - 100	ROHN 3 STD	25.39	12.22	126.1 K=1.00	9.397	2.2285	-24198.60	20940.60	1.156 ✔
T13	100 - 80	ROHN 3 X-STR	27.97	13.51	142.7 K=1.00	7.333	3.0159	-27843.60	22114.60	1.259 ✔
T14	80 - 60	ROHN 3 XXS	30.47	14.76	169.2 K=1.00	5.216	5.4664	-28447.30	28511.00	0.998 ✔
T15	60 - 30	ROHN 3.5 EH	33.14	16.04	147.3 K=1.00	6.883	3.6784	-31987.30	25317.10	1.263 ✔
T16	30 - 0	ROHN 4 X-STR	36.80	17.87	145.2 K=1.00	7.082	4.4074	-35870.50	31213.80	1.149 ✔

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	320 - 300	L1 3/4x1 3/4x3/16	6.81	6.35	182.6	4.480	0.6211	-120.21	2782.55	0.043

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	300 - 280	L2x2x1/4	6.81	6.35	K=0.82 166.0 K=0.85	5.420	0.9380	-43.43	5084.03	0.009

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T12	120 - 100	ROHN 1.5 STD	6.35	5.88	113.3 K=1.00	11.642	0.7995	-7759.88	9307.32	0.834
T13	100 - 80	P1.5x.145	6.99	6.52	125.7 K=1.00	9.453	0.7995	-8679.04	7557.21	1.148
T14	80 - 60	ROHN 2 STD	7.62	7.09	108.0 K=1.00	12.795	1.0745	-9655.72	13748.80	0.702
T15	60 - 30	ROHN 1.5 STD	5.52	4.99	96.2 K=1.00	15.570	0.7995	-10598.40	12447.10	0.851
T16	30 - 0	P1.5x.145	6.13	5.60	108.0 K=1.00	12.809	0.7995	-12031.60	10240.10	1.175

Redundant Horizontal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T15	60 - 30	ROHN 2 XXS	11.05	10.52	179.6 K=1.00	4.630	2.6559	-10598.40	12298.10	0.862
T16	30 - 0	ROHN 2.5 EH	12.27	11.74	152.4 K=1.00	6.430	2.2535	-12031.60	14489.40	0.830

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T12	120 - 100	ROHN 2 STD	11.52	10.57	161.1 K=1.00	5.753	1.0745	-7040.24	6182.24	1.139
T13	100 - 80	ROHN 2 EH	11.86	10.98	171.6 K=1.00	5.073	1.4807	-7360.68	7511.82	0.980
T14	80 - 60	ROHN 2 EH	12.18	11.36	177.4 K=1.00	4.744	1.4807	-7722.07	7024.14	1.099
T15	60 - 30	ROHN 2 EH	11.15	9.95	155.3 K=1.00	6.188	1.4807	-10695.00	9163.02	1.167
T16	30 - 0	ROHN 2.5 STD	11.41	10.31	130.6	8.759	1.7040	-11192.90	14925.40	0.750

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
					K=1.00					✔

Redundant Diagonal (2) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
T15	60 - 30	ROHN 2.5 STD	14.46	13.72	173.8 K=1.00	4.943	1.7040	-6935.87	8422.85	0.823 ✔
T16	30 - 0	ROHN 2.5 STD	15.33	14.63	185.3 K=1.00	4.347	1.7040	-7519.96	7407.72	1.015 ✔

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
T12	120 - 100	ROHN 1.5 STD	6.35	6.35	122.3 K=1.00	9.977	0.7995	-97.02	7976.22	0.012 ✔
T13	100 - 80	ROHN 1.5 STD	6.99	6.99	134.8 K=1.00	8.221	0.7995	-98.47	6572.60	0.015 ✔
T14	80 - 60	ROHN 1.5 STD	7.62	7.62	146.8 K=1.00	6.928	0.7995	-111.64	5538.31	0.020 ✔
T15	60 - 30	ROHN 1.5 STD	5.52	5.52	106.5 K=1.00	13.175	0.7995	-289.49	10533.10	0.027 ✔
T16	30 - 0	ROHN 1.5 STD	6.13	6.13	118.2 K=1.00	10.686	0.7995	-256.40	8542.98	0.030 ✔

Redundant Hip (2) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
T15	60 - 30	ROHN 2 STD	11.05	11.05	168.4 K=1.00	5.265	1.0745	-95.63	5657.64	0.017 ✔
T16	30 - 0	ROHN 2 STD	12.27	12.27	187.0 K=1.00	4.270	1.0745	-82.50	4588.23	0.018 ✔

Redundant Hip Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T12	120 - 100	ROHN 2.5 STD	15.15	15.15	191.9 K=1.00	4.054	1.7040	-109.21	6908.01	0.016 ✔
T13	100 - 80	ROHN 2.5 STD	16.00	16.00	202.6 K=1.00	3.637	1.7040	-105.39	6197.32	0.017 ✔
T14	80 - 60	ROHN 3 STD	16.88	16.88	174.1 K=1.00	4.929	2.2285	-140.05	10984.50	0.013 ✔
T15	60 - 30	ROHN 2 STD	14.10	14.10	214.9 K=1.00	3.233	1.0745	-240.55	3473.58	0.069 ✔
T16	30 - 0	ROHN 2.5 STD	14.88	14.88	188.4 K=1.00	4.205	1.7040	-231.02	7165.41	0.032 ✔

Redundant Hip Diagonal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T15	60 - 30	ROHN 2 STD	17.91	17.91	273.1 K=1.00	2.003	1.0745	-166.16	2152.21	0.077 ✔
T16	30 - 0	KL/R > 250 (C) - 354 ROHN 2.5 STD	19.28	19.28	244.2 K=1.00	2.503	1.7040	-158.91	4265.79	0.037 ✔

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T12	120 - 100	ROHN 3 STD	12.69	12.69	130.9 K=1.00	8.712	2.2285	-41.59	19414.30	0.002 ✔
T13	100 - 80	ROHN 3 STD	13.99	13.99	144.2 K=1.00	7.179	2.2285	-42.41	15997.80	0.003 ✔
T14	80 - 60	ROHN 3 STD	15.24	15.24	157.1 K=1.00	6.049	2.2285	-52.01	13480.40	0.004 ✔
T15	60 - 30	ROHN 3 STD	16.57	16.57	170.9 K=1.00	5.114	2.2285	-80.09	11395.70	0.007 ✔
T16	30 - 0	ROHN 3 STD	18.40	18.40	189.8 K=1.00	4.147	2.2285	-81.65	9241.68	0.009 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	320 - 300	ROHN 5 EH	20.00	4.00	26.1	30.000	6.1120	6943.25	183359.00	0.038 ✔
T2	300 - 280	ROHN 6 EH	20.03	5.01	27.4	30.000	8.4049	21710.10	252148.00	0.086 ✔
T3	280 - 260	ROHN 8 EH w/ angle 8x8x0.5	20.04	6.68	27.0	30.000	20.5036	42857.30	615108.00	0.070 ✔
T4	260 - 240	ROHN 8 EH w/ angle 8x8x0.5	20.03	6.68	27.0	30.000	20.5036	69858.00	615108.00	0.114 ✔
T5	240 - 220	ROHN 8 EH w/ angle 8x8x0.5	20.03	6.68	27.0	30.000	20.5036	104557.00	615108.00	0.170 ✔
T6	220 - 200	ROHN 8 EH w/ angle 8x8x0.5	20.03	10.02	40.4	30.000	20.5036	142484.00	615108.00	0.232 ✔
T7	200 - 180	ROHN 10 EH w/ angle 8x8x0.5	20.04	10.02	34.6	30.000	23.8453	190247.00	715359.00	0.266 ✔
T8	180 - 170	ROHN 10 EH w/ angle 8x8x0.5	10.02	10.02	34.6	30.000	23.8453	214708.00	715359.00	0.300 ✔
T9	170 - 160	ROHN 10 EH w/ angle 8x8x0.5	10.02	10.02	34.6	30.000	23.8453	239375.00	715359.00	0.335 ✔
T10	160 - 140	ROHN 10 EH w/ angle 8x8x0.5	20.03	10.02	34.6	30.000	23.8453	289436.00	715359.00	0.405 ✔
T11	140 - 120	ROHN 10 EH w/ angle 8x8x0.5	20.04	10.02	34.6	30.000	23.8453	338572.00	715359.00	0.473 ✔
T12	120 - 100	ROHN 10 EH w/ angle 8x8x0.5	20.06	10.03	34.7	30.000	23.8453	345995.00	715359.00	0.484 ✔
T13	100 - 80	ROHN 10 EH w/ angle 8x8x0.5	20.05	10.03	34.7	30.000	23.8453	385527.00	715359.00	0.539 ✔
T14	80 - 60	ROHN 12 EH w/ angle 8x8x0.5	20.06	10.03	29.9	30.000	26.9670	428205.00	809010.00	0.529 ✔
T15	60 - 30	ROHN 12 EH w/ angle 8x8x0.5	30.07	10.02	29.9	30.000	26.9670	467884.00	809010.00	0.578 ✔
T16	30 - 0	ROHN 12 EHS w Angle 8x8x0.625	30.08	10.03	30.2	30.000	33.3120	528521.00	999360.00	0.529 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	320 - 300	L1 3/4x1 3/4x3/16	7.90	3.56	82.2	29.000	0.3604	1583.87	10450.20	0.152 ✔
T2	300 - 280	L2x2x1/4	9.94	4.68	94.6	29.000	0.5629	3912.95	16323.40	0.240 ✔
T3	280 - 260	L2 1/2x2 1/2x1/4	12.59	5.83	93.1	29.000	0.7284	5657.57	21124.70	0.268 ✔
T4	260 - 240	L3x3x1/4	14.38	6.72	88.5	32.500	0.9159	8749.91	29768.00	0.294 ✔
T5	240 - 220	L4x4x5/16	16.19	7.64	75.2	32.500	1.5949	11089.60	51835.00	0.214 ✔
T6	220 - 200	L4x4x3/8	19.37	9.30	92.1	32.500	1.8989	15801.60	61714.50	0.256 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T7	200 - 180	L4x4x3/8	21.20	10.21	101.1	32.500	1.8637	19198.70	60571.90	0.317 ✔
T8	180 - 170	2L4x4x1/4	22.13	10.68	104.0	32.500	2.5350	20692.80	82387.50	0.251 ✔
T9	170 - 160	2L4x4x1/4	23.06	11.15	108.4	32.500	2.5350	21555.80	82387.50	0.262 ✔
T10	160 - 140	L5x5x1/2	24.84	12.01	94.8	32.500	3.1875	24673.10	103594.00	0.238 ✔
T11	140 - 120	L5x5x1/2	26.78	13.03	102.7	32.500	3.1875	26235.60	103594.00	0.253 ✔
T12	120 - 100	ROHN 3 XXS	24.42	12.21	139.9	30.000	5.4664	41568.40	163991.00	0.253 ✔
T13	100 - 80	ROHN 3 XXS	25.15	12.58	144.1	30.000	5.4664	43666.20	163991.00	0.266 ✔
T14	80 - 60	ROHN 3.5 EH	25.98	12.99	119.3	30.000	3.6784	42127.60	110352.00	0.382 ✔
T15	60 - 30	ROHN 4 X-STR	35.21	11.74	95.4	30.000	4.4074	59796.70	132223.00	0.452 ✔
T16	30 - 0	ROHN 4 X-STR	36.27	12.09	98.2	30.000	4.4074	58443.60	132223.00	0.442 ✔

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T12	120 - 100	ROHN 3 STD	25.39	12.22	126.1	30.000	2.2285	23405.20	66854.10	0.350 ✔
T13	100 - 80	ROHN 3 X-STR	27.97	13.51	142.7	30.000	3.0159	25729.30	90477.90	0.284 ✔
T14	80 - 60	ROHN 3 XXS	30.47	14.76	169.2	30.000	5.4664	26190.60	163991.00	0.160 ✔
T15	60 - 30	ROHN 3.5 EH	33.14	16.04	147.3	30.000	3.6784	30864.90	110352.00	0.280 ✔
T16	30 - 0	ROHN 4 X-STR	36.80	17.87	145.2	30.000	4.4074	31537.40	132223.00	0.239 ✔

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	320 - 300	L1 3/4x1 3/4x3/16	6.81	6.35	141.8	21.600	0.6211	96.36	13415.60	0.007 ✔
T2	300 - 280	L2x2x1/4	6.81	6.35	125.1	21.600	0.9380	18.45	20260.80	0.001 ✔

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T12	120 - 100	ROHN 1.5 STD	6.35	5.88	113.3	30.000	0.7995	7759.88	23983.70	0.324 ✔
T13	100 - 80	P1.5x.145	6.99	6.52	125.7	30.000	0.7995	8679.04	23983.70	0.362 ✔
T14	80 - 60	ROHN 2 STD	7.62	7.09	108.0	30.000	1.0745	9655.72	32235.90	0.300 ✔
T15	60 - 30	ROHN 1.5 STD	5.52	4.99	96.2	30.000	0.7995	10598.40	23983.70	0.442 ✔
T16	30 - 0	P1.5x.145	6.13	5.60	108.0	30.000	0.7995	12031.60	23983.70	0.502 ✔

Redundant Horizontal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T15	60 - 30	ROHN 2 XXS	11.05	10.52	179.6	30.000	2.6559	10598.40	79677.50	0.133 ✔
T16	30 - 0	ROHN 2.5 EH	12.27	11.74	152.4	30.000	2.2535	12031.60	67606.20	0.178 ✔

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T12	120 - 100	ROHN 2 STD	11.52	10.57	161.1	30.000	1.0745	7040.24	32235.90	0.218 ✔
T13	100 - 80	ROHN 2 EH	11.86	10.98	171.6	30.000	1.4807	7360.68	44420.50	0.166 ✔
T14	80 - 60	ROHN 2 EH	12.18	11.36	177.4	30.000	1.4807	7722.07	44420.50	0.174 ✔
T15	60 - 30	ROHN 2 EH	11.15	9.95	155.3	30.000	1.4807	10695.00	44420.50	0.241 ✔
T16	30 - 0	ROHN 2.5 STD	11.41	10.31	130.6	30.000	1.7040	11192.90	51121.50	0.219 ✔

Redundant Diagonal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T15	60 - 30	ROHN 2.5 STD	14.46	13.72	173.8	30.000	1.7040	6935.87	51121.50	0.136 ✔
T16	30 - 0	ROHN 2.5 STD	15.33	14.63	185.3	30.000	1.7040	7519.96	51121.50	0.147 ✔

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T15	60 - 30	ROHN 1.5 STD	5.52	5.52	106.5	30.000	0.7995	43.23	23983.70	0.002 ✔
T16	30 - 0	ROHN 1.5 STD	6.13	6.13	118.2	30.000	0.7995	35.80	23983.70	0.001 ✔

Redundant Hip (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T15	60 - 30	ROHN 2 STD	11.05	11.05	168.4	30.000	1.0745	47.74	32235.90	0.001 ✔
T16	30 - 0	ROHN 2 STD	12.27	12.27	187.0	30.000	1.0745	37.95	32235.90	0.001 ✔

Redundant Hip Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T12	120 - 100	ROHN 2.5 STD	15.15	15.15	191.9	30.000	1.7040	153.03	51121.50	0.003 ✔
T13	100 - 80	ROHN 2.5 STD	16.00	16.00	202.6	30.000	1.7040	147.14	51121.50	0.003 ✔
T14	80 - 60	ROHN 3 STD	16.88	16.88	174.1	30.000	2.2285	186.20	66854.10	0.003 ✔
T15	60 - 30	ROHN 2 STD	14.10	14.10	214.9	30.000	1.0745	509.76	32235.90	0.016 ✔
T16	30 - 0	ROHN 2.5 STD	14.88	14.88	188.4	30.000	1.7040	440.66	51121.50	0.009 ✔

Redundant Hip Diagonal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T15	60 - 30	ROHN 2 STD	17.91	17.91	273.1	30.000	1.0745	191.42	32235.90	0.006 ✔
T16	30 - 0	ROHN 2.5 STD	19.28	19.28	244.2	30.000	1.7040	172.30	51121.50	0.003 ✔

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T12	120 - 100	ROHN 3 STD	12.69	12.69	130.9	30.000	2.2285	10.04	66854.10	0.000 ✔
T13	100 - 80	ROHN 3 STD	13.99	13.99	144.2	30.000	2.2285	8.33	66854.10	0.000 ✔
T14	80 - 60	ROHN 3 STD	15.24	15.24	157.1	30.000	2.2285	5.76	66854.10	0.000 ✔
T15	60 - 30	ROHN 3 STD	16.57	16.57	170.9	30.000	2.2285	45.67	66854.10	0.001 ✔
T16	30 - 0	ROHN 3 STD	18.40	18.40	189.8	30.000	2.2285	35.09	66854.10	0.001 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	320 - 300	Leg	ROHN 5 EH	1	-9269.38	225039.72	4.1	Pass
		Leg	ROHN 5 EH	2	-9238.83	225039.72	4.1	Pass
		Leg	ROHN 5 EH	3	-9262.76	225039.72	4.1	Pass
T2	300 - 280	Leg	ROHN 6 EH	37	-27469.70	307771.03	8.9	Pass
		Leg	ROHN 6 EH	38	-27255.70	307771.03	8.9	Pass
		Leg	ROHN 6 EH	39	-26689.90	307771.03	8.7	Pass
T3	280 - 260	Leg	ROHN 8 EH w/ angle 8x8x0.5	67	-53764.80	752126.56	7.1 11.5 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	68	-54205.50	752126.56	7.2 11.5 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	69	-53151.00	752126.56	7.1 11.6 (b)	Pass
T4	260 - 240	Leg	ROHN 8 EH w/ angle 8x8x0.5	88	-88014.00	752149.22	11.7 18.9 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	89	-89457.20	752149.22	11.9 18.7 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	90	-87325.80	752149.22	11.6 19.0 (b)	Pass
T5	240 - 220	Leg	ROHN 8 EH w/ angle 8x8x0.5	109	-131688.00	752153.22	17.5 28.3 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	110	-133439.00	752153.22	17.7 27.9 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
		Leg	ROHN 8 EH w/ angle 8x8x0.5	111	-131435.00	752153.22	17.5 28.4 (b)	Pass
T6	220 - 200	Leg	ROHN 8 EH w/ angle 8x8x0.5	130	-180406.00	704303.85	25.6 25.8 (b)	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	131	-182956.00	704303.85	26.0	Pass
		Leg	ROHN 8 EH w/ angle 8x8x0.5	132	-180341.00	704303.85	25.6 25.8 (b)	Pass
T7	200 - 180	Leg	ROHN 10 EH w/ angle 8x8x0.5	145	-240374.00	844259.51	28.5 34.4 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	146	-243785.00	844259.51	28.9 33.9 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	147	-240126.00	844259.51	28.4 34.4 (b)	Pass
T8	180 - 170	Leg	ROHN 10 EH w/ angle 8x8x0.5	160	-270734.00	844272.84	32.1 38.7 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	161	-274398.00	844272.84	32.5 38.3 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	162	-270245.00	844272.84	32.0 38.8 (b)	Pass
T9	170 - 160	Leg	ROHN 10 EH w/ angle 8x8x0.5	169	-301731.00	844272.84	35.7	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	170	-305606.00	844272.84	36.2	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	171	-301117.00	844272.84	35.7	Pass
T10	160 - 140	Leg	ROHN 10 EH w/ angle 8x8x0.5	178	-365534.00	844312.83	43.3 52.1 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	179	-369375.00	844312.83	43.7 51.7 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	180	-364296.00	844312.83	43.1 52.4 (b)	Pass
T11	140 - 120	Leg	ROHN 10 EH w/ angle 8x8x0.5	193	-429080.00	844247.52	50.8 60.7 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	194	-433129.00	844247.52	51.3 60.5 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	195	-427367.00	844247.52	50.6 61.2 (b)	Pass
T12	120 - 100	Leg	ROHN 10 EH w/ angle 8x8x0.5	208	-442554.00	844132.88	52.4 61.8 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	209	-447089.00	844132.88	53.0 61.5 (b)	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	210	-440799.00	844132.88	52.2 62.4 (b)	Pass
T13	100 - 80	Leg	ROHN 10 EH w/ angle 8x8x0.5	241	-495097.00	844156.87	58.6	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	242	-500110.00	844156.87	59.2	Pass
		Leg	ROHN 10 EH w/ angle 8x8x0.5	243	-493124.00	844156.87	58.4	Pass
T14	80 - 60	Leg	ROHN 12 EH w/ angle 8x8x0.5	274	-550704.00	976419.79	56.4 57.4 (b)	Pass
		Leg	ROHN 12 EH w/ angle 8x8x0.5	275	-556237.00	976419.79	57.0 57.2 (b)	Pass
		Leg	ROHN 12 EH w/ angle 8x8x0.5	276	-548553.00	976419.79	56.2 57.9 (b)	Pass
T15	60 - 30	Leg	ROHN 12 EH w/ angle 8x8x0.5	307	-604987.00	976483.78	62.0	Pass
		Leg	ROHN 12 EH w/ angle 8x8x0.5	308	-610764.00	976483.78	62.5	Pass
		Leg	ROHN 12 EH w/ angle 8x8x0.5	309	-602869.00	976483.78	61.7 62.1 (b)	Pass
T16	30 - 0	Leg	ROHN 12 EHS w Angle 8x8x0.625	358	-686723.00	1204598.73	57.0	Pass
		Leg	ROHN 12 EHS w Angle 8x8x0.625	359	-693189.00	1204598.73	57.5	Pass
		Leg	ROHN 12 EHS w Angle 8x8x0.625	360	-684323.00	1204598.73	56.8	Pass
T1	320 - 300	Diagonal	L1 3/4x1 3/4x3/16	7	-1574.01	7984.10	19.7 30.2 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
		Diagonal	L1 3/4x1 3/4x3/16	8	-1573.44	7984.10	19.7 30.2 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	9	-1605.88	7984.10	20.1 30.6 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	10	-1605.30	7984.10	20.1 30.7 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	11	-1613.00	7984.10	20.2 30.7 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	12	-1613.17	7984.10	20.2 30.7 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	13	-1398.34	7984.10	17.5 27.6 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	14	-1397.36	7984.10	17.5 27.5 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	15	-1386.63	7984.10	17.4 27.1 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	16	-1386.46	7984.10	17.4 27.1 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	17	-1350.14	7984.10	16.9 26.1 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	18	-1349.58	7984.10	16.9 26.1 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	19	-1139.07	7984.10	14.3 21.8 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	20	-1139.33	7984.10	14.3 21.9 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	21	-1117.09	7984.10	14.0 21.5 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	22	-1117.35	7984.10	14.0 21.5 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	23	-1134.57	7984.10	14.2 22.0 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	24	-1134.82	7984.10	14.2 22.0 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	25	-846.85	7984.10	10.6 16.5 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	26	-846.06	7984.10	10.6 16.5 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	27	-755.28	7984.10	9.5 14.7 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	28	-751.88	7984.10	9.4 14.6 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	29	-856.18	7984.10	10.7 16.7 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	30	-857.33	7984.10	10.7 16.7 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	31	-523.94	7984.10	6.6 10.0 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	32	-597.96	7984.10	7.5 11.3 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	33	-262.23	7984.10	3.3 4.8 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	34	-268.70	7984.10	3.4 4.9 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	35	-590.53	7984.10	7.4 11.1 (b)	Pass
		Diagonal	L1 3/4x1 3/4x3/16	36	-509.89	7984.10	6.4 9.8 (b)	Pass
T2	300 - 280	Diagonal	L2x2x1/4	43	-3945.92	9048.00	43.6 48.3 (b)	Pass
		Diagonal	L2x2x1/4	44	-3951.58	9048.00	43.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
		Diagonal	L2x2x1/4	45	-2924.66	9048.00	48.3 (b) 32.3	Pass
		Diagonal	L2x2x1/4	46	-3134.93	9048.00	36.0 (b) 34.6	Pass
		Diagonal	L2x2x1/4	47	-2879.43	9048.00	36.9 (b) 31.8	Pass
		Diagonal	L2x2x1/4	48	-2710.61	9048.00	33.7 (b) 30.0	Pass
		Diagonal	L2x2x1/4	49	-3022.16	9945.78	33.4 (b) 30.4	Pass
		Diagonal	L2x2x1/4	50	-3019.61	9945.78	37.0 (b) 30.4	Pass
		Diagonal	L2x2x1/4	51	-2499.85	9945.78	37.0 (b) 25.1	Pass
		Diagonal	L2x2x1/4	52	-2595.52	9945.78	30.8 (b) 26.1	Pass
		Diagonal	L2x2x1/4	53	-2211.39	9945.78	30.7 (b) 22.2	Pass
		Diagonal	L2x2x1/4	54	-2178.36	9945.78	26.8 (b) 21.9	Pass
		Diagonal	L2x2x1/4	55	-2322.60	10962.20	27.0 (b) 21.2	Pass
		Diagonal	L2x2x1/4	56	-2331.53	10962.20	28.9 (b) 21.3	Pass
		Diagonal	L2x2x1/4	57	-1861.26	10962.20	28.7 (b) 17.0	Pass
		Diagonal	L2x2x1/4	58	-1863.47	10962.20	23.0 (b) 17.0	Pass
		Diagonal	L2x2x1/4	59	-2074.72	10962.20	23.0 (b) 18.9	Pass
		Diagonal	L2x2x1/4	60	-2056.89	10962.20	25.2 (b) 18.8	Pass
		Diagonal	L2x2x1/4	61	-1850.63	12102.43	25.3 (b) 15.3	Pass
		Diagonal	L2x2x1/4	62	-1854.15	12102.43	22.3 (b) 15.3	Pass
		Diagonal	L2x2x1/4	63	-1703.71	12102.43	22.3 (b) 14.1	Pass
		Diagonal	L2x2x1/4	64	-1705.07	12102.43	20.5 (b) 14.1	Pass
		Diagonal	L2x2x1/4	65	-1612.32	12102.43	20.5 (b) 13.3	Pass
		Diagonal	L2x2x1/4	66	-1608.93	12102.43	19.3 (b) 13.3	Pass
T3	280 - 260	Diagonal	L2 1/2x2 1/2x1/4	70	-5697.94	11673.67	19.3 (b) 48.8	Pass
		Diagonal	L2 1/2x2 1/2x1/4	71	-5690.71	11673.67	53.2 (b) 48.7	Pass
		Diagonal	L2 1/2x2 1/2x1/4	72	-4760.98	11673.67	53.2 (b) 40.8	Pass
		Diagonal	L2 1/2x2 1/2x1/4	73	-5110.58	11673.67	45.0 (b) 43.8	Pass
		Diagonal	L2 1/2x2 1/2x1/4	74	-3884.47	11673.67	44.4 (b) 33.3	Pass
		Diagonal	L2 1/2x2 1/2x1/4	75	-3779.97	11673.67	35.2 (b) 32.4	Pass
		Diagonal	L2 1/2x2 1/2x1/4	76	-5273.35	12983.73	35.4 (b) 40.6	Pass
		Diagonal	L2 1/2x2 1/2x1/4	77	-5274.59	12983.73	49.2 (b) 40.6 49.2 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
		Diagonal	L2 1/2x2 1/2x1/4	78	-4179.34	12983.73	32.2 39.1 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	79	-4454.90	12983.73	34.3 38.9 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	80	-3708.60	12983.73	28.6 33.3 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	81	-3585.59	12983.73	27.6 33.6 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	82	-4965.25	14483.44	34.3 46.4 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	83	-4972.35	14483.44	34.3 46.3 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	84	-3648.53	14483.44	25.2 34.2 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	85	-3911.24	14483.44	27.0 34.5 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	86	-3517.05	14483.44	24.3 31.1 (b)	Pass
		Diagonal	L2 1/2x2 1/2x1/4	87	-3330.27	14483.44	23.0 31.3 (b)	Pass
T4	260 - 240	Diagonal	L3x3x1/4	91	-9259.72	15426.14	60.0 71.4 (b)	Pass
		Diagonal	L3x3x1/4	92	-8782.91	15426.14	56.9 71.8 (b)	Pass
		Diagonal	L3x3x1/4	93	-8012.53	15426.14	51.9 67.8 (b)	Pass
		Diagonal	L3x3x1/4	94	-8846.85	15426.14	57.3 66.5 (b)	Pass
		Diagonal	L3x3x1/4	95	-4992.84	15426.14	32.4 39.4 (b)	Pass
		Diagonal	L3x3x1/4	96	-4869.30	15426.14	31.6 39.6 (b)	Pass
		Diagonal	L3x3x1/4	97	-7655.46	16884.71	45.3 60.5 (b)	Pass
		Diagonal	L3x3x1/4	98	-7412.83	16884.71	43.9 60.7 (b)	Pass
		Diagonal	L3x3x1/4	99	-6693.77	16884.71	39.6 56.3 (b)	Pass
		Diagonal	L3x3x1/4	100	-7268.54	16884.71	43.0 54.6 (b)	Pass
		Diagonal	L3x3x1/4	101	-4565.25	16884.71	27.0 36.7 (b)	Pass
		Diagonal	L3x3x1/4	102	-4509.51	16884.71	26.7 36.9 (b)	Pass
		Diagonal	L3x3x1/4	103	-6900.17	18534.30	37.2 55.6 (b)	Pass
		Diagonal	L3x3x1/4	104	-6809.19	18534.30	36.7 55.8 (b)	Pass
		Diagonal	L3x3x1/4	105	-5960.01	18534.30	32.2 50.0 (b)	Pass
		Diagonal	L3x3x1/4	106	-6438.01	18534.30	34.7 48.6 (b)	Pass
		Diagonal	L3x3x1/4	107	-4332.18	18534.30	23.4 34.6 (b)	Pass
		Diagonal	L3x3x1/4	108	-4261.19	18534.30	23.0 34.8 (b)	Pass
T5	240 - 220	Diagonal	L4x4x5/16	112	-11725.40	34960.86	33.5 72.0 (b)	Pass
		Diagonal	L4x4x5/16	113	-11012.00	34960.86	31.5 72.8 (b)	Pass
		Diagonal	L4x4x5/16	114	-10839.60	34960.86	31.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
		Diagonal	L4x4x5/16	115	-11658.70	34960.86	72.4 (b) 33.3	Pass
		Diagonal	L4x4x5/16	116	-6713.25	34960.86	71.0 (b) 19.2	Pass
		Diagonal	L4x4x5/16	117	-6701.86	34960.86	43.9 (b) 19.2	Pass
		Diagonal	L4x4x5/16	118	-11005.30	37114.45	43.9 (b) 29.7	Pass
		Diagonal	L4x4x5/16	119	-10512.50	37114.45	68.6 (b) 28.3	Pass
		Diagonal	L4x4x5/16	120	-10271.80	37114.45	70.5 (b) 27.7	Pass
		Diagonal	L4x4x5/16	121	-10894.30	37114.45	69.8 (b) 29.4	Pass
		Diagonal	L4x4x5/16	122	-6284.08	37114.45	67.0 (b) 16.9	Pass
		Diagonal	L4x4x5/16	123	-6279.29	37114.45	40.7 (b) 16.9	Pass
		Diagonal	L4x4x5/16	124	-11008.50	39449.87	40.8 (b) 27.9	Pass
		Diagonal	L4x4x5/16	125	-10443.20	39449.87	68.0 (b) 26.5	Pass
		Diagonal	L4x4x5/16	126	-9689.14	39449.87	68.7 (b) 24.6	Pass
		Diagonal	L4x4x5/16	127	-10609.50	39449.87	66.1 (b) 26.9	Pass
		Diagonal	L4x4x5/16	128	-5774.80	39449.87	63.8 (b) 14.6	Pass
		Diagonal	L4x4x5/16	129	-5747.33	39449.87	37.1 (b) 14.6	Pass
T6	220 - 200	Diagonal	L4x4x3/8	133	-16655.20	28363.84	37.3 (b) 58.7	Pass
		Diagonal	L4x4x3/8	134	-15657.50	28363.84	94.3 (b) 55.2	Pass
		Diagonal	L4x4x3/8	135	-15705.70	28363.84	89.0 (b) 55.4	Pass
		Diagonal	L4x4x3/8	136	-16731.50	28363.84	89.4 (b) 59.0	Pass
		Diagonal	L4x4x3/8	137	-9756.46	28363.84	94.7 (b) 34.4	Pass
		Diagonal	L4x4x3/8	138	-9742.86	28363.84	55.2 (b) 34.3	Pass
		Diagonal	L4x4x3/8	139	-15599.20	31105.55	55.1 (b) 50.1	Pass
		Diagonal	L4x4x3/8	140	-14760.60	31105.55	88.3 (b) 47.5	Pass
		Diagonal	L4x4x3/8	141	-14746.90	31105.55	83.5 (b) 47.4	Pass
		Diagonal	L4x4x3/8	142	-15631.70	31105.55	83.5 (b) 50.3	Pass
		Diagonal	L4x4x3/8	143	-9419.75	31105.55	88.5 (b) 30.3	Pass
		Diagonal	L4x4x3/8	144	-9421.48	31105.55	53.3 (b) 30.3	Pass
T7	200 - 180	Diagonal	L4x4x3/8	148	-19639.40	23527.18	53.3 (b) 83.5	Pass
		Diagonal	L4x4x3/8	149	-19046.10	23527.18	88.7 (b) 81.0	Pass
		Diagonal	L4x4x3/8	150	-18466.60	23527.18	90.0 (b) 78.5	Pass
							88.7 (b)	

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
		Diagonal	L4x4x3/8	151	-19344.60	23527.18	82.2 85.9 (b)	Pass
		Diagonal	L4x4x3/8	152	-12033.30	23527.18	51.1 55.6 (b)	Pass
		Diagonal	L4x4x3/8	153	-12027.60	23527.18	51.1 55.6 (b)	Pass
		Diagonal	L4x4x3/8	154	-19395.20	25809.95	75.1 85.0 (b)	Pass
		Diagonal	L4x4x3/8	155	-18338.20	25809.95	71.1 85.7 (b)	Pass
		Diagonal	L4x4x3/8	156	-18246.20	25809.95	70.7 85.3 (b)	Pass
		Diagonal	L4x4x3/8	157	-19411.70	25809.95	75.2 84.6 (b)	Pass
		Diagonal	L4x4x3/8	158	-11547.70	25809.95	44.7 53.3 (b)	Pass
		Diagonal	L4x4x3/8	159	-11531.30	25809.95	44.7 53.2 (b)	Pass
T8	180 - 170	Diagonal	2L4x4x1/4	163	-21569.00	69824.94	30.9 72.3 (b)	Pass
		Diagonal	2L4x4x1/4	164	-20827.80	69824.94	29.8 72.8 (b)	Pass
		Diagonal	2L4x4x1/4	165	-19638.80	69824.94	28.1 70.4 (b)	Pass
		Diagonal	2L4x4x1/4	166	-20904.50	69824.94	29.9 68.2 (b)	Pass
		Diagonal	2L4x4x1/4	167	-12988.80	69824.94	18.6 44.8 (b)	Pass
		Diagonal	2L4x4x1/4	168	-12965.60	69824.94	18.6 44.8 (b)	Pass
T9	170 - 160	Diagonal	2L4x4x1/4	172	-22149.00	65805.14	33.7 75.1 (b)	Pass
		Diagonal	2L4x4x1/4	173	-21554.50	65805.14	32.8 75.8 (b)	Pass
		Diagonal	2L4x4x1/4	174	-19879.20	65805.14	30.2 72.4 (b)	Pass
		Diagonal	2L4x4x1/4	175	-21186.50	65805.14	32.2 69.3 (b)	Pass
		Diagonal	2L4x4x1/4	176	-13302.40	65805.14	20.2 46.0 (b)	Pass
		Diagonal	2L4x4x1/4	177	-13270.00	65805.14	20.2 46.1 (b)	Pass
T10	160 - 140	Diagonal	L5x5x1/2	181	-26117.70	43966.20	59.4 86.4 (b)	Pass
		Diagonal	L5x5x1/2	182	-25102.80	43966.20	57.1 86.8 (b)	Pass
		Diagonal	L5x5x1/2	183	-22511.80	43966.20	51.2 79.4 (b)	Pass
		Diagonal	L5x5x1/2	184	-24590.70	43966.20	55.9 77.4 (b)	Pass
		Diagonal	L5x5x1/2	185	-16184.00	43966.20	36.8 53.6 (b)	Pass
		Diagonal	L5x5x1/2	186	-15739.10	43966.20	35.8 53.7 (b)	Pass
		Diagonal	L5x5x1/2	187	-23964.00	47320.70	50.6 82.7 (b)	Pass
		Diagonal	L5x5x1/2	188	-23533.80	47320.70	49.7 83.8 (b)	Pass
		Diagonal	L5x5x1/2	189	-21504.30	47320.70	45.4 79.6 (b)	Pass
		Diagonal	L5x5x1/2	190	-22774.10	47320.70	48.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
							75.5 (b)	
		Diagonal	L5x5x1/2	191	-14621.40	47320.70	30.9	Pass
							51.1 (b)	
		Diagonal	L5x5x1/2	192	-14586.20	47320.70	30.8	Pass
							51.2 (b)	
T11	140 - 120	Diagonal	L5x5x1/2	196	-27492.50	37390.78	73.5	Pass
							91.9 (b)	
		Diagonal	L5x5x1/2	197	-26537.50	37390.78	71.0	Pass
							92.3 (b)	
		Diagonal	L5x5x1/2	198	-22620.10	37390.78	60.5	Pass
							81.8 (b)	
		Diagonal	L5x5x1/2	199	-25183.50	37390.78	67.4	Pass
							79.1 (b)	
		Diagonal	L5x5x1/2	200	-17044.10	37390.78	45.6	Pass
							55.2 (b)	
		Diagonal	L5x5x1/2	201	-16137.20	37390.78	43.2	Pass
							55.5 (b)	
		Diagonal	L5x5x1/2	202	-24920.00	40448.42	61.6	Pass
							87.0 (b)	
		Diagonal	L5x5x1/2	203	-24776.80	40448.42	61.3	Pass
							88.2 (b)	
		Diagonal	L5x5x1/2	204	-21379.90	40448.42	52.9	Pass
							81.2 (b)	
		Diagonal	L5x5x1/2	205	-22926.70	40448.42	56.7	Pass
							75.0 (b)	
		Diagonal	L5x5x1/2	206	-14908.10	40448.42	36.9	Pass
							51.9 (b)	
		Diagonal	L5x5x1/2	207	-14827.20	40448.42	36.7	Pass
							52.3 (b)	
T12	120 - 100	Diagonal	ROHN 3 XXS	212	-45218.10	55583.17	81.4	Pass
							85.3 (b)	
		Diagonal	ROHN 3 XXS	215	-43189.00	55583.17	77.7	Pass
							81.5 (b)	
		Diagonal	ROHN 3 XXS	219	-36945.20	55583.17	66.5	Pass
							70.2 (b)	
		Diagonal	ROHN 3 XXS	222	-41516.20	55583.17	74.7	Pass
							78.3 (b)	
		Diagonal	ROHN 3 XXS	228	-26572.60	55583.17	47.8	Pass
							50.1 (b)	
		Diagonal	ROHN 3 XXS	231	-25071.40	55583.17	45.1	Pass
							47.3 (b)	
T13	100 - 80	Diagonal	ROHN 3 XXS	245	-48150.50	52377.04	91.9	Pass
		Diagonal	ROHN 3 XXS	248	-45658.10	52377.04	87.2	Pass
		Diagonal	ROHN 3 XXS	252	-39651.40	52377.04	75.7	Pass
		Diagonal	ROHN 3 XXS	255	-44546.70	52377.04	85.1	Pass
		Diagonal	ROHN 3 XXS	261	-28612.20	52377.04	54.6	Pass
		Diagonal	ROHN 3 XXS	264	-26950.40	52377.04	51.5	Pass
T14	80 - 60	Diagonal	ROHN 3.5 EH	278	-46418.60	51432.61	90.3	Pass
		Diagonal	ROHN 3.5 EH	281	-43390.60	51432.61	84.4	Pass
		Diagonal	ROHN 3.5 EH	285	-37310.80	51432.61	72.5	Pass
		Diagonal	ROHN 3.5 EH	288	-42772.10	51432.61	83.2	Pass
		Diagonal	ROHN 3.5 EH	294	-27159.00	51432.61	52.8	Pass
		Diagonal	ROHN 3.5 EH	297	-24902.90	51432.61	48.4	Pass
T15	60 - 30	Diagonal	ROHN 4 X-STR	311	-65668.50	92583.38	70.9	Pass
							91.0 (b)	
		Diagonal	ROHN 4 X-STR	316	-61322.10	92583.38	66.2	Pass
							85.0 (b)	
		Diagonal	ROHN 4 X-STR	322	-52964.00	92583.38	57.2	Pass
							75.4 (b)	
		Diagonal	ROHN 4 X-STR	327	-60734.10	92583.38	65.6	Pass
							84.2 (b)	

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
		Diagonal	ROHN 4 X-STR	337	-39817.10	92583.38	43.0 55.2 (b)	Pass
		Diagonal	ROHN 4 X-STR	342	-36533.10	92583.38	39.5 50.6 (b)	Pass
T16	30 - 0	Diagonal	ROHN 4 X-STR	362	-63188.60	88782.33	71.2 87.6 (b)	Pass
		Diagonal	ROHN 4 X-STR	367	-59726.20	88782.33	67.3 82.8 (b)	Pass
		Diagonal	ROHN 4 X-STR	373	-50212.90	88782.33	56.6 73.0 (b)	Pass
		Diagonal	ROHN 4 X-STR	378	-57541.80	88782.33	64.8 79.8 (b)	Pass
		Diagonal	ROHN 4 X-STR	388	-34078.40	88782.33	38.4 47.2 (b)	Pass
		Diagonal	ROHN 4 X-STR	393	-31930.40	88782.33	36.0 44.3 (b)	Pass
T12	120 - 100	Horizontal	ROHN 3 STD	211	-24198.60	27913.82	86.7	Pass
		Horizontal	ROHN 3 STD	218	-21907.90	27913.82	78.5	Pass
		Horizontal	ROHN 3 STD	227	-13240.70	27913.82	47.4	Pass
T13	100 - 80	Horizontal	ROHN 3 X-STR	244	-27843.60	29478.76	94.5	Pass
		Horizontal	ROHN 3 X-STR	251	-25616.20	29478.76	86.9	Pass
		Horizontal	ROHN 3 X-STR	260	-15606.80	29478.76	52.9	Pass
T14	80 - 60	Horizontal	ROHN 3 XXS	277	-28447.30	38005.16	74.9 80.5 (b)	Pass
		Horizontal	ROHN 3 XXS	284	-25904.20	38005.16	68.2 73.3 (b)	Pass
		Horizontal	ROHN 3 XXS	293	-15093.70	38005.16	39.7 42.7 (b)	Pass
T15	60 - 30	Horizontal	ROHN 3.5 EH	310	-31987.30	33747.69	94.8	Pass
		Horizontal	ROHN 3.5 EH	321	-29135.00	33747.69	86.3	Pass
		Horizontal	ROHN 3.5 EH	336	-17163.10	33747.69	50.9	Pass
T16	30 - 0	Horizontal	ROHN 4 X-STR	361	-35870.50	41607.99	86.2	Pass
		Horizontal	ROHN 4 X-STR	372	-32576.80	41607.99	78.3	Pass
		Horizontal	ROHN 4 X-STR	387	-18941.10	41607.99	45.5	Pass
T1	320 - 300	Top Girt	L1 3/4x1 3/4x3/16	4	-119.79	3709.14	3.2	Pass
		Top Girt	L1 3/4x1 3/4x3/16	5	-120.21	3709.14	3.2	Pass
		Top Girt	L1 3/4x1 3/4x3/16	6	-119.36	3709.14	3.2	Pass
T2	300 - 280	Top Girt	L2x2x1/4	40	-43.43	6777.01	0.6	Pass
		Top Girt	L2x2x1/4	41	-33.92	6777.01	0.5	Pass
		Top Girt	L2x2x1/4	42	-20.77	6777.01	0.3	Pass
T12	120 - 100	Redund Horz 1 Bracing	ROHN 1.5 STD	213	-7681.16	12406.66	61.9	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	216	-7759.88	12406.66	62.5	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	220	-7759.88	12406.66	62.5	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	223	-7650.71	12406.66	61.7	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	229	-7650.71	12406.66	61.7	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	232	-7681.16	12406.66	61.9	Pass
T13	100 - 80	Redund Horz 1 Bracing	P1.5x.145	246	-8592.05	10073.76	85.3	Pass
		Redund Horz 1 Bracing	P1.5x.145	249	-8679.04	10073.76	86.2	Pass
		Redund Horz 1 Bracing	P1.5x.145	253	-8679.04	10073.76	86.2	Pass
		Redund Horz 1 Bracing	P1.5x.145	256	-8557.80	10073.76	85.0	Pass
		Redund Horz 1	P1.5x.145	262	-8557.80	10073.76	85.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
		Bracing						
		Redund Horz 1 Bracing	P1.5x.145	265	-8592.05	10073.76	85.3	Pass
T14	80 - 60	Redund Horz 1 Bracing	ROHN 2 STD	279	-9559.66	18327.15	52.2	Pass
		Redund Horz 1 Bracing	ROHN 2 STD	282	-9655.72	18327.15	52.7	Pass
		Redund Horz 1 Bracing	ROHN 2 STD	286	-9655.72	18327.15	52.7	Pass
		Redund Horz 1 Bracing	ROHN 2 STD	289	-9522.33	18327.15	52.0	Pass
		Redund Horz 1 Bracing	ROHN 2 STD	295	-9522.33	18327.15	52.0	Pass
		Redund Horz 1 Bracing	ROHN 2 STD	298	-9559.66	18327.15	52.2	Pass
T15	60 - 30	Redund Horz 1 Bracing	ROHN 1.5 STD	312	-10498.10	16591.98	63.3	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	317	-10598.40	16591.98	63.9	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	323	-10598.40	16591.98	63.9	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	328	-10461.40	16591.98	63.1	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	338	-10461.40	16591.98	63.1	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	343	-10498.10	16591.98	63.3	Pass
T16	30 - 0	Redund Horz 1 Bracing	P1.5x.145	363	-11919.30	13650.05	87.3	Pass
		Redund Horz 1 Bracing	P1.5x.145	368	-12031.60	13650.05	88.1	Pass
		Redund Horz 1 Bracing	P1.5x.145	374	-12031.60	13650.05	88.1	Pass
		Redund Horz 1 Bracing	P1.5x.145	379	-11877.70	13650.05	87.0	Pass
		Redund Horz 1 Bracing	P1.5x.145	389	-11877.70	13650.05	87.0	Pass
		Redund Horz 1 Bracing	P1.5x.145	394	-11919.30	13650.05	87.3	Pass
T15	60 - 30	Redund Horz 2 Bracing	ROHN 2 XXS	313	-10498.10	16393.37	64.0	Pass
		Redund Horz 2 Bracing	ROHN 2 XXS	318	-10598.40	16393.37	64.7	Pass
		Redund Horz 2 Bracing	ROHN 2 XXS	324	-10598.40	16393.37	64.7	Pass
		Redund Horz 2 Bracing	ROHN 2 XXS	329	-10461.40	16393.37	63.8	Pass
		Redund Horz 2 Bracing	ROHN 2 XXS	339	-10461.40	16393.37	63.8	Pass
		Redund Horz 2 Bracing	ROHN 2 XXS	344	-10498.10	16393.37	64.0	Pass
T16	30 - 0	Redund Horz 2 Bracing	ROHN 2.5 EH	364	-11919.30	19314.37	61.7	Pass
		Redund Horz 2 Bracing	ROHN 2.5 EH	369	-12031.60	19314.37	62.3	Pass
		Redund Horz 2 Bracing	ROHN 2.5 EH	375	-12031.60	19314.37	62.3	Pass
		Redund Horz 2 Bracing	ROHN 2.5 EH	380	-11877.70	19314.37	61.5	Pass
		Redund Horz 2 Bracing	ROHN 2.5 EH	390	-11877.70	19314.37	61.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
		Redund Horz 2 Bracing	ROHN 2.5 EH	395	-11919.30	19314.37	61.7	Pass
T12	120 - 100	Redund Diag 1 Bracing	ROHN 2 STD	214	-6968.83	8240.93	84.6	Pass
		Redund Diag 1 Bracing	ROHN 2 STD	217	-7040.24	8240.93	85.4	Pass
		Redund Diag 1 Bracing	ROHN 2 STD	221	-7040.24	8240.93	85.4	Pass
		Redund Diag 1 Bracing	ROHN 2 STD	224	-6941.19	8240.93	84.2	Pass
		Redund Diag 1 Bracing	ROHN 2 STD	230	-6941.19	8240.93	84.2	Pass
		Redund Diag 1 Bracing	ROHN 2 STD	233	-6968.83	8240.93	84.6	Pass
T13	100 - 80	Redund Diag 1 Bracing	ROHN 2 EH	247	-7286.90	10013.26	72.8	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	250	-7360.68	10013.26	73.5	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	254	-7360.68	10013.26	73.5	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	257	-7257.86	10013.26	72.5	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	263	-7257.86	10013.26	72.5	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	266	-7286.90	10013.26	72.8	Pass
T14	80 - 60	Redund Diag 1 Bracing	ROHN 2 EH	280	-7645.25	9363.18	81.7	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	283	-7722.07	9363.18	82.5	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	287	-7722.07	9363.18	82.5	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	290	-7615.40	9363.18	81.3	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	296	-7615.40	9363.18	81.3	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	299	-7645.25	9363.18	81.7	Pass
T15	60 - 30	Redund Diag 1 Bracing	ROHN 2 EH	314	-10593.90	12214.30	86.7	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	319	-10695.00	12214.30	87.6	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	325	-10695.00	12214.30	87.6	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	330	-10556.80	12214.30	86.4	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	340	-10556.80	12214.30	86.4	Pass
		Redund Diag 1 Bracing	ROHN 2 EH	345	-10593.90	12214.30	86.7	Pass
T16	30 - 0	Redund Diag 1 Bracing	ROHN 2.5 STD	365	-11088.50	19895.56	55.7	Pass
		Redund Diag 1 Bracing	ROHN 2.5 STD	370	-11192.90	19895.56	56.3	Pass
		Redund Diag 1 Bracing	ROHN 2.5 STD	376	-11192.90	19895.56	56.3	Pass
		Redund Diag 1 Bracing	ROHN 2.5 STD	381	-11049.80	19895.56	55.5	Pass
		Redund Diag 1 Bracing	ROHN 2.5 STD	391	-11049.80	19895.56	55.5	Pass
		Redund Diag 1	ROHN 2.5 STD	396	-11088.50	19895.56	55.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
		Bracing						
T15	60 - 30	Redund Diag 2 Bracing	ROHN 2.5 STD	315	-6870.27	11227.66	61.2	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	320	-6935.87	11227.66	61.8	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	326	-6935.87	11227.66	61.8	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	331	-6846.22	11227.66	61.0	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	341	-6846.22	11227.66	61.0	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	346	-6870.27	11227.66	61.2	Pass
T16	30 - 0	Redund Diag 2 Bracing	ROHN 2.5 STD	366	-7449.81	9874.49	75.4	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	371	-7519.96	9874.49	76.2	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	377	-7519.96	9874.49	76.2	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	382	-7423.78	9874.49	75.2	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	392	-7423.78	9874.49	75.2	Pass
		Redund Diag 2 Bracing	ROHN 2.5 STD	397	-7449.81	9874.49	75.4	Pass
T12	120 - 100	Redund Hip 1 Bracing	ROHN 1.5 STD	225	-85.66	10632.30	0.8	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	234	-45.58	10632.30	0.4	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	236	-97.02	10632.30	0.9	Pass
T13	100 - 80	Redund Hip 1 Bracing	ROHN 1.5 STD	258	-88.05	8761.28	1.0	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	267	-47.19	8761.28	0.5	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	269	-98.47	8761.28	1.1	Pass
T14	80 - 60	Redund Hip 1 Bracing	ROHN 1.5 STD	291	-106.06	7382.57	1.4	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	300	-40.24	7382.57	0.5	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	302	-111.64	7382.57	1.5	Pass
T15	60 - 30	Redund Hip 1 Bracing	ROHN 1.5 STD	332	-253.98	14040.62	1.8	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	347	-126.39	14040.62	0.9	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	351	-289.49	14040.62	2.1	Pass
T16	30 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	383	-228.15	11387.79	2.0	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	398	-102.74	11387.79	0.9	Pass
		Redund Hip 1 Bracing	ROHN 1.5 STD	402	-256.40	11387.79	2.3	Pass
T15	60 - 30	Redund Hip 2 Bracing	ROHN 2 STD	333	-95.50	7541.63	1.3	Pass
		Redund Hip 2 Bracing	ROHN 2 STD	348	-95.63	7541.63	1.3	Pass
		Redund Hip 2 Bracing	ROHN 2 STD	352	-95.51	7541.63	1.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T16	30 - 0	Redund Hip 2 Bracing	ROHN 2 STD	384	-81.39	6116.11	1.3	Pass
		Redund Hip 2 Bracing	ROHN 2 STD	399	-81.12	6116.11	1.3	Pass
		Redund Hip 2 Bracing	ROHN 2 STD	403	-82.50	6116.11	1.3	Pass
T12	120 - 100	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	226	-109.21	9208.38	1.2	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	235	-42.71	6908.01	0.6	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	237	-65.45	9208.38	0.7	Pass
T13	100 - 80	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	259	-105.39	8261.03	1.3	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	268	-42.65	6197.32	0.7	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	270	-61.75	8261.03	0.7	Pass
T14	80 - 60	Redund Hip Diagonal 1 Bracing	ROHN 3 STD	292	-140.05	14642.34	1.0	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 3 STD	301	-54.88	10984.50	0.5	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 3 STD	303	-83.67	14642.34	0.6	Pass
T15	60 - 30	Redund Hip Diagonal 1 Bracing	ROHN 2 STD	334	-240.55	4630.28	5.2	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 2 STD	349	-156.01	4630.28	3.4	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 2 STD	353	-151.62	4630.28	3.3	Pass
T16	30 - 0	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	385	-231.02	9551.49	2.4	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	400	-146.45	9551.49	1.5	Pass
		Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	404	-142.33	9551.49	1.5	Pass
T15	60 - 30	Redund Hip Diagonal 2 Bracing	ROHN 2 STD	335	-130.66	2868.90	4.6	Pass
		Redund Hip Diagonal 2 Bracing	ROHN 2 STD	350	-67.88	2868.90	2.4	Pass
		Redund Hip Diagonal 2 Bracing	ROHN 2 STD	354	-166.16	2868.90	5.8	Pass
T16	30 - 0	Redund Hip Diagonal 2 Bracing	ROHN 2.5 STD	386	-128.49	5686.30	2.3	Pass
		Redund Hip Diagonal 2 Bracing	ROHN 2.5 STD	401	-72.89	5686.30	1.3	Pass
		Redund Hip Diagonal 2 Bracing	ROHN 2.5 STD	405	-158.91	5686.30	2.8	Pass
T12	120 - 100	Inner Bracing	ROHN 3 STD	238	-41.10	25879.26	0.3	Pass
		Inner Bracing	ROHN 3 STD	239	-18.24	25879.26	0.3	Pass
		Inner Bracing	ROHN 3 STD	240	-41.59	25879.26	0.3	Pass
T13	100 - 80	Inner Bracing	ROHN 3 STD	271	-42.41	21325.07	0.3	Pass
		Inner Bracing	ROHN 3 STD	272	-17.95	21325.07	0.3	Pass
		Inner Bracing	ROHN 3 STD	273	-41.38	21325.07	0.3	Pass
T14	80 - 60	Inner Bracing	ROHN 3 STD	304	-50.59	17969.37	0.3	Pass
		Inner Bracing	ROHN 3 STD	305	-23.87	17969.37	0.4	Pass
		Inner Bracing	ROHN 3 STD	306	-52.01	17969.37	0.3	Pass
T15	60 - 30	Inner Bracing	ROHN 3 STD	355	-80.09	15190.47	0.5	Pass
		Inner Bracing	ROHN 3 STD	356	-64.00	15190.47	0.4	Pass
		Inner Bracing	ROHN 3 STD	357	-46.76	15190.47	0.3	Pass
T16	30 - 0	Inner Bracing	ROHN 3 STD	406	-81.65	12319.16	0.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
		Inner Bracing	ROHN 3 STD	407	-66.60	12319.16	0.5	Pass
		Inner Bracing	ROHN 3 STD	408	-52.82	12319.16	0.4	Pass
							Summary	
							Leg (T15) 62.5	Pass
							Diagonal (T6) 94.7	Pass
							Horizontal (T15) 94.8	Pass
							Top Girt (T1) 3.2	Pass
							Redund Horz 1 Bracing (T16) 88.1	Pass
							Redund Horz 2 Bracing (T15) 64.7	Pass
							Redund Diag 1 Bracing (T15) 87.6	Pass
							Redund Diag 2 Bracing (T16) 76.2	Pass
							Redund Hip 1 Bracing (T16) 2.3	Pass
							Redund Hip 2 Bracing (T16) 1.3	Pass
							Redund Hip Diagonal 1 Bracing (T15) 5.2	Pass
							Redund Hip Diagonal 2 Bracing (T15) 5.8	Pass
							Inner Bracing (T16) 0.7	Pass
							Bolt Checks 94.7	Pass
							RATING = 94.8	**Pass**

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Job	320' Rohn SSVMW - Colchester, CT	Project No.	EMP-008 / VZW-217	Sheet 1	of 3
Description	Anchor Bolt Analysis	Computed by	MCD	Date	02/22/19
	TIA-222-F / DESPP Loading Requirements	Checked by		Date	

ANCHOR BOLT ANALYSIS

Input Data

Max Pier Reactions:

Uplift:	Uplift := 583.462kips	*user input*	
Shear:	Shear := 97.325kips	*user input*	
Compression:	Compression := 766.054kips	*user input*	

Anchor Bolt Data:

Use ASTM A354 Grade BC

Number of Anchor Bolts = N	N := 24	*user input*	
Bolt Ultimate Strength:	$F_u := 125 \cdot ksi$	*user input*	
Bolt Yield Strength:	Fy := 109·ksi	*user input*	
Bolt Modulus:	E := 29000ksi	*user input*	
Thickness of Anchor Bolts	D := 1in	*user input*	
Threads per Inch:	n := 8	*user input*	
Coefficient of Friction:	μ := 0.55	*user input*	(for baseplate with grout ASCE 10-97)

Anchor Bolt Area:

Gross Area of Bolt:

$$A_g := \frac{\pi}{4}\cdot D^2 \qquad A_g = 0.785\cdot in^2$$

Net Area of Bolt:

$$A_n := \frac{\pi}{4}\cdot\left(D - \frac{0.9743\cdot in}{n}\right)^2 \qquad A_n = 0.606\cdot in^2$$

Check Tensile Forces:

Maximum Tensile Force (Gross Area):

$$AllowableTension := 1.33\cdot\left(0.33\cdot A_g\cdot F_u\right) \qquad AllowableTension = 43.1\cdot kips$$

Note: 1.33 increase allowed per TIA/EIA

Maximum Tensile Force (Net Area):

$$F_{net.area} := 1.33\cdot\left(0.60\cdot A_n\cdot Fy\right) \qquad F_{net.area} = 52.7\cdot kips$$

Note: 1.33 increase allowed per TIA/EIA

Applied Tension:

$$MaxTension := \frac{Uplift}{N} \qquad MaxTension = 24.3\cdot kips$$

Check Stresses:

$$\frac{MaxTension}{F_{net.area}} = 0.46$$

$$Condition1 := if\left(\frac{MaxTension}{F_{net.area}} \le 1.00, "OK", "Overstressed"\right)$$

$$Condition1 = "OK"$$

Check Anchor Bolt Area:

Based on the ASCE 10-97 Design of Latticed Steel Transmission Structures

Required Area:

$$A_{s1} := \frac{Uplift}{Fy} + \frac{Shear}{\mu \cdot 0.85 \cdot Fy} \qquad A_{s1} = 7.3 \cdot in^2$$

$$A_{s2} := \left| \frac{Shear - (0.3 \cdot Compression)}{\mu \cdot 0.85 \cdot Fy} \right| \qquad A_{s2} = 2.6 \cdot in^2$$

Provided Area:

$$A_{sprovided} := A_n \cdot N \qquad A_{sprovided} = 14.5 \cdot in^2$$

$$Condition2 := if\left(\frac{A_{s1}}{A_{sprovided}} \le 1.00, "OK", "Overstressed" \right) \qquad \frac{A_{s1}}{A_{sprovided}} = 0.50$$

Condition2 = "OK"

$$Condition3 := if\left(\frac{A_{s2}}{A_{sprovided}} \le 1.00, "OK", "Overstressed" \right) \qquad \frac{A_{s2}}{A_{sprovided}} = 0.18$$

Condition3 = "OK"

AECOM

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Job	320' Rohn SSVMW - Colchester, CT	Project No.	EMP-008 / VZW-217	Sheet 1	of 2
Description	Evaluation of Drilled Pier Caisson	Computed by	MCD	Date	02/22/19
	TIA-222-F / DESPP Loading Requirements	Checked by		Date	

3 Sided self supporting Tower Foundation drilled Pier

Compression:	$DownLoad := 766.054\,kips$	$\gamma c := 150\,pcf$	Concrete unit weight
Uplift:	$uplift := 583.462\,kips$	$\gamma w := 62.4\,pcf$	Water unit weight
Depth Neglected for Skin Friction at the top	$Depthunbond := 4\cdot ft$	$\gamma s := 120\,pcf$	Soil unit weight
Drill Caisson length	$CasissonLength := 35.5\cdot ft$	$Pier\phi := 7.5\cdot ft$	Pier diameter
Water Table Below grade:	$Wd := 10\cdot ft$	$hg := 0.5\cdot ft$	Height of Pier Above grade
Ave allowable Shear at Depth of 4' to 10'	$f1 := 380\,psf$	Per BL Companies Report 9.13.2000	$SoilBearingCapacity = 6.7\,ksf$ Allowable Bearing Pressure at Depth 35'
Ave allowable Shear at Depth of 10' to 35'	$f2 := 700\,psf$		

Loading:

$$TotalDownLoad := DownLoad + \pi\cdot\frac{Pier\phi^2}{4}\cdot[hg\cdot\gamma c + [(\gamma c - \gamma s)\cdot(CasissonLength - hg)]]$$

$$TotalDownLoad = 815.75\,kips$$

$$Pierweight := \pi\cdot\frac{Pier\phi^2}{4}\cdot[(Wd + hg)\cdot\gamma c + (CasissonLength - Wd - hg)\cdot(\gamma c - \gamma w)]$$

$$Pierweight = 166.33\,kips$$

$$Soilshear := \pi\cdot Pier\phi\cdot[f1\cdot(Wd - Depthunbond) + f2\cdot(CasissonLength - Wd - hg)]$$

$$Soilshear = 466.06\,kips$$

Compression Capacity:

$$TotalDownLoadCapacity := Soilshear + SoilBearingCapacity\cdot\left(\pi\cdot\frac{Pier\phi^2}{4}\right)$$

$$TotalDownLoadCapacity = 762.05\cdot kips$$

Tension Capacity:

$$TotalUpLiftCapacity := Soilshear + Pierweight$$

$$TotalUpLiftCapacity = 632.39\cdot kips$$

AECOM

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Job	320' Rohn SSVMW - Colchester, CT	Project No.	EMP-008 / VZW-217	Sheet 2	of 2
Description	Evaluation of Drilled Pier Caisson	Computed by	MCD	Date	02/22/19
	TIA-222-F / DESPP Loading Requirements	Checked by		Date	

Check Cone Failure

$$ConeFailureCapacity := \frac{[(CasissonLength - hg)\cdot\tan(30\cdot deg)\cdot 2 + Pier\phi]^2\cdot\pi}{4}\cdot\frac{CasissonLength - hg}{3}\cdot\gamma s$$

$ConeFailureCapacity = 2524.37\cdot kips$

$CheckConeFailureCapacity := if(uplift < ConeFailureCapacity, "Okay", "No Good")$

$CheckConeFailureCapacity = "Okay"$

$$\frac{uplift}{ConeFailureCapacity} = 23.1\cdot\%$$

Foundation Check (Previous foundation Mod. designed by URS dated 7/13/2012 (VZ5-122)):

Add Concrete around existing caisson foundations

$L_{modification} := 12ft$ $Depth_{modification} := 4ft$

$$Area_{modification} := L_{modification}^2 - \pi\cdot\frac{Pier\phi^2}{4} \qquad Area_{modification} = 99.82\,ft^2$$

$Weight_{modification} := Area_{modification}\cdot Depth_{modification}\cdot\gamma c$ $Weight_{modification} = 59.89\cdot kip$

$SoilBearingCapacity_{4ft} := 2ksf$ Soil Bearing Capacity at 4' Below --> Based on Boring Logs

$TotalDownLoad_2 := TotalDownLoad + Weight_{modification}$ $TotalDownLoad_2 = 875.65\cdot kip$

$TotalDownLoadCapacity_2 := TotalDownLoadCapacity + Area_{modification}\cdot SoilBearingCapacity_{4ft}$

$TotalDownLoadCapacity_2 = 961.69\cdot kip$

$CheckDownLoadCapacity_2 := if(TotalDownLoad_2 < TotalDownLoadCapacity_2, "Okay", "No Good")$

$CheckDownLoadCapacity_2 = "Okay"$

$$\frac{TotalDownLoad_2}{TotalDownLoadCapacity_2} = 91.1\cdot\%$$

$TotalUpLiftCapacity_2 := TotalUpLiftCapacity + Weight_{modification}$

$TotalUpLiftCapacity_2 = 692.28\cdot kips$

$CheckUpLiftCapacity_2 := if(uplift < TotalUpLiftCapacity_2, "Okay", "No Good")$

$CheckUpLiftCapacity_2 = "Okay"$

$$\frac{uplift}{TotalUpLiftCapacity_2} = 84.3\cdot\%$$

EXHIBIT 4

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

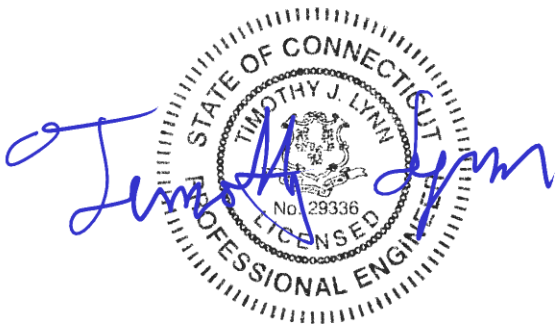
AT&T Mobility – LTE 2C

AT&T Site Ref: CT2284
Colchester Munn Road State Police

268 Windham Avenue
Colchester, CT

Centek Project No. 17004.46

~~Date: September 20, 2017~~
~~Rev 1: October 11, 2017~~
~~Rev 2: October 11, 2017~~
Rev 3: May 1, 2019



Prepared for:

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

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CENTEK engineering

Centered on Solutions℠

May 1, 2019

Ms. David Cooper
Site Acquisition Manager
Empire Telecom USA, LLC
16 Esquire Road
Billerica, MA 08162

Re: Structural Letter ~ Antenna Mount
AT&T – Site Ref: CT2284 – Colchester Munn Road State Police
268 Windham Ave
Colchester, CT 06415

Centek Project No. 17004.46 ~ Rev. 3

Dear Mr. Cooper,

Centek Engineering, Inc. has reviewed the AT&T Mobility antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the existing mount, consisting of three (3) SitePro Lightweight T-Frames to support the equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The AT&T Mobility loads considered in this analysis consist of the following:

- **AT&T Mobility:**
  T-Frames: Six (6) Powerwave 7770 panel antennas, two (2) CCI HPA-65R-BUU-H8 panel antennas, one (1) CCI HPA-65R-BUU-H6 panel antenna, six (6) Powerwave LGP21401 TMAs, six (6) Powerwave LGP13519 diplexers, three (3) Ericsson RRUS-11 remote radio heads, three (3) Ericsson RRUS-32 B2 remote radio heads and one (1) Raycap DC6-48-60-18-8F surge arrestor mounted on three (3) lightweight T-Frames with a RAD center elevation of 200-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 101 mph for Colchester as required in Appendix N of the 2018 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the **subject antenna mount with the modifications detailed within this report has sufficient capacity** to support the aforementioned antenna configuration. Modification to the existing mount will be required prior to the equipment upgrade. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT · TIMOTHY J. LYNN · No. 29336 · LICENSED PROFESSIONAL ENGINEER

Section 2 - Calculations

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

Subject: TIA-222-G Loads

Location: Colchester, CT

Rev. 3: 5/1/19

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 17004.46

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

Wind Speeds

Basic Wind Speed $V := 101$ mph (User Input - 2018 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 = $SC := II$ (User Input)

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

Structure Height = $h := 320$ ft (User Input)

Height to Center of Antennas = $z_{AT\&T} := 200$ 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 = $G_H := 0.85$ (User Input)

Output

Wind Direction Probability Factor =

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

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

Importance Factors =

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

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

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

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

$$K_{iz} := \left(\frac{z_{AT\&T}}{33}\right)^{0.1} = 1.197$$

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.796$$

Velocity Pressure Coefficient Antennas =

$$Kz_{AT\&T} := 2.01\left(\left(\frac{z_{AT\&T}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.464$$

Velocity Pressure w/o Ice Antennas =

$$qz_{AT\&T} := 0.00256 \cdot K_d \cdot Kz_{AT\&T} \cdot V^2 \cdot I_{Wind} = 32.507$$

Velocity Pressure with Ice Antennas =

$$qz_{ice.AT\&T} := 0.00256 \cdot K_d \cdot Kz_{AT\&T} \cdot V_i^2 \cdot I_{Wind} = 7.967$$

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Subject:	TIA-222-G Loads
Location:	Colchester, CT
Rev. 3: 5/1/19	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17004.46

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Powerwave 7770		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55$	in	(User Input)
Antenna Width =	$W_{ant} := 11$	in	(User Input)
Antenna Thickness =	$T_{ant} := 5$	in	(User Input)
Antenna Weight =	$WT_{ant} := 35$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 5.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.31$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.2$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 152$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.9$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 69$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 5.9$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 53$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 3.5$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 31$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 35$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 3025$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 3871$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 125$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 125$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	CCI HPA-65R-BUU-H6		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 14.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 9.0$	in	(User Input)
Antenna Weight =	$WT_{ant} := 51$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.9$		
Antenna Force Coefficient =	$Ca_{ant} = 1.31$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 7.4$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 267$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 4.5$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 162$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 9.7$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 85$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 6.6$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 58$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 51$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 9590$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 7917$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 257$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 257$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	CCI HPA-65R-BUU-H8		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 92.4$	in	(User Input)
Antenna Width =	$W_{ant} := 14.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.4$	in	(User Input)
Antenna Weight =	$WT_{ant} := 68$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 6.2$		
Antenna Force Coefficient =	$Ca_{ant} = 1.37$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 9.5$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 359$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 4.7$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 179$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 12.3$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 113$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 7.3$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 68$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 68$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 1 \times 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 9287$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 301$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 301$	lbs

Development of Wind & Ice Load on TMA's

TMA Data:

TMA Model =	Powerwave LGP21401TMA		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 14.4$	in	(User Input)
TMA Width =	$W_{TMA} := 9.2$	in	(User Input)
TMA Thickness =	$T_{TMA} := 2.6$	in	(User Input)
TMA Weight =	$WT_{TMA} := 14$	lbs	(User Input)
Number of TMA's =	$N_{TMA} := 2$		(User Input)
TMA Aspect Ratio =	$Ar_{TMA} := \frac{L_{TMA}}{W_{TMA}} = 1.6$		
TMA Force Coefficient =	$Ca_{TMA} = 1.2$		

Wind Load (without ice)

Surface Area for One TMA =	$SA_{TMAF} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.9$	sf
Total TMA Wind Force =	$F_{TMA} := qz_{AT\&T} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAF} = 31$	lbs
Surface Area for One TMA =	$SA_{TMAS} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.3$	sf
Total TMA Wind Force =	$F_{TMA} := qz_{AT\&T} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAS} = 9$	lbs

Wind Load (with ice)

Surface Area for One TMA w/ Ice =	$SA_{ICETMAF} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz})}{144} = 1.6$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAF} = 13$	lbs
Surface Area for One TMA w/ Ice =	$SA_{ICETMAS} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz})}{144} = 0.8$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAS} = 6$	lbs

Gravity Load (without ice)

Weight of All TMAs =	$WT_{TMA} \cdot N_{TMA} = 28$	lbs

Gravity Loads (ice only)

Volume of Each TMA =	$V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 344$	cu in
Volume of Ice on Each TMA =	$V_{ice} := (L_{TMA} + 2 \cdot t_{iz})(W_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz}) - V_{TMA} = 1081$	cu in
Weight of Ice on Each TMA =	$W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 35$	lbs
Weight of Ice on All TMAs =	$W_{ICETMA} \cdot N_{TMA} = 70$	lbs

Development of Wind & Ice Load on Diplexer's

Diplexer Data:

Diplexer Model =	Powerwave LGP-13519 Diplexer		
Diplexer Shape =	Flat		(User Input)
Diplexer Height =	$L_{Dpl} := 6.3$	in	(User Input)
Diplexer Width =	$W_{Dpl} := 4.4$	in	(User Input)
Diplexer Thickness =	$T_{Dpl} := 3$	in	(User Input)
Diplexer Weight =	$WT_{Dpl} := 5$	lbs	(User Input)
Number of Diplexer's =	$N_{Dpl} := 2$		(User Input)
Diplexer Aspect Ratio =	$Ar_{Dpl} := \frac{L_{Dpl}}{W_{Dpl}} = 1.4$		
Diplexer Force Coefficient =	$Ca_{Dpl} = 1.2$		

Wind Load (without ice)

Surface Area for One Diplexer =	$SA_{DplF} := \frac{L_{Dpl} \cdot W_{Dpl}}{144} = 0.2$	sf
Total Diplexer Wind Force =	$F_{Dpl} := qz_{AT\&T} \cdot G_H \cdot Ca_{Dpl} \cdot K_a \cdot SA_{DplF} = 6$	lbs
Surface Area for One Diplexer =	$SA_{DplS} := \frac{L_{Dpl} \cdot T_{Dpl}}{144} = 0.1$	sf
Total Diplexer Wind Force =	$F_{Dpl} := qz_{AT\&T} \cdot G_H \cdot Ca_{Dpl} \cdot K_a \cdot SA_{DplS} = 4$	lbs

Wind Load (with ice)

Surface Area for One Diplexer w/ Ice =	$SA_{ICEDplF} := \frac{(L_{Dpl} + 2 \cdot t_{iz}) \cdot (W_{Dpl} + 2 \cdot t_{iz})}{144} = 0.5$	sf
Total Diplexer Wind Force w/ Ice =	$Fi_{Dpl} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{Dpl} \cdot K_a \cdot SA_{ICEDplF} = 4$	lbs
Surface Area for One Diplexer w/ Ice =	$SA_{ICEDplS} := \frac{(L_{Dpl} + 2 \cdot t_{iz}) \cdot (T_{Dpl} + 2 \cdot t_{iz})}{144} = 0.5$	sf
Total Diplexer Wind Force w/ Ice =	$Fi_{Dpl} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{Dpl} \cdot K_a \cdot SA_{ICEDplS} = 4$	lbs

Gravity Load (without ice)

Weight of All Diplexers =	$WT_{Dpl} \cdot N_{Dpl} = 10$	lbs

Gravity Loads (ice only)

Volume of Each Diplexer =	$V_{Dpl} := L_{Dpl} \cdot W_{Dpl} \cdot T_{Dpl} = 83$	cu in
Volume of Ice on Each Diplexer =	$V_{ice} := (L_{Dpl} + 2 \cdot t_{iz})(W_{Dpl} + 2 \cdot t_{iz}) \cdot (T_{Dpl} + 2 \cdot t_{iz}) - V_{Dpl} = 438$	cu in
Weight of Ice on Each Diplexer =	$W_{ICEDpl} := \frac{V_{ice}}{1728} \cdot Id = 14$	lbs
Weight of Ice on All Diplexers =	$W_{ICEDpl} \cdot N_{Dpl} = 28$	lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model = RRUS-11

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 17.8$ in (User Input)

RRUS Width = $W_{RRUS} := 17.3$ in (User Input)

RRUS Thickness = $T_{RRUS} := 7.2$ in (User Input)

RRUS Weight = $WT_{RRUS} := 50$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$ (User Input)

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 2.1$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 71$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 0.9$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 30$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.1$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 25$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.6$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 13$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 50$ lbs

Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2217$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2606$

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 84$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 84$ lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model = RRUS-32

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 26.7$ in (User Input)

RRUS Width = $W_{RRUS} := 12.1$ in (User Input)

RRUS Thickness = $T_{RRUS} := 6.7$ in (User Input)

RRUS Weight = $WT_{RRUS} := 60$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$ (User Input)

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 2.2$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 2.2$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 74$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.2$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 41$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.3$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 27$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 2.2$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 18$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 60$ lbs

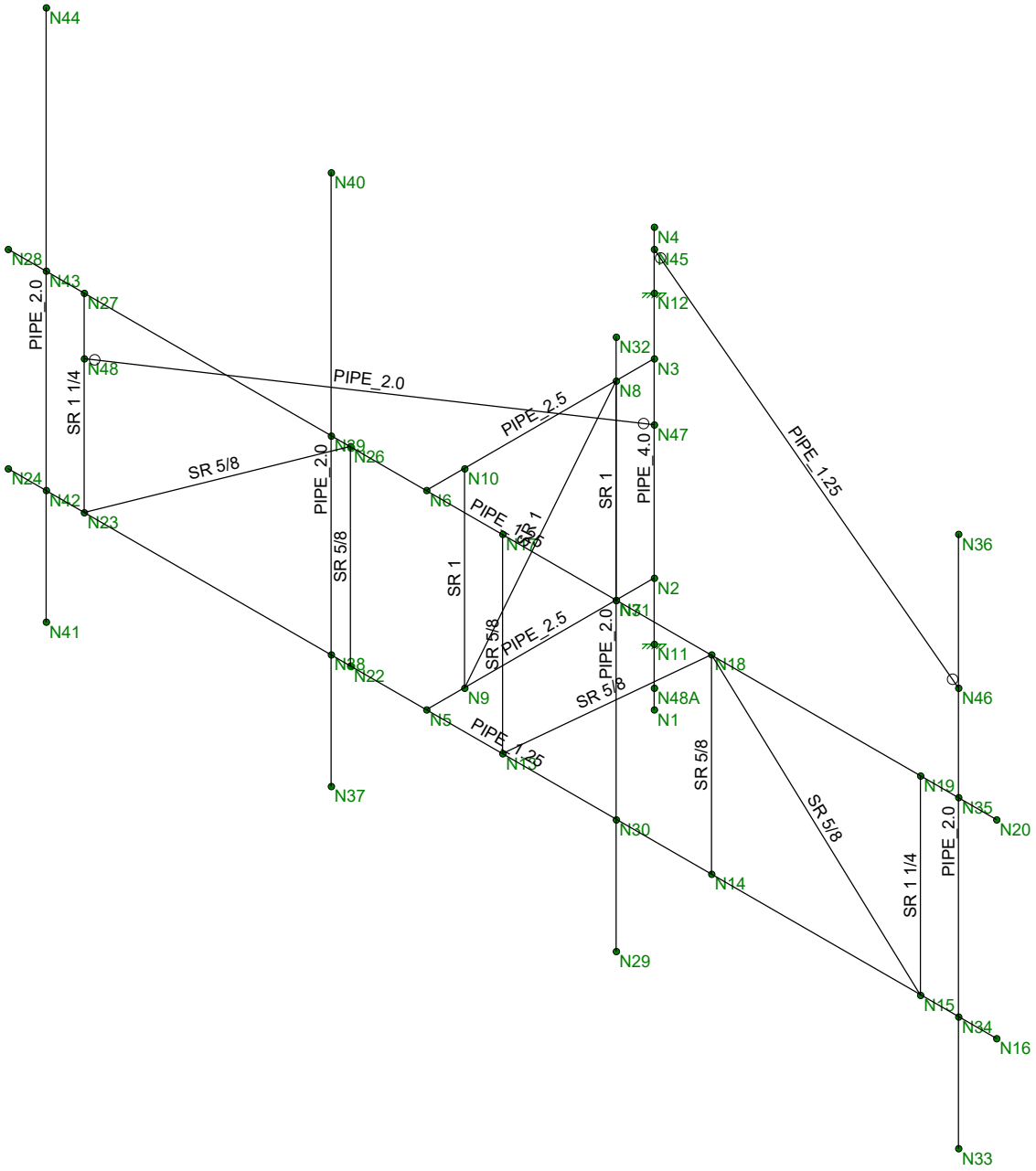
Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2165$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2728$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 88$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 88$ lbs



Centek		
TJL	CT2284 - Mount	Oct 11, 2017 at 3:20 PM
17004.46	Member Shapes	Mount.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Pipe 4" Std	PIPE_4.0	Beam	Pipe	A53 Grade B	Typical	2.96	6.82	6.82	13.6
2	Pipe 1.25" Std	PIPE_1.25	Beam	Pipe	A53 Grade B	Typical	.625	.184	.184	.368
3	Pipe 2.0" Std.	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
4	Pipe 2.5" Std	PIPE_2.5	Beam	Pipe	A53 Grade B	Typical	1.61	1.45	1.45	2.89
5	SR1-1/4	SR 1 1/4	Beam	Pipe	A36 Gr.36	Typical	1.227	.12	.12	.24
6	SR1	SR 1	Beam	Pipe	A36 Gr.36	Typical	.785	.049	.049	.098
7	SR5/8	SR 5/8	Beam	Pipe	A36 Gr.36	Typical	.307	.007	.007	.015

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	Pipe 4" Std	5.5			Lbyy						Lateral
2	M2	Pipe 2.5" Std	3			Lbyy						Lateral
3	M3	Pipe 2.5" Std	3			Lbyy						Lateral
4	M4	Pipe 1.25" ...	13	2.75	2.75	2.75	2.75	2.75				Lateral
5	M5	Pipe 1.25" ...	13	2.75	2.75	2.75	2.75	2.75				Lateral
6	M6	SR1	2.5			Lbyy						Lateral
7	M7	SR1	3.202			Lbyy						Lateral
8	M8	SR1	2.5			Lbyy						Lateral
9	M9	SR1-1/4	2.5			Lbyy						Lateral
10	M10	SR1-1/4	2.5			Lbyy						Lateral
11	M11	SR5/8	4.301			Lbyy						Lateral
12	M14	SR5/8	2.5			Lbyy						Lateral
13	M15	SR5/8	3.717			Lbyy						Lateral
14	M16	SR5/8	3.717			Lbyy						Lateral
15	M17	SR5/8	2.5			Lbyy						Lateral
16	M18	SR5/8	2.5			Lbyy						Lateral
17	M19	Pipe 2.0" Std.	7			Lbyy						Lateral
18	M20	Pipe 2.0" Std.	7			Lbyy						Lateral
19	M21	Pipe 2.0" Std.	7			Lbyy						Lateral
20	M22	Pipe 2.0" Std.	7			Lbyy						Lateral
21	M23	Pipe 1.25" ...	7.616			Lbyy						Lateral
22	M23A	Pipe 2.0" Std.	5.408			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N4			Pipe 4" Std	Beam	Pipe	A53 Gra...	Typical
2	M2	N6	N3			Pipe 2.5" Std	Beam	Pipe	A53 Gra...	Typical
3	M3	N5	N2			Pipe 2.5" Std	Beam	Pipe	A53 Gra...	Typical
4	M4	N28	N20			Pipe 1.25" Std	Beam	Pipe	A53 Gra...	Typical
5	M5	N24	N16			Pipe 1.25" Std	Beam	Pipe	A53 Gra...	Typical
6	M6	N8	N7			SR1	Beam	Pipe	A36 Gr.36	Typical
7	M7	N8	N9			SR1	Beam	Pipe	A36 Gr.36	Typical
8	M8	N9	N10			SR1	Beam	Pipe	A36 Gr.36	Typical
9	M9	N23	N27			SR1-1/4	Beam	Pipe	A36 Gr.36	Typical
10	M10	N15	N19			SR1-1/4	Beam	Pipe	A36 Gr.36	Typical
11	M11	N23	N26			SR5/8	Beam	Pipe	A36 Gr.36	Typical
12	M14	N22	N26			SR5/8	Beam	Pipe	A36 Gr.36	Typical
13	M15	N15	N18			SR5/8	Beam	Pipe	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
14	M16	N18	N13			SR5/8	Beam	Pipe	A36 Gr.36	Typical
15	M17	N13	N17			SR5/8	Beam	Pipe	A36 Gr.36	Typical
16	M18	N14	N18			SR5/8	Beam	Pipe	A36 Gr.36	Typical
17	M19	N29	N32			Pipe 2.0" Std.	Beam	Pipe	A53 Gra...	Typical
18	M20	N33	N36			Pipe 2.0" Std.	Beam	Pipe	A53 Gra...	Typical
19	M21	N37	N40			Pipe 2.0" Std.	Beam	Pipe	A53 Gra...	Typical
20	M22	N41	N44			Pipe 2.0" Std.	Beam	Pipe	A53 Gra...	Typical
21	M23	N46	N45			Pipe 1.25" Std	Beam	Pipe	A53 Gra...	Typical
22	M23A	N47	N48			Pipe 2.0" Std.	Beam	Pipe	A53 Gra...	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	0	1.5	0	0	
3	N3	0	4	0	0	
4	N4	0	5.5	0	0	
5	N5	0	1.5	3	0	
6	N6	0	4	3	0	
7	N7	0	1.5	.5	0	
8	N8	0	4	.5	0	
9	N9	0	1.5	2.5	0	
10	N10	0	4	2.5	0	
11	N11	0	.75	0	0	
12	N12	0	4.75	0	0	
13	N13	1	1.5	3	0	
14	N14	3.75	1.5	3	0	
15	N15	6.5	1.5	3	0	
16	N16	7.5	1.5	3	0	
17	N17	1	4	3	0	
18	N18	3.75	4	3	0	
19	N19	6.5	4	3	0	
20	N20	7.5	4	3	0	
21	N22	-1	1.5	3	0	
22	N23	-4.5	1.5	3	0	
23	N24	-5.5	1.5	3	0	
24	N26	-1	4	3	0	
25	N27	-4.5	4	3	0	
26	N28	-5.5	4	3	0	
27	N29	2.5	0	3	0	
28	N30	2.5	1.5	3	0	
29	N31	2.5	4	3	0	
30	N32	2.5	7	3	0	
31	N33	7	0	3	0	
32	N34	7	1.5	3	0	
33	N35	7	4	3	0	
34	N36	7	7	3	0	
35	N37	-1.25	0	3	0	
36	N38	-1.25	1.5	3	0	
37	N39	-1.25	4	3	0	
38	N40	-1.25	7	3	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
39	N41	-5	0	3	0	
40	N42	-5	1.5	3	0	
41	N43	-5	4	3	0	
42	N44	-5	7	3	0	
43	N45	0	5.25	0	0	
44	N46	7	5.25	3	0	
45	N48A	0	.25	0	0	
46	N47	0	3.25	0	0	
47	N48	-4.5	3.25	3	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	N12	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N11	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Point Loads (BLC 2 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Y	-.018	2
2	M20	Y	-.018	2
3	M19	Y	-.018	5.5
4	M20	Y	-.018	5.5
5	M22	Y	-.034	.5
6	M22	Y	-.034	6.5
7	M10	Y	-.028	%50
8	M19	Y	-.01	5
9	M22	Y	-.05	2.5
10	M22	Y	-.06	4.5

Member Point Loads (BLC 3 : Ice Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Y	-.063	2
2	M20	Y	-.063	2
3	M19	Y	-.063	5.5
4	M20	Y	-.063	5.5
5	M22	Y	-.151	.5
6	M22	Y	-.151	6.5
7	M10	Y	-.07	%50
8	M19	Y	-.028	5
9	M22	Y	-.084	2.5
10	M22	Y	-.088	4.5

Member Point Loads (BLC 4 : Wind with Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	X	.016	2
2	M20	X	.016	2
3	M19	X	.016	5.5
4	M20	X	.016	5.5
5	M22	X	.034	.5

Member Point Loads (BLC 4 : Wind with Ice X) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
6	M22	X	.034	6.5
7	M10	X	.006	%50
8	M19	X	.004	5
9	M22	X	.013	2.5
10	M22	X	.018	4.5

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	X	.035	2
2	M20	X	.035	2
3	M19	X	.035	5.5
4	M20	X	.035	5.5
5	M22	X	.09	.5
6	M22	X	.09	6.5
7	M10	X	.009	%50
8	M19	X	.004	5
9	M22	X	.03	2.5
10	M22	X	.041	4.5

Member Point Loads (BLC 6 : Wind with Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	.027	2
2	M20	Z	.027	2
3	M19	Z	.027	5.5
4	M20	Z	.027	5.5
5	M22	Z	.057	.5
6	M22	Z	.057	6.5
7	M10	Z	.013	%50

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	.076	2
2	M20	Z	.076	2
3	M19	Z	.076	5.5
4	M20	Z	.076	5.5
5	M22	Z	.18	.5
6	M22	Z	.18	6.5
7	M10	Z	.031	%50

Member Distributed Loads (BLC 4 : Wind with Ice X)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M22	X	.002	.002	0	0
2	M21	X	.002	.002	0	0
3	M19	X	.002	.002	0	0
4	M20	X	.002	.002	0	0
5	M2	X	.002	.002	0	0
6	M3	X	.002	.002	0	0
7	M8	X	.002	.002	0	0
8	M7	X	.002	.002	0	0

Member Distributed Loads (BLC 4 : Wind with Ice X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
9	M6	X	.002	.002	0	0
10	M1	X	.002	.002	0	0
11	M23	X	.002	.002	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M22	X	.005	.005	0	0
2	M21	X	.005	.005	0	0
3	M19	X	.005	.005	0	0
4	M20	X	.005	.005	0	0
5	M2	X	.005	.005	0	0
6	M3	X	.005	.005	0	0
7	M8	X	.005	.005	0	0
8	M7	X	.005	.005	0	0
9	M6	X	.005	.005	0	0
10	M1	X	.005	.005	0	0
11	M23	X	.005	.005	0	0

Member Distributed Loads (BLC 6 : Wind with Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M23	Z	.002	.002	0	0
2	M4	Z	.002	.002	0	0
3	M5	Z	.002	.002	0	0
4	M9	Z	.002	.002	0	0
5	M11	Z	.002	.002	0	0
6	M14	Z	.002	.002	0	0
7	M17	Z	.002	.002	0	0
8	M16	Z	.002	.002	0	0
9	M18	Z	.002	.002	0	0
10	M15	Z	.002	.002	0	0
11	M10	Z	.002	.002	0	0
12	M1	Z	.002	.002	0	0

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M23	Z	.005	.005	0	0
2	M4	Z	.005	.005	0	0
3	M5	Z	.005	.005	0	0
4	M9	Z	.005	.005	0	0
5	M11	Z	.005	.005	0	0
6	M14	Z	.005	.005	0	0
7	M17	Z	.005	.005	0	0
8	M16	Z	.005	.005	0	0
9	M18	Z	.005	.005	0	0
10	M15	Z	.005	.005	0	0
11	M10	Z	.005	.005	0	0
12	M1	Z	.005	.005	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Self Weight	DL		-1						
2	Dead Load	None					10			
3	Ice Load	None					10			
4	Wind with Ice X	None					10	11		
5	Wind X	None					10	11		
6	Wind with Ice Z	None					7	12		
7	Wind Z	None					7	12		

Load Combinations

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

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N12	max	.299	4	.951	6	-.44	2	.523	6	.881	4	1.175	4
2		min	-.751	2	.328	2	-1.64	4	.159	2	-1.672	2	-.329	2
3	N11	max	-.281	5	.651	3	1.346	3	.549	3	-.385	6	.267	1
4		min	-.35	1	.113	5	-.119	5	-.2	5	-1.213	1	-.178	5
5	Totals:	max	0	4	1.576	3	0	1						
6		min	-1.089	1	.564	5	-1.619	5						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
1	N1	max	0	2	0	5	0	5	0	2	0	1	5.119e-07	2
2		min	0	6	0	3	0	2	-5.119e-07	5	0	6	0	6
3	N2	max	0	1	0	5	0	5	1.101e-04	5	8.633e-04	1	1.932e-04	5
4		min	0	5	0	3	-.001	3	-3.025e-05	3	2.744e-04	6	-9.69e-05	2
5	N3	max	0	2	0	2	.002	4	2.392e-05	3	1.19e-03	2	6.548e-05	1
6		min	-.002	4	0	6	0	2	-1.381e-04	5	-6.271e-04	4	-1.781e-04	4
7	N4	max	.001	5	0	5	0	4	2.067e-05	4	0	2	4.059e-06	3
8		min	0	3	0	1	0	2	-4.391e-06	2	0	4	-1.138e-04	5
9	N5	max	.2	1	-.005	5	0	5	1.487e-03	3	7.96e-03	1	4.081e-03	5
10		min	.073	5	-.021	3	-.003	3	1.76e-04	5	4.074e-05	5	-1.593e-03	2
11	N6	max	.311	2	-.006	5	.002	4	1.513e-03	3	1.176e-02	2	4.05e-03	5
12		min	-.237	4	-.022	3	0	2	2.56e-04	5	-9.797e-03	4	-1.48e-03	2
13	N7	max	.013	1	0	2	0	5	1.779e-04	6	2.979e-03	1	8.678e-04	5
14		min	.006	6	-.001	6	-.002	3	6.077e-05	2	1.526e-03	6	-3.644e-04	2
15	N8	max	.019	2	0	5	.002	4	3.189e-04	6	4.708e-03	2	5.94e-04	5
16		min	-.014	4	-.002	3	0	2	1.076e-04	2	-3.179e-03	4	-1.862e-04	2
17	N9	max	.153	1	-.003	5	0	5	1.193e-03	3	7.675e-03	1	3.589e-03	5
18		min	.067	5	-.012	3	-.003	3	2.074e-04	5	1.575e-03	5	-1.41e-03	2

Envelope Joint Displacements (Continued)

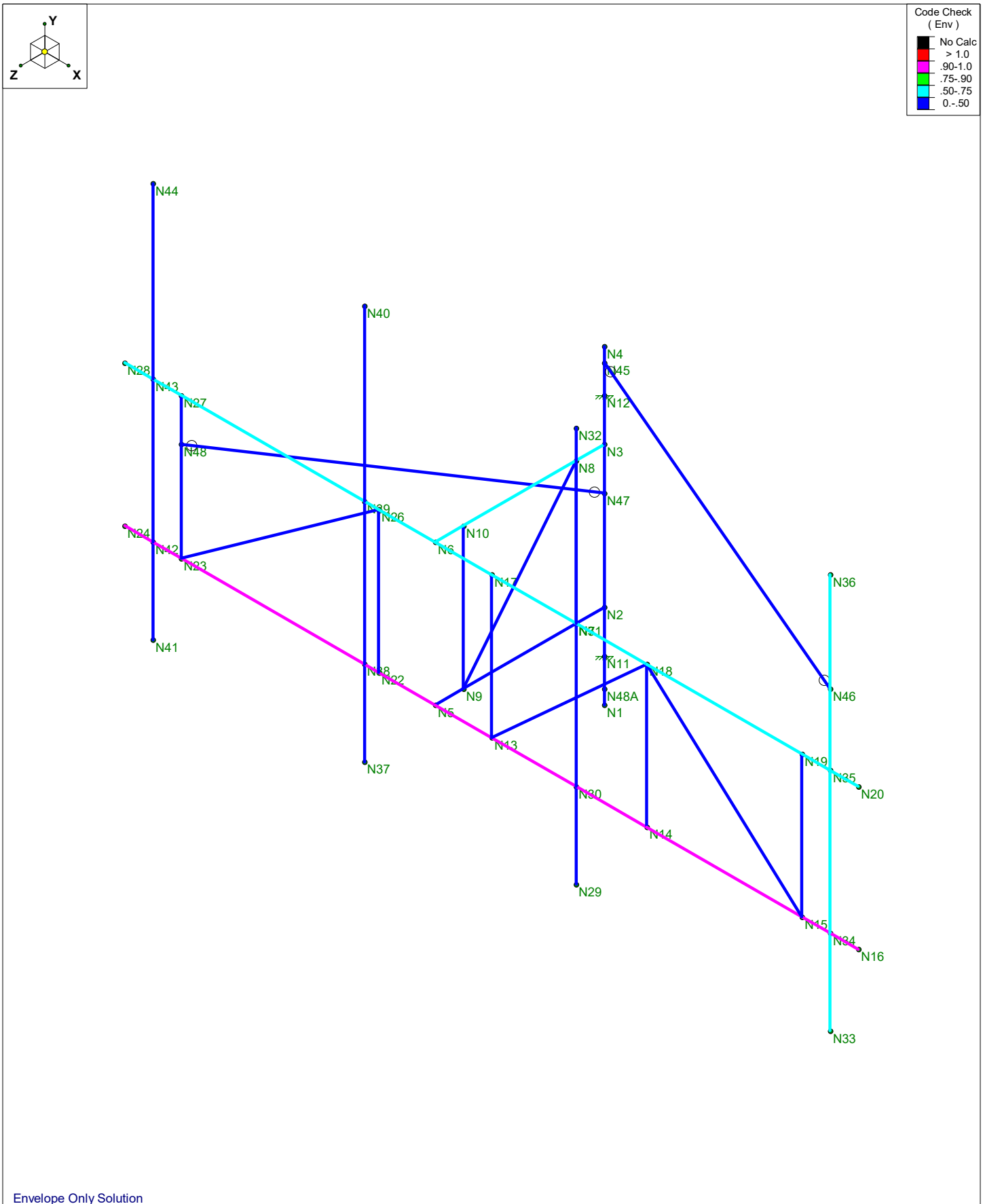
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
19	N10	max	.24	2	-.004	5	.002	4	1.206e-03	3	1.171e-02	2	3.505e-03	5
20		min	-.179	4	-.013	3	0	2	2.574e-04	5	-9.333e-03	4	-1.27e-03	2
21	N11	max	0	1	0	5	0	5	0	5	0	1	0	5
22		min	0	5	0	3	0	3	0	3	0	6	0	1
23	N12	max	0	2	0	2	0	4	0	2	0	2	0	2
24		min	0	4	0	6	0	2	0	6	0	4	0	4
25	N13	max	.2	1	.055	5	.132	5	1.855e-03	3	9.321e-03	1	6.663e-03	5
26		min	.073	5	-.065	3	-.105	1	-4.69e-04	5	-2.018e-02	4	-6.067e-03	3
27	N14	max	.2	1	.379	5	1.16	4	2.647e-03	3	1.054e-02	2	1.062e-02	5
28		min	.074	5	-.173	2	-.439	2	-8.873e-03	5	-3.781e-02	4	-3.836e-03	2
29	N15	max	.199	1	.71	5	2.375	4	3.048e-03	3	1.075e-02	2	1.242e-02	4
30		min	.075	5	-.302	2	-.792	2	-2.372e-02	5	-3.149e-02	4	-4.168e-03	2
31	N16	max	.199	1	.836	5	2.731	4	3.095e-03	3	1.075e-02	2	1.067e-02	4
32		min	.075	5	-.351	2	-.921	2	-2.574e-02	5	-2.907e-02	4	-3.967e-03	2
33	N17	max	.312	2	.056	5	.174	4	1.874e-03	3	1.075e-02	2	6.744e-03	5
34		min	-.238	4	-.065	3	-.134	2	-4.384e-04	5	-1.838e-02	4	-5.93e-03	3
35	N18	max	.313	2	.38	5	.934	4	2.653e-03	3	1.049e-02	2	1.082e-02	5
36		min	-.24	4	-.173	2	-.478	2	-9.686e-03	4	-2.124e-02	4	-3.707e-03	2
37	N19	max	.313	2	.709	5	1.597	4	3.038e-03	3	1.072e-02	2	1.139e-02	4
38		min	-.243	4	-.302	2	-.828	2	-2.649e-02	5	-2.289e-02	4	-4.031e-03	2
39	N20	max	.314	2	.866	5	1.889	4	3.077e-03	3	1.073e-02	2	1.547e-02	4
40		min	-.244	4	-.354	2	-.957	2	-2.88e-02	5	-2.496e-02	4	-4.466e-03	2
41	N22	max	.201	1	.014	2	.096	1	8.391e-04	1	8.208e-03	2	9.697e-03	4
42		min	.073	5	-.095	6	-.019	5	-1.799e-03	4	-2.818e-03	4	-2.598e-03	2
43	N23	max	.203	1	.166	2	.418	2	2.268e-04	1	7.021e-03	2	1.075e-02	4
44		min	.075	5	-.554	4	-.079	6	-5.007e-03	4	-1.001e-03	6	-4.119e-03	2
45	N24	max	.203	1	.207	2	.502	2	1.107e-04	1	6.898e-03	2	1.139e-02	4
46		min	.075	5	-.692	4	-.086	6	-4.341e-03	4	-4.836e-04	6	-3.017e-03	2
47	N26	max	.311	2	.014	2	.124	2	8.508e-04	1	8.991e-03	2	9.555e-03	4
48		min	-.237	4	-.096	6	-.08	4	-1.093e-03	4	-4.415e-03	4	-2.739e-03	2
49	N27	max	.312	2	.166	2	.422	2	8.94e-03	4	7.023e-03	5	1.343e-02	4
50		min	-.235	4	-.553	4	-.078	6	1.788e-06	3	1.153e-04	6	-3.475e-03	2
51	N28	max	.312	2	.222	2	.503	2	8.761e-03	4	7.728e-03	5	1.086e-02	4
52		min	-.235	4	-.689	4	-.077	6	-8.765e-06	3	1.006e-04	6	-5.36e-03	2
53	N29	max	.258	4	.216	5	.671	4	2.455e-03	3	1.03e-02	2	1.02e-02	5
54		min	.128	2	-.138	3	-.264	1	-2.478e-03	5	-3.158e-02	4	-3.796e-03	2
55	N30	max	.2	1	.216	5	.631	4	2.455e-03	3	1.03e-02	2	1.02e-02	5
56		min	.073	5	-.138	3	-.283	1	-2.478e-03	5	-3.158e-02	4	-3.841e-03	2
57	N31	max	.313	2	.216	5	.582	4	2.463e-03	3	1.032e-02	2	1.017e-02	5
58		min	-.239	4	-.138	3	-.322	2	-1.512e-03	5	-2.591e-02	4	-4.315e-03	2
59	N32	max	.498	2	.216	5	.576	4	2.579e-03	6	1.032e-02	2	1.018e-02	5
60		min	-.591	5	-.138	3	-.366	2	-1.223e-03	2	-2.591e-02	4	-5.331e-03	2
61	N33	max	.278	4	.778	5	3.017	4	3.094e-03	3	1.075e-02	2	1.067e-02	4
62		min	.126	2	-.327	2	-.834	2	-2.574e-02	5	-2.906e-02	4	-3.921e-03	2
63	N34	max	.199	1	.778	5	2.557	4	3.095e-03	3	1.075e-02	2	1.067e-02	4
64		min	.075	5	-.327	2	-.856	2	-2.574e-02	5	-2.906e-02	4	-3.966e-03	2
65	N35	max	.314	2	.779	5	1.739	4	3.077e-03	3	1.073e-02	2	1.547e-02	4
66		min	-.244	4	-.327	2	-.893	2	-2.88e-02	5	-2.496e-02	4	-4.464e-03	2
67	N36	max	.506	2	.779	5	.681	4	2.985e-03	3	1.073e-02	2	2.266e-02	4
68		min	-1.025	4	-.327	2	-.932	2	-2.952e-02	5	-2.496e-02	4	-5.541e-03	2
69	N37	max	.275	4	.023	2	.105	1	9.04e-04	2	8.22e-03	2	1.053e-02	4
70		min	.138	2	-.123	4	.012	5	-2.347e-03	4	-3.153e-03	4	-3.286e-03	2

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
71	N38	max	.201	1	.023	2	.121	1	9.04e-04	2	8.22e-03	2	1.053e-02	4
72		min	.073	5	-.123	4	-.028	5	-2.348e-03	4	-3.153e-03	4	-3.331e-03	2
73	N39	max	.311	2	.023	2	.15	2	9.115e-04	2	8.476e-03	2	1.026e-02	4
74		min	-.237	4	-.123	4	-.092	4	-1.352e-03	4	-3.592e-03	4	-3.585e-03	2
75	N40	max	.45	2	.023	2	.183	2	9.117e-04	2	8.476e-03	2	1.026e-02	4
76		min	-.606	4	-.123	4	-.141	4	-1.352e-03	4	-3.592e-03	4	-3.942e-03	2
77	N41	max	.293	4	.189	2	.458	2	1.107e-04	1	6.898e-03	2	1.139e-02	4
78		min	.155	2	-.624	4	-.06	6	-5.765e-03	4	-4.85e-04	6	-2.26e-03	2
79	N42	max	.203	1	.189	2	.46	2	1.107e-04	1	6.898e-03	2	1.139e-02	4
80		min	.075	5	-.624	4	-.083	6	-4.341e-03	4	-4.85e-04	6	-3.018e-03	2
81	N43	max	.312	2	.19	2	.462	2	8.761e-03	4	7.722e-03	5	1.086e-02	4
82		min	-.235	4	-.624	4	-.077	6	-8.765e-06	3	9.921e-05	6	-5.361e-03	2
83	N44	max	.635	2	.19	2	.555	5	1.771e-02	4	7.722e-03	5	1.089e-02	4
84		min	-.626	4	-.624	4	.031	6	-8.837e-06	3	9.921e-05	6	-1.027e-02	2
85	N45	max	0	5	0	5	0	4	2.065e-05	4	0	2	4.064e-06	3
86		min	0	3	0	1	0	2	-4.391e-06	2	0	4	-1.138e-04	5
87	N46	max	.39	2	.779	5	1.298	4	2.982e-03	3	1.073e-02	2	2.266e-02	4
88		min	-.549	4	-.327	2	-.91	2	-2.955e-02	5	-2.496e-02	4	-5.452e-03	2
89	N48A	max	0	2	0	5	0	5	0	2	0	1	4.93e-07	2
90		min	0	6	0	3	0	2	-4.93e-07	5	0	6	0	6
91	N47	max	.001	1	0	2	.003	4	9.618e-05	3	1.089e-03	2	2.429e-05	3
92		min	-.004	4	0	6	0	2	-5.203e-05	5	-3.343e-04	4	-7.283e-05	5
93	N48	max	.282	2	.166	2	.421	2	5.698e-03	4	6.731e-03	2	1.374e-02	4
94		min	-.094	4	-.553	4	-.126	4	-9.951e-05	2	-2.196e-04	6	-3.378e-03	2

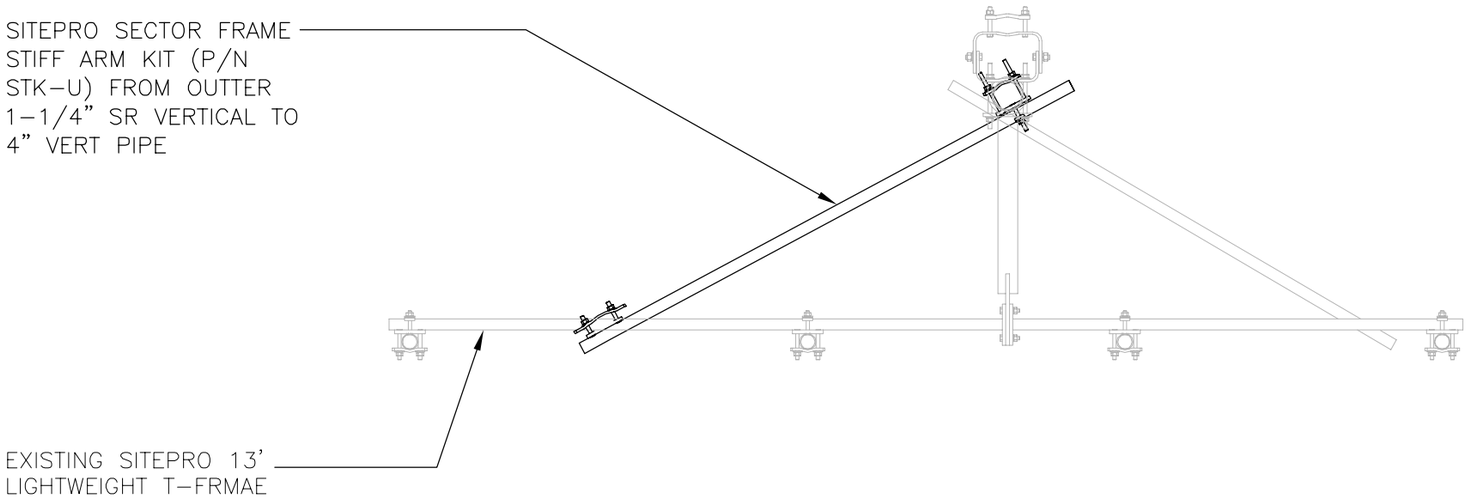
Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc.....	L...	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn
1	M1	PIPE_4.0	.085	4.698	4	.206	4.698	1	84.641	93.24	10.631	10.631	2... H1-1b
2	M2	PIPE_2.5	.510	3	2	.150	3	5	47.114	50.715	3.596	3.596	2... H1-1b
3	M3	PIPE_2.5	.308	3	1	.141	.5	5	47.114	50.715	3.596	3.596	2... H1-1b
4	M4	PIPE_1.25	.614	12....	5	.333	12....	5	16.292	19.688	.801	.801	1 H1-1b
5	M5	PIPE_1.25	.952	5.552	4	.297	12....	5	16.292	19.688	.801	.801	1 H1-1b
6	M6	SR 1	.057	2.5	3	.049	0	4	11.923	25.447	.424	.424	2... H1-1b*
7	M7	SR 1	.106	0	6	.026	0	3	7.513	25.447	.424	.424	2... H1-1b
8	M8	SR 1	.255	2.5	4	.116	0	4	11.923	25.447	.424	.424	2... H1-1b
9	M9	SR 1 1/4	.499	1.745	4	.090	1.771	4	24.476	39.761	.828	.828	1... H1-1b
10	M10	SR 1 1/4	.103	0	4	.107	2.5	4	24.476	39.761	.828	.828	2... H1-1b
11	M11	SR 5/8	.133	4.301	6	.010	0	5	.635	9.94	.104	.104	3... H1-1b*
12	M14	SR 5/8	.000	0	1	.012	2.5	4	1.88	9.94	.104	.104	2... H1-1a
13	M15	SR 5/8	.066	3.717	3	.019	3.717	5	.851	9.94	.104	.104	1... H1-1b*
14	M16	SR 5/8	.000	0	1	.033	3.717	5	.851	9.94	.104	.104	1... H1-1a
15	M17	SR 5/8	.014	2.5	5	.021	0	3	1.88	9.94	.104	.104	2... H1-1b*
16	M18	SR 5/8	.015	2.5	5	.102	0	4	1.88	9.94	.104	.104	2... H1-1b*
17	M19	PIPE_2.0	.278	1.531	6	.159	1.531	4	17.855	32.13	1.872	1.872	1... H1-1b
18	M20	PIPE_2.0	.617	4.01	5	.137	1.531	4	17.855	32.13	1.872	1.872	2... H1-1b
19	M21	PIPE_2.0	.078	3.938	4	.020	1.531	4	17.855	32.13	1.872	1.872	1... H1-1b
20	M22	PIPE_2.0	.401	3.938	4	.063	1.531	4	17.855	32.13	1.872	1.872	1... H1-1b
21	M23	PIPE_1.25	.095	3.808	4	.104	7.616	5	4.977	19.688	.801	.801	1... H1-1b
22	M23A	PIPE_2.0	.029	2.704	4	.036	0	6	22.626	32.13	1.872	1.872	1... H1-1b



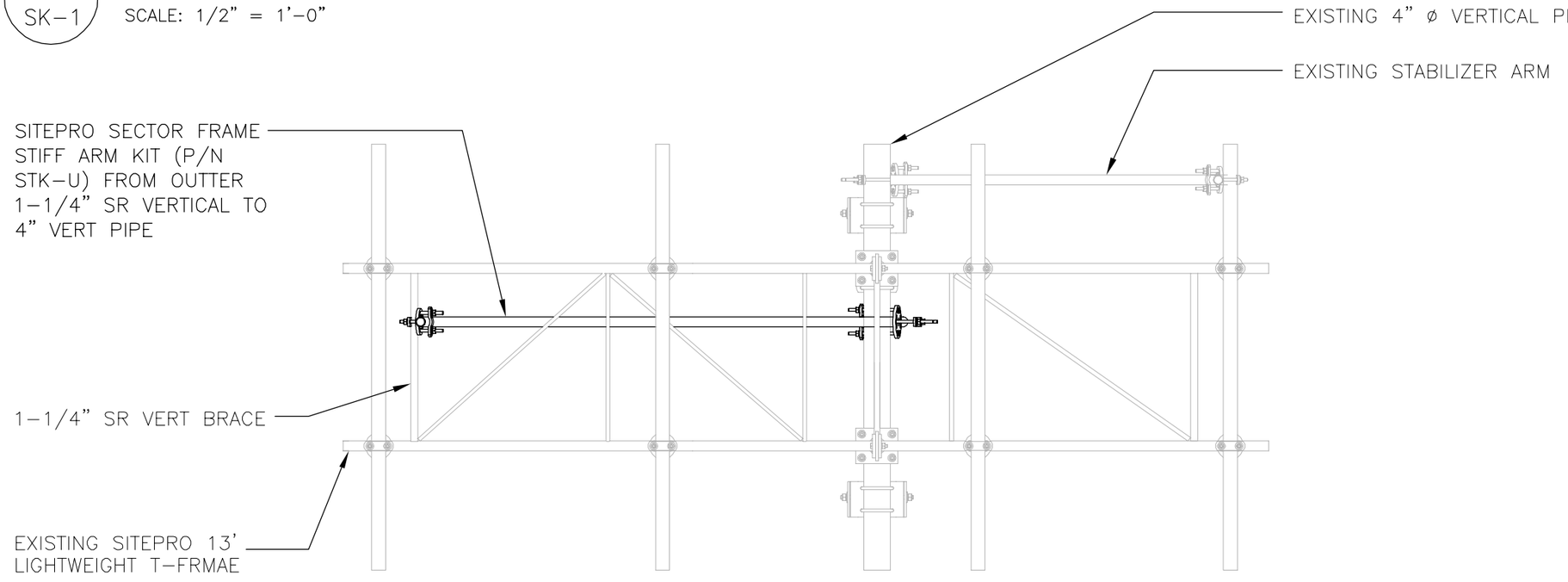
Envelope Only Solution

Centek		
TJL	CT2284 - Mount	Oct 11, 2017 at 3:21 PM
17004.46	Unity Check	Mount.r3d



1 / SK-1 **ANTENNA MOUNT REINFORCEMENT PLAN**

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



2 / SK-1 **ANTENNA MOUNT REINFORCEMENT ELEVATION**

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

EXHIBIT 5

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT2284
FA#: 10113319

Colchester Munn Road State Police
268 Windham Avenue
Colchester, CT 06415

April 30, 2018

Centerline Communications Project Number: 950006-117

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**2.19 %**

April 30, 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: **CT2284 – Colchester Munn Road State Police**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **268 Windham Avenue, Colchester, 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 **268 Windham Avenue, Colchester, 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	30
UMTS	1900 MHz (PCS)	2	30
LTE	700 MHz	2	40
LTE	1900 MHz (PCS)	4	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 and 1900 MHz (PCS) 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	Powerwave 7770	200
A	2	CCI HPA-65R-BUU-H8	200
B	1	Powerwave 7770	200
B	2	CCI HPA-65R-BUU-H8	200
C	1	Powerwave 7770	200
C	2	CCI HPA-65R-BUU-H6	200

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	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.26
Antenna A2	CCI HPA-65R-BUU-H8	700 MHz / 1900 MHz (PCS)	13.15 / 14.95	6	240	6,654.03	0.82
						Sector A Composite MPE%	**1.08**
Antenna B1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.26
Antenna B2	CCI HPA-65R-BUU-H8	700 MHz / 1900 MHz (PCS)	13.15 / 14.95	6	240	6,654.03	0.82
						Sector B Composite MPE%	**1.08**
Antenna C1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.26
Antenna C2	CCI HPA-65R-BUU-H6	700 MHz / 1900 MHz (PCS)	11.95 / 14.75	6	240	6,030.01	0.71
						Sector C Composite MPE%	**0.98**

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, the sectors with the largest calculated MPE% are Sectors A & B. *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 – Sectors A & B	**1.08 %**
Antenna no. 2 (CSP/FBI)	0.01 %
Antenna no. 3 (CSP)	0.00 %
Antenna no. 4 (SHP)	0.01 %
Antenna no. 5 (DEP)	0.01 %
Antenna no. 6	0.00 %
Antenna no. 7 (OEM)	0.01 %
Antenna no. 8 (CSP)	0.02 %
Antenna no. 9 (DEP)	0.02 %
Antenna no. 10 (CSP)	0.00 %
Antenna no. 11 (CSP)	0.00 %
Antenna no. 12 (CSP)	0.00 %
Antenna no. 13 (CSP)	0.00 %
Antenna no. 14	0.01 %
Antenna no. 15	0.01 %
Antenna no. 18 (FBI)	0.08 %
Antenna no. 31 (CTT)	0.00 %
Verizon Wireless	0.93 %
Site Total MPE %:	**2.19 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	1.08 %
AT&T Sector B Total:	1.08 %
AT&T Sector C Total:	0.98 %
Site Total:	2.19 %

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, the sectors with the largest calculated MPE% are Sectors A & B.

AT&T _ Frequency Band / Technology Max Power Values (Sectors A & B)	# 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	414.12	200	0.79	850 MHz	567	0.14%
AT&T 1900 MHz (PCS) UMTS	2	656.33	200	1.25	1900 MHz (PCS)	1000	0.13%
AT&T 700 MHz LTE	2	826.15	200	1.58	700 MHz	467	0.34%
AT&T 1900 MHz (PCS) LTE	4	1,250.43	200	4.78	1900 MHz (PCS)	1000	0.48%
						Total:	**1.08%**

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:	1.08 %
Sector B:	1.08 %
Sector C:	0.98 %
AT&T Maximum Total (per sector):	1.08 %
Site Total:	2.19 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **2.19 %** 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.

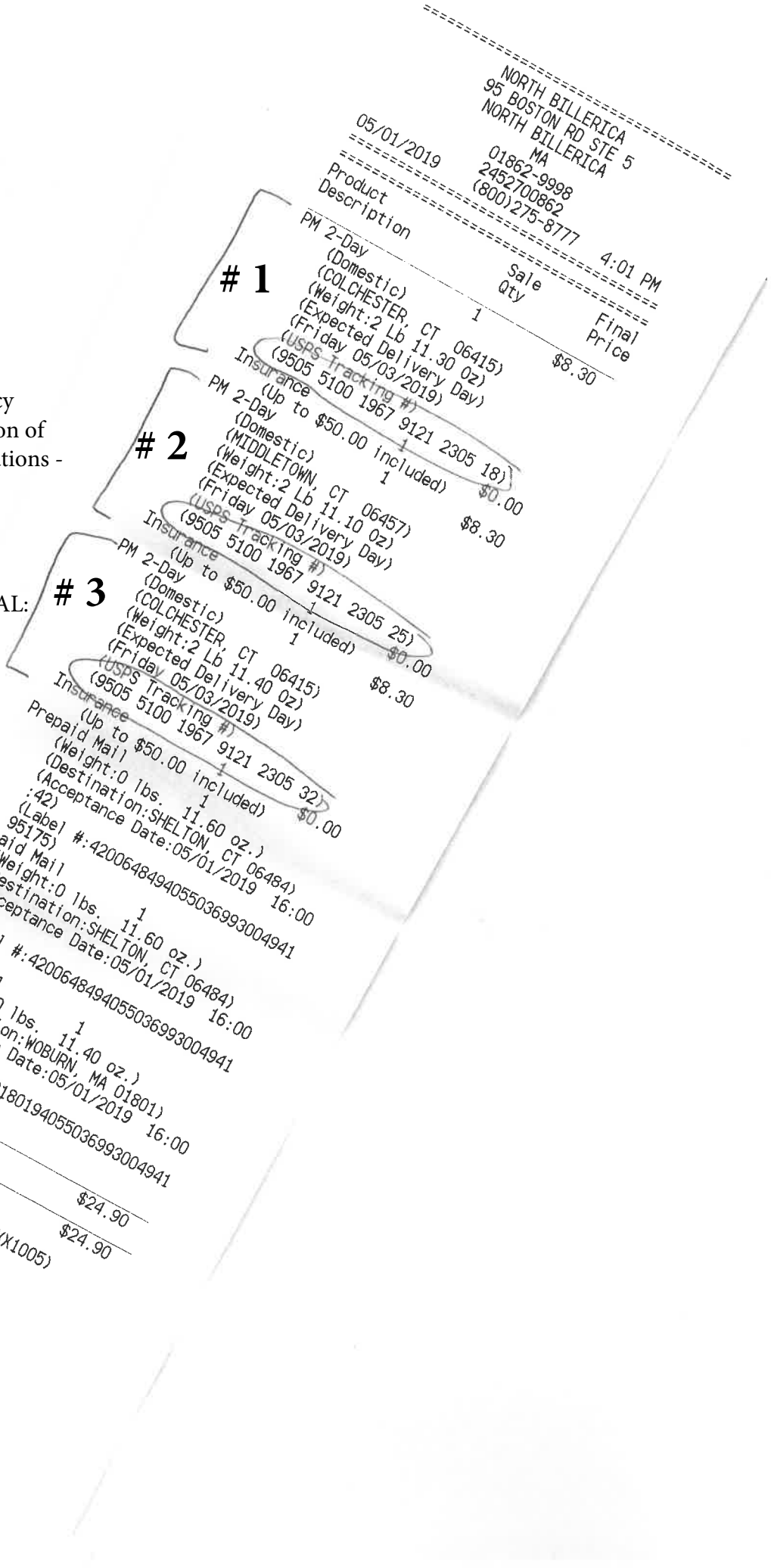
FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767

#1
TO MUNICIPAL OFFICIAL:
Art Shilosky, First Selectman
Town of Colchester
127 Norwich Avenue
Colchester, CT 06415

#2
TO OWNER:
DESPP / State of CT
Brian Benito
Connecticut Department of Emergency Services and Public Protection; Division of Statewide Emergency Telecommunications - CTS Unit
1111 Country Club Road
Middletown, CT 06457

#3 - MUNICIPAL ZONING OFFICIAL:
Randall Benson, Planning & Zoning Department
Town of Colchester
127 Norwich Avenue
Colchester, CT 06415



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Track Another Package +

Remove ×

Tracking Number: 9505510019679121230518

On Time

Expected Delivery on

FRIDAY
3 MAY 2019 ⓘ
by
8:00pm ⓘ

 # 1
TO MUNICIPAL OFFICIAL:
Art Shilosky, First Selectman
Town of Colchester
127 Norwich Avenue
Colchester, CT 06415

Delivered

May 3, 2019 at 11:03 am
Delivered, Front Desk/Reception/Mail Room
COLCHESTER, CT 06415

Get Updates ⌄

Feedback

Text & Email Updates ⌄

Tracking History ⌃

May 3, 2019, 11:03 am
Delivered, Front Desk/Reception/Mail Room
COLCHESTER, CT 06415
Your item was delivered to the front desk, reception area, or mail room at 11:03 am on May 3, 2019 in COLCHESTER, CT 06415.

May 3, 2019, 8:28 am
Out for Delivery
COLCHESTER, CT 06415

May 3, 2019, 8:18 am
Sorting Complete

COLCHESTER, CT 06415

May 3, 2019, 7:39 am
Arrived at Post Office
COLCHESTER, CT 06415

May 3, 2019, 3:43 am
Arrived at USPS Facility
COLCHESTER, CT 06415

May 3, 2019, 2:28 am
Departed USPS Regional Facility
SOUTHERN CT DISTRIBUTION CENTER

May 2, 2019, 11:38 pm
Arrived at USPS Regional Facility
SOUTHERN CT DISTRIBUTION CENTER

May 2, 2019, 7:21 pm
Departed USPS Regional Facility
SPRINGFIELD MA NETWORK DISTRIBUTION CENTER

May 2, 2019, 7:21 am
Arrived at USPS Regional Facility
SPRINGFIELD MA NETWORK DISTRIBUTION CENTER

May 2, 2019, 4:46 am
Departed USPS Regional Facility
NASHUA NH DISTRIBUTION CENTER

May 1, 2019, 9:19 pm
Arrived at USPS Regional Origin Facility
NASHUA NH DISTRIBUTION CENTER

May 1, 2019, 5:02 pm
Departed Post Office
NORTH BILLERICA, MA 01862

May 1, 2019, 3:59 pm
USPS in possession of item
NORTH BILLERICA, MA 01862

Product Information

See Less

Can’t find what you’re looking for?

Go to our FAQs section to find answers to your tracking questions.

FAQs (https://www.usps.com/faqs/uspstracking-faqs.htm)

Feedback

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USPS Tracking®

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Track Another Package +

Remove ×

Tracking Number: 9505510019679121230525

On Time

Expected Delivery on

FRIDAY
3 MAY 2019 ⓘ
by
8:00pm ⓘ

#2
TO OWNER:
DESPP / State of CT
Brian Benito
Connecticut Department of Emergency Services and Public Protection;
Division of Statewide Emergency Telecommunications - CTS Unit
1111 Country Club Road
Middletown, CT 06457

Delivered

May 3, 2019 at 10:03 am
Delivered, Front Desk/Reception/Mail Room
MIDDLETOWN, CT 06457

Get Updates ⌄

Feedback

Text & Email Updates ⌄

Tracking History ⌃

May 3, 2019, 10:03 am
Delivered, Front Desk/Reception/Mail Room
MIDDLETOWN, CT 06457
Your item was delivered to the front desk, reception area, or mail room at 10:03 am on May 3, 2019 in MIDDLETOWN, CT 06457.

May 3, 2019, 7:30 am
Out for Delivery
MIDDLETOWN, CT 06457

May 3, 2019, 7:20 am
Sorting Complete

MIDDLETOWN, CT 06457

May 3, 2019, 4:00 am
Arrived at Post Office
MIDDLETOWN, CT 06457

May 2, 2019, 6:30 pm
Arrived at USPS Facility
MIDDLETOWN, CT 06457

May 2, 2019, 3:58 pm
Departed USPS Regional Facility
SOUTHERN CT DISTRIBUTION CENTER

May 2, 2019, 2:03 pm
Arrived at USPS Regional Facility
SOUTHERN CT DISTRIBUTION CENTER

May 2, 2019, 12:40 pm
Departed USPS Regional Facility
SPRINGFIELD MA NETWORK DISTRIBUTION CENTER

May 2, 2019, 7:21 am
Arrived at USPS Regional Facility
SPRINGFIELD MA NETWORK DISTRIBUTION CENTER

May 2, 2019, 4:46 am
Departed USPS Regional Facility
NASHUA NH DISTRIBUTION CENTER

May 1, 2019, 9:19 pm
Arrived at USPS Regional Origin Facility
NASHUA NH DISTRIBUTION CENTER

May 1, 2019, 5:02 pm
Departed Post Office
NORTH BILLERICA, MA 01862

May 1, 2019, 3:59 pm
USPS in possession of item
NORTH BILLERICA, MA 01862

Product Information

See Less

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FAQs > (https://www.usps.com/faqs/uspstracking-faqs.htm)

Track Another Package +

Remove ×

Tracking Number: 9505510019679121230525

On Time

Expected Delivery on

FRIDAY
3 MAY 2019 ⓘ
by
8:00pm ⓘ

#3
TO MUNICIPAL ZONING OFFICIAL:
Randall Benson, Planning & Zoning Department
Town of Colchester
127 Norwich Avenue
Colchester, CT 06415

Delivered

May 3, 2019 at 10:03 am
Delivered, Front Desk/Reception/Mail Room
MIDDLETOWN, CT 06457

Get Updates ⌄

Feedback

Text & Email Updates ⌄

Tracking History ⌃

May 3, 2019, 10:03 am
Delivered, Front Desk/Reception/Mail Room
MIDDLETOWN, CT 06457
Your item was delivered to the front desk, reception area, or mail room at 10:03 am on May 3, 2019 in MIDDLETOWN, CT 06457.

May 3, 2019, 7:30 am
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