20 Commercial St
Branford, CT 06405
Phone: (203) 208-0806
Fax: (203) 488-4820

December 2, 2014

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051
Attn: Ms. Melanie Bachman, Executive Director

Re: Notice of Exempt Modification Application
60 North Eagleville Road
Mansfield, Connecticut 06269

Dear Ms. Bachman,

On behalf of New Cingular Wireless PCS, LLC ("AT&T"), enclosed for filing are an original and two (2) copies of AT&T's Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site.

I also enclose herewith a check in the amount of $625.00 representing the fee for the Notice of Exempt Modification.

If you have any questions, please feel free to contact me.

Thank you,

By: _____

Name: David Weisman
Vertical Development LLC

Vertical Development LLC
20 Commercial Street
Branford, CT 06405
Phone – 401-743-9011
Fax – 401-633-6202
DWeisman@verticaldevelopmentllc.com

CC: Elizabeth C. Paterson, Mayor
Audrey P. Peck Municipal Building
4 South Eagleville Road
Mansfield, CT 06268

The University of Connecticut (via Fed-Ex)
c/o Office of Capital Project and Contract Administration
31 LeDoyt Road
Storrs, CT 06269

siting.council@ct.gov (electronic copy)

Notice of Exempt Modification
University of Connecticut
60 North Eagleville Road
Mansfield, CT 06269

New Cingular Wireless PCS, LLC ("AT&T") submits this Notice of Exempt Modification to the Connecticut Siting Council ("Council") pursuant to Sections 16-50j-73 and 16-50j-72(b) of the Regulations of Connecticut State Agencies ("Regulations") in connection with AT&T's planned modification of antennas and associated equipment on an existing 317' self support tower (including an existing 287' tower with an existing 30' extension) located on the University of Connecticut Campus at 60 North Eagleville Road, in the Town of Mansfield, Connecticut. More particularly, AT&T plans to upgrade this site by adding 2.5 GHz technology to its facilities. The proposed modifications will not increase the tower height, cause a significant adverse change or alteration in the physical or environmental characteristics of the site, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six (6) decibels, add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes, or impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

To better meet the growing voice and data demands of its wireless customers, AT&T is upgrading their network nationwide to include 2.5 GHz technology, which will provide faster service and better overall performance.

Pursuant to the 2.5 GHz technology upgrade at this site, AT&T will add panel antennas, install RRHs, and install related equipment to its equipment area within the fenced tower compound.

The 317' self support tower located at 60 North Eagleville Road, in the Town of Mansfield, Connecticut (lat. 41° 48' 50.57", long. -72° 15' 31.99") is owned by the University of Connecticut, an agency of the State of Connecticut. AT&T's existing facility is located within the Landlord's existing fenced compound. AT&T currently has nine (9) panel antennas (three (3) per sector) with a centerline of 186' installed on the tower. AT&T's base station equipment is located adjacent to the base of the tower within the fenced compound. A site plan depicting this is attached.

AT&T plans to remove all existing equipment and install a new Commscope MTC3607 platform mount. The existing equipment will be replaced on the new platform mount with the exception of three (3) existing Powerwave 7777.00 panel antennas (one per sector) which will be relocated and six (6) RRUS-11 (two (2) per sector) which will be connected and located behind the existing panel antennas. AT&T further plans to add three (6) CCI HPA-65R-BUU-H8 panel antennas (2 per sector), and three (3) CCI HPA-65R-BUU-H6 panel antennas (1 per sector). Additionally AT&T will add (6) RRUS-12 (2 per sector), six (6) Ericsson A2 modules (2 per sector and attached behind each respective RRU-12),)three (3) additional RRUS-11 (1 per sector), three (3) RRUS-32 (1 per sector), three RRUS-E2 (1 per sector). AT&T also plans to relocate one existing Raycap surge suppresser and add two (2) new Raycap surge suppressors. The height of the tower will not need to be increased and all antennas and RRHs will be installed at the 186' centerline.

Within the existing equipment shelter AT&T also plans to install a new DC-DC Converter, LTE RBS 6601 in an existing LTE Rack, a new Power Plant in the existing equipment shelter, one (1) new 23" RXAIT Rack (850 MHz) with one (1) low loss combiner per sector with three (3) sectors for a total of (3) 850 MHz low loss combiners and one (1) new 23" RXAIT Rack (1900 MHz) with two (2) low loss combinders per sector with three sectors for a total of six (6) 1900

MHz low loss combiners and install a new 3-port cable hatch plate. Finally, AT&T will be removing 3 existing coax runs and add one (1) fiber trunk and six (6) DC Trunks from the ground equipment to the AT&T Rad Center within the tower. and adding . our (4) new batteries in the existing BBU cabinet, three (3) new rectifiers in the existing equipment cabinet, and one (1) fiber transmission cable on the existing Ice Bridge all within AT&T's leased Premises. The compound's boundaries will not need to be extended. The proposed modifications will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, since it is already a telecommunications installation and the modifications will be compatible with this. Other than brief, construction-related noise, these modifications will not increase noise levels at the tower site boundary by six (6) decibels.

The proposed modifications will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes. A radio frequency emissions analysis prepared by EBI Consulting concludes that the proposed final configuration (including other carriers on the tower) will emit 97.59 of the allowable FCC established general public limits sampled at the ground level (see page 1 and the 6th page of Radio Frequency FCC Regulatory Compliance Maximum Permissible Exposure (MPE) Assessment dated December 1, 2014). Emissions values for additional carriers were based upon values listed in Connecticut Siting Council active database (see the 1st and 6 page of Radio Frequency FCC Regulatory Compliance Maximum Permissible Exposure (MPE) Assessment dated December 1, 2014). The information used in the report was analyzed as a percentage of current Maximum Permissible Exposure (%MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1 (see the 1st

page of the Radio Frequency FCC Regulatory Compliance Maximum Permissible Exposure (MPE) assessment dated December 1, 2014).

The proposed modifications will not impair the structural integrity of the facility. AT&T commissioned Destek Engineering, LLC to perform a structural analysis of the tower to verify that it can support the proposed loading. The structure and foundation were found to meet the specified TIA requirements and deemed adequate to support the existing and proposed loading, and was rated at 91.2% (see page 7 of the Structural Analysis Report dated May 22, 2014.)

In conclusion, AT&T's proposed modifications do not constitute a modification subject to the Council's review because AT&T will not change the height of the tower, will not extend the boundaries of the compound, will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, will not increase the noise levels at the site, will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards, and will not impair the structural integrity of the facility. Therefore, AT&T respectfully requests that the Council acknowledge that this Notice of Exempt Modification meets the Council's exemption criteria.

PROJECT INFORMATION

SCOPE OF WORK:
- REMOVE ALL TOWER TOP EQUIPMENT & REPLACE SECTOR FRAMES.
- NEW AT&T ANTENNAS: (3) ANTENNAS PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (9) ANTENNAS.
- EXISTING UMTS ANTENNAS TO BE RELOCATED TO NEW SECTOR FRAMES: (1) PER SECTOR FOR A TOTAL OF (3) ANTENNAS.
- NEW AT&T RRUs: (5) RRUs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (15) RRUs.
- (2) NEW A2 MODULES PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (6) A2 MODULES.
- (2) EXISTING RRUs PER SECTOR TO BE RELOCATED TO NEW SECTOR FRAMES; TOTAL OF (6) EXISTING RRUs.
- (2) NEW AT&T RAYCAP SURGE SUPPRESSORS.
- (1) EXISTING RAYCAP DC6 SURGE SUPPRESSOR TO BE RELOCATED TO NEW SECTOR FRAME.
- NEW DC-DC CONVERTER, LTE RBS 6601 INSTALLED IN EXISTING LTE RACK.
- NEW POWER PLANT INSTALLED IN EXISTING EQUIPMENT SHELTER
- (1) NEW 23" RXAIT RACK (850 MHz) WITH (1) LOW LOSS COMBINER PER SECTOR WITH (3) SECTORS FOR A TOTAL OF (3) 850 MHz LOW LOSS COMBINERS.
- (1) NEW 23" RXAIT RACK (1900 MHz) WITH (2) LOW LOSS COMBINER PER SECTOR WITH (3) SECTORS FOR A TOTAL OF (6) 1900 MHz LOW LOSS COMBINERS.
- INSTALL NEW 3-PORT CABLE HATCH PLATE IN EXISTING SHELTER.

SITE ADDRESS:	60 NORTH EAGLEVILLE ROAD MANSFIELD, CT 06269
LATITUDE: LONGITUDE:	41.814048 N 41° 48' 50.57" -72.259443 W -72° 15' 33.99"
USID:	59367
TOWER OWNER:	UNIVERSITY OF CONNECTICUT STORRS, CT 06269
TYPE OF SITE:	GUYED TOWER/INDOOR EQUIPMENT
TOWER HEIGHT: RAD CENTER:	317'-0"± 186'-0"±
CURRENT USE: PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

DRAWING INDEX

		REV.
T-1	TITLE SHEET	0
GN-1	GROUNDING NOTES & GENERAL NOTES	0
A-1	COMPOUND LAYOUT	0
A-2	EQUIPMENT LAYOUTS	0
A-3	ANTENNA LAYOUTS & ELEVATIONS	0
A-4	DETAILS	0
A-5	ANTENNA MOUNTING DETAILS	0
G-1	GROUNDING, ONE-LINE DIAGRAM & DETAILS	0

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

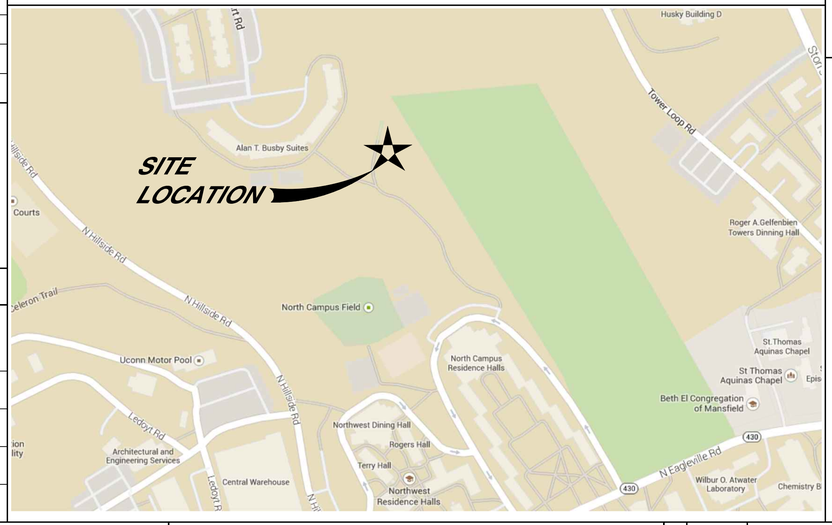
DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

at&t MOBILITY

FA CODE: 10035012
SITE NUMBER: CT1077
SITE NAME: STORRS-UCONN

VICINITY MAP

1. HEAD WEST ON COCHITUATE RD TOWARD BURR ST (0.3 MI) 2. TURN LEFT ONTO SHOPPERS WORLD DR (230 FT) 3. MAKE A U-TURN AT RING RD (138 FT) 4. TAKE THE 1ST RIGHT ONTO COCHITUATE RD (0.3 MI) 5. TAKE THE RAMP TO I-90 E/MASSPIKE W/SPRINGFIELD/BOSTON. TOLL ROAD (0.6 MI) 6. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR INTERSTATE 90 W/MASSACHUSETTS TURNPIKE/WORCHESTER/SPRINGFIELD AND MERGE ONTO I-90 W/MASSACHUSETTS TURNPIKE. PARTIAL TOLL ROAD (38.3 MI) 7. TAKE EXIT 9 TO MERGE ONTO I-84 TOWARD US-20/HARTFORD/NEW YORK CITY. PARTIAL TOLL ROAD. ENTERING CONNECTICUT (20.2 MI) 8. TAKE EXIT 70 FOR CT-32 TOWARD WILLINGTON/WILLIMANTIC (0.4 MI) 9. TURN LEFT ONTO CT-32 S/RIVER RD. CONTINUE TO FOLLOW CT-32 S (5.0 MI) 10. TURN LEFT ONTO CT-195 S/STORRS RD (3.7 MI) 11. TURN RIGHT ONTO N EAGLEVILLE RD - DESTINATION WILL BE ON THE RIGHT (0.3 MI)



PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:
COMPANY: VERTICAL DEVELOPMENT, LLC
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CONTACT: DAVID BASS
PHONE: 203-826-5857
EMAIL: dbass@verticaldevelopmentllc.com

ZONING:
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ADDRESS: 7 SYCAMORE WAY, BRANFORD, CT 06405
CONTACT: DAVID BASS
PHONE: 203-826-5857
EMAIL: dbass@verticaldevelopmentllc.com

ENGINEERING:
COMPANY: COM-EX CONSULTANTS, LLC
ADDRESS: 4 SECOND AVENUE, SUITE 204, DENVILLE, NJ 07834
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862-209-4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:
COMPANY: AT&T MOBILITY - NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD, SUITE 550 13 & 14, FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508-596-7146
EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CONNECTICUT ONE CALL SYSTEM, INC. 1-800-922-4455 STOP-CALL BEFORE YOU DIG!

CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811

COM-EX Consultants
4 SECOND AVENUE
SUITE 204
DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT1077
SITE NAME: STORRS-UCONN

60 NORTH EAGLEVILLE ROAD
MANSFIELD, CT 06269
TOLLAND COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	04/25/14	FINAL SUBMISSION	CJT	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: PAV

SEAL: STATE OF CONNECTICUT, NICHOLAS D. BARILE, No. 28643, PROFESSIONAL ENGINEER
04/25/14

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
14006-EMP	T-1	0

GROUNDING NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').

14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – EMPIRE TELECOM
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR

9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

14. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
   - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
   - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
   - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS

20. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
   - AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
   - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION
   - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
   - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
   - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
   - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
   - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
   - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

21. FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

COM-EX Consultants
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DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT1077
SITE NAME: STORRS-UCONN

60 NORTH EAGLEVILLE ROAD
MANSFIELD, CT 06269
TOLLAND COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	04/25/14	FINAL SUBMISSION	CJT	NDB	NDB

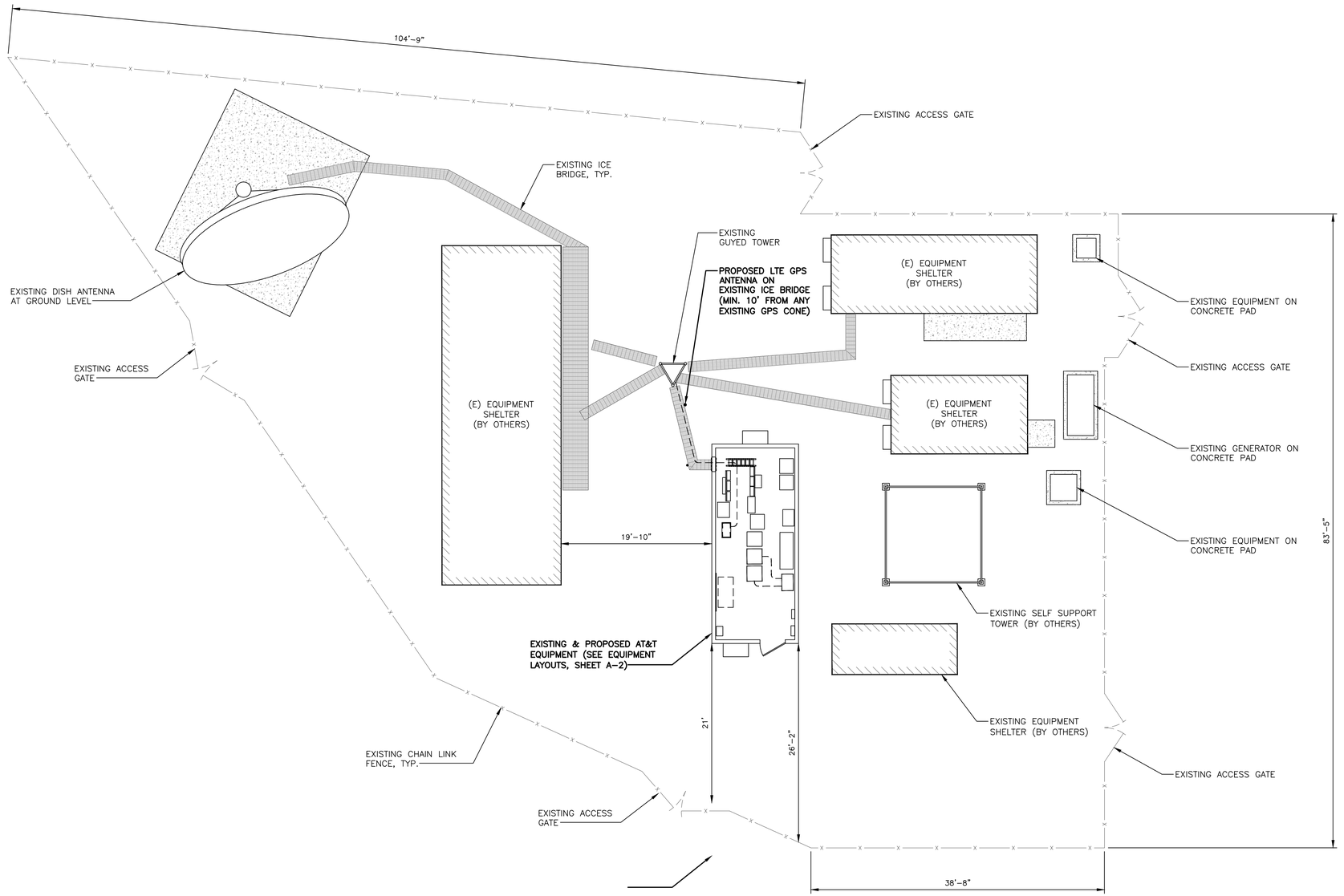
SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: PAV

SEAL:
STATE OF CONNECTICUT
DOUGLAS B. BURKE
No. 28643
REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643
04/25/14

AT&T

DRAWING TITLE:
GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
14006-EMP	GN-1	0



14.2AW

NORTH

COMPOUND LAYOUT

SCALE: 1" = 8'-0"

8 0 4 8 16 32

(IN FEET)

1/8 inch = 1 Foot

COM-EX Consultants
4 SECOND AVENUE
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PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT1077
SITE NAME: STORRS-UCONN

60 NORTH EAGLEVILLE ROAD
MANSFIELD, CT 06269
TOLLAND COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	04/25/14	FINAL SUBMISSION	CJT	NDB	NDB

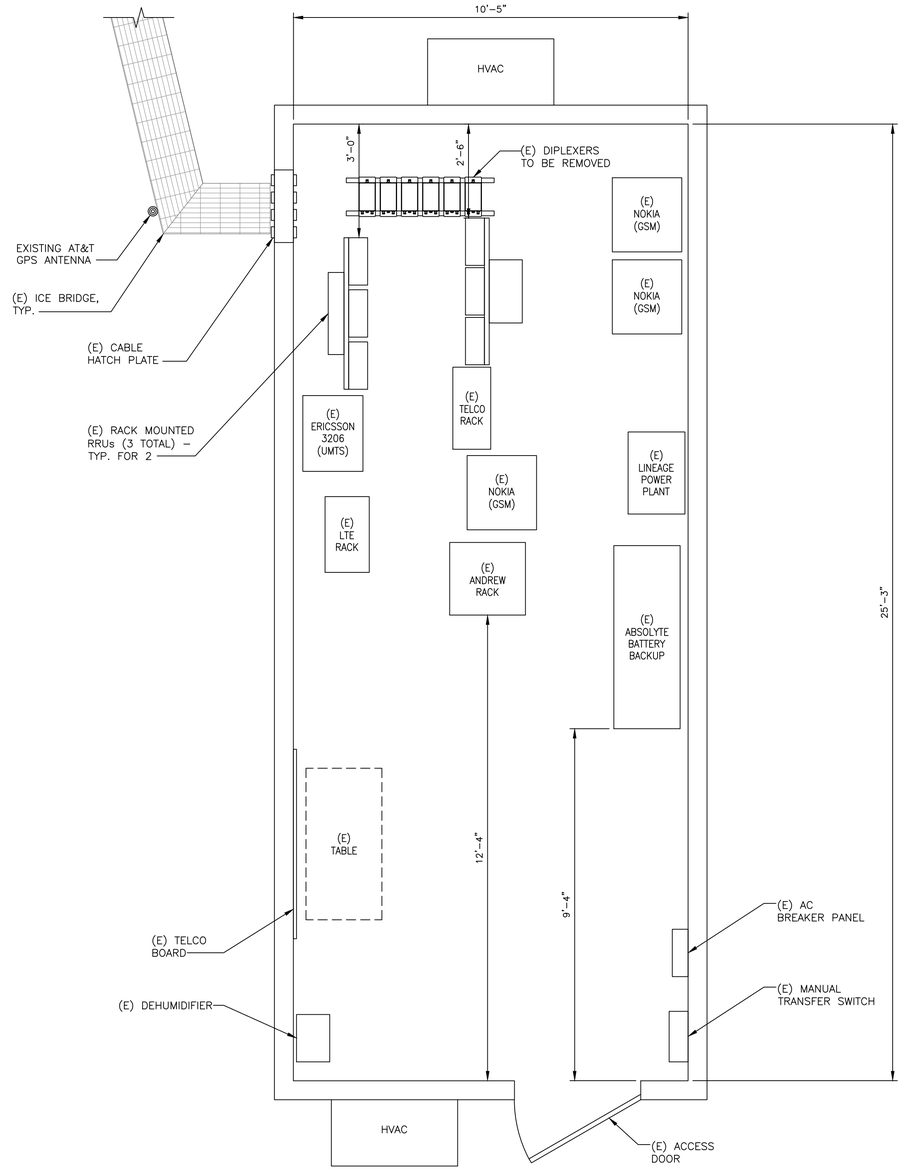
SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: PAV

SEAL: STATE OF CONNECTICUT — DOUGLAS D. BERGERON — No. 28643 — REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643
04/25/14

AT&T

DRAWING TITLE: COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
14006-EMP	A-1	0



14.2AW

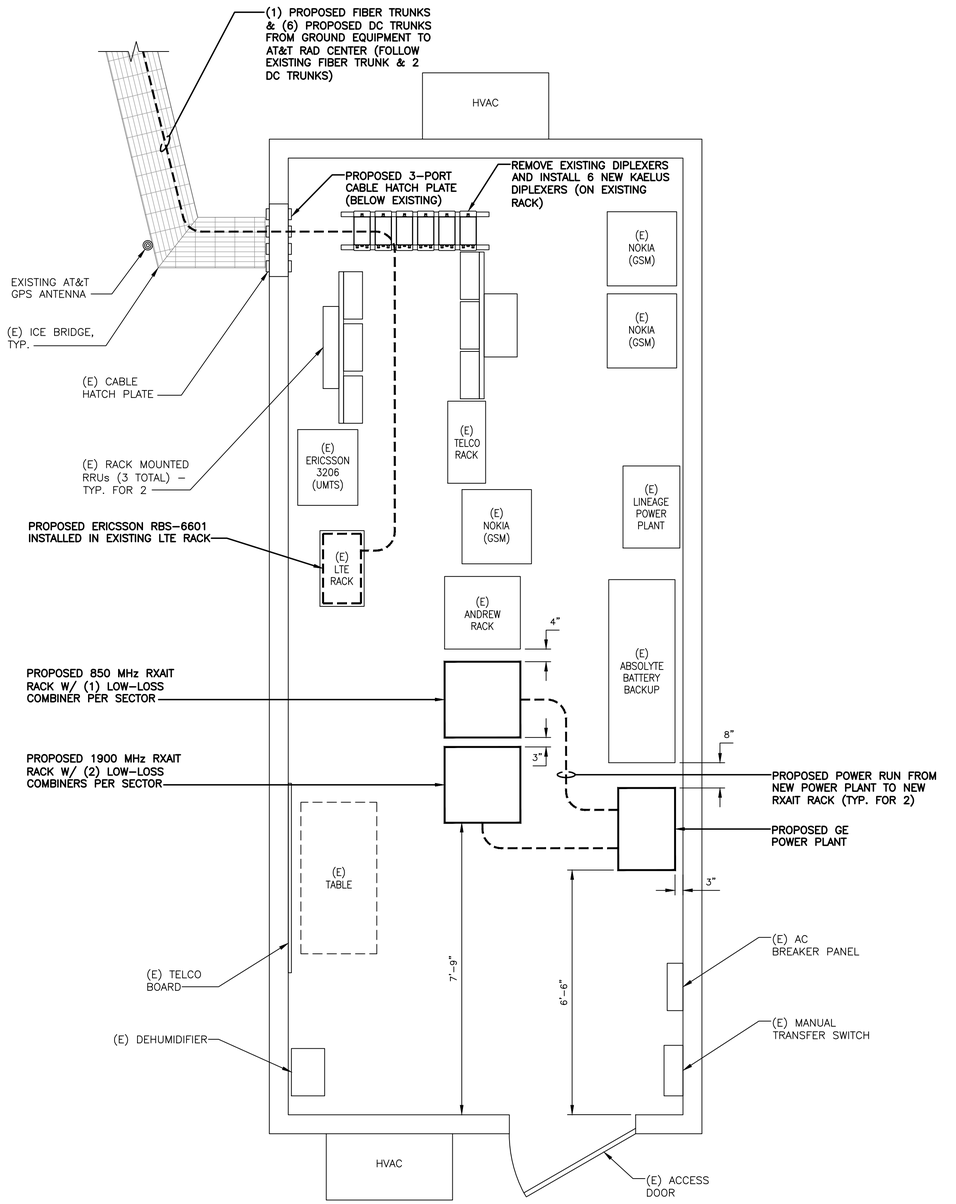
NORTH

EXISTING EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot



14.2AW

NORTH

PROPOSED EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

NOTE: ALL NEW ELECTRICAL FEEDERS, BREAKERS & CONDUITS TO BE SIZED AND INSTALLED BY A LICENSED ELECTRICIAN

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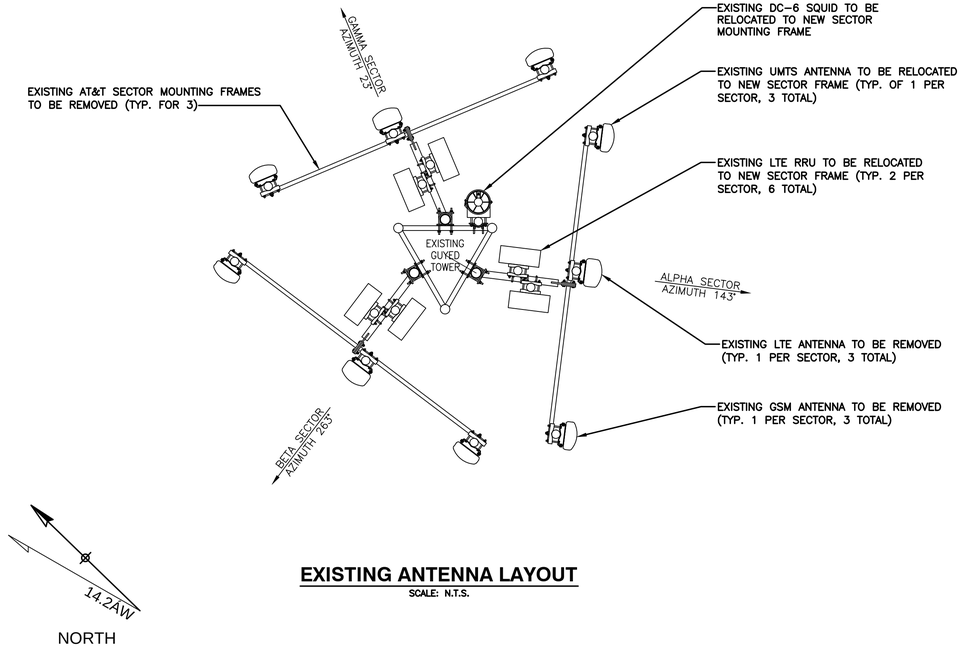
SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: PAV

SEAL: STATE OF CONNECTICUT · DOUGLAS G. BRAULT · No. 28643 · REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643
04/25/14

AT&T

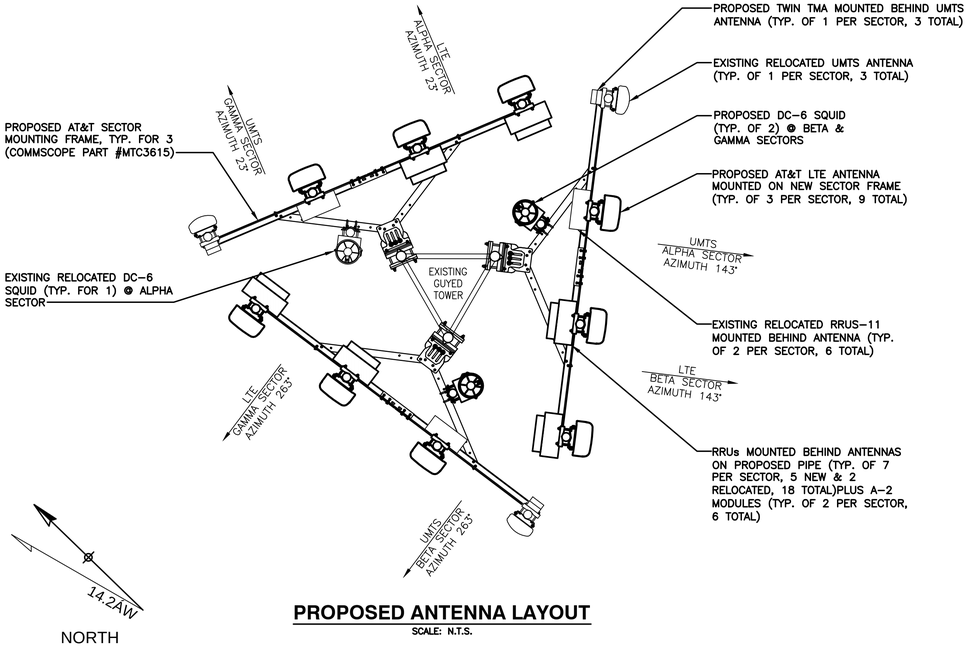
DRAWING TITLE:
EQUIPMENT LAYOUTS

JOB NUMBER	DRAWING NUMBER	REV
14006-EMP	A-2	0



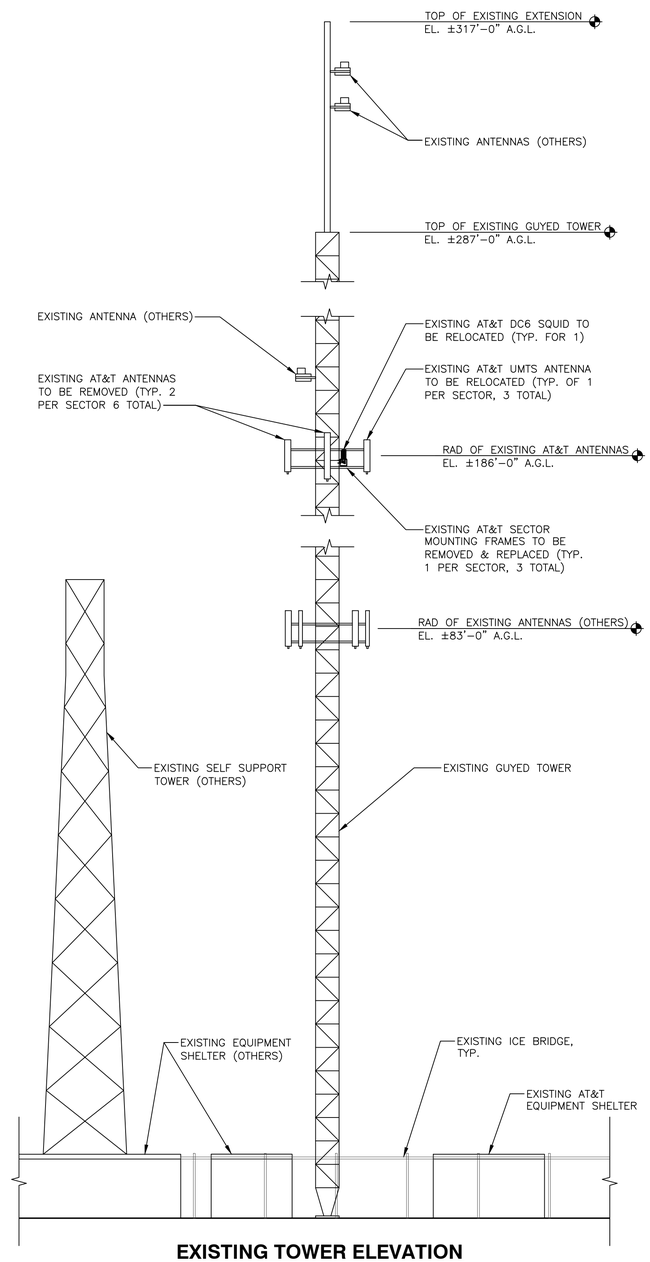
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



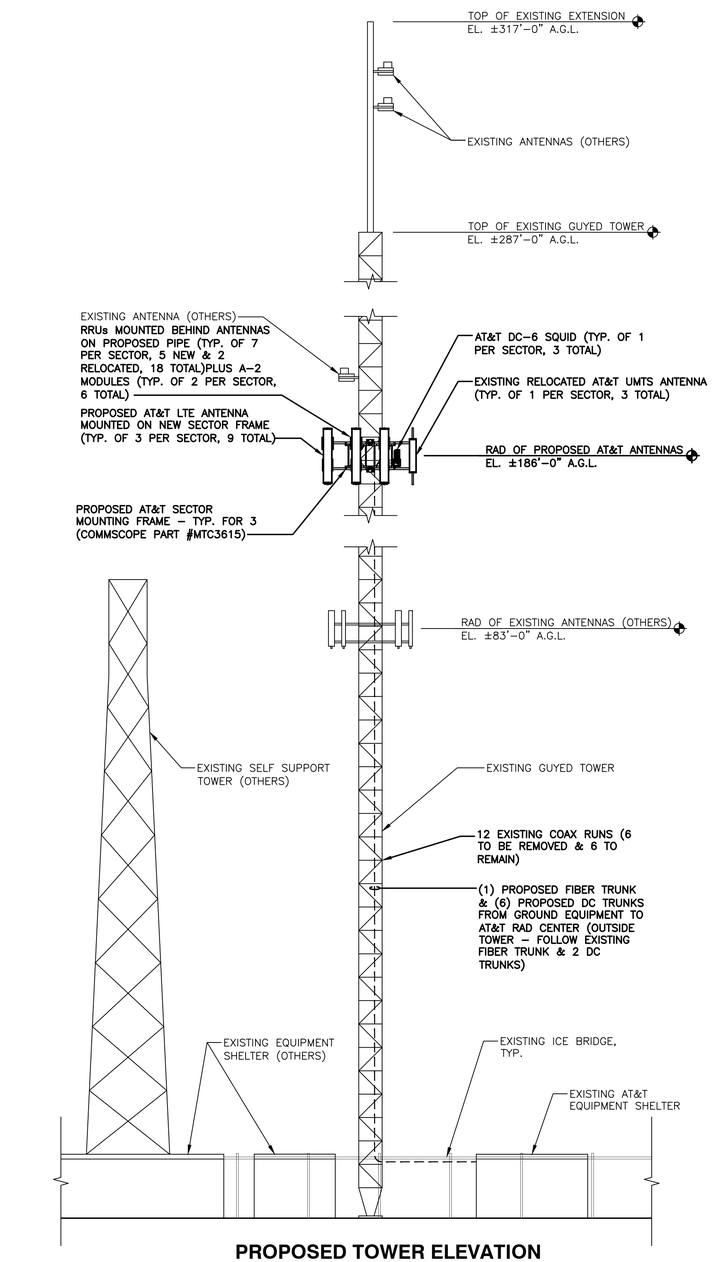
PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.



EXISTING TOWER ELEVATION

SCALE: NTS



PROPOSED TOWER ELEVATION

SCALE: NTS

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

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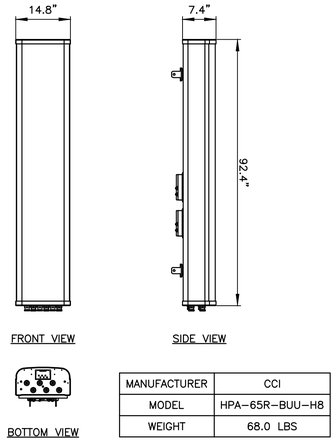
SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: PAV

SEAL:
STATE OF CONNECTICUT
THOMAS D. BARRETT
No. 28643
REGISTERED
PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643
04/25/14

AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
14006-EMP	A-3	0



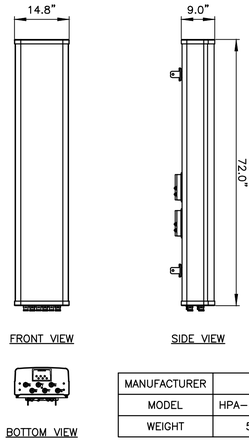
FRONT VIEW SIDE VIEW

BOTTOM VIEW

MANUFACTURER	CCI
MODEL	HPA-65R-BUU-H8
WEIGHT	68.0 LBS

8' LTE ANTENNA DETAIL

SCALE: N.T.S.



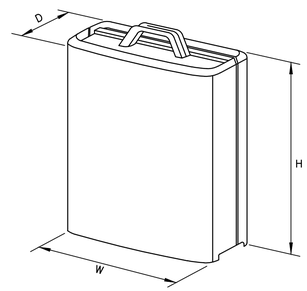
FRONT VIEW SIDE VIEW

BOTTOM VIEW

MANUFACTURER	CCI
MODEL	HPA-65R-BUU-H6
WEIGHT	51.0 LBS

6' LTE ANTENNA DETAIL

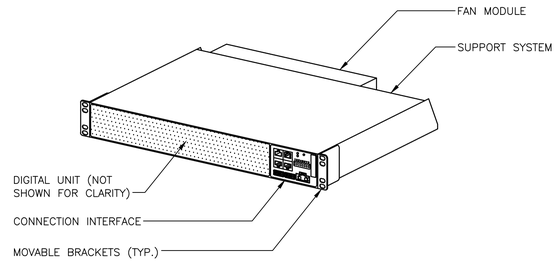
SCALE: N.T.S.



MODEL	L x W x H	WEIGHT
RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4" x 18.5" x 7.5"	58 LBS
RRUS-32	29.9" x 13.3" x 9.5"	77 LBS
A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS

RRUS DETAIL

SCALE: N.T.S.

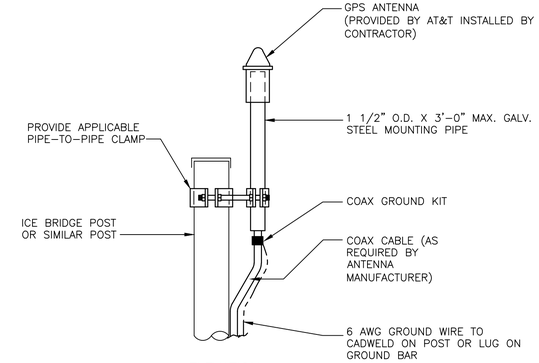


PHYSICAL CHARACTERISTICS	
HEIGHT	2.59" (1.5 U)
WIDTH	19"
DEPTH	13.77"
WEIGHT (FULLY EQUIPPED)	<22 LBS.
COLOR	WHITE

DC POWER SUPPLY	
NOMINAL VOLTAGE	-48VDC
OPERATING VOLTAGE RANGE	-40.0 TO -57.6 VDC
NON-DESTRUCTIVE VOLTAGE RANGE	0 TO -60 VDC

RBS 6601 DETAIL

SCALE: N.T.S.



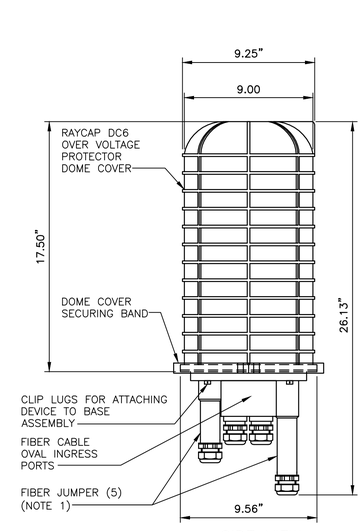
ELEVATION

NOTES:

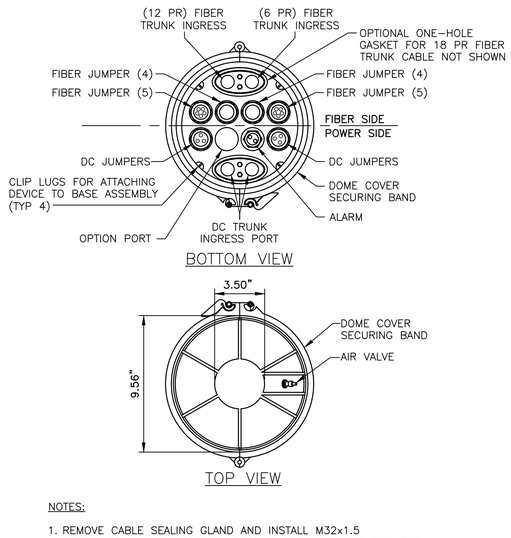
1. LOCATION OF ANTENNA MUST HAVE CLEAR VIEW OF SOUTHERN SKY AND CANNOT HAVE ANY BLOCKAGES EXCEEDING 25% OF THE SURFACE AREA OF A HEMISPHERE AROUND THE GPS ANTENNA.
2. ALL GPS ANTENNA LOCATIONS MUST BE ABLE TO RECEIVE CLEAR SIGNALS FROM A MINIMUM OF FOUR (4) SATELLITES. VERIFY WITH HANDHELD GPS BEFORE FINAL LOCATION OF GPS ANTENNA.
3. GPS ANTENNA MUST BE MOUNTED A MINIMUM DISTANCE OF TEN FEET (10') FROM ANY EXISTING GPS CONE.

GPS MOUNTING DETAIL

SCALE: N.T.S.



SIDE VIEW



BOTTOM VIEW

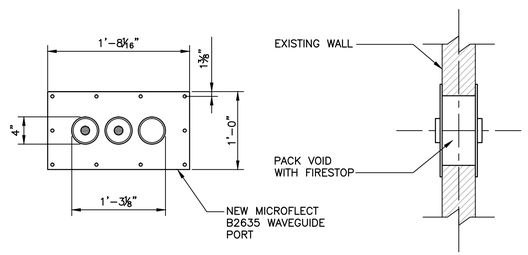
TOP VIEW

NOTES:

1. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

DC-6 SURGE SUPPRESSOR DETAIL

SCALE: N.T.S.



CABLE HATCH PLATE DETAIL

SCALE: N.T.S.

TO BE PROVIDED

POWER PLANT DETAIL

SCALE: N.T.S.

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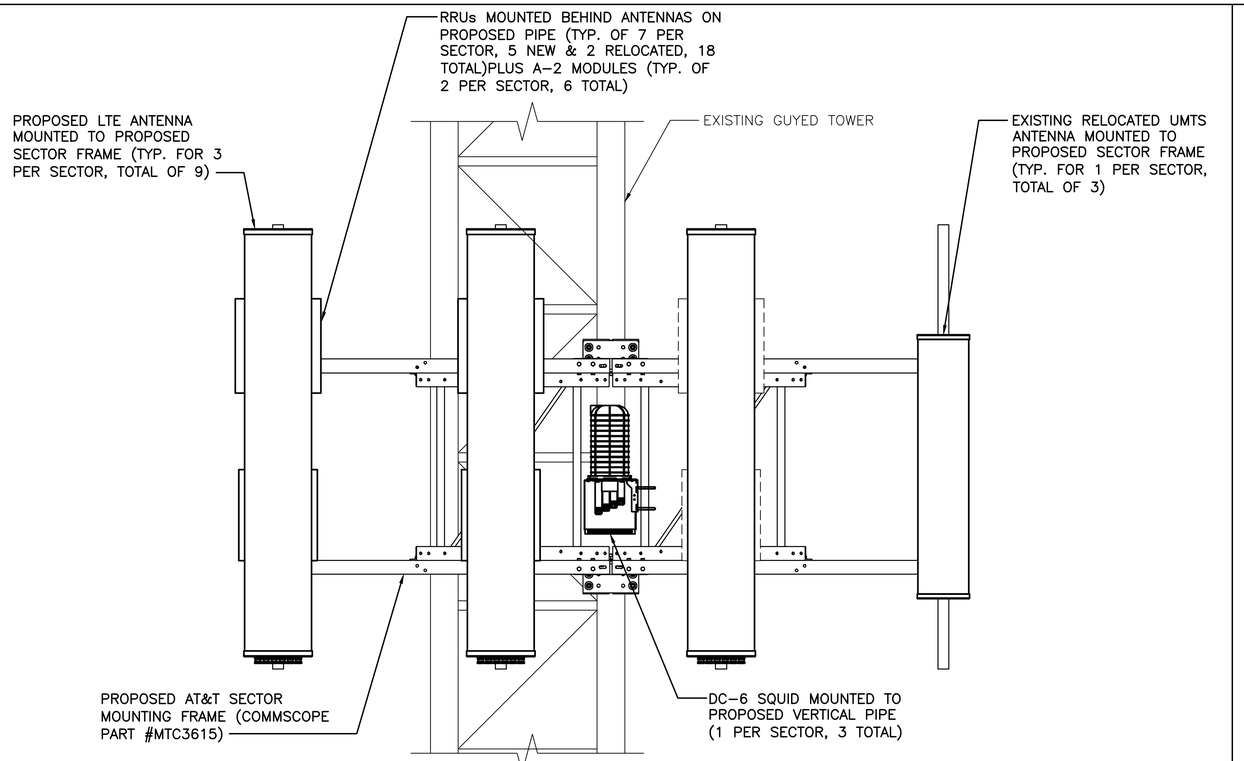
SEAL: STATE OF CONNECTICUT — THOMAS D. BASILE — No. 28643 — REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER
CT LICENSE NO. 28643
04/25/14

AT&T

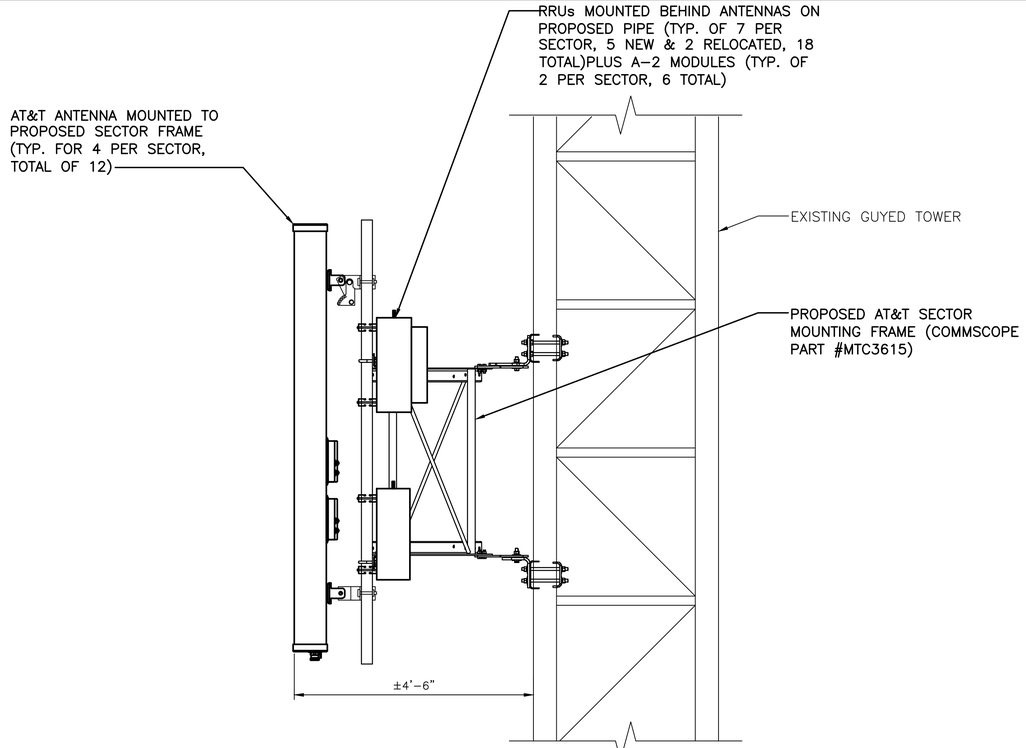
DRAWING TITLE: DETAILS

JOB NUMBER	DRAWING NUMBER	REV
14006-EMP	A-4	0



PROPOSED ANTENNA MOUNTING DETAIL (FRONT VIEW)

SCALE: N.T.S.



PROPOSED ANTENNA MOUNTING DETAIL (SIDE VIEW)

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)
ALPHA	POWERWAVE	7770	55"x11"x5"
	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	POWERWAVE	7770	55"x11"x5"
BETA	POWERWAVE	7770	55"x11"x5"
	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	POWERWAVE	7770	55"x11"x5"
GAMMA	POWERWAVE	7770	55"x11"x5"
	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	POWERWAVE	7770	55"x11"x5"

PROPOSED ANTENNA SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)
ALPHA	POWERWAVE	7770	55"x11"x5"
	CCI	HPA-65R-BUU-H8	92.4"x14.8"x7.4"
	CCI	HPA-65R-BUU-H8	92.4"x14.8"x7.4"
	CCI	HPA-65R-BUU-H8	92.4"x14.8"x7.4"
BETA	POWERWAVE	7770	55"x11"x5"
	CCI	HPA-65R-BUU-H8	92.4"x14.8"x7.4"
	CCI	HPA-65R-BUU-H8	92.4"x14.8"x7.4"
	CCI	HPA-65R-BUU-H8	92.4"x14.8"x7.4"
GAMMA	POWERWAVE	7770	55"x11"x5"
	CCI	HPA-65R-BUU-H6	72.0"x14.8"x9.0"
	CCI	HPA-65R-BUU-H6	72.0"x14.8"x9.0"
	CCI	HPA-65R-BUU-H6	72.0"x14.8"x9.0"

PROPOSED RRH SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-32	29.9"x13.3"x9.5"		
	ERICSSON	RRUS-E2	20.4"x18.5"x7.5"		
BETA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-32	29.9"x13.3"x9.5"		
	ERICSSON	RRUS-E2	20.4"x18.5"x7.5"		
GAMMA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-32	29.9"x13.3"x9.5"		
	ERICSSON	RRUS-E2	20.4"x18.5"x7.5"		

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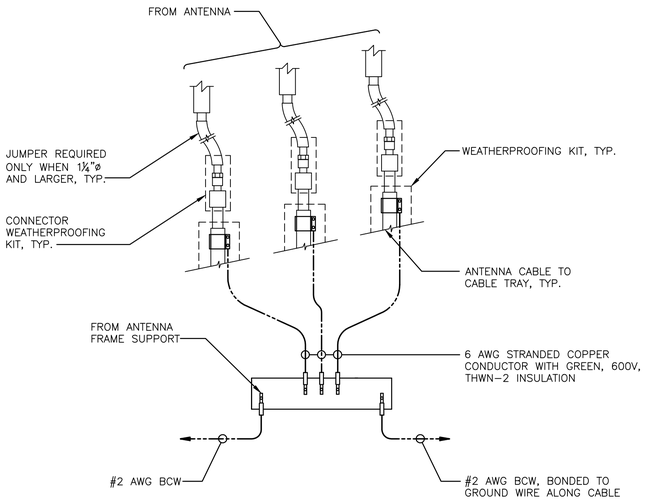
SEAL: STATE OF CONNECTICUT — NICHOLAS D. BOZZI — No. 28643 — REGISTERED PROFESSIONAL ENGINEER

NICHOLAS D. BOZZIE
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643
04/25/14

AT&T

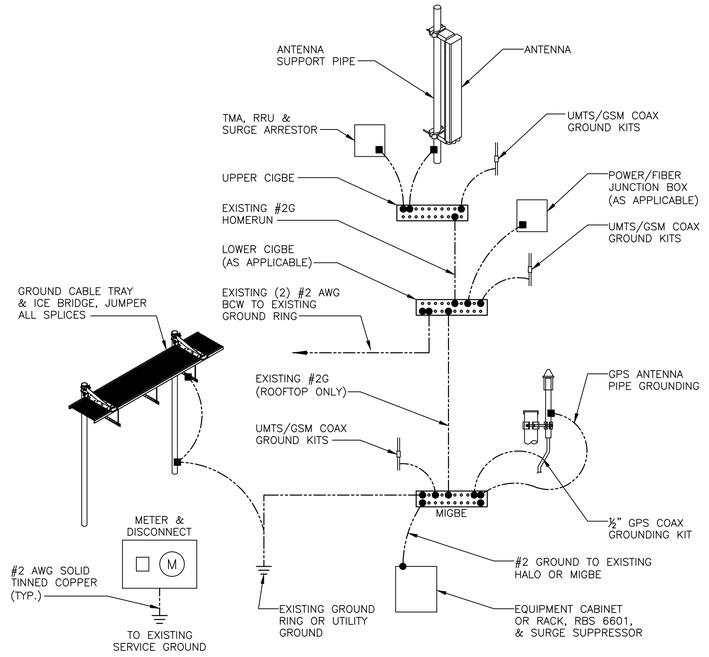
DRAWING TITLE:
ANTENNA MOUNTING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
14006-EMP	A-5	0



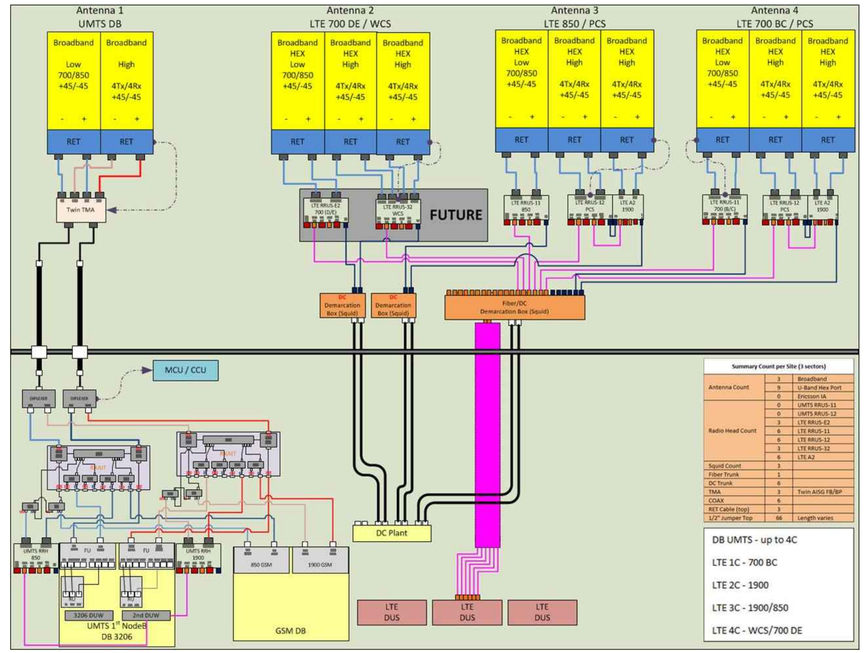
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



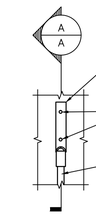
GROUNDING RISER DIAGRAM

SCALE: N.T.S.

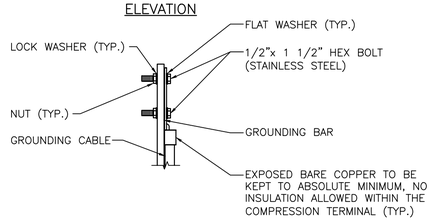


PLUMBING DIAGRAM

SCALE: N.T.S.



ELEVATION



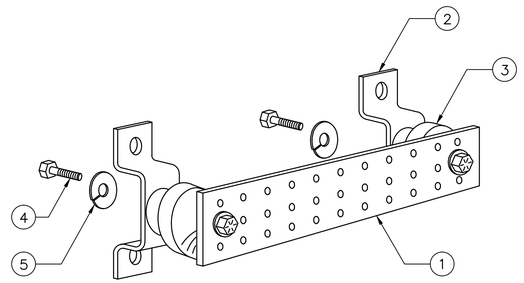
SECTION "A–A"

NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

SECTION "P" – SURGE PRODUCERS
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- –48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES

SECTION "A" – SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAIL

SCALE: N.T.S.

COM-EX Consultants
4 SECOND AVENUE
SUITE 204
DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT1077
SITE NAME: STORRS-UCONN

60 NORTH EAGLEVILLE ROAD
MANSFIELD, CT 06269
TOLLAND COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	04/25/14	FINAL SUBMISSION	CJT	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: PAV

SEAL: STATE OF CONNECTICUT — THOMAS D. BRIGHT — No. 28643 — REGISTERED PROFESSIONAL ENGINEER — PROFESSIONAL ENGINEER — CT LICENSE NO. 28643 — 04/25/14

AT&T

DRAWING TITLE: GROUNDING, ONE-LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
14006-EMP	G-1	0

STRUCTURAL ANALYSIS REPORT
GUYED TOWER

Prepared For:

Com-Ex Consultants, LLC
4 Second Avenue – Suite 204
Denville, NJ 07834

AT&T FA Number/Site Number: FA10035012/CT1077
AT&T Site Name: Storrs-UConn
60 North Eagleville Road
Mansfield, Tolland County, CT 06269

Destek Job No: 1429009

May 2, 2014

DESTEK ENGINEERING, LLC
5150 Stilesboro Road, Ste. 510, Kennesaw, GA 30152 -Tel: (770) 693-0835

CONTENTS

DESTEK ENGINEERING, LLC
5150 Stilesboro Road, Ste. 510, Kennesaw, GA 30152 -Tel: (770) 693-0835

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing 317 feet guyed, structural steel lattice tower located at 60 North Eagleville Road, Mansfield, CT 06269, for the addition and alteration of wireless telecommunication appurtenances proposed by AT&T Mobility (AT&T).

The structural analysis is based on the following documentation:

- Construction Drawings prepared by Com-Ex Consultants, Job Number 14006-EMP dated April 25, 2014
- Structural Analysis Report prepared by G+T Group, Project Number 84514.001.0001a dated September 13, 2012

1.1 STRUCTURE

The structure is an approximate 287'-0" guyed, structural steel lattice tower with an approximate 30'-0" long, 12" diameter pipe extension bringing the total height of the structure to approximately 317'-0", with a width of 3'-8" for the height of the lattice portion. Solid round legs are "K"-braced throughout the height of the lattice portion. The lattice portion is guyed at six (6) elevations above grade; 56.6 feet, 106.7 feet, 166.7 feet, 216.6 feet, 256.6 feet, and 283.5 feet, terminated approximately 231 feet away from the centerline of the structure. Please refer to the software output in Appendix A, for tower geometry, member sizes, and other details.

2.0 EXISTING AND PROPOSED APPURTENANCES

This analysis is based on the following existing and proposed appurtenances:

Existing Appurtenances by Others

Rad. Center (ft)	Antenna & TMA	Mount	Cables
310.0	1 bay FM antenna	Direct	7/8"
305.0	1 bay FM antenna	4' Standoff	7/8"
278.0	8" Omni	Side Arm	1/2"
277.0	6' Omni	Side Arm	1/2"
265.0	(2) 15' Omni	Side Arm	(2) 1-5/8"
261.0	Kathrein-Scala AP14-850/105N	Side Arm	(1) 1-5/8"
253.0	Kathrein-Scala AP14-850/105N	Side Arm	(2) 1/4"
250.0	(3) 15' Omni	Side Arm	(1) 1-5/8" (2) ¼"
235.0	(12) Andrew/Decibel DB844H90E-XY	(3) Sector Mounts	(12) 1-5/8"
210.0	1 bay FM antenna	Flush	7/8"

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		Mount	
197.0	1 bay FM antenna	Side Arm	1/2”
172.0	Andrew/Decibel DB872H120-X	Flush Mount	7/8”
171	3’ Grid Dish 8’ Omni	Flush Mount Side Arm	1/2” 7/8”
158.0	18”x12”x4”	Flush Mount	7/8”
116.0	(2) 6’ Dish	Pipe Mount	(2) EW63
111.0	10’ Omni	Side Arm	7/8”
104.0	6’ Dish	Pipe Mount	EW63
95.0	5’ Grid Dish	Flush Mount	3/8”
92.0	2’ Yagi	Flush Mount	3/8”
83.0	(6) Andrew 4’x8”x9.5” panel antenna (3) Amphenol Antel BXA-185063/12CF (3) Powerwave P65-16-XL-2-B	Platform Mount	(18) 1-5/8”
71.0	Andrew/Decibel 2’ Dipole antenna	Flush Mount	7/8”
18.0	6’ Yagi	Side Arm	1/4”
13.0	4’ Dish	Side Arm	1/4”

Existing Configuration of AT&T Appurtenances:

Rad. Center (ft)	Antenna & TMA	Mount	Cables
186.0	(6) 14”x9”x3” TMAs (6) Powerwave 7770.00 (6) Powerwave LGP21901 (2) Commscope/Andrew SBNH-1D6565C (3) KMW Communications AM-X-CD-16-65-00T-RET (1) Raycap DC6-48-60-18-8F	(3) Sector Mounts	(12) 1-5/8” (3) 1/2”

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Final Configuration of AT&T Appurtenances:

Rad. Center (ft)	Antenna & TMA	Mount	Cables
186.0	(3) Powerwave 7770.00 (6) CCI Antenna HPA-65R-BUU-H8 (3) CCI Antenna HPA-65R-BUU-H6 (6) RRUS-12 (9) RRUS-11 (3) RRUS-32 (3) RRUS-E2 (6) Ericsson A2 Module (3) Raycap DC6-48-60-18-8F	(3) Commscope/Andrew MTC3615/SF-QV-4-96 w/ VSR	(6) 1-5/8” (3) 1/2” (1) Hybrid DC/Fiber cable

3.0 CODES AND LOADING

The tower was analyzed per *TIA/EIA-222-F* as referenced by *2003 International Building Code*. The following wind loading was used in compliance with the standard for Tolland County:

- Basic wind speed: 85 mph
- Basic wind speed: 38 mph with 1” radial escaladed ice
- Basic wind speed: 50 mph for service loads

The following load combinations were used with wind blowing at 0^o, 60^o, and 90^o measured from a line normal to the face of the tower:

- $D + W_o$
- $D + 0.75W_I + I$

D: Dead Load of structure and appurtenances, W_o: Wind Load, without ice
W_i: Wind Load with ice, I: Weight of ice

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Destek and is assumed to be current and correct. Unless otherwise noted, the structure is assumed to be in good condition, free of defects, and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. Destek will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc., or lack of maintenance.

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The analysis does not include a qualification of the mounts attached on the structure or their connections. The analysis is performed to verify the capacity of the main structural members, which is the current practice in the tower industry.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed appurtenances. Any deviation of the appurtenances and placement, etc., will require Destek to generate an additional structural analysis. Additionally, the proposed linear appurtenances should be placed per any recommendations specified in this report.

5.0 ANALYSIS and ASSUMPTIONS

The tower was analyzed using RISA Tower, a three-dimensional, non-linear, finite element-analysis software package produced by RISA Technologies. Software output for this analysis is provided in Appendix A of this report.

The following material specifications were considered based on the information provided in the above-referenced documents:

- Tower Legs: A572
- Tower Diagonals: A36
- Tower Horizontals: A36
- Leg Bolts: A325N

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6.0 RESULTS AND CONCLUSION

Based on an analysis per *TIA/EIA-222-F*, the existing tower is found to have **adequate** structural capacity for the proposed modifications by AT&T. For the aforementioned load combinations, tower horizontal elements between 100 and 120 feet are stressed to a maximum of **91.2%** of their allowable capacity. Tower legs, diagonals, guys, and the pole extension were found stressed to maximums of **69.3%**, **56%**, **61.1%**, and **21.6%** of their respective allowable capacities. As a condition of these results, Destek requires that coaxial and hybrid cabling servicing the AT&T installation are stacked and bundled so that they constitutes as small an exposed wind face area as practicable. Thus, we recommend the 1-5/8" coaxial cables be stacked 2x3 and the hybrid cables 2x2, preferably behind the closest tower leg.

Information regarding the existing soils and foundation system was not available at the time of this analysis, thus a foundation analysis could not be completed.

Reactions

	B+T Analysis	Destek Analysis
Base Compression (kips)	325	330
Anchor Shear (kips)	97	105
Anchor Uplift (kips)	82	88

Should you need any clarifications or have any questions about this report, please contact Destek at (770) 693-0835 or acolakoglu@destekengineering.com.

Sincerely,

Destek Engineering, LLC

5/2/14

Joseph F. Frega, P.E.
Connecticut Professional Engineer
License Num. PEN.0026729

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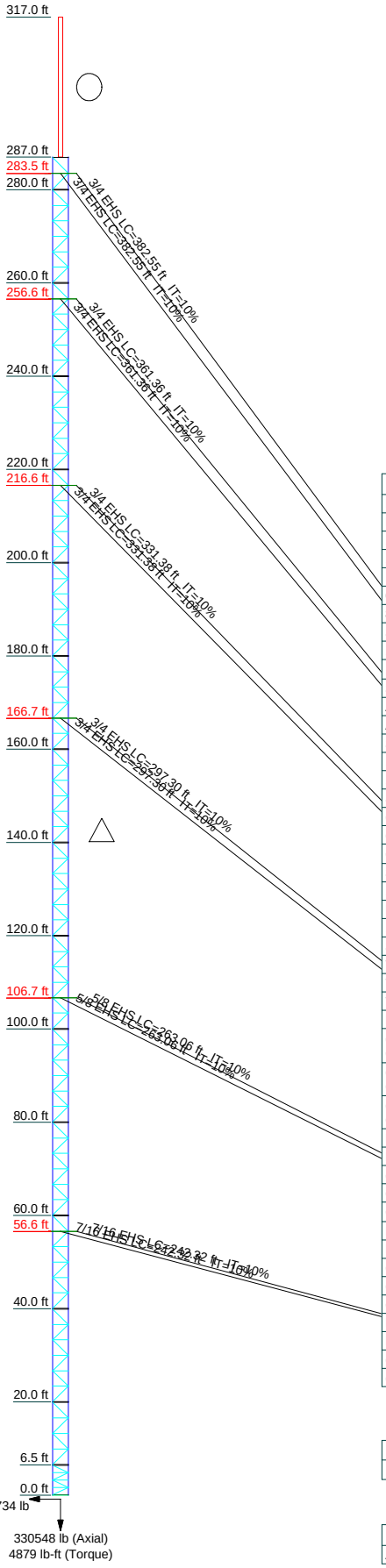
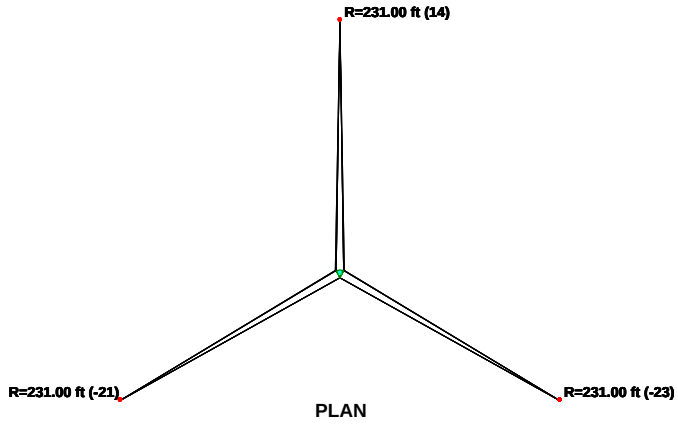
APPENDIX A
SOFTWARE OUTPUT

Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Bottom Girts	Horizontals	Face Width (ft)	# Panels @ (ft)	Weight (lb)
L1	P12x.5	A53-B-35	N.A.	N.A.	N.A.	N.A.	N.A.	1.0625	N.A.	2062.5
T1	SR 2	A572-50	SR 1 3/8	A36	SR 1	SR 1	SR 1	3.667	A	1415.5
T2										1361.0
T3	SR 2 1/4									2467.5
T4										1539.9
T5	SR 2 1/2		SR 1 1/4							2585.7
T6										1658.1
T7	SR 2 3/4		SR 1 1/2							2978.1
T8	SR 2 1/2		SR 1 3/8						78 @ 3.30556	1739.9
T9	SR 2 3/4		SR 1 1/4							1879.0
T10			SR 1 1/2							2999.2
T11	SR 3		SR 1 3/8							2202.9
T12			SR 1 1/4							2121.1
T13										3069.8
T14										2121.1
T15									B 4 @ 3.33333	1437.9
T16										857.0
										34496.2 lb





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8"x4'	322	(2) RRUS A2 Module (ATI)	186
Flash Beacon Lighting	321	RRUS-32 (ATI)	186
1 bay FM antenna	305	RRUS-12 (ATI)	186
1 bay FM antenna	305	Commscope MTC3615/SF-QV12-4-96 (ATI)	186
10'x2" Pipe Mount	305	DB872H120-X w/Mount Pipe	172
6' Omni	274	Flush Mount	172
8' Omni	274	8' Omni	171
Side Arm Mount [SO 602-1]	274	Side Arm Mount [SO 301-1]	171
15' Omni	257	Flush Mount	171
15' Omni	257	3' Grid Dish	171
Side Arm Mount [SO 601-1]	257	18"x12"x4"	158
AP14-850/105N w/ Mount Pipe	257	Flush Mount	158
AP14-850/105N w/ Mount Pipe	257	Side Lights	156
Side Arm Mount [SO 601-1]	257	7' Ice Shield	125
15' Omni	257	7' Ice Shield	125
15' Omni	257	Side Arm Mount [SO 602-1]	120
Side Arm Mount [SO 601-1]	257	5' Ice Shield	117
(4) DB844H90E-XY w/Mount Pipe	235	Pipe Mount [PM 602-1]	116
(4) DB844H90E-XY w/Mount Pipe	235	Pipe Mount [PM 602-1]	116
(4) DB844H90E-XY w/Mount Pipe	235	6' Dish	116
Sector Mount [SM 602-3]	235	6' Dish	116
1 bay FM antenna	210	10' Omni	111
Flush Mount	210	Side Arm Mount [SO 301-1]	111
1 bay FM antenna	197	Pipe Mount [PM 602-1]	104
Side Arm Mount [SO 601-1]	197	6' Dish	104
7770.00 w/ Mount Pipe (ATI)	186	Flush Mount	95
7770.00 w/ Mount Pipe (ATI)	186	5' Grid Dish	95
7770.00 w/ Mount Pipe (ATI)	186	2' Yagi	92
DC6-48-18-8F (ATI)	186	Flush Mount	92
(3) HPA-65R-BUU-H8 w/ Mount Pipe (ATI)	186	(2) 6'x2" Mount Pipe	83
(3) HPA-65R-BUU-H8 w/ Mount Pipe (ATI)	186	P65-16-XL-2 B w/Mount Pipe	83
(3) HPA-65R-BUU-H6 w/ Mount Pipe (ATI)	186	P65-16-XL-2 B w/Mount Pipe	83
DC6-48-18-8F (ATI)	186	BXA-185063/12CF w/Mount Pipe	83
DC6-48-18-8F (ATI)	186	Platform Mount [LP 603-1]	83
(3) RRUS-11 (ATI)	186	(2) 4'x8"x9.5" Panel	83
(2) RRUS-12 (ATI)	186	(2) 4'x8"x9.5" Panel	83
(2) RRUS A2 Module (ATI)	186	(2) 4'x8"x9.5" Panel	83
RRUS-32 (ATI)	186	(2) 6'x2" Mount Pipe	83
RRUS-12 (ATI)	186	(2) 6'x2" Mount Pipe	83
(3) RRUS-11 (ATI)	186	BXA-185063/12CF w/Mount Pipe	83
(2) RRUS-12 (ATI)	186	P65-16-XL-2 B w/Mount Pipe	83
(2) RRUS A2 Module (ATI)	186	BXA-185063/12CF w/Mount Pipe	83
RRUS-32 (ATI)	186	Flush Mount	71
RRUS-12 (ATI)	186	2' Dipole	71
(3) RRUS-11 (ATI)	186	6' Yagi	18
(2) RRUS-12 (ATI)	186	Side Arm Mount [SO 301-1]	18
		Side Arm Mount [SO 301-1]	13
		4' Dish	13

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	2 @ 3.41667	B	4 @ 1.58333

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase

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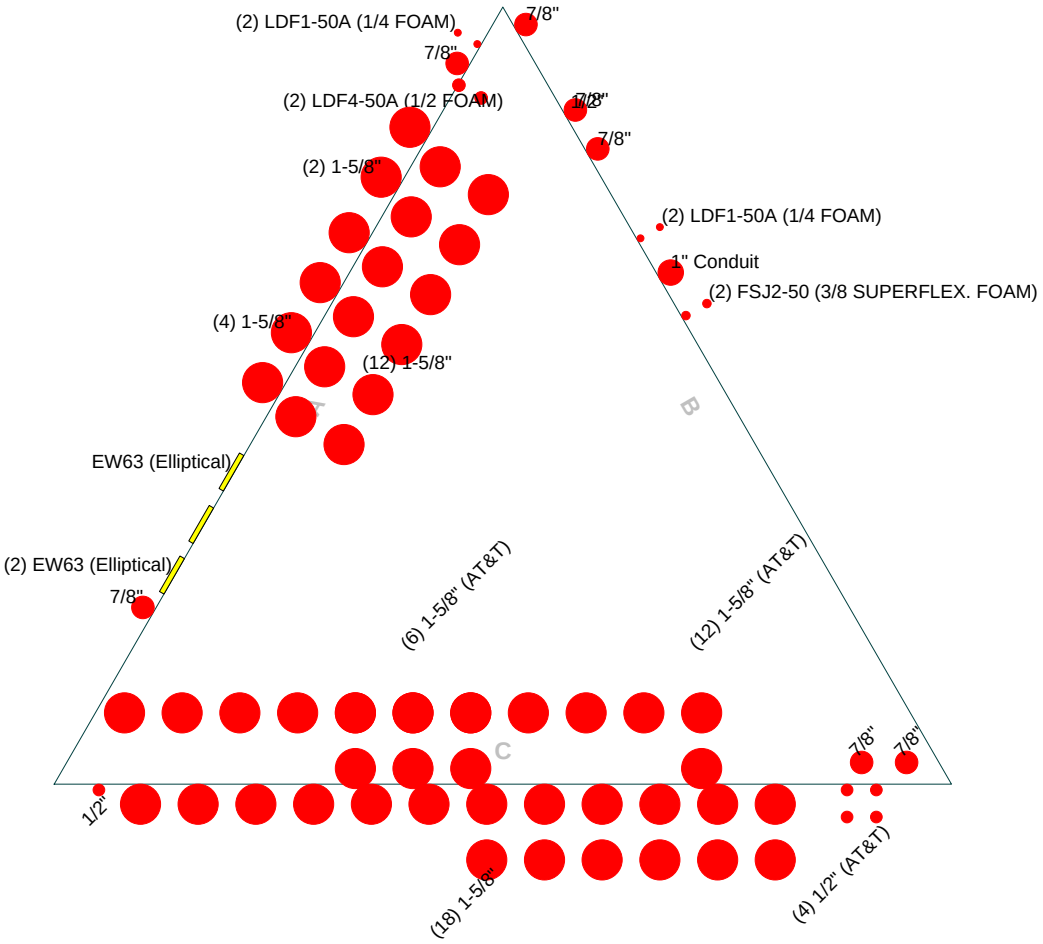
Job: 1429008			
Project: FA10035012 CT1077 Storrs-UConn			
Client: Com-Ex Consultants	Drawn by: AC	App'd:	
Code: TIA/EIA-222-F	Date: 05/02/14	Scale: NTS	
Path: Z:\Projects\2014\29 - Com-Ex Consultants\1429005 - Storrs UConn (Guyed)\mxTower\042514 FA10035012 CT1077 Storrs-UConn.eri		Dwg No. E-1	

Feed Line Plan
20'

Round Flat App In Face App Out Face

Section @ 20'



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Job: ***1429008***		
Project: ***FA10035012 CT1077 Storrs-UConn***		
Client: Com-Ex Consultants	Drawn by: AC	App'd:
Code: TIA/EIA-222-F	Date: 05/02/14	Scale: NTS
Path: Z:\Projects\2014\29 - Com-Ex Consultants\1429005 - Storrs UConn (Guyed)\mxTower\042514 FA10035012 CT1077 Storrs-UConn.eri		Dwg No. E-7

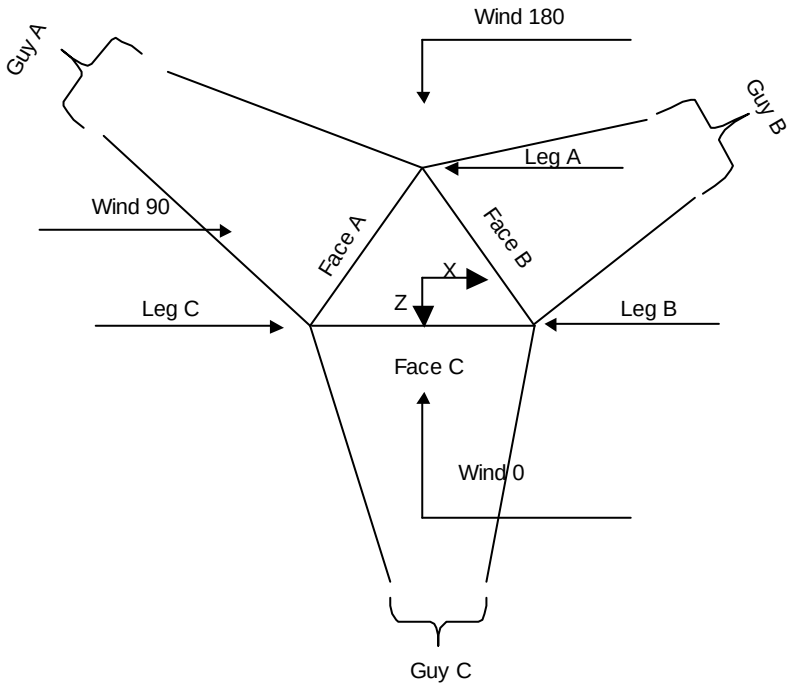
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 317.00 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 3.67 ft at the top and 3.67 ft at the base.
An index plate is provided at the 3x guyed -tower connection.
There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Tolland County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Weld together tower sections have flange connections..
Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
Pressures are calculated at each section.
Stress ratio used in pole design is 1.0664.
Safety factor used in guy design is 2.
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		Treat Feedline Bundles As Cylinder
	Consider Moments - Horizontals		Assume Legs Pinned		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Diagonals	√	Assume Rigid Index Plate	√	Calculate Redundant Bracing Forces
	Use Moment Magnification	√	Use Clear Spans For Wind Area		Ignore Redundant Members in FEA
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	SR Leg Bolts Resist Compression
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension	√	All Leg Panels Have Same Allowable
√	Escalate Ice		Bypass Mast Stability Checks		Offset Girt At Foundation
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Consider Feedline Torque
	Use Special Wind Profile	√	Project Wind Area of Appurt.	√	Include Angle Block Shear Check
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Poles
√	Leg Bolts Are At Top Of Section	√	SR Members Have Cut Ends		Include Shear-Torsion Interaction
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	Add IBC .6D+W Combination		Use TIA-222-G Tension Splice Capacity Exemption		



Face Guyed

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	317.00-287.00	30.00	P12x.5	A53-B-35 (35 ksi)	

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
L1 317.00-287.00				1	1	1.05		

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	287.00-280.00			3.67	1	7.00
T2	280.00-260.00			3.67	1	20.00
T3	260.00-240.00			3.67	1	20.00
T4	240.00-220.00			3.67	1	20.00
T5	220.00-200.00			3.67	1	20.00
T6	200.00-180.00			3.67	1	20.00
T7	180.00-160.00			3.67	1	20.00
T8	160.00-140.00			3.67	1	20.00
T9	140.00-120.00			3.67	1	20.00
T10	120.00-100.00			3.67	1	20.00
T11	100.00-80.00			3.67	1	20.00
T12	80.00-60.00			3.67	1	20.00
T13	60.00-40.00			3.67	1	20.00
T14	40.00-20.00			3.67	1	20.00
T15	20.00-6.50			3.67	1	13.50
T16	6.50-0.00			3.67	1	6.50

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	287.00-280.00	3.42	K Brace Left	No	Yes	1.0000	1.0000
T2	280.00-260.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T3	260.00-240.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T4	240.00-220.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T5	220.00-200.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T6	200.00-180.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T7	180.00-160.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T8	160.00-140.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T9	140.00-120.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T10	120.00-100.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T11	100.00-80.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T12	80.00-60.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T13	60.00-40.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T14	40.00-20.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T15	20.00-6.50	3.33	K Brace Left	No	Yes	1.0000	1.0000
T16	6.50-0.00	1.58	K Brace Left	No	Yes	1.0000	1.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 287.00-280.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T2 280.00-260.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T3 260.00-240.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T4 240.00-220.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T5 220.00-200.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T6 200.00-180.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T7 180.00-160.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/2	A36 (36 ksi)
T8 160.00-140.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T9 140.00-120.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T10 120.00-100.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/2	A36 (36 ksi)
T11 100.00-80.00	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T12 80.00-60.00	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T13 60.00-40.00	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T14 40.00-20.00	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T15 20.00-6.50	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T16 6.50-0.00	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 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 287.00-280.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T2 280.00-260.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T3 260.00-240.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T4 240.00-220.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T5 220.00-200.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T6 200.00-180.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T7 180.00-160.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T8 160.00-140.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T9 140.00-120.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T10 120.00-100.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T11 100.00-80.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T12 80.00-60.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T13 60.00-40.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T14 40.00-20.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T15 20.00-6.50	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T16 6.50-0.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	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
T1 287.00-280.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T2 280.00-260.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T3 260.00-240.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T4 240.00-220.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T5 220.00-200.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T6 200.00-180.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T7 180.00-160.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T8 160.00-140.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T9 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T10 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T11 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T12 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T13 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T14 40.00-20.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T15 20.00-6.50	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T16 6.50-0.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

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
T1 287.00-280.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T2 280.00-260.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T3 260.00-240.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T4 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T5 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T6 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T7 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T8 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T9 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T10 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T11 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T12 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T13 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T14 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T15 20.00-6.50	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T16 6.50-0.00	0.000	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000

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	No	Yes	1	1	1	1	1	1	1	1
287.00-280.00				1	1	1	1	1	1	1
T2	No	Yes	1	1	1	1	1	1	1	1
280.00-260.00				1	1	1	1	1	1	1
T3	No	Yes	1	1	1	1	1	1	1	1
260.00-240.00				1	1	1	1	1	1	1
T4	No	Yes	1	1	1	1	1	1	1	1
240.00-220.00				1	1	1	1	1	1	1
T5	No	Yes	1	1	1	1	1	1	1	1
220.00-200.00				1	1	1	1	1	1	1
T6	No	Yes	1	1	1	1	1	1	1	1
200.00-180.00				1	1	1	1	1	1	1
T7	No	Yes	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1

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
T8	No	Yes	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T9	No	Yes	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T10	No	Yes	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T11	No	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T12	No	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T13	No	Yes	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T14	No	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T15	No	Yes	1	1	1	1	1	1	1	1
20.00-6.50				1	1	1	1	1	1	1
T16 6.50-0.00	No	Yes	1	1	1	1	1	1	1	1
				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 Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	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
287.00-280.00														
T2	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
280.00-260.00														
T3	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
260.00-240.00														
T4	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
240.00-220.00														
T5	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
220.00-200.00														
T6	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
200.00-180.00														
T7	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
180.00-160.00														
T8	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
160.00-140.00														
T9	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
140.00-120.00														
T10	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
120.00-100.00														
T11	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
100.00-80.00														
T12	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
80.00-60.00														

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
T13 60.00-40.00	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 40.00-20.00	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 20.00-6.50	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 6.50-0.00	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 287.00-280.00	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 280.00-260.00	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 260.00-240.00	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 240.00-220.00	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 220.00-200.00	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 200.00-180.00	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 180.00-160.00	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 160.00-140.00	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 140.00-120.00	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 120.00-100.00	Flange	1.2500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 100.00-80.00	Flange	1.2500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 80.00-60.00	Flange	1.2500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 60.00-40.00	Flange	1.2500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T14 40.00-20.00	Flange	1.2500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T15 20.00-6.50	Flange	1.2500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T16 6.50-0.00	Flange	1.2500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
56.6111	EHS	A	7/16	2080.00	10%	21000	0.399	232.62	231.00	0.0000	14.00	100%
		B	7/16	2080.00	10%	21000	0.399	242.13	231.00	0.0000	-23.00	100%
		C	7/16	2080.00	10%	21000	0.399	241.48	231.00	0.0000	-21.00	100%
106.694	EHS	A	5/8	4240.00	10%	21000	0.813	246.73	231.00	0.0000	14.00	100%
		B	5/8	4240.00	10%	21000	0.813	262.85	231.00	0.0000	-23.00	100%
		C	5/8	4240.00	10%	21000	0.813	261.87	231.00	0.0000	-21.00	100%
166.694	EHS	A	3/4	5830.00	10%	19000	1.155	274.93	231.00	0.0000	14.00	100%
		B	3/4	5830.00	10%	19000	1.155	297.04	231.00	0.0000	-23.00	100%
		C	3/4	5830.00	10%	19000	1.155	295.77	231.00	0.0000	-21.00	100%
216.611	EHS	A	3/4	5830.00	10%	19000	1.155	305.44	231.00	0.0000	14.00	100%
		B	3/4	5830.00	10%	19000	1.155	331.10	231.00	0.0000	-23.00	100%
		C	3/4	5830.00	10%	19000	1.155	329.66	231.00	0.0000	-21.00	100%
256.611	EHS	A	3/4	5830.00	10%	19000	1.155	333.27	231.00	0.0000	14.00	100%
		B	3/4	5830.00	10%	19000	1.155	361.05	231.00	0.0000	-23.00	100%
		C	3/4	5830.00	10%	19000	1.155	359.51	231.00	0.0000	-21.00	100%
283.5	EHS	A	3/4	5830.00	10%	19000	1.155	353.29	231.00	0.0000	14.00	100%
		B	3/4	5830.00	10%	19000	1.155	382.22	231.00	0.0000	-23.00	100%
		C	3/4	5830.00	10%	19000	1.155	380.62	231.00	0.0000	-21.00	100%

Guy Data*(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
56.6111	Torque Arm	7.50	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
106.694	Torque Arm	7.50	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
166.694	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
216.611	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
256.611	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
283.5	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C15x40

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
56.61	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
106.69	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
166.69	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
216.61	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
256.61	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
283.50	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
56.6111	92.81	96.61	96.35		5.17 3.9 sec/pulse	5.59 4.1 sec/pulse	5.56 4.1 sec/pulse	
106.694	200.59	213.70	212.90		5.79 4.2 sec/pulse	6.55 4.4 sec/pulse	6.50 4.4 sec/pulse	
166.694	317.55	343.09	341.62		7.38 4.7 sec/pulse	8.59 5.1 sec/pulse	8.52 5.0 sec/pulse	
216.611	352.78	382.42	380.75		9.07 5.2 sec/pulse	10.62 5.6 sec/pulse	10.53 5.6 sec/pulse	
256.611	384.93	417.02	415.23		10.76 5.7 sec/pulse	12.58 6.1 sec/pulse	12.47 6.1 sec/pulse	
283.5	408.06	441.46	439.62		12.06 6.0 sec/pulse	14.06 6.5 sec/pulse	13.95 6.4 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
56.6111	No	No	1	1	1	1	1	1
106.694	No	No	1	1	1	1	1	1
166.694	No	No	1	1	1	1	1	1
216.611	No	No	1	1	1	1	1	1
256.611	No	No	1	1	1	1	1	1
283.5	No	No	1	1	1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
56.6111	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1
106.694	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
166.694	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1
216.611	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1
256.611	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1
283.5	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
56.6111	A	35.31	19	4	1.0081
	B	16.81	18	4	1.0000
	C	17.81	18	4	1.0000
106.694	A	60.35	22	4	1.0751
	B	41.85	20	4	1.0289
	C	42.85	20	4	1.0318
166.694	A	90.35	25	5	1.1285
	B	71.85	23	5	1.0979
	C	72.85	23	5	1.0997
216.611	A	115.31	26	5	1.1620
	B	96.81	25	5	1.1379
	C	97.81	25	5	1.1393
256.611	A	135.31	28	6	1.1845
	B	116.81	27	5	1.1638
	C	117.81	27	5	1.1650
283.5	A	148.75	28	6	1.1980
	B	130.25	27	5	1.1791
	C	131.25	27	5	1.1802

Guy-Tensioning Information

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning													
				0 F		20 F		40 F		60 F		80 F		100 F		120 F	
				Initial Tension lb	Intercept ft	Initial Tension lb	Intercept ft	Initial Tension lb	Intercept ft	Initial Tension lb	Intercept ft	Initial Tension lb	Intercept ft	Initial Tension lb	Intercept ft	Initial Tension lb	Intercept ft
56.6111	A	228.87	42.61	2902	3.71	2620	4.11	2344	4.59	2080	5.17	1831	5.88	1601	6.71	1398	7.69
	B	228.87	79.61	2837	4.10	2577	4.51	2324	5.00	2080	5.59	1849	6.28	1634	7.10	1441	8.04
	C	228.87	77.61	2841	4.07	2580	4.49	2325	4.97	2080	5.56	1848	6.25	1632	7.07	1438	8.02
106.694	A	228.87	92.69	5725	4.30	5215	4.71	4719	5.21	4240	5.79	3785	6.48	3362	7.29	2977	8.22
	B	228.87	129.69	5543	5.02	5097	5.46	4661	5.96	4240	6.55	3837	7.23	3458	8.01	3107	8.90
	C	228.87	127.69	5553	4.98	5103	5.41	4664	5.92	4240	6.50	3834	7.18	3452	7.97	3099	8.86
166.694	A	228.91	152.69	7359	5.87	6836	6.31	6326	6.81	5830	7.38	5353	8.03	4898	8.77	4471	9.59
	B	228.91	189.69	7138	7.04	6692	7.50	6255	8.01	5830	8.59	5418	9.23	5023	9.94	4646	10.73
	C	228.91	187.69	7153	6.96	6704	7.42	6265	7.93	5830	8.52	5415	9.16	5016	9.87	4637	10.66
216.611	A	228.91	202.61	7065	7.51	6644	7.97	6232	8.49	5830	9.07	5440	9.71	5065	10.41	4706	11.19
	B	228.91	239.61	6876	9.03	6520	9.52	6172	10.04	5830	10.62	5497	11.25	5174	11.93	4863	12.68
	C	228.91	237.61	6885	8.94	6527	9.43	6175	9.95	5830	10.53	5494	11.16	5169	11.85	4855	12.59
256.611	A	228.91	242.61	6862	9.17	6511	9.65	6167	10.18	5830	10.76	5501	11.38	5182	12.07	4875	12.81
	B	228.91	279.61	6706	10.97	6409	11.47	6117	12.00	5830	12.58	5549	13.20	5275	13.87	5008	14.58
	C	228.91	277.61	6714	10.87	6414	11.36	6119	11.90	5830	12.47	5547	13.10	5270	13.76	5002	14.48
283.5	A	228.91	269.50	6746	10.45	6435	10.95	6130	11.48	5830	12.06	5537	12.68	5251	13.35	4974	14.07
	B	228.91	306.50	6611	12.44	6346	12.94	6086	13.48	5830	14.06	5579	14.68	5333	15.33	5093	16.04

			Temperature At Time Of Tensioning													
			0 F		20 F		40 F		60 F		80 F		100 F		120 F	
Guy Elevation	H	V	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept
ft	ft	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft
C	228.91	304.50	6617	12.32	6351	12.83	6088	13.37	5830	13.95	5577	14.56	5329	15.22	5087	15.92

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
7/8"	B	Yes	Ar (CfAe)	287.00 - 10.00	0.0000	-0.47	1	1	0.8500 0.7500	1.1100		1.00
****												
LDF4-50A (1/2 FOAM)	A	Yes	Ar (CfAe)	274.00 - 10.00	-1.0000	0.4	2	1	0.6300	0.6300		0.15
****												
1-5/8"	A	Yes	Ar (CfAe)	257.00 - 10.00	0.0000	0.1	4	4	0.8500 0.7500	1.9800		1.00
LDF1-50A (1/4 FOAM)	A	Yes	Ar (CfAe)	257.00 - 10.00	0.0000	0.45	2	1	0.8500 0.7500	0.3500		0.06
LDF1-50A (1/4 FOAM)	B	Yes	Ar (CfAe)	257.00 - 10.00	0.0000	-0.2	2	1	0.8500 0.7500	0.3500		0.06
****												
1-5/8"	A	Yes	Ar (CfAe)	235.00 - 10.00	-3.0000	0.15	12	6	0.8500 0.7500	1.9800		1.00
****												
7/8"	A	Yes	Ar (CfAe)	210.00 - 10.00	0.0000	0.42	1	1	0.8500 0.7500	1.1100		1.00
****												
1/2"	C	Yes	Ar (CfAe)	197.00 - 10.00	0.0000	0.45	1	1	0.8500 0.7500	0.5800		1.00
***												
1-5/8" (AT&T)	C	Yes	Ar (CfAe)	186.00 - 10.00	-2.5000	0.1	12	11	0.8500 0.7500	1.9800		1.00
****												
7/8"	B	Yes	Ar (CfAe)	172.00 - 10.00	0.0000	-0.36	1	1	0.8500 0.7500	1.1100		1.00
****												
7/8"	B	Yes	Ar (CfAe)	171.00 - 10.00	0.0000	-0.31	1	1	0.8500 0.7500	1.1100		1.00
1/2"	B	Yes	Ar (CfAe)	171.00 - 10.00	0.0000	-0.36	1	1	0.8500 0.7500	0.5800		1.00
****												
7/8"	C	Yes	Ar (CfAe)	158.00 - 10.00	-0.5000	-0.4	1	1	0.8500 0.7500	1.1100		1.00
****												
1" Conduit	B	Yes	Ar (CfAe)	156.00 - 10.00	0.0000	-0.15	1	1	0.8500 0.7500	1.2500		1.00
***												
EW63 (Elliptical)	A	Yes	Af (CfAe)	116.00 - 10.00	0.0000	-0.2	2	2	0.8500 0.7500	2.0100	4.5200	0.51
****												
7/8"	C	Yes	Ar (CfAe)	111.00 - 10.00	-0.5000	-0.45	1	1	0.8500 0.7500	1.1100		1.00
****												
EW63 (Elliptical)	A	Yes	Af (CfAe)	104.00 - 10.00	0.0000	-0.1	1	1	0.8500 0.7500	2.0100	4.5200	0.51
****												

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
FSJ2-50 (3/8 SUPERFLEX. FOAM)	B	Yes	Ar (CfAe)	92.00 - 10.00	0.0000	-0.1	2	1	0.8500 0.7500	0.4300		0.08
FSJ2-50 (3/8 SUPERFLEX. FOAM)	B	Yes	Ar (CfAe)	95.00 - 92.00	0.0000	-0.1	1	1	0.8500 0.7500	0.4300		0.08
****												
1-5/8"	C	Yes	Ar (CfAe)	83.00 - 10.00	0.0000	0.05	18	12	0.8500 0.7500	1.9800		1.00
****												
7/8"	A	Yes	Ar (CfAe)	71.00 - 10.00	0.0000	-0.28	1	1	0.8500 0.7500	1.1100		1.00
****												
LDF1-50A (1/4 FOAM)	C	Yes	Ar (CfAe)	13.00 - 10.00	0.0000	0.43	2	2	0.3500	0.3500		0.06
LDF1-50A (1/4 FOAM)	C	Yes	Ar (CfAe)	18.00 - 13.00	0.0000	0.43	1	1	0.3500	0.3500		0.06
****												
1-5/8"	A	Yes	Ar (CfAe)	257.00 - 10.00	0.0000	0.3	2	2	0.8500 0.7500	1.9800		1.00
***												
1/2" (AT&T)	C	Yes	Ar (CfAe)	186.00 - 10.00	0.0000	-0.4	4	2	0.8500 0.7500	0.5800		1.00
1-5/8" (AT&T)	C	Yes	Ar (CfAe)	186.00 - 10.00	-2.5000	0.1	6	3	0.8500 0.7500	1.9800		1.00

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
L1	317.00-287.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T1	287.00-280.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.647	0.000	0.000	0.000	7.00
		C	0.000	0.000	0.000	0.000	0.00
T2	280.00-260.00	A	0.735	0.000	0.000	0.000	4.20
		B	1.850	0.000	0.000	0.000	20.00
		C	0.000	0.000	0.000	0.000	0.00
T3	260.00-240.00	A	18.376	0.000	0.000	0.000	110.04
		B	2.346	0.000	0.000	0.000	22.04
		C	0.000	0.000	0.000	0.000	0.00
T4	240.00-220.00	A	36.283	0.000	0.000	0.000	308.40
		B	2.433	0.000	0.000	0.000	22.40
		C	0.000	0.000	0.000	0.000	0.00
T5	220.00-200.00	A	42.158	0.000	0.000	0.000	378.40
		B	2.433	0.000	0.000	0.000	22.40
		C	0.000	0.000	0.000	0.000	0.00
T6	200.00-180.00	A	43.083	0.000	0.000	0.000	388.40
		B	2.433	0.000	0.000	0.000	22.40
		C	15.262	0.000	0.000	0.000	149.00
T7	180.00-160.00	A	43.083	0.000	0.000	0.000	388.40
		B	5.093	0.000	0.000	0.000	56.40
		C	49.100	0.000	0.000	0.000	460.00
T8	160.00-140.00	A	43.083	0.000	0.000	0.000	388.40
		B	8.767	0.000	0.000	0.000	98.40

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
		C	50.765	0.000	0.000	0.000	478.00
T9	140.00-120.00	A	43.083	0.000	0.000	0.000	388.40
		B	9.183	0.000	0.000	0.000	102.40
		C	50.950	0.000	0.000	0.000	480.00
T10	120.00-100.00	A	43.083	6.030	0.000	0.000	406.76
		B	9.183	0.000	0.000	0.000	102.40
		C	51.968	0.000	0.000	0.000	491.00
T11	100.00-80.00	A	43.083	10.050	0.000	0.000	419.00
		B	9.721	0.000	0.000	0.000	104.56
		C	58.740	0.000	0.000	0.000	554.00
T12	80.00-60.00	A	44.101	10.050	0.000	0.000	430.00
		B	9.900	0.000	0.000	0.000	105.60
		C	92.400	0.000	0.000	0.000	860.00
T13	60.00-40.00	A	44.933	10.050	0.000	0.000	439.00
		B	9.900	0.000	0.000	0.000	105.60
		C	92.400	0.000	0.000	0.000	860.00
T14	40.00-20.00	A	44.933	10.050	0.000	0.000	439.00
		B	9.900	0.000	0.000	0.000	105.60
		C	92.400	0.000	0.000	0.000	860.00
T15	20.00-6.50	A	22.467	5.025	0.000	0.000	219.50
		B	4.950	0.000	0.000	0.000	52.80
		C	46.521	0.000	0.000	0.000	430.66
T16	6.50-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

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
L1	317.00-287.00	A	1.304	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T1	287.00-280.00	A	1.294	0.000	0.000	0.000	0.000	0.00
		B		2.158	0.000	0.000	0.000	33.62
		C		0.000	0.000	0.000	0.000	0.00
T2	280.00-260.00	A	1.287	3.738	0.000	0.000	0.000	88.59
		B		6.140	0.000	0.000	0.000	95.37
		C		0.000	0.000	0.000	0.000	0.00
T3	260.00-240.00	A	1.275	22.244	16.037	0.000	0.000	744.82
		B		10.209	0.000	0.000	0.000	182.42
		C		0.000	0.000	0.000	0.000	0.00
T4	240.00-220.00	A	1.262	30.696	36.554	0.000	0.000	1571.80
		B		10.849	0.000	0.000	0.000	195.05
		C		0.000	0.000	0.000	0.000	0.00
T5	220.00-200.00	A	1.249	35.350	42.450	0.000	0.000	1845.35
		B		10.758	0.000	0.000	0.000	191.92
		C		0.000	0.000	0.000	0.000	0.00
T6	200.00-180.00	A	1.234	38.058	42.450	0.000	0.000	1874.28
		B		10.658	0.000	0.000	0.000	188.54
		C		10.289	17.695	0.000	0.000	619.93
T7	180.00-160.00	A	1.217	37.731	42.450	0.000	0.000	1855.66
		B		20.107	0.000	0.000	0.000	327.91
		C		24.765	58.983	0.000	0.000	1912.95
T8	160.00-140.00	A	1.199	37.368	42.450	0.000	0.000	1835.13
		B		31.952	0.000	0.000	0.000	501.76
		C		29.786	58.983	0.000	0.000	1973.52

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
T9	140.00-120.00	A	1.179	36.960	42.450	0.000	0.000	1812.19
		B		32.760	0.000	0.000	0.000	508.88
		C		30.031	58.983	0.000	0.000	1960.00
T10	120.00-100.00	A	1.155	36.492	52.181	0.000	0.000	1926.83
		B		32.292	0.000	0.000	0.000	496.19
		C		32.776	58.983	0.000	0.000	1980.76
T11	100.00-80.00	A	1.128	35.942	58.930	0.000	0.000	1992.37
		B		35.100	0.000	0.000	0.000	541.64
		C		35.851	66.766	0.000	0.000	2202.03
T12	80.00-60.00	A	1.094	38.296	58.781	0.000	0.000	1990.93
		B		35.437	0.000	0.000	0.000	548.71
		C		41.070	110.867	0.000	0.000	3363.46
T13	60.00-40.00	A	1.051	39.760	58.588	0.000	0.000	1965.87
		B		34.426	0.000	0.000	0.000	521.17
		C		40.060	110.867	0.000	0.000	3287.07
T14	40.00-20.00	A	1.000	38.567	58.361	0.000	0.000	1895.70
		B		33.233	0.000	0.000	0.000	489.71
		C		38.867	110.867	0.000	0.000	3197.71
T15	20.00-6.50	A	1.000	19.283	29.181	0.000	0.000	947.85
		B		16.617	0.000	0.000	0.000	244.86
		C		21.000	55.608	0.000	0.000	1614.52
T16	6.50-0.00	A	1.000	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

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
L1	317.00-287.00		0.000	0.000	0.000	0.000
			0.000	0.000	0.000	0.000
			0.000	0.000	0.000	0.000
T1	287.00-280.00	A	0.000	0.000	0.000	0.000
		B	0.052	0.555	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	280.00-260.00	A	0.055	0.886	0.000	0.000
		B	0.140	1.456	0.000	0.000
		C	0.000	0.000	0.000	0.000
T3	260.00-240.00	A	1.386	9.021	0.000	0.000
		B	0.177	2.406	0.000	0.000
		C	0.000	0.000	0.000	0.000
T4	240.00-220.00	A	2.737	15.741	0.000	0.000
		B	0.184	2.539	0.000	0.000
		C	0.000	0.000	0.000	0.000
T5	220.00-200.00	A	3.003	17.749	0.000	0.000
		B	0.173	2.454	0.000	0.000
		C	0.000	0.000	0.000	0.000
T6	200.00-180.00	A	3.069	18.216	0.000	0.000
		B	0.173	2.412	0.000	0.000
		C	1.087	6.332	0.000	0.000
T7	180.00-160.00	A	3.432	18.652	0.000	0.000
		B	0.406	4.677	0.000	0.000
		C	3.911	19.482	0.000	0.000
T8	160.00-140.00	A	3.250	18.049	0.000	0.000
		B	0.661	7.225	0.000	0.000
		C	3.830	20.074	0.000	0.000

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T9	140.00-120.00	A	3.069	17.419	0.000	0.000
		B	0.654	7.186	0.000	0.000
		C	3.630	19.526	0.000	0.000
T10	120.00-100.00	A	3.912	20.225	0.000	0.000
		B	0.731	7.260	0.000	0.000
		C	4.139	20.631	0.000	0.000
T11	100.00-80.00	A	4.009	21.148	0.000	0.000
		B	0.733	7.623	0.000	0.000
		C	4.432	22.286	0.000	0.000
T12	80.00-60.00	A	3.858	20.773	0.000	0.000
		B	0.705	7.398	0.000	0.000
		C	6.583	31.717	0.000	0.000
T13	60.00-40.00	A	3.917	20.470	0.000	0.000
		B	0.705	6.999	0.000	0.000
		C	6.583	30.685	0.000	0.000
T14	40.00-20.00	A	3.917	19.522	0.000	0.000
		B	0.705	6.543	0.000	0.000
		C	6.583	29.481	0.000	0.000
T15	20.00-6.50	A	1.995	9.966	0.000	0.000
		B	0.359	3.341	0.000	0.000
		C	3.376	15.401	0.000	0.000
T16	6.50-0.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	317.00-287.00	0.0000	0.0000	0.0000	0.0000
T1	287.00-280.00	0.0503	-1.0815	0.0500	-1.0756
T2	280.00-260.00	0.0225	-1.4755	0.0074	-1.7029
T3	260.00-240.00	-2.1695	-4.9727	-0.4935	-3.2079
T4	240.00-220.00	-2.9861	-6.3808	-0.9258	-3.8474
T5	220.00-200.00	-3.0665	-6.6937	-1.0564	-4.2432
T6	200.00-180.00	-3.2546	-4.2556	-1.5741	-3.0707
T7	180.00-160.00	-3.0902	-0.9005	-1.6238	-1.6746
T8	160.00-140.00	-2.7089	-1.1667	-1.0795	-2.0322
T9	140.00-120.00	-2.6264	-1.1707	-1.0258	-2.0274
T10	120.00-100.00	-2.9261	-0.9965	-1.2277	-1.7839
T11	100.00-80.00	-2.9882	-0.4059	-1.2473	-1.3813
T12	80.00-60.00	-2.9370	2.1505	-1.4527	0.4102
T13	60.00-40.00	-2.9966	2.1581	-1.5871	0.4950
T14	40.00-20.00	-2.9966	2.1581	-1.6302	0.5714
T15	20.00-6.50	-2.8102	2.0217	-1.5468	0.5713
T16	6.50-0.00	0.0000	0.0000	0.0000	0.0000

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
Lightning Rod 5/8"x4'	C	None		0.0000	322.00	No Ice	0.25	0.25	31.00
						1/2" Ice	0.66	0.66	34.00
						1" Ice	1.08	1.08	37.00
						2" Ice	1.91	1.91	43.00
						4" Ice	3.56	3.56	55.00
Flash Beacon Lighting	C	None		0.0000	321.00	No Ice	2.70	2.70	50.00
						1/2" Ice	3.10	3.10	70.00
						1" Ice	3.50	3.50	90.00
						2" Ice	4.30	4.30	130.00
						4" Ice	5.90	5.90	210.00
Side Lights	C	None		0.0000	156.00	No Ice	1.50	1.50	200.00
						1/2" Ice	2.25	2.25	300.00
						1" Ice	3.00	3.00	400.00
						2" Ice	4.50	4.50	600.00
						4" Ice	7.50	7.50	1000.00
7' Ice Shield	A	From Leg	0.00 0.00 0.00	0.0000	125.00	No Ice	5.97	2.59	461.00
						1/2" Ice	6.83	3.09	563.00
						1" Ice	7.70	3.60	665.00
						2" Ice	9.43	4.62	869.00
						4" Ice	12.89	6.64	1277.00
7' Ice Shield	C	From Leg	0.00 0.00 0.00	0.0000	125.00	No Ice	5.97	2.59	461.00
						1/2" Ice	6.83	3.09	563.00
						1" Ice	7.70	3.60	665.00
						2" Ice	9.43	4.62	869.00
						4" Ice	12.89	6.64	1277.00
5' Ice Shield	C	From Leg	0.00 0.00 0.00	0.0000	117.00	No Ice	4.57	2.59	0.00
						1/2" Ice	5.28	3.09	0.00
						1" Ice	5.99	3.60	0.00
						2" Ice	7.41	4.62	0.00
						4" Ice	10.24	6.64	0.00
****									
1 bay FM antenna	C	From Leg	2.00 0.00 0.00	0.0000	305.00	No Ice	5.00	5.00	50.00
						1/2" Ice	8.00	8.00	90.00
						1" Ice	11.00	11.00	130.00
						2" Ice	17.00	17.00	210.00
						4" Ice	29.00	29.00	370.00
1 bay FM antenna	C	From Leg	2.00 0.00 5.00	0.0000	305.00	No Ice	5.00	5.00	50.00
						1/2" Ice	8.00	8.00	90.00
						1" Ice	11.00	11.00	130.00
						2" Ice	17.00	17.00	210.00
						4" Ice	29.00	29.00	370.00
10'x2" Pipe Mount	C	From Leg	0.00 0.00 0.00	0.0000	305.00	No Ice	2.38	2.38	37.00
						1/2" Ice	3.40	3.40	54.00
						1" Ice	4.43	4.43	71.00
						2" Ice	6.49	6.49	105.00
						4" Ice	10.60	10.60	173.00
****									
6' Omni	C	From Leg	4.00 0.00 3.00	0.0000	274.00	No Ice	1.77	1.77	50.00
						1/2" Ice	2.13	2.13	63.00
						1" Ice	2.49	2.49	76.00
						2" Ice	3.21	3.21	102.00
						4" Ice	4.66	4.66	154.00
8' Omni	C	From Leg	4.00 0.00 3.00	0.0000	274.00	No Ice	2.40	2.40	90.00
						1/2" Ice	3.19	3.19	108.00
						1" Ice	3.98	3.98	126.00
						2" Ice	5.55	5.55	162.00
						4" Ice	8.70	8.70	234.00

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
Side Arm Mount [SO 602-1]	C	From Leg	0.00 0.00 0.00	0.0000	274.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.72 4.11 5.50 8.28 13.84	12.93 17.82 22.71 32.49 52.05	146.00 223.00 300.00 454.00 762.00
****									
15' Omni	C	From Leg	2.00 0.00 8.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.50 6.03 7.57 10.63 16.76	4.50 6.03 7.57 10.63 16.76	150.00 182.00 214.00 278.00 406.00
15' Omni	C	From Leg	2.00 0.00 -7.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.50 6.03 7.57 10.63 16.76	4.50 6.03 7.57 10.63 16.76	150.00 182.00 214.00 278.00 406.00
Side Arm Mount [SO 601-1]	C	From Leg	0.00 0.00 0.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.22 1.85 2.48 3.74 6.26	6.30 8.61 10.92 15.54 24.78	159.00 197.00 235.00 311.00 463.00
AP14-850/105N w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.61 11.24 11.88 13.16 15.70	7.06 8.20 9.34 11.62 16.18	49.00 113.00 177.00 305.00 561.00
AP14-850/105N w/ Mount Pipe	B	From Leg	4.00 0.00 -4.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.61 11.24 11.88 13.16 15.70	7.06 8.20 9.34 11.62 16.18	49.00 113.00 177.00 305.00 561.00
Side Arm Mount [SO 601-1]	B	From Leg	0.00 0.00 0.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.22 1.85 2.48 3.74 6.26	6.30 8.61 10.92 15.54 24.78	159.00 197.00 235.00 311.00 463.00
15' Omni	A	From Leg	2.00 0.00 8.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.50 6.03 7.57 10.63 16.76	4.50 6.03 7.57 10.63 16.76	150.00 182.00 214.00 278.00 406.00
15' Omni	A	From Leg	2.00 0.00 -7.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.50 6.03 7.57 10.63 16.76	4.50 6.03 7.57 10.63 16.76	150.00 182.00 214.00 278.00 406.00
Side Arm Mount [SO 601-1]	A	From Leg	0.00 0.00 0.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.22 1.85 2.48 3.74 6.26	6.30 8.61 10.92 15.54 24.78	159.00 197.00 235.00 311.00 463.00
****									
(4) DB844H90E-XY w/Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	235.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.58 4.20 4.73 5.86 8.27	5.40 6.49 7.30 8.96 12.49	35.55 79.42 129.38 251.21 616.53

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
(4) DB844H90E-XY w/Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	235.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.58 4.20 4.73 5.86 8.27	5.40 6.49 7.30 8.96 12.49	35.55 79.42 129.38 251.21 616.53
(4) DB844H90E-XY w/Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	235.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.58 4.20 4.73 5.86 8.27	5.40 6.49 7.30 8.96 12.49	35.55 79.42 129.38 251.21 616.53
Sector Mount [SM 602-3]	C	None		0.0000	235.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	33.11 44.90 56.69 80.27 127.43	33.11 44.90 56.69 80.27 127.43	1.54 2.16 2.78 4.01 6.49
****									
1 bay FM antenna	C	From Leg	2.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.00 8.00 11.00 17.00 29.00	5.00 8.00 11.00 17.00 29.00	50.00 90.00 130.00 210.00 370.00
Flush Mount	C	From Leg	2.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 2.00 3.00 5.00 9.00	1.00 2.00 3.00 5.00 9.00	100.00 150.00 200.00 300.00 500.00
****									
1 bay FM antenna	B	From Leg	2.00 0.00 0.00	0.0000	197.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.00 8.00 11.00 17.00 29.00	5.00 8.00 11.00 17.00 29.00	50.00 90.00 130.00 210.00 370.00
Side Arm Mount [SO 601-1]	B	From Leg	0.00 0.00 0.00	0.0000	197.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.22 1.85 2.48 3.74 6.26	6.30 8.61 10.92 15.54 24.78	159.00 197.00 235.00 311.00 463.00
**** ****									
DB872H120-X w/Mount Pipe	B	From Leg	2.00 0.00 0.00	60.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.99 4.75 5.30 6.45 8.93	2.83 3.75 4.39 5.69 8.52	32.55 67.57 107.32 204.65 504.64
Flush Mount	B	From Leg	2.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 2.00 3.00 5.00 9.00	1.00 2.00 3.00 5.00 9.00	100.00 150.00 200.00 300.00 500.00
****									
8' Omni	C	From Leg	4.00 0.00 3.00	0.0000	171.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.40 3.19 3.98 5.55 8.70	2.40 3.19 3.98 5.55 8.70	90.00 108.00 126.00 162.00 234.00
Side Arm Mount [SO 301-1]	C	From Leg	0.00 0.00	0.0000	171.00	No Ice 1/2" Ice	1.00 1.39	0.90 1.42	23.00 33.00

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
			0.00			1" Ice	1.78	1.94	43.00
						2" Ice	2.56	2.98	63.00
						4" Ice	4.12	5.06	103.00
****									
Flush Mount	A	From Leg	2.00	0.0000	171.00	No Ice	1.00	1.00	100.00
			0.00			1/2" Ice	2.00	2.00	150.00
			0.00			1" Ice	3.00	3.00	200.00
						2" Ice	5.00	5.00	300.00
						4" Ice	9.00	9.00	500.00
****									
18"x12"x4"	C	From Leg	2.00	-10.0000	158.00	No Ice	3.17	2.13	42.00
			0.00			1/2" Ice	3.74	2.77	67.00
			0.00			1" Ice	4.32	3.42	92.00
						2" Ice	5.46	4.71	142.00
						4" Ice	7.76	7.30	242.00
Flush Mount	C	From Leg	1.00	0.0000	158.00	No Ice	1.00	1.00	100.00
			0.00			1/2" Ice	2.00	2.00	150.00
			0.00			1" Ice	3.00	3.00	200.00
						2" Ice	5.00	5.00	300.00
						4" Ice	9.00	9.00	500.00
****									
Side Arm Mount [SO 602-1]	B	From Leg	2.00	0.0000	120.00	No Ice	2.72	12.93	146.00
			0.00			1/2" Ice	4.11	17.82	223.00
			0.00			1" Ice	5.50	22.71	300.00
						2" Ice	8.28	32.49	454.00
						4" Ice	13.84	52.05	762.00
****									
Pipe Mount [PM 602-1]	A	From Leg	1.00	0.0000	116.00	No Ice	5.25	1.58	93.00
			0.00			1/2" Ice	6.50	1.95	118.00
			0.00			1" Ice	7.75	2.32	143.00
						2" Ice	10.25	3.06	193.00
						4" Ice	15.25	4.54	293.00
Pipe Mount [PM 602-1]	C	From Leg	1.00	0.0000	116.00	No Ice	5.25	1.58	93.00
			0.00			1/2" Ice	6.50	1.95	118.00
			0.00			1" Ice	7.75	2.32	143.00
						2" Ice	10.25	3.06	193.00
						4" Ice	15.25	4.54	293.00
****									
10' Omni	B	From Leg	2.00	0.0000	111.00	No Ice	3.00	3.00	90.00
			0.00			1/2" Ice	4.03	4.03	112.00
			0.00			1" Ice	5.07	5.07	134.00
						2" Ice	7.13	7.13	178.00
						4" Ice	11.26	11.26	266.00
Side Arm Mount [SO 301-1]	B	From Leg	0.00	0.0000	111.00	No Ice	1.00	0.90	23.00
			0.00			1/2" Ice	1.39	1.42	33.00
			0.00			1" Ice	1.78	1.94	43.00
						2" Ice	2.56	2.98	63.00
						4" Ice	4.12	5.06	103.00
****									
Pipe Mount [PM 602-1]	C	From Leg	1.00	0.0000	104.00	No Ice	5.25	1.58	93.00
			0.00			1/2" Ice	6.50	1.95	118.00
			0.00			1" Ice	7.75	2.32	143.00
						2" Ice	10.25	3.06	193.00
						4" Ice	15.25	4.54	293.00
****									
Flush Mount	C	From Leg	1.00	0.0000	95.00	No Ice	1.00	1.00	100.00
			0.00			1/2" Ice	2.00	2.00	150.00

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
			0.00			1" Ice	3.00	3.00	200.00
						2" Ice	5.00	5.00	300.00
						4" Ice	9.00	9.00	500.00
****									
2' Yagi	B	From Leg	0.00	0.0000	92.00	No Ice	1.00	1.00	41.00
			0.00			1/2" Ice	2.00	2.00	54.00
			0.00			1" Ice	3.00	3.00	67.00
						2" Ice	5.00	5.00	93.00
						4" Ice	9.00	9.00	145.00
Flush Mount	B	From Leg	1.00	0.0000	92.00	No Ice	1.00	1.00	100.00
			0.00			1/2" Ice	2.00	2.00	150.00
			0.00			1" Ice	3.00	3.00	200.00
						2" Ice	5.00	5.00	300.00
						4" Ice	9.00	9.00	500.00
****									
(2) 4'x8"x9.5" Panel	A	From Leg	4.00	60.0000	83.00	No Ice	4.21	5.86	42.00
			0.00			1/2" Ice	4.74	6.74	87.00
			0.00			1" Ice	5.28	7.61	132.00
						2" Ice	6.34	9.37	222.00
						4" Ice	8.48	12.87	402.00
(2) 4'x8"x9.5" Panel	B	From Leg	4.00	60.0000	83.00	No Ice	4.21	5.86	42.00
			0.00			1/2" Ice	4.74	6.74	87.00
			0.00			1" Ice	5.28	7.61	132.00
						2" Ice	6.34	9.37	222.00
						4" Ice	8.48	12.87	402.00
(2) 4'x8"x9.5" Panel	C	From Leg	4.00	60.0000	83.00	No Ice	4.21	5.86	42.00
			0.00			1/2" Ice	4.74	6.74	87.00
			0.00			1" Ice	5.28	7.61	132.00
						2" Ice	6.34	9.37	222.00
						4" Ice	8.48	12.87	402.00
(2) 6'x2" Mount Pipe	A	From Leg	4.00	0.0000	83.00	No Ice	1.43	1.43	22.00
			0.00			1/2" Ice	1.93	1.93	33.00
			0.00			1" Ice	2.42	2.42	44.00
						2" Ice	3.42	3.42	66.00
						4" Ice	5.42	5.42	110.00
(2) 6'x2" Mount Pipe	B	From Leg	4.00	0.0000	83.00	No Ice	1.43	1.43	22.00
			0.00			1/2" Ice	1.93	1.93	33.00
			0.00			1" Ice	2.42	2.42	44.00
						2" Ice	3.42	3.42	66.00
						4" Ice	5.42	5.42	110.00
(2) 6'x2" Mount Pipe	C	From Leg	4.00	0.0000	83.00	No Ice	1.43	1.43	22.00
			0.00			1/2" Ice	1.93	1.93	33.00
			0.00			1" Ice	2.42	2.42	44.00
						2" Ice	3.42	3.42	66.00
						4" Ice	5.42	5.42	110.00
P65-16-XL-2 B w/Mount Pipe	A	From Leg	4.00	60.0000	83.00	No Ice	8.40	5.54	55.00
			0.00			1/2" Ice	8.95	6.48	113.00
			0.00			1" Ice	9.50	7.42	171.00
						2" Ice	10.60	9.31	287.00
						4" Ice	12.79	13.07	519.00
P65-16-XL-2 B w/Mount Pipe	B	From Leg	4.00	60.0000	83.00	No Ice	8.40	5.54	55.00
			0.00			1/2" Ice	8.95	6.48	113.00
			0.00			1" Ice	9.50	7.42	171.00
						2" Ice	10.60	9.31	287.00
						4" Ice	12.79	13.07	519.00
P65-16-XL-2 B w/Mount Pipe	C	From Leg	4.00	60.0000	83.00	No Ice	8.40	5.54	55.00
			0.00			1/2" Ice	8.95	6.48	113.00

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
			0.00			1" Ice	9.50	7.42	171.00
						2" Ice	10.60	9.31	287.00
						4" Ice	12.79	13.07	519.00
BXA-185063/12CF w/Mount Pipe	A	From Leg	4.00 0.00 0.00	60.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.03 5.58 6.14 7.25 9.46	5.29 6.46 7.63 9.97 14.65	41.00 84.00 127.00 213.00 385.00
BXA-185063/12CF w/Mount Pipe	B	From Leg	4.00 0.00 0.00	60.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.03 5.58 6.14 7.25 9.46	5.29 6.46 7.63 9.97 14.65	41.00 84.00 127.00 213.00 385.00
BXA-185063/12CF w/Mount Pipe	C	From Leg	4.00 0.00 0.00	60.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.03 5.58 6.14 7.25 9.46	5.29 6.46 7.63 9.97 14.65	41.00 84.00 127.00 213.00 385.00
Platform Mount [LP 603-1]	C	None		0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	42.10 52.90 63.70 85.30 128.50	42.10 52.90 63.70 85.30 128.50	2060.00 2680.00 3300.00 4540.00 7020.00
****									
2' Dipole	C	From Leg	2.00 0.00 0.00	0.0000	71.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.65 3.00 4.35 7.05 12.45	1.65 3.00 4.35 7.05 12.45	34.00 44.00 54.00 74.00 114.00
Flush Mount	C	From Leg	1.00 0.00 0.00	0.0000	71.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 2.00 3.00 5.00 9.00	1.00 2.00 3.00 5.00 9.00	100.00 150.00 200.00 300.00 500.00
****									
6' Yagi	C	From Leg	0.00 0.00 0.00	0.0000	18.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.77 0.17 0.00 0.00 0.00	3.98 0.57 0.00 0.00 0.00	41.00 54.00 67.00 93.00 145.00
Side Arm Mount [SO 301-1]	C	From Leg	0.00 0.00 0.00	0.0000	18.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 1.39 1.78 2.56 4.12	0.90 1.42 1.94 2.98 5.06	23.00 33.00 43.00 63.00 103.00
****									
Side Arm Mount [SO 301-1]	C	From Leg	0.00 0.00 0.00	0.0000	13.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 1.39 1.78 2.56 4.12	0.90 1.42 1.94 2.98 5.06	23.00 33.00 43.00 63.00 103.00
****									
7770.00 w/ Mount Pipe (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.15 10.18	4.25 5.01 5.77 7.29 10.33	55.00 101.00 147.00 239.00 423.00

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
7770.00 w/ Mount Pipe (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.15 10.18	4.25 5.01 5.77 7.29 10.33	55.00 101.00 147.00 239.00 423.00
7770.00 w/ Mount Pipe (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.15 10.18	4.25 5.01 5.77 7.29 10.33	55.00 101.00 147.00 239.00 423.00
DC6-48-18-8F (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.19 1.37 1.57 1.99 2.96	1.19 1.37 1.57 1.99 2.96	30.00 44.40 61.08 101.83 217.26
(3) HPA-65R-BUU-H8 w/ Mount Pipe (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.53 14.34 15.14 16.71 19.95	9.58 11.05 12.50 14.75 19.46	99.76 196.45 302.99 549.85 1218.56
(3) HPA-65R-BUU-H8 w/ Mount Pipe (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.53 14.34 15.14 16.71 19.95	9.58 11.05 12.50 14.75 19.46	99.76 196.45 302.99 549.85 1218.56
(3) HPA-65R-BUU-H6 w/ Mount Pipe (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.84 11.61 12.35 13.78 16.76	8.35 9.64 10.79 12.87 17.27	80.20 161.06 254.99 471.33 1055.76
DC6-48-18-8F (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.19 1.37 1.57 1.99 2.96	1.19 1.37 1.57 1.99 2.96	30.00 44.40 61.08 101.83 217.26
DC6-48-18-8F (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.19 1.37 1.57 1.99 2.96	1.19 1.37 1.57 1.99 2.96	30.00 44.40 61.08 101.83 217.26
(3) RRUS-11 (AT&T)	A	From Leg	3.00 0.00 -2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.24 3.48 3.73 4.25 5.41	1.38 1.56 1.74 2.15 3.05	50.70 71.48 95.30 152.80 312.77
(2) RRUS-12 (AT&T)	A	From Leg	3.00 0.00 2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.67 3.93 4.19 4.75 5.96	1.49 1.67 1.87 2.28 3.21	70.00 93.22 119.64 182.88 356.31
(2) RRUS A2 Module (AT&T)	A	From Leg	3.00 0.00 2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.42 2.63 2.85 3.31 4.34	0.56 0.69 0.83 1.14 1.87	22.00 34.83 50.13 88.93 204.69
RRUS-32 (AT&T)	A	From Leg	3.00 0.00	0.0000	186.00	No Ice 1/2" Ice	3.87 4.15	2.76 3.02	77.00 104.93

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
			-2.00			1" Ice	4.44	3.29	136.47
						2" Ice	5.06	3.85	211.15
						4" Ice	6.38	5.08	412.40
RRUS-12 (AT&T)	A	From Leg	3.00 0.00 2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.67 3.93 4.19 4.75 5.96	1.49 1.67 1.87 2.28 3.21	70.00 93.22 119.64 182.88 356.31
(3) RRUS-11 (AT&T)	B	From Leg	3.00 0.00 -2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.24 3.48 3.73 4.25 5.41	1.38 1.56 1.74 2.15 3.05	50.70 71.48 95.30 152.80 312.77
(2) RRUS-12 (AT&T)	B	From Leg	3.00 0.00 2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.67 3.93 4.19 4.75 5.96	1.49 1.67 1.87 2.28 3.21	70.00 93.22 119.64 182.88 356.31
(2) RRUS A2 Module (AT&T)	B	From Leg	3.00 0.00 2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.42 2.63 2.85 3.31 4.34	0.56 0.69 0.83 1.14 1.87	22.00 34.83 50.13 88.93 204.69
RRUS-32 (AT&T)	B	From Leg	3.00 0.00 -2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.87 4.15 4.44 5.06 6.38	2.76 3.02 3.29 3.85 5.08	77.00 104.93 136.47 211.15 412.40
RRUS-12 (AT&T)	B	From Leg	3.00 0.00 2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.67 3.93 4.19 4.75 5.96	1.49 1.67 1.87 2.28 3.21	70.00 93.22 119.64 182.88 356.31
(3) RRUS-11 (AT&T)	C	From Leg	3.00 0.00 -2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.24 3.48 3.73 4.25 5.41	1.38 1.56 1.74 2.15 3.05	50.70 71.48 95.30 152.80 312.77
(2) RRUS-12 (AT&T)	C	From Leg	3.00 0.00 2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.67 3.93 4.19 4.75 5.96	1.49 1.67 1.87 2.28 3.21	70.00 93.22 119.64 182.88 356.31
(2) RRUS A2 Module (AT&T)	C	From Leg	3.00 0.00 2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.42 2.63 2.85 3.31 4.34	0.56 0.69 0.83 1.14 1.87	22.00 34.83 50.13 88.93 204.69
RRUS-32 (AT&T)	C	From Leg	3.00 0.00 -2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.87 4.15 4.44 5.06 6.38	2.76 3.02 3.29 3.85 5.08	77.00 104.93 136.47 211.15 412.40
RRUS-12 (AT&T)	C	From Leg	3.00 0.00 2.00	0.0000	186.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.67 3.93 4.19 4.75	1.49 1.67 1.87 2.28	70.00 93.22 119.64 182.88

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
Commscope MTC3615/SF-QV12-4-96 (AT&T)	C	None		0.0000	186.00	4" Ice	5.96	3.21	356.31
						No Ice	75.80	29.30	1951.92
						1/2" Ice	80.60	30.70	2439.90
						1" Ice	85.40	32.10	2927.88
						2" Ice	95.00	34.90	3903.84
						4" Ice	114.20	40.50	5855.76

Dishes

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
3' Grid Dish	A	Grid	From Leg	2.00 0.00 0.00	-60.0000		171.00	3.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.07 7.47 7.87 8.67 10.27	50.00 70.00 90.00 130.00 210.00
****											
6' Dish	A	Paraboloid w/o Radome	From Leg	2.00 0.00 0.00	-20.0000		116.00	6.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	28.27 29.05 29.83 31.39 34.51	0.14 0.29 0.44 0.74 1.34
6' Dish	C	Paraboloid w/o Radome	From Leg	2.00 0.00 0.00	-90.0000		116.00	6.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	28.27 29.05 29.83 31.39 34.51	0.14 0.29 0.44 0.74 1.34
****											
6' Dish	C	Paraboloid w/Shroud (HP)	From Leg	2.00 0.00 0.00	-10.0000		104.00	6.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	28.27 29.05 29.83 31.39 34.51	0.14 0.29 0.44 0.74 1.34
****											
5' Grid Dish	C	Grid	From Leg	2.00 0.00 0.00	-30.0000		95.00	5.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	19.64 20.30 20.95 22.27 24.91	170.00 319.00 468.00 766.00 1362.00
****											
4' Dish	C	Paraboloid w/o Radome	From Leg	2.00 0.00 0.00	-10.0000		13.00	4.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	12.56 13.09 13.62 14.68 16.79	170.00 237.00 304.00 438.00 706.00

Tower Pressures - No Ice

G_H = 1.091 (base tower), 1.091 (upper structure)

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
L1	302.00	1.882	35	31.875	A	0.000	31.875	31.875	100.00	0.000	0.000
317.00-287.00					B	0.000	31.875		100.00	0.000	0.000
					C	0.000	31.875		100.00	0.000	0.000
T1	283.50	1.849	34	26.836	A	0.000	4.305	2.333	54.20	0.000	0.000
287.00-280.00					B	0.000	4.900		47.62	0.000	0.000
					C	0.000	4.305		54.20	0.000	0.000
T2	270.00	1.823	34	76.673	A	0.000	12.628	6.667	52.79	0.000	0.000
280.00-260.00					B	0.000	13.659		48.81	0.000	0.000
					C	0.000	11.948		55.80	0.000	0.000
T3	250.00	1.783	33	77.090	A	0.000	29.740	7.500	25.22	0.000	0.000
260.00-240.00					B	0.000	14.919		50.27	0.000	0.000
					C	0.000	12.750		58.82	0.000	0.000
T4	230.00	1.741	32	77.090	A	0.000	46.296	7.500	16.20	0.000	0.000
240.00-220.00					B	0.000	15.000		50.00	0.000	0.000
					C	0.000	12.750		58.82	0.000	0.000
T5	210.00	1.697	31	77.507	A	0.000	52.416	8.333	15.90	0.000	0.000
220.00-200.00					B	0.000	15.521		53.69	0.000	0.000
					C	0.000	13.261		62.84	0.000	0.000
T6	190.00	1.649	30	77.507	A	0.000	53.275	8.333	15.64	0.000	0.000
200.00-180.00					B	0.000	15.521		53.69	0.000	0.000
					C	0.000	27.436		30.37	0.000	0.000
T7	170.00	1.597	30	77.923	A	0.000	54.295	9.167	16.88	0.000	0.000
180.00-160.00					B	0.000	19.330		47.42	0.000	0.000
					C	0.000	59.832		15.32	0.000	0.000
T8	150.00	1.541	29	77.507	A	0.000	53.385	8.333	15.61	0.000	0.000
160.00-140.00					B	0.000	21.657		38.48	0.000	0.000
					C	0.000	60.487		13.78	0.000	0.000
T9	130.00	1.48	27	77.923	A	0.000	54.079	9.167	16.95	0.000	0.000
140.00-120.00					B	0.000	22.594		40.57	0.000	0.000
					C	0.000	61.385		14.93	0.000	0.000
T10	110.00	1.411	26	77.923	A	6.030	53.815	9.167	15.32	0.000	0.000
120.00-100.00					B	0.000	23.095		39.69	0.000	0.000
					C	0.000	62.471		14.67	0.000	0.000
T11	90.00	1.332	25	78.340	A	10.050	54.231	10.000	15.56	0.000	0.000
100.00-80.00					B	0.000	24.143		41.42	0.000	0.000
					C	0.000	69.464		14.40	0.000	0.000
T12	70.00	1.24	23	78.340	A	10.050	55.112	10.000	15.35	0.000	0.000
80.00-60.00					B	0.000	24.063		41.56	0.000	0.000
					C	0.000	100.686		9.93	0.000	0.000
T13	50.00	1.126	21	78.340	A	10.050	55.885	10.000	15.17	0.000	0.000
60.00-40.00					B	0.000	24.063		41.56	0.000	0.000
					C	0.000	100.686		9.93	0.000	0.000
T14	30.00	1	18	78.340	A	10.050	55.885	10.000	15.17	0.000	0.000
40.00-20.00					B	0.000	24.063		41.56	0.000	0.000
					C	0.000	100.686		9.93	0.000	0.000
T15 20.00-6.50	13.25	1	18	52.880	A	5.025	30.569	6.750	18.96	0.000	0.000
					B	0.000	14.689		45.95	0.000	0.000
					C	0.000	53.242		12.68	0.000	0.000
T16 6.50-0.00	3.25	1	18	25.461	A	0.000	6.225	3.250	52.21	0.000	0.000
					B	0.000	6.225		52.21	0.000	0.000
					C	0.000	6.225		52.21	0.000	0.000

Tower Pressure - With Ice

G_H = 1.091 (base tower), 1.091 (upper structure)

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
L1	302.00	1.882	7	1.3043	38.397	A	0.000	38.397	38.397	100.00	0.000	0.000
317.00-287.00						B	0.000	38.397		100.00	0.000	0.000
						C	0.000	38.397		100.00	0.000	0.000
T1	283.50	1.849	7	1.2944	28.346	A	0.000	11.655	5.354	45.93	0.000	0.000
287.00-280.00						B	0.000	13.258		40.38	0.000	0.000
						C	0.000	11.655		45.93	0.000	0.000
T2	270.00	1.823	7	1.2869	80.963	A	0.000	34.699	15.246	43.94	0.000	0.000
280.00-260.00						B	0.000	36.531		41.73	0.000	0.000
						C	0.000	31.848		47.87	0.000	0.000
T3	250.00	1.783	7	1.2751	81.340	A	16.037	45.623	16.000	25.95	0.000	0.000
260.00-240.00						B	0.000	40.203		39.80	0.000	0.000
						C	0.000	32.400		49.38	0.000	0.000
T4	230.00	1.741	6	1.2624	81.298	A	36.554	47.159	15.916	19.01	0.000	0.000
240.00-220.00						B	0.000	40.514		39.28	0.000	0.000
						C	0.000	32.204		49.42	0.000	0.000
T5	210.00	1.697	6	1.2487	81.669	A	42.450	50.040	16.658	18.01	0.000	0.000
220.00-200.00						B	0.000	40.742		40.89	0.000	0.000
						C	0.000	32.438		51.35	0.000	0.000
T6	190.00	1.649	6	1.2338	81.619	A	42.450	52.052	16.558	17.52	0.000	0.000
200.00-180.00						B	0.000	40.456		40.93	0.000	0.000
						C	17.695	36.167		30.74	0.000	0.000
T7	170.00	1.597	6	1.2174	81.981	A	42.450	52.356	17.283	18.23	0.000	0.000
180.00-160.00						B	0.000	48.707		35.48	0.000	0.000
						C	58.983	38.561		17.72	0.000	0.000
T8	150.00	1.541	6	1.1992	81.504	A	42.450	51.289	16.328	17.42	0.000	0.000
160.00-140.00						B	0.000	56.697		28.80	0.000	0.000
						C	58.983	41.683		16.22	0.000	0.000
T9	130.00	1.48	5	1.1788	81.853	A	42.450	51.649	17.026	18.09	0.000	0.000
140.00-120.00						B	0.000	57.682		29.52	0.000	0.000
						C	58.983	42.612		16.76	0.000	0.000
T10	110.00	1.411	5	1.1554	81.775	A	52.181	48.595	16.870	16.74	0.000	0.000
120.00-100.00						B	0.000	57.360		29.41	0.000	0.000
						C	58.983	44.474		16.31	0.000	0.000
T11	90.00	1.332	5	1.1279	82.100	A	58.930	47.155	17.520	16.51	0.000	0.000
100.00-80.00						B	0.000	59.838		29.28	0.000	0.000
						C	66.766	45.927		15.55	0.000	0.000
T12 80.00-60.00	70.00	1.24	5	1.0944	81.988	A	58.781	49.086	17.296	16.03	0.000	0.000
						B	0.000	59.602		29.02	0.000	0.000
						C	110.867	40.915		11.40	0.000	0.000
T13 60.00-40.00	50.00	1.126	4	1.0511	81.844	A	58.588	50.191	17.008	15.63	0.000	0.000
						B	0.000	58.329		29.16	0.000	0.000
						C	110.867	40.276		11.25	0.000	0.000
T14 40.00-20.00	30.00	1	4	1.0000	81.673	A	58.361	49.167	16.667	15.50	0.000	0.000
						B	0.000	56.812		29.34	0.000	0.000
						C	110.867	39.508		11.08	0.000	0.000
T15 20.00-6.50	13.25	1	4	1.0000	55.130	A	29.181	29.841	11.250	19.06	0.000	0.000
						B	0.000	33.800		33.28	0.000	0.000
						C	55.608	26.123		13.76	0.000	0.000
T16 6.50-0.00	3.25	1	4	1.0000	26.544	A	0.000	13.720	5.417	39.48	0.000	0.000
						B	0.000	13.720		39.48	0.000	0.000
						C	0.000	13.720		39.48	0.000	0.000

Tower Pressure - Service

G_H = 1.091 (base tower), 1.091 (upper structure)

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
L1	302.00	1.882	12	31.875	A	0.000	31.875	31.875	100.00	0.000	0.000
317.00-287.00					B	0.000	31.875		100.00	0.000	0.000
					C	0.000	31.875		100.00	0.000	0.000
T1	283.50	1.849	12	26.836	A	0.000	4.305	2.333	54.20	0.000	0.000
287.00-280.00					B	0.000	4.900		47.62	0.000	0.000
					C	0.000	4.305		54.20	0.000	0.000
T2	270.00	1.823	12	76.673	A	0.000	12.628	6.667	52.79	0.000	0.000
280.00-260.00					B	0.000	13.659		48.81	0.000	0.000
					C	0.000	11.948		55.80	0.000	0.000
T3	250.00	1.783	11	77.090	A	0.000	29.740	7.500	25.22	0.000	0.000
260.00-240.00					B	0.000	14.919		50.27	0.000	0.000
					C	0.000	12.750		58.82	0.000	0.000
T4	230.00	1.741	11	77.090	A	0.000	46.296	7.500	16.20	0.000	0.000
240.00-220.00					B	0.000	15.000		50.00	0.000	0.000
					C	0.000	12.750		58.82	0.000	0.000
T5	210.00	1.697	11	77.507	A	0.000	52.416	8.333	15.90	0.000	0.000
220.00-200.00					B	0.000	15.521		53.69	0.000	0.000
					C	0.000	13.261		62.84	0.000	0.000
T6	190.00	1.649	11	77.507	A	0.000	53.275	8.333	15.64	0.000	0.000
200.00-180.00					B	0.000	15.521		53.69	0.000	0.000
					C	0.000	27.436		30.37	0.000	0.000
T7	170.00	1.597	10	77.923	A	0.000	54.295	9.167	16.88	0.000	0.000
180.00-160.00					B	0.000	19.330		47.42	0.000	0.000
					C	0.000	59.832		15.32	0.000	0.000
T8	150.00	1.541	10	77.507	A	0.000	53.385	8.333	15.61	0.000	0.000
160.00-140.00					B	0.000	21.657		38.48	0.000	0.000
					C	0.000	60.487		13.78	0.000	0.000
T9	130.00	1.48	9	77.923	A	0.000	54.079	9.167	16.95	0.000	0.000
140.00-120.00					B	0.000	22.594		40.57	0.000	0.000
					C	0.000	61.385		14.93	0.000	0.000
T10	110.00	1.411	9	77.923	A	6.030	53.815	9.167	15.32	0.000	0.000
120.00-100.00					B	0.000	23.095		39.69	0.000	0.000
					C	0.000	62.471		14.67	0.000	0.000
T11	90.00	1.332	9	78.340	A	10.050	54.231	10.000	15.56	0.000	0.000
100.00-80.00					B	0.000	24.143		41.42	0.000	0.000
					C	0.000	69.464		14.40	0.000	0.000
T12	70.00	1.24	8	78.340	A	10.050	55.112	10.000	15.35	0.000	0.000
80.00-60.00					B	0.000	24.063		41.56	0.000	0.000
					C	0.000	100.686		9.93	0.000	0.000
T13	50.00	1.126	7	78.340	A	10.050	55.885	10.000	15.17	0.000	0.000
60.00-40.00					B	0.000	24.063		41.56	0.000	0.000
					C	0.000	100.686		9.93	0.000	0.000
T14	30.00	1	6	78.340	A	10.050	55.885	10.000	15.17	0.000	0.000
40.00-20.00					B	0.000	24.063		41.56	0.000	0.000
					C	0.000	100.686		9.93	0.000	0.000
T15 20.00-6.50	13.25	1	6	52.880	A	5.025	30.569	6.750	18.96	0.000	0.000
					B	0.000	14.689		45.95	0.000	0.000
					C	0.000	53.242		12.68	0.000	0.000
T16 6.50-0.00	3.25	1	6	25.461	A	0.000	6.225	3.250	52.21	0.000	0.000
					B	0.000	6.225		52.21	0.000	0.000
					C	0.000	6.225		52.21	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 ft^2	F lb	w plf	Ctrl. Face
L1	0.00	2062.54	A	1	0.59	1	1	1	31.875	714.04	23.80	C
317.00-287.00			B	1	0.59	1	1	1	31.875			
			C	1	0.59	1	1	1	31.875			
T1	7.00	487.88	A	0.16	2.734	0.583	1	1	2.510	284.79	40.68	B
287.00-280.00		TA 927.61	B	0.183	2.655	0.587	1	1	2.876			
			C	0.16	2.734	0.583	1	1	2.510			
T2	24.20	1361.04	A	0.165	2.718	0.584	1	1	7.373	786.29	39.31	B
280.00-260.00			B	0.178	2.671	0.586	1	1	8.007			
			C	0.156	2.75	0.582	1	1	6.959			
T3	132.08	1539.94	A	0.386	2.093	0.646	1	1	19.209	1446.15	72.31	A
260.00-240.00		TA 927.61	B	0.194	2.618	0.589	1	1	8.789			
			C	0.165	2.716	0.584	1	1	7.446			
T4	330.80	1539.94	A	0.601	1.804	0.754	1	1	34.904	2211.36	110.57	A
240.00-220.00			B	0.195	2.614	0.589	1	1	8.840			
			C	0.165	2.716	0.584	1	1	7.446			
T5	400.80	1658.05	A	0.676	1.776	0.803	1	1	42.103	2559.86	127.99	A
220.00-200.00		TA 927.61	B	0.2	2.595	0.59	1	1	9.165			
			C	0.171	2.695	0.585	1	1	7.757			
T6	559.80	1658.05	A	0.687	1.776	0.811	1	1	43.204	2551.73	127.59	A
200.00-180.00			B	0.2	2.595	0.59	1	1	9.165			
			C	0.354	2.162	0.634	1	1	17.392			
T7	904.80	2050.48	A	0.697	1.776	0.818	1	1	44.392	3014.06	150.70	C
180.00-160.00		TA 927.61	B	0.248	2.443	0.601	1	1	11.625			
			C	0.768	1.796	0.871	1	1	52.095			
T8	964.80	1739.88	A	0.689	1.776	0.812	1	1	43.346	2985.28	149.26	C
160.00-140.00			B	0.279	2.352	0.61	1	1	13.207			
			C	0.78	1.803	0.881	1	1	53.266			
T9	970.80	1879.04	A	0.694	1.776	0.816	1	1	44.109	2935.19	146.76	C
140.00-120.00			B	0.29	2.323	0.613	1	1	13.847			
			C	0.788	1.807	0.886	1	1	54.417			
T10	1000.16	2050.48	A	0.768	1.796	0.871	1	1	52.892	2899.87	144.99	C
120.00-100.00		TA 948.69	B	0.296	2.306	0.615	1	1	14.199			
			C	0.802	1.817	0.898	1	1	56.086			
T11	1077.56	2202.89	A	0.821	1.833	0.913	1	1	59.583	3453.29	172.66	C
100.00-80.00			B	0.308	2.274	0.618	1	1	14.931			
			C	0.887	1.906	0.971	1	1	67.449			
T12	1395.60	2121.07	A	0.832	1.843	0.923	1	1	60.910	3917.70*	195.88	C
80.00-60.00			B	0.307	2.277	0.618	1	1	14.874			
			C	1	2.1	1	1	1	100.686			
T13	1404.60	2121.07	A	0.842	1.853	0.931	1	1	62.094	3558.61*	177.93	C
60.00-40.00		TA 948.69	B	0.307	2.277	0.618	1	1	14.874			
			C	1	2.1	1	1	1	100.686			
T14	1404.60	2121.07	A	0.842	1.853	0.931	1	1	62.094	3160.25*	158.01	C
40.00-20.00			B	0.307	2.277	0.618	1	1	14.874			
			C	1	2.1	1	1	1	100.686			
T15	702.96	1437.95	A	0.673	1.777	0.801	1	1	29.513	2133.17*	158.01	C
20.00-6.50			B	0.278	2.357	0.609	1	1	8.950			
			C	1	2.1	1	1	1	53.242			
T16 6.50-0.00	0.00	856.99	A	0.244	2.454	0.6	1	1	3.738	185.02	28.46	C
			B	0.244	2.454	0.6	1	1	3.738			
			C	0.244	2.454	0.6	1	1	3.738			
Sum Weight:	11280.56	34496.17			*$2A_g$ limit					38796.64		

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
L1	0.00	2062.54	A	1	0.59	1	1	1	31.875	714.04	23.80	C
317.00-287.00			B	1	0.59	1	1	1	31.875			
			C	1	0.59	1	1	1	31.875			
T1	7.00	487.88	A	0.16	2.734	0.583	0.8	1	2.510	284.79	40.68	B
287.00-280.00		TA 927.61	B	0.183	2.655	0.587	0.8	1	2.876			
			C	0.16	2.734	0.583	0.8	1	2.510			
T2	24.20	1361.04	A	0.165	2.718	0.584	0.8	1	7.373	786.29	39.31	B
280.00-260.00			B	0.178	2.671	0.586	0.8	1	8.007			
			C	0.156	2.75	0.582	0.8	1	6.959			
T3	132.08	1539.94	A	0.386	2.093	0.646	0.8	1	19.209	1446.15	72.31	A
260.00-240.00		TA 927.61	B	0.194	2.618	0.589	0.8	1	8.789			
			C	0.165	2.716	0.584	0.8	1	7.446			
T4	330.80	1539.94	A	0.601	1.804	0.754	0.8	1	34.904	2211.36	110.57	A
240.00-220.00			B	0.195	2.614	0.589	0.8	1	8.840			
			C	0.165	2.716	0.584	0.8	1	7.446			
T5	400.80	1658.05	A	0.676	1.776	0.803	0.8	1	42.103	2559.86	127.99	A
220.00-200.00		TA 927.61	B	0.2	2.595	0.59	0.8	1	9.165			
			C	0.171	2.695	0.585	0.8	1	7.757			
T6	559.80	1658.05	A	0.687	1.776	0.811	0.8	1	43.204	2551.73	127.59	A
200.00-180.00			B	0.2	2.595	0.59	0.8	1	9.165			
			C	0.354	2.162	0.634	0.8	1	17.392			
T7	904.80	2050.48	A	0.697	1.776	0.818	0.8	1	44.392	3014.06	150.70	C
180.00-160.00		TA 927.61	B	0.248	2.443	0.601	0.8	1	11.625			
			C	0.768	1.796	0.871	0.8	1	52.095			
T8	964.80	1739.88	A	0.689	1.776	0.812	0.8	1	43.346	2985.28	149.26	C
160.00-140.00			B	0.279	2.352	0.61	0.8	1	13.207			
			C	0.78	1.803	0.881	0.8	1	53.266			
T9	970.80	1879.04	A	0.694	1.776	0.816	0.8	1	44.109	2935.19	146.76	C
140.00-120.00			B	0.29	2.323	0.613	0.8	1	13.847			
			C	0.788	1.807	0.886	0.8	1	54.417			
T10	1000.16	2050.48	A	0.768	1.796	0.871	0.8	1	51.686	2899.87	144.99	C
120.00-100.00		TA 948.69	B	0.296	2.306	0.615	0.8	1	14.199			
			C	0.802	1.817	0.898	0.8	1	56.086			
T11	1077.56	2202.89	A	0.821	1.833	0.913	0.8	1	57.573	3453.29	172.66	C
100.00-80.00			B	0.308	2.274	0.618	0.8	1	14.931			
			C	0.887	1.906	0.971	0.8	1	67.449			
T12	1395.60	2121.07	A	0.832	1.843	0.923	0.8	1	58.900	3917.70*	195.88	C
80.00-60.00			B	0.307	2.277	0.618	0.8	1	14.874			
			C	1	2.1	1	0.8	1	100.686			
T13	1404.60	2121.07	A	0.842	1.853	0.931	0.8	1	60.084	3558.61*	177.93	C
60.00-40.00		TA 948.69	B	0.307	2.277	0.618	0.8	1	14.874			
			C	1	2.1	1	0.8	1	100.686			
T14	1404.60	2121.07	A	0.842	1.853	0.931	0.8	1	60.084	3160.25*	158.01	C
40.00-20.00			B	0.307	2.277	0.618	0.8	1	14.874			
			C	1	2.1	1	0.8	1	100.686			
T15	702.96	1437.95	A	0.673	1.777	0.801	0.8	1	28.508	2133.17*	158.01	C
20.00-6.50			B	0.278	2.357	0.609	0.8	1	8.950			
			C	1	2.1	1	0.8	1	53.242			
T16 6.50-0.00	0.00	856.99	A	0.244	2.454	0.6	0.8	1	3.738	185.02	28.46	C
			B	0.244	2.454	0.6	0.8	1	3.738			
			C	0.244	2.454	0.6	0.8	1	3.738			
Sum Weight:	11280.56	34496.17			*$2A_g$ limit					38796.64		

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
L1	0.00	2062.54	A	1	0.59	1	1	1	31.875	714.04	23.80	C
317.00-287.00			B	1	0.59	1	1	1	31.875			
			C	1	0.59	1	1	1	31.875			
T1	7.00	487.88	A	0.16	2.734	0.583	0.85	1	2.510	284.79	40.68	B
287.00-280.00		TA 927.61	B	0.183	2.655	0.587	0.85	1	2.876			
			C	0.16	2.734	0.583	0.85	1	2.510			
T2	24.20	1361.04	A	0.165	2.718	0.584	0.85	1	7.373	786.29	39.31	B
280.00-260.00			B	0.178	2.671	0.586	0.85	1	8.007			
			C	0.156	2.75	0.582	0.85	1	6.959			
T3	132.08	1539.94	A	0.386	2.093	0.646	0.85	1	19.209	1446.15	72.31	A
260.00-240.00		TA 927.61	B	0.194	2.618	0.589	0.85	1	8.789			
			C	0.165	2.716	0.584	0.85	1	7.446			
T4	330.80	1539.94	A	0.601	1.804	0.754	0.85	1	34.904	2211.36	110.57	A
240.00-220.00			B	0.195	2.614	0.589	0.85	1	8.840			
			C	0.165	2.716	0.584	0.85	1	7.446			
T5	400.80	1658.05	A	0.676	1.776	0.803	0.85	1	42.103	2559.86	127.99	A
220.00-200.00		TA 927.61	B	0.2	2.595	0.59	0.85	1	9.165			
			C	0.171	2.695	0.585	0.85	1	7.757			
T6	559.80	1658.05	A	0.687	1.776	0.811	0.85	1	43.204	2551.73	127.59	A
200.00-180.00			B	0.2	2.595	0.59	0.85	1	9.165			
			C	0.354	2.162	0.634	0.85	1	17.392			
T7	904.80	2050.48	A	0.697	1.776	0.818	0.85	1	44.392	3014.06	150.70	C
180.00-160.00		TA 927.61	B	0.248	2.443	0.601	0.85	1	11.625			
			C	0.768	1.796	0.871	0.85	1	52.095			
T8	964.80	1739.88	A	0.689	1.776	0.812	0.85	1	43.346	2985.28	149.26	C
160.00-140.00			B	0.279	2.352	0.61	0.85	1	13.207			
			C	0.78	1.803	0.881	0.85	1	53.266			
T9	970.80	1879.04	A	0.694	1.776	0.816	0.85	1	44.109	2935.19	146.76	C
140.00-120.00			B	0.29	2.323	0.613	0.85	1	13.847			
			C	0.788	1.807	0.886	0.85	1	54.417			
T10	1000.16	2050.48	A	0.768	1.796	0.871	0.85	1	51.988	2899.87	144.99	C
120.00-100.00		TA 948.69	B	0.296	2.306	0.615	0.85	1	14.199			
			C	0.802	1.817	0.898	0.85	1	56.086			
T11	1077.56	2202.89	A	0.821	1.833	0.913	0.85	1	58.075	3453.29	172.66	C
100.00-80.00			B	0.308	2.274	0.618	0.85	1	14.931			
			C	0.887	1.906	0.971	0.85	1	67.449			
T12	1395.60	2121.07	A	0.832	1.843	0.923	0.85	1	59.402	3917.70*	195.88	C
80.00-60.00			B	0.307	2.277	0.618	0.85	1	14.874			
			C	1	2.1	1	0.85	1	100.686			
T13	1404.60	2121.07	A	0.842	1.853	0.931	0.85	1	60.586	3558.61*	177.93	C
60.00-40.00		TA 948.69	B	0.307	2.277	0.618	0.85	1	14.874			
			C	1	2.1	1	0.85	1	100.686			
T14	1404.60	2121.07	A	0.842	1.853	0.931	0.85	1	60.586	3160.25*	158.01	C
40.00-20.00			B	0.307	2.277	0.618	0.85	1	14.874			
			C	1	2.1	1	0.85	1	100.686			
T15	702.96	1437.95	A	0.673	1.777	0.801	0.85	1	28.760	2133.17*	158.01	C
20.00-6.50			B	0.278	2.357	0.609	0.85	1	8.950			
			C	1	2.1	1	0.85	1	53.242			
T16 6.50-0.00	0.00	856.99	A	0.244	2.454	0.6	0.85	1	3.738	185.02	28.46	C
			B	0.244	2.454	0.6	0.85	1	3.738			
			C	0.244	2.454	0.6	0.85	1	3.738			
Sum Weight:	11280.56	34496.17			*$2A_g$ limit					38796.64		

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
L1	0.00	2734.41	A	1	0.704	1	1	1	38.397	205.06	6.84	C
317.00-287.00			B	1	0.704	1	1	1	38.397			
			C	1	0.704	1	1	1	38.397			
T1	33.62	844.00	A	0.411	2.042	0.656	1	1	7.648	131.01	18.72	B
287.00-280.00		TA	B	0.468	1.946	0.682	1	1	9.036			
		1483.39	C	0.411	2.042	0.656	1	1	7.648			
T2	183.96	2319.90	A	0.429	2.01	0.664	1	1	23.029	356.67	17.83	B
280.00-260.00			B	0.451	1.972	0.674	1	1	24.616			
			C	0.393	2.077	0.649	1	1	20.666			
T3	927.24	2509.18	A	0.758	1.791	0.863	1	1	55.412	713.48	35.67	A
260.00-240.00		TA	B	0.494	1.908	0.695	1	1	27.924			
		1474.07	C	0.398	2.067	0.651	1	1	21.090			
T4	1766.84	2495.11	A	1	2.1	1	1	1	83.713	1141.47*	57.07	A
240.00-220.00			B	0.498	1.902	0.697	1	1	28.224			
			C	0.396	2.072	0.65	1	1	20.934			
T5	2037.27	2604.07	A	1	2.1	1	1	1	92.490	1117.26*	55.86	A
220.00-200.00		TA	B	0.499	1.901	0.697	1	1	28.394			
		1461.43	C	0.397	2.07	0.65	1	1	21.100			
T6	2682.75	2587.70	A	1	2.1	1	1	1	94.502	1085.10*	54.26	A
200.00-180.00			B	0.496	1.906	0.695	1	1	28.129			
			C	0.66	1.779	0.792	1	1	46.342			
T7	4096.52	3017.66	A	1	2.1	1	1	1	94.806	1055.82*	52.79	C
180.00-160.00		TA	B	0.594	1.808	0.75	1	1	36.531			
		1446.53	C	1	2.1	1	1	1	97.544			
T8	4310.41	2648.38	A	1	2.1	1	1	1	93.739	1012.81*	50.64	C
160.00-140.00			B	0.696	1.776	0.817	1	1	46.310			
			C	1	2.1	1	1	1	100.666			
T9	4281.07	2771.04	A	1	2.1	1	1	1	94.099	976.39*	48.82	C
140.00-120.00			B	0.705	1.776	0.823	1	1	47.487			
			C	1	2.1	1	1	1	101.596			
T10	4403.78	2948.68	A	1	2.1	1	1	1	100.776	929.99*	46.50	C
120.00-100.00		TA	B	0.701	1.776	0.821	1	1	47.089			
		1449.43	C	1	2.1	1	1	1	103.457			
T11	4736.05	3076.53	A	1	2.1	1	1	1	106.085	881.66*	44.08	C
100.00-80.00			B	0.729	1.781	0.841	1	1	50.319			
			C	1	2.1	1	1	1	112.693			
T12	5903.11	2943.78	A	1	2.1	1	1	1	107.866	819.46*	40.97	C
80.00-60.00			B	0.727	1.78	0.84	1	1	50.037			
			C	1	2.1	1	1	1	151.782			
T13	5774.12	2898.66	A	1	2.1	1	1	1	108.780	743.04*	37.15	C
60.00-40.00		TA	B	0.713	1.777	0.829	1	1	48.357			
		1399.70	C	1	2.1	1	1	1	151.143			
T14	5583.12	2846.73	A	1	2.1	1	1	1	107.528	658.49*	32.92	C
40.00-20.00			B	0.696	1.776	0.817	1	1	46.402			
			C	1	2.1	1	1	1	150.375			
T15	2807.22	1933.74	A	1	2.1	1	1	1	59.021	444.48*	32.92	C
20.00-6.50			B	0.613	1.796	0.762	1	1	25.746			
			C	1	2.1	1	1	1	81.731			
T16 6.50-0.00	0.00	1218.45	A	0.517	1.879	0.706	1	1	9.690	73.40	11.29	C
			B	0.517	1.879	0.706	1	1	9.690			
			C	0.517	1.879	0.706	1	1	9.690			
Sum Weight:	49527.07	51112.57			*2A_g limit					12345.59		

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
L1	0.00	2734.41	A	1	0.704	1	1	1	38.397	205.06	6.84	C
317.00-287.00			B	1	0.704	1	1	1	38.397			
			C	1	0.704	1	1	1	38.397			
T1	33.62	844.00	A	0.411	2.042	0.656	0.8	1	7.648	131.01	18.72	B
287.00-280.00		TA	B	0.468	1.946	0.682	0.8	1	9.036			
		1483.39	C	0.411	2.042	0.656	0.8	1	7.648			
T2	183.96	2319.90	A	0.429	2.01	0.664	0.8	1	23.029	356.67	17.83	B
280.00-260.00			B	0.451	1.972	0.674	0.8	1	24.616			
			C	0.393	2.077	0.649	0.8	1	20.666			
T3	927.24	2509.18	A	0.758	1.791	0.863	0.8	1	52.205	672.19	33.61	A
260.00-240.00		TA	B	0.494	1.908	0.695	0.8	1	27.924			
		1474.07	C	0.398	2.067	0.651	0.8	1	21.090			
T4	1766.84	2495.11	A	1	2.1	1	0.8	1	76.403	1126.37	56.32	A
240.00-220.00			B	0.498	1.902	0.697	0.8	1	28.224			
			C	0.396	2.072	0.65	0.8	1	20.934			
T5	2037.27	2604.07	A	1	2.1	1	0.8	1	84.000	1117.26*	55.86	A
220.00-200.00		TA	B	0.499	1.901	0.697	0.8	1	28.394			
		1461.43	C	0.397	2.07	0.65	0.8	1	21.100			
T6	2682.75	2587.70	A	1	2.1	1	0.8	1	86.012	1085.10*	54.26	A
200.00-180.00			B	0.496	1.906	0.695	0.8	1	28.129			
			C	0.66	1.779	0.792	0.8	1	42.803			
T7	4096.52	3017.66	A	1	2.1	1	0.8	1	86.316	1055.82*	52.79	C
180.00-160.00		TA	B	0.594	1.808	0.75	0.8	1	36.531			
		1446.53	C	1	2.1	1	0.8	1	85.747			
T8	4310.41	2648.38	A	1	2.1	1	0.8	1	85.249	1012.81*	50.64	C
160.00-140.00			B	0.696	1.776	0.817	0.8	1	46.310			
			C	1	2.1	1	0.8	1	88.870			
T9	4281.07	2771.04	A	1	2.1	1	0.8	1	85.609	976.39*	48.82	C
140.00-120.00			B	0.705	1.776	0.823	0.8	1	47.487			
			C	1	2.1	1	0.8	1	89.799			
T10	4403.78	2948.68	A	1	2.1	1	0.8	1	90.340	929.99*	46.50	C
120.00-100.00		TA	B	0.701	1.776	0.821	0.8	1	47.089			
		1449.43	C	1	2.1	1	0.8	1	91.661			
T11	4736.05	3076.53	A	1	2.1	1	0.8	1	94.299	881.66*	44.08	C
100.00-80.00			B	0.729	1.781	0.841	0.8	1	50.319			
			C	1	2.1	1	0.8	1	99.339			
T12	5903.11	2943.78	A	1	2.1	1	0.8	1	96.110	819.46*	40.97	C
80.00-60.00			B	0.727	1.78	0.84	0.8	1	50.037			
			C	1	2.1	1	0.8	1	129.609			
T13	5774.12	2898.66	A	1	2.1	1	0.8	1	97.062	743.04*	37.15	C
60.00-40.00		TA	B	0.713	1.777	0.829	0.8	1	48.357			
		1399.70	C	1	2.1	1	0.8	1	128.970			
T14	5583.12	2846.73	A	1	2.1	1	0.8	1	95.856	658.49*	32.92	C
40.00-20.00			B	0.696	1.776	0.817	0.8	1	46.402			
			C	1	2.1	1	0.8	1	128.201			
T15	2807.22	1933.74	A	1	2.1	1	0.8	1	53.185	444.48*	32.92	C
20.00-6.50			B	0.613	1.796	0.762	0.8	1	25.746			
			C	1	2.1	1	0.8	1	70.609			
T16 6.50-0.00	0.00	1218.45	A	0.517	1.879	0.706	0.8	1	9.690	73.40	11.29	C
			B	0.517	1.879	0.706	0.8	1	9.690			
			C	0.517	1.879	0.706	0.8	1	9.690			
Sum Weight:	49527.07	51112.57			*$2A_g$ limit					12289.20		

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 ft^2	F lb	w plf	Ctrl. Face
L1	0.00	2734.41	A	1	0.704	1	1	1	38.397	205.06	6.84	C
317.00-287.00			B	1	0.704	1	1	1	38.397			
			C	1	0.704	1	1	1	38.397			
T1	33.62	844.00	A	0.411	2.042	0.656	0.85	1	7.648	131.01	18.72	B
287.00-280.00		TA	B	0.468	1.946	0.682	0.85	1	9.036			
		1483.39	C	0.411	2.042	0.656	0.85	1	7.648			
T2	183.96	2319.90	A	0.429	2.01	0.664	0.85	1	23.029	356.67	17.83	B
280.00-260.00			B	0.451	1.972	0.674	0.85	1	24.616			
			C	0.393	2.077	0.649	0.85	1	20.666			
T3	927.24	2509.18	A	0.758	1.791	0.863	0.85	1	53.006	682.51	34.13	A
260.00-240.00		TA	B	0.494	1.908	0.695	0.85	1	27.924			
		1474.07	C	0.398	2.067	0.651	0.85	1	21.090			
T4	1766.84	2495.11	A	1	2.1	1	0.85	1	78.230	1141.47*	57.07	A
240.00-220.00			B	0.498	1.902	0.697	0.85	1	28.224			
			C	0.396	2.072	0.65	0.85	1	20.934			
T5	2037.27	2604.07	A	1	2.1	1	0.85	1	86.123	1117.26*	55.86	A
220.00-200.00		TA	B	0.499	1.901	0.697	0.85	1	28.394			
		1461.43	C	0.397	2.07	0.65	0.85	1	21.100			
T6	2682.75	2587.70	A	1	2.1	1	0.85	1	88.135	1085.10*	54.26	A
200.00-180.00			B	0.496	1.906	0.695	0.85	1	28.129			
			C	0.66	1.779	0.792	0.85	1	43.688			
T7	4096.52	3017.66	A	1	2.1	1	0.85	1	88.439	1055.82*	52.79	C
180.00-160.00		TA	B	0.594	1.808	0.75	0.85	1	36.531			
		1446.53	C	1	2.1	1	0.85	1	88.696			
T8	4310.41	2648.38	A	1	2.1	1	0.85	1	87.372	1012.81*	50.64	C
160.00-140.00			B	0.696	1.776	0.817	0.85	1	46.310			
			C	1	2.1	1	0.85	1	91.819			
T9	4281.07	2771.04	A	1	2.1	1	0.85	1	87.731	976.39*	48.82	C
140.00-120.00			B	0.705	1.776	0.823	0.85	1	47.487			
			C	1	2.1	1	0.85	1	92.748			
T10	4403.78	2948.68	A	1	2.1	1	0.85	1	92.949	929.99*	46.50	C
120.00-100.00		TA	B	0.701	1.776	0.821	0.85	1	47.089			
		1449.43	C	1	2.1	1	0.85	1	94.610			
T11	4736.05	3076.53	A	1	2.1	1	0.85	1	97.246	881.66*	44.08	C
100.00-80.00			B	0.729	1.781	0.841	0.85	1	50.319			
			C	1	2.1	1	0.85	1	102.678			
T12	5903.11	2943.78	A	1	2.1	1	0.85	1	99.049	819.46*	40.97	C
80.00-60.00			B	0.727	1.78	0.84	0.85	1	50.037			
			C	1	2.1	1	0.85	1	135.152			
T13	5774.12	2898.66	A	1	2.1	1	0.85	1	99.991	743.04*	37.15	C
60.00-40.00		TA	B	0.713	1.777	0.829	0.85	1	48.357			
		1399.70	C	1	2.1	1	0.85	1	134.513			
T14	5583.12	2846.73	A	1	2.1	1	0.85	1	98.774	658.49*	32.92	C
40.00-20.00			B	0.696	1.776	0.817	0.85	1	46.402			
			C	1	2.1	1	0.85	1	133.745			
T15	2807.22	1933.74	A	1	2.1	1	0.85	1	54.644	444.48*	32.92	C
20.00-6.50			B	0.613	1.796	0.762	0.85	1	25.746			
			C	1	2.1	1	0.85	1	73.390			
T16 6.50-0.00	0.00	1218.45	A	0.517	1.879	0.706	0.85	1	9.690	73.40	11.29	C
			B	0.517	1.879	0.706	0.85	1	9.690			
			C	0.517	1.879	0.706	0.85	1	9.690			
Sum Weight:	49527.07	51112.57			*$2A_g$ limit					12314.62		

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 ft^2	F lb	w plf	Ctrl. Face
L1	0.00	2062.54	A	1	0.59	1	1	1	31.875	247.07	8.24	C
317.00-287.00			B	1	0.59	1	1	1	31.875			
			C	1	0.59	1	1	1	31.875			
T1	7.00	487.88	A	0.16	2.734	0.583	1	1	2.510	98.54	14.08	B
287.00-280.00		TA 927.61	B	0.183	2.655	0.587	1	1	2.876			
			C	0.16	2.734	0.583	1	1	2.510			
T2	24.20	1361.04	A	0.165	2.718	0.584	1	1	7.373	272.07	13.60	B
280.00-260.00			B	0.178	2.671	0.586	1	1	8.007			
			C	0.156	2.75	0.582	1	1	6.959			
T3	132.08	1539.94	A	0.386	2.093	0.646	1	1	19.209	500.40	25.02	A
260.00-240.00		TA 927.61	B	0.194	2.618	0.589	1	1	8.789			
			C	0.165	2.716	0.584	1	1	7.446			
T4	330.80	1539.94	A	0.601	1.804	0.754	1	1	34.904	765.18	38.26	A
240.00-220.00			B	0.195	2.614	0.589	1	1	8.840			
			C	0.165	2.716	0.584	1	1	7.446			
T5	400.80	1658.05	A	0.676	1.776	0.803	1	1	42.103	885.77	44.29	A
220.00-200.00		TA 927.61	B	0.2	2.595	0.59	1	1	9.165			
			C	0.171	2.695	0.585	1	1	7.757			
T6	559.80	1658.05	A	0.687	1.776	0.811	1	1	43.204	882.95	44.15	A
200.00-180.00			B	0.2	2.595	0.59	1	1	9.165			
			C	0.354	2.162	0.634	1	1	17.392			
T7	904.80	2050.48	A	0.697	1.776	0.818	1	1	44.392	1042.93	52.15	C
180.00-160.00		TA 927.61	B	0.248	2.443	0.601	1	1	11.625			
			C	0.768	1.796	0.871	1	1	52.095			
T8	964.80	1739.88	A	0.689	1.776	0.812	1	1	43.346	1032.97	51.65	C
160.00-140.00			B	0.279	2.352	0.61	1	1	13.207			
			C	0.78	1.803	0.881	1	1	53.266			
T9	970.80	1879.04	A	0.694	1.776	0.816	1	1	44.109	1015.64	50.78	C
140.00-120.00			B	0.29	2.323	0.613	1	1	13.847			
			C	0.788	1.807	0.886	1	1	54.417			
T10	1000.16	2050.48	A	0.768	1.796	0.871	1	1	52.892	1003.42	50.17	C
120.00-100.00		TA 948.69	B	0.296	2.306	0.615	1	1	14.199			
			C	0.802	1.817	0.898	1	1	56.086			
T11	1077.56	2202.89	A	0.821	1.833	0.913	1	1	59.583	1194.91	59.75	C
100.00-80.00			B	0.308	2.274	0.618	1	1	14.931			
			C	0.887	1.906	0.971	1	1	67.449			
T12	1395.60	2121.07	A	0.832	1.843	0.923	1	1	60.910	1355.60*	67.78	C
80.00-60.00			B	0.307	2.277	0.618	1	1	14.874			
			C	1	2.1	1	1	1	100.686			
T13	1404.60	2121.07	A	0.842	1.853	0.931	1	1	62.094	1231.35*	61.57	C
60.00-40.00		TA 948.69	B	0.307	2.277	0.618	1	1	14.874			
			C	1	2.1	1	1	1	100.686			
T14	1404.60	2121.07	A	0.842	1.853	0.931	1	1	62.094	1093.51*	54.68	C
40.00-20.00			B	0.307	2.277	0.618	1	1	14.874			
			C	1	2.1	1	1	1	100.686			
T15	702.96	1437.95	A	0.673	1.777	0.801	1	1	29.513	738.12*	54.68	C
20.00-6.50			B	0.278	2.357	0.609	1	1	8.950			
			C	1	2.1	1	1	1	53.242			
T16 6.50-0.00	0.00	856.99	A	0.244	2.454	0.6	1	1	3.738	64.02	9.85	C
			B	0.244	2.454	0.6	1	1	3.738			
			C	0.244	2.454	0.6	1	1	3.738			
Sum Weight:	11280.56	34496.17			*$2A_g$ limit					13424.44		

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
L1	0.00	2062.54	A	1	0.59	1	1	1	31.875	247.07	8.24	C
317.00-287.00			B	1	0.59	1	1	1	31.875			
			C	1	0.59	1	1	1	31.875			
T1	7.00	487.88	A	0.16	2.734	0.583	0.8	1	2.510	98.54	14.08	B
287.00-280.00		TA 927.61	B	0.183	2.655	0.587	0.8	1	2.876			
			C	0.16	2.734	0.583	0.8	1	2.510			
T2	24.20	1361.04	A	0.165	2.718	0.584	0.8	1	7.373	272.07	13.60	B
280.00-260.00			B	0.178	2.671	0.586	0.8	1	8.007			
			C	0.156	2.75	0.582	0.8	1	6.959			
T3	132.08	1539.94	A	0.386	2.093	0.646	0.8	1	19.209	500.40	25.02	A
260.00-240.00		TA 927.61	B	0.194	2.618	0.589	0.8	1	8.789			
			C	0.165	2.716	0.584	0.8	1	7.446			
T4	330.80	1539.94	A	0.601	1.804	0.754	0.8	1	34.904	765.18	38.26	A
240.00-220.00			B	0.195	2.614	0.589	0.8	1	8.840			
			C	0.165	2.716	0.584	0.8	1	7.446			
T5	400.80	1658.05	A	0.676	1.776	0.803	0.8	1	42.103	885.77	44.29	A
220.00-200.00		TA 927.61	B	0.2	2.595	0.59	0.8	1	9.165			
			C	0.171	2.695	0.585	0.8	1	7.757			
T6	559.80	1658.05	A	0.687	1.776	0.811	0.8	1	43.204	882.95	44.15	A
200.00-180.00			B	0.2	2.595	0.59	0.8	1	9.165			
			C	0.354	2.162	0.634	0.8	1	17.392			
T7	904.80	2050.48	A	0.697	1.776	0.818	0.8	1	44.392	1042.93	52.15	C
180.00-160.00		TA 927.61	B	0.248	2.443	0.601	0.8	1	11.625			
			C	0.768	1.796	0.871	0.8	1	52.095			
T8	964.80	1739.88	A	0.689	1.776	0.812	0.8	1	43.346	1032.97	51.65	C
160.00-140.00			B	0.279	2.352	0.61	0.8	1	13.207			
			C	0.78	1.803	0.881	0.8	1	53.266			
T9	970.80	1879.04	A	0.694	1.776	0.816	0.8	1	44.109	1015.64	50.78	C
140.00-120.00			B	0.29	2.323	0.613	0.8	1	13.847			
			C	0.788	1.807	0.886	0.8	1	54.417			
T10	1000.16	2050.48	A	0.768	1.796	0.871	0.8	1	51.686	1003.42	50.17	C
120.00-100.00		TA 948.69	B	0.296	2.306	0.615	0.8	1	14.199			
			C	0.802	1.817	0.898	0.8	1	56.086			
T11	1077.56	2202.89	A	0.821	1.833	0.913	0.8	1	57.573	1194.91	59.75	C
100.00-80.00			B	0.308	2.274	0.618	0.8	1	14.931			
			C	0.887	1.906	0.971	0.8	1	67.449			
T12	1395.60	2121.07	A	0.832	1.843	0.923	0.8	1	58.900	1355.60*	67.78	C
80.00-60.00			B	0.307	2.277	0.618	0.8	1	14.874			
			C	1	2.1	1	0.8	1	100.686			
T13	1404.60	2121.07	A	0.842	1.853	0.931	0.8	1	60.084	1231.35*	61.57	C
60.00-40.00		TA 948.69	B	0.307	2.277	0.618	0.8	1	14.874			
			C	1	2.1	1	0.8	1	100.686			
T14	1404.60	2121.07	A	0.842	1.853	0.931	0.8	1	60.084	1093.51*	54.68	C
40.00-20.00			B	0.307	2.277	0.618	0.8	1	14.874			
			C	1	2.1	1	0.8	1	100.686			
T15	702.96	1437.95	A	0.673	1.777	0.801	0.8	1	28.508	738.12*	54.68	C
20.00-6.50			B	0.278	2.357	0.609	0.8	1	8.950			
			C	1	2.1	1	0.8	1	53.242			
T16 6.50-0.00	0.00	856.99	A	0.244	2.454	0.6	0.8	1	3.738	64.02	9.85	C
			B	0.244	2.454	0.6	0.8	1	3.738			
			C	0.244	2.454	0.6	0.8	1	3.738			
Sum Weight:	11280.56	34496.17			*2A_g limit					13424.44		

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
L1	0.00	2062.54	A	1	0.59	1	1	1	31.875	247.07	8.24	C
317.00-287.00			B	1	0.59	1	1	1	31.875			
			C	1	0.59	1	1	1	31.875			
T1	7.00	487.88	A	0.16	2.734	0.583	0.85	1	2.510	98.54	14.08	B
287.00-280.00		TA 927.61	B	0.183	2.655	0.587	0.85	1	2.876			
			C	0.16	2.734	0.583	0.85	1	2.510			
T2	24.20	1361.04	A	0.165	2.718	0.584	0.85	1	7.373	272.07	13.60	B
280.00-260.00			B	0.178	2.671	0.586	0.85	1	8.007			
			C	0.156	2.75	0.582	0.85	1	6.959			
T3	132.08	1539.94	A	0.386	2.093	0.646	0.85	1	19.209	500.40	25.02	A
260.00-240.00		TA 927.61	B	0.194	2.618	0.589	0.85	1	8.789			
			C	0.165	2.716	0.584	0.85	1	7.446			
T4	330.80	1539.94	A	0.601	1.804	0.754	0.85	1	34.904	765.18	38.26	A
240.00-220.00			B	0.195	2.614	0.589	0.85	1	8.840			
			C	0.165	2.716	0.584	0.85	1	7.446			
T5	400.80	1658.05	A	0.676	1.776	0.803	0.85	1	42.103	885.77	44.29	A
220.00-200.00		TA 927.61	B	0.2	2.595	0.59	0.85	1	9.165			
			C	0.171	2.695	0.585	0.85	1	7.757			
T6	559.80	1658.05	A	0.687	1.776	0.811	0.85	1	43.204	882.95	44.15	A
200.00-180.00			B	0.2	2.595	0.59	0.85	1	9.165			
			C	0.354	2.162	0.634	0.85	1	17.392			
T7	904.80	2050.48	A	0.697	1.776	0.818	0.85	1	44.392	1042.93	52.15	C
180.00-160.00		TA 927.61	B	0.248	2.443	0.601	0.85	1	11.625			
			C	0.768	1.796	0.871	0.85	1	52.095			
T8	964.80	1739.88	A	0.689	1.776	0.812	0.85	1	43.346	1032.97	51.65	C
160.00-140.00			B	0.279	2.352	0.61	0.85	1	13.207			
			C	0.78	1.803	0.881	0.85	1	53.266			
T9	970.80	1879.04	A	0.694	1.776	0.816	0.85	1	44.109	1015.64	50.78	C
140.00-120.00			B	0.29	2.323	0.613	0.85	1	13.847			
			C	0.788	1.807	0.886	0.85	1	54.417			
T10	1000.16	2050.48	A	0.768	1.796	0.871	0.85	1	51.988	1003.42	50.17	C
120.00-100.00		TA 948.69	B	0.296	2.306	0.615	0.85	1	14.199			
			C	0.802	1.817	0.898	0.85	1	56.086			
T11	1077.56	2202.89	A	0.821	1.833	0.913	0.85	1	58.075	1194.91	59.75	C
100.00-80.00			B	0.308	2.274	0.618	0.85	1	14.931			
			C	0.887	1.906	0.971	0.85	1	67.449			
T12	1395.60	2121.07	A	0.832	1.843	0.923	0.85	1	59.402	1355.60*	67.78	C
80.00-60.00			B	0.307	2.277	0.618	0.85	1	14.874			
			C	1	2.1	1	0.85	1	100.686			
T13	1404.60	2121.07	A	0.842	1.853	0.931	0.85	1	60.586	1231.35*	61.57	C
60.00-40.00		TA 948.69	B	0.307	2.277	0.618	0.85	1	14.874			
			C	1	2.1	1	0.85	1	100.686			
T14	1404.60	2121.07	A	0.842	1.853	0.931	0.85	1	60.586	1093.51*	54.68	C
40.00-20.00			B	0.307	2.277	0.618	0.85	1	14.874			
			C	1	2.1	1	0.85	1	100.686			
T15	702.96	1437.95	A	0.673	1.777	0.801	0.85	1	28.760	738.12*	54.68	C
20.00-6.50			B	0.278	2.357	0.609	0.85	1	8.950			
			C	1	2.1	1	0.85	1	53.242			
T16 6.50-0.00	0.00	856.99	A	0.244	2.454	0.6	0.85	1	3.738	64.02	9.85	C
			B	0.244	2.454	0.6	0.85	1	3.738			
			C	0.244	2.454	0.6	0.85	1	3.738			
Sum Weight:	11280.56	34496.17			*2A_g limit					13424.44		

Force Totals (Does not include forces on guys)

Load Case	*Vertical Forces* *lb*	*Sum of Forces X* *lb*	*Sum of Forces Z* *lb*	*Sum of Torques* *lb-ft*
Leg Weight	19230.00			
Bracing Weight	15266.17			
Total Member Self-Weight	34496.17			
Guy Weight	11074.98			
Total Weight	69545.21			
Wind 0 deg - No Ice		156.10	-66828.98	-17149.71
Wind 30 deg - No Ice		32469.56	-58139.99	-16110.42
Wind 60 deg - No Ice		56561.78	-33395.31	-4643.74
Wind 90 deg - No Ice		65877.38	333.03	683.39
Wind 120 deg - No Ice		56932.30	33355.40	9101.82
Wind 150 deg - No Ice		32593.66	57990.32	14404.61
Wind 180 deg - No Ice		91.71	66639.78	12192.94
Wind 210 deg - No Ice		-32176.98	58010.49	8029.88
Wind 240 deg - No Ice		-56200.95	33427.83	3460.45
Wind 270 deg - No Ice		-65644.88	-904.97	-5385.81
Wind 300 deg - No Ice		-56807.11	-33375.15	-10659.51
Wind 330 deg - No Ice		-32755.97	-57825.15	-15450.26
Member Ice	16616.40			
Guy Ice	27360.44			
Total Weight Ice	166214.38			
Wind 0 deg - Ice		149.94	-20142.66	-3411.61
Wind 30 deg - Ice		9856.46	-17500.61	-3583.71
Wind 60 deg - Ice		17078.11	-10098.10	-1773.48
Wind 90 deg - Ice		19853.35	-64.00	-813.77
Wind 120 deg - Ice		17134.00	10006.07	1339.00
Wind 150 deg - Ice		9828.98	17379.45	2517.42
Wind 180 deg - Ice		55.15	20013.76	2153.78
Wind 210 deg - Ice		-9758.37	17419.48	1721.81
Wind 240 deg - Ice		-16999.61	10068.80	908.07
Wind 270 deg - Ice		-19730.66	-152.47	-778.69
Wind 300 deg - Ice		-17028.62	-9976.00	-1803.75
Wind 330 deg - Ice		-9723.59	-17453.40	-3025.31
Total Weight	69545.21			
Wind 0 deg - Service		54.01	-23124.22	-5934.16
Wind 30 deg - Service		11235.14	-20117.64	-5574.54
Wind 60 deg - Service		19571.55	-11555.47	-1606.83
Wind 90 deg - Service		22794.94	115.24	236.47
Wind 120 deg - Service		19699.76	11541.66	3149.42
Wind 150 deg - Service		11278.08	20065.86	4984.29
Wind 180 deg - Service		31.73	23058.75	4219.01
Wind 210 deg - Service		-11133.90	20072.84	2778.51
Wind 240 deg - Service		-19446.70	11566.72	1197.39
Wind 270 deg - Service		-22714.49	-313.14	-1863.60
Wind 300 deg - Service		-19656.44	-11548.50	-3688.41
Wind 330 deg - Service		-11334.24	-20008.70	-5346.11

Load Combinations

Comb. No.	*Description*

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	317 - 287	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-3267.65	729.70	8595.60
			Max. Mx	11	-2285.32	24223.30	-81.81
			Max. My	8	-2282.67	302.93	-24196.92
			Max. Vy	11	-1291.60	24223.30	-81.81
			Max. Vx	8	1297.70	302.93	-24196.92
			Max. Torque	7			-1011.66
T1	287 - 280	Leg	Max Tension	8	7832.37	-12.93	-6.39
			Max. Compression	23	-18882.70	-29.44	-75.24
			Max. Mx	17	-2392.33	954.27	439.99
			Max. My	15	-3816.12	-52.17	-1073.07
			Max. Vy	25	-11338.35	29.20	39.32
			Max. Vx	15	-12955.76	-69.76	6.57
		Diagonal	Max Tension	11	1393.95	0.00	0.00
			Max. Compression	9	-1414.54	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	15	162.01	21.95	0.00
			Max. My	13	352.82	0.00	0.07
			Max. Vy	15	-17.52	0.00	0.00
			Max. Vx	13	-0.06	0.00	0.00
		Horizontal	Max Tension	7	2058.73	0.00	0.00
			Max. Compression	13	-1781.37	0.00	0.00
			Max. Mx	17	556.12	10.82	0.00
			Max. My	13	478.19	0.00	0.00
			Max. Vy	17	-11.80	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Top Girt	Max Tension	20	7241.44	0.00	0.00
			Max. Compression	12	-9.82	0.00	0.00
			Max. Mx	17	7239.60	10.82	0.00
			Max. My	13	2.29	0.00	0.00
			Max. Vy	17	-11.80	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Bottom Girt	Max Tension	12	185.81	0.00	0.00
			Max. Compression	7	-85.29	0.00	0.00
			Max. Mx	17	-9.51	10.82	0.00
			Max. My	13	151.71	0.00	0.00
			Max. Vy	17	-11.80	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Guy A	Bottom Tension	21	10166.22		
			Top Tension	8	10636.14		
			Top Cable Vert	21	8521.69		
			Top Cable Norm	21	6364.61		
			Top Cable Tan	21	4.40		
			Bot Cable Vert	8	-7498.47		
			Bot Cable Norm	8	6864.76		
			Bot Cable Tan	8	5.25		
		Guy B	Bottom Tension	25	10728.29		
			Top Tension	12	11416.45		
			Top Cable Vert	25	9539.76		
			Top Cable Norm	25	6271.22		
			Top Cable Tan	25	3.27		
			Bot Cable Vert	12	-8340.27		
			Bot Cable Norm	12	6748.04		
			Bot Cable Tan	12	5.80		
		Guy C	Bottom Tension	17	10512.58		
			Top Tension	4	11306.40		
			Top Cable Vert	17	9431.66		
			Top Cable Norm	17	6235.26		
			Top Cable Tan	17	5.94		
			Bot Cable Vert	4	-8148.20		
			Bot Cable Norm	4	6642.38		
			Bot Cable Tan	4	5.56		
		Torque Arm Top	Max Tension	9	4840.71	-17759.37	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	25	2147.99	-34817.74	-0.00
			Max. My	13	3789.29	-23026.53	-0.00
			Max. Vy	25	9618.50	-34817.74	-0.00
			Max. Vx	13	-0.00	-23026.53	-0.00
T2	280 - 260	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-21922.79	76.12	49.03
			Max. Mx	2	-17570.10	121.54	30.74
			Max. My	13	-13247.51	71.62	-196.76
			Max. Vy	6	693.92	-49.89	-42.67
			Max. Vx	2	-863.95	76.12	49.03
		Diagonal	Max Tension	2	1247.93	0.00	0.00
			Max. Compression	2	-1623.76	0.00	0.00
			Max. Mx	19	243.23	21.54	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	13	22.82	0.00	0.07
			Max. Vy	19	17.45	0.00	0.00
			Max. Vx	13	-0.06	0.00	0.00
		Horizontal	Max Tension	7	583.65	0.00	0.00
			Max. Compression	13	-419.27	0.00	0.00
			Max. Mx	23	333.21	10.76	0.00
			Max. My	13	318.71	0.00	0.00
			Max. Vy	23	11.74	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Top Girt	Max Tension	19	115.17	0.00	0.00
			Max. Compression	8	-69.85	0.00	0.00
			Max. Mx	17	82.67	10.76	0.00
			Max. My	13	-24.84	0.00	0.00
			Max. Vy	17	11.74	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Bottom Girt	Max Tension	13	249.43	0.00	0.00
			Max. Compression	7	-170.24	0.00	0.00
			Max. Mx	23	101.80	10.76	0.00
			Max. My	13	133.46	0.00	0.00
			Max. Vy	23	11.74	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
T3	260 - 240	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-44482.11	-92.18	-213.25
			Max. Mx	6	-10898.45	-370.38	-34.76
			Max. My	9	-14520.45	206.44	-395.62
			Max. Vy	6	694.14	-107.69	-44.25
			Max. Vx	9	-1040.81	208.20	-21.98
		Diagonal	Max Tension	3	2757.51	0.00	0.00
			Max. Compression	9	-3248.79	0.00	0.00
			Max. Mx	23	449.02	21.41	0.00
			Max. My	13	542.83	0.00	0.07
			Max. Vy	23	-17.34	0.00	0.00
			Max. Vx	13	-0.05	0.00	0.00
		Horizontal	Max Tension	7	3381.34	0.00	0.00
			Max. Compression	2	-3211.27	0.00	0.00
			Max. Mx	17	576.61	10.67	0.00
			Max. My	13	639.85	0.00	0.00
			Max. Vy	17	-11.64	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Top Girt	Max Tension	7	284.68	0.00	0.00
			Max. Compression	13	-205.32	0.00	0.00
			Max. Mx	23	8.47	10.67	0.00
			Max. My	13	33.22	0.00	0.00
			Max. Vy	23	-11.64	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Bottom Girt	Max Tension	9	270.81	0.00	0.00
			Max. Compression	3	-102.02	0.00	0.00
			Max. Mx	19	144.42	10.67	0.00
			Max. My	13	205.96	0.00	0.00
			Max. Vy	19	-11.64	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Guy A	Bottom Tension	8	10988.66		
			Top Tension	8	11267.88		
			Top Cable Vert	8	8413.05		
			Top Cable Norm	8	7495.71		
			Top Cable Tan	8	4.08		
			Bot Cable Vert	8	-7754.29		
			Bot Cable Norm	8	7785.98		
			Bot Cable Tan	8	4.71		
		Guy B	Bottom Tension	12	11624.55		
			Top Tension	12	11946.22		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Vert	12	9463.68		
			Top Cable Norm	12	7290.47		
			Top Cable Tan	12	4.38		
			Bot Cable Vert	12	-8749.52		
			Bot Cable Norm	12	7653.49		
			Bot Cable Tan	12	5.33		
		Guy C	Bottom Tension	4	11450.64		
			Top Tension	4	11770.04		
			Top Cable Vert	4	9301.31		
			Top Cable Norm	4	7212.45		
			Top Cable Tan	4	4.71		
			Bot Cable Vert	4	-8589.93		
			Bot Cable Norm	4	7571.67		
			Bot Cable Tan	4	4.95		
		Torque Arm Top	Max Tension	9	6222.11	-14229.46	-0.00
			Max. Compression	3	-915.84	-30651.95	0.00
			Max. Mx	25	2001.59	-33906.85	-0.00
			Max. My	13	4675.53	-21998.55	-0.00
			Max. Vy	25	9369.32	-33906.85	-0.00
			Max. Vx	13	-0.00	-21998.55	-0.00
T4	240 - 220	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-45704.53	-190.08	-182.04
			Max. Mx	11	-27307.93	-611.89	12.25
			Max. My	8	-22563.74	-79.25	609.94
			Max. Vy	5	2456.63	-69.32	-123.16
			Max. Vx	3	-2085.95	204.77	2.96
		Diagonal	Max Tension	5	3341.97	0.00	0.00
			Max. Compression	11	-3844.36	0.00	0.00
			Max. Mx	23	574.61	21.26	0.00
			Max. My	2	-35.70	0.00	0.06
			Max. Vy	23	-17.23	0.00	0.00
			Max. Vx	2	-0.05	0.00	0.00
		Horizontal	Max Tension	4	1130.10	0.00	0.00
			Max. Compression	17	-791.63	0.00	0.00
			Max. Mx	19	734.66	10.58	0.00
			Max. My	2	621.30	0.00	-0.00
			Max. Vy	21	-11.54	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Top Girt	Max Tension	3	287.11	0.00	0.00
			Max. Compression	9	-95.05	0.00	0.00
			Max. Mx	19	103.27	10.58	0.00
			Max. My	13	-47.87	0.00	0.00
			Max. Vy	19	-11.54	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Bottom Girt	Max Tension	11	368.08	0.00	0.00
			Max. Compression	5	-181.35	0.00	0.00
			Max. Mx	21	116.47	10.58	0.00
			Max. My	2	322.51	0.00	-0.00
			Max. Vy	21	-11.54	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T5	220 - 200	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	4	-66526.61	-147.65	-304.61
			Max. Mx	5	-28983.46	-587.39	64.08
			Max. My	2	-22700.20	306.65	496.21
			Max. Vy	5	2456.27	-274.01	-111.99
			Max. Vx	3	-2086.44	118.01	176.83
		Diagonal	Max Tension	3	5346.96	0.00	0.00
			Max. Compression	3	-5895.72	0.00	0.00
			Max. Mx	19	754.19	18.58	0.00
			Max. My	2	88.97	0.00	0.06
			Max. Vy	19	-15.06	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	2	-0.05	0.00	0.00
		Horizontal	Max Tension	7	7111.46	0.00	0.00
			Max. Compression	13	-6666.52	0.00	0.00
			Max. Mx	24	1105.56	10.48	0.00
			Max. My	2	871.30	0.00	-0.00
			Max. Vy	24	-11.43	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Top Girt	Max Tension	9	401.98	0.00	0.00
			Max. Compression	4	-180.02	0.00	0.00
			Max. Mx	21	137.12	10.48	0.00
			Max. My	2	-121.88	0.00	-0.00
			Max. Vy	21	-11.43	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Bottom Girt	Max Tension	4	433.65	0.00	0.00
			Max. Compression	2	-184.69	0.00	0.00
			Max. Mx	24	288.62	10.48	0.00
			Max. My	2	-184.69	0.00	-0.00
			Max. Vy	24	-11.43	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Guy A	Bottom Tension	8	12843.96		
			Top Tension	8	13077.07		
			Top Cable Vert	8	8862.00		
			Top Cable Norm	8	9616.38		
			Top Cable Tan	8	3.25		
			Bot Cable Vert	8	-8291.99		
			Bot Cable Norm	8	9808.68		
			Bot Cable Tan	8	3.76		
		Guy B	Bottom Tension	12	13432.08		
			Top Tension	12	13707.64		
			Top Cable Vert	12	10110.64		
			Top Cable Norm	12	9256.04		
			Top Cable Tan	12	3.26		
			Bot Cable Vert	12	-9482.29		
			Bot Cable Norm	12	9513.51		
			Bot Cable Tan	12	4.63		
		Guy C	Bottom Tension	4	13393.38		
			Top Tension	4	13666.65		
			Top Cable Vert	4	10041.34		
			Top Cable Norm	4	9270.85		
			Top Cable Tan	4	3.94		
			Bot Cable Vert	4	-9415.91		
			Bot Cable Norm	4	9524.88		
			Bot Cable Tan	4	3.91		
		Torque Arm Top	Max Tension	9	9052.14	-9061.21	0.00
			Max. Compression	2	-3588.91	-26483.86	0.00
			Max. Mx	12	-1611.13	-36348.24	-0.00
			Max. My	2	3632.46	-26625.79	-0.00
			Max. Vy	12	9989.55	-36348.24	-0.00
			Max. Vx	2	-0.00	-26625.79	-0.00
T6	200 - 180	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	4	-73531.62	-629.69	-94.99
			Max. Mx	5	-46182.30	1297.70	66.19
			Max. My	8	-30717.75	94.77	1256.63
			Max. Vy	5	4954.31	-147.21	-312.83
			Max. Vx	7	4843.23	-123.86	223.67
		Diagonal	Max Tension	13	7574.16	0.00	0.00
			Max. Compression	7	-8736.34	0.00	0.00
			Max. Mx	23	161.25	18.42	0.00
			Max. My	2	2.58	0.00	0.05
			Max. Vy	23	-14.93	0.00	0.00
			Max. Vx	2	-0.04	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Horizontal	Max Tension	12	3471.65	0.00	0.00
			Max. Compression	6	-2841.08	0.00	0.00
			Max. Mx	17	976.86	10.38	0.00
			Max. My	2	1005.55	0.00	-0.00
			Max. Vy	17	-11.32	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Top Girt	Max Tension	2	280.84	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	24	210.10	10.38	0.00
			Max. My	2	280.80	0.00	-0.00
			Max. Vy	24	-11.32	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Bottom Girt	Max Tension	6	594.38	0.00	0.00
			Max. Compression	12	-267.70	0.00	0.00
			Max. Mx	20	162.08	10.38	0.00
			Max. My	2	476.98	0.00	-0.00
			Max. Vy	20	-11.32	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T7	180 - 160	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-76914.28	-297.35	502.00
			Max. Mx	11	-51131.15	1288.71	194.19
			Max. My	7	-49516.79	-435.49	-1130.23
			Max. Vy	5	4953.52	-560.00	-307.69
			Max. Vx	7	4844.18	-353.64	-180.09
		Diagonal	Max Tension	7	8853.26	0.00	0.00
			Max. Compression	7	-9857.95	0.00	0.00
			Max. Mx	23	354.34	23.45	0.00
			Max. My	2	823.00	0.00	0.07
			Max. Vy	23	-19.00	0.00	0.00
			Max. Vx	2	-0.05	0.00	0.00
		Horizontal	Max Tension	13	11047.44	0.00	0.00
			Max. Compression	7	-10063.59	0.00	0.00
			Max. Mx	21	1284.65	10.26	0.00
			Max. My	2	1062.03	0.00	0.00
			Max. Vy	21	11.19	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Top Girt	Max Tension	12	648.87	0.00	0.00
			Max. Compression	6	-264.43	0.00	0.00
			Max. Mx	20	363.55	10.26	0.00
			Max. My	2	-173.50	0.00	-0.00
			Max. Vy	20	11.19	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Bottom Girt	Max Tension	7	708.27	0.00	0.00
			Max. Compression	2	-346.30	0.00	0.00
			Max. Mx	21	277.04	10.26	0.00
			Max. My	2	-346.30	0.00	-0.00
			Max. Vy	21	11.19	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Guy A	Bottom Tension	8	14730.45		
			Top Tension	8	14906.14		
			Top Cable Vert	8	8438.03		
			Top Cable Norm	8	12287.91		
			Top Cable Tan	8	2.38		
			Bot Cable Vert	8	-7978.43		
			Bot Cable Norm	8	12382.68		
			Bot Cable Tan	8	2.55		
		Guy B	Bottom Tension	12	15339.32		
			Top Tension	12	15557.49		
			Top Cable Vert	12	10098.63		
			Top Cable Norm	12	11834.41		
			Top Cable Tan	12	1.97		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Bot Cable Vert	12	-9579.65		
			Bot Cable Norm	12	11980.19		
			Bot Cable Tan	12	3.76		
		Guy C	Bottom Tension	4	15293.82		
			Top Tension	4	15509.70		
			Top Cable Vert	4	10005.84		
			Top Cable Norm	4	11850.48		
			Top Cable Tan	4	3.48		
			Bot Cable Vert	4	-9489.86		
			Bot Cable Norm	4	11993.48		
			Bot Cable Tan	4	2.21		
		Torque Arm Top	Max Tension	3	12583.35	0.00	0.00
			Max. Compression	3	-5625.77	-34060.36	0.00
			Max. Mx	12	-3529.32	-36075.57	-0.00
			Max. My	2	5118.90	-28260.32	-0.00
			Max. Vy	12	9915.19	-36075.57	-0.00
			Max. Vx	2	-0.00	-28260.32	-0.00
T8	160 - 140	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81654.46	-306.76	493.92
			Max. Mx	23	-78921.42	-597.30	-9.30
			Max. My	19	-79441.72	292.68	523.28
			Max. Vy	11	3152.07	-115.05	-316.07
			Max. Vx	3	3224.58	308.10	67.82
		Diagonal	Max Tension	3	3929.53	0.00	0.00
			Max. Compression	3	-5877.08	0.00	0.00
			Max. Mx	23	263.34	20.56	0.00
			Max. My	2	575.16	0.00	0.06
			Max. Vy	23	-16.66	0.00	0.00
			Max. Vx	2	-0.04	0.00	0.00
		Horizontal	Max Tension	26	1414.30	0.00	0.00
			Max. Compression	26	-1414.30	0.00	0.00
			Max. Mx	26	1364.88	10.13	0.00
			Max. My	2	1177.75	0.00	-0.00
			Max. Vy	26	11.05	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Top Girt	Max Tension	3	406.90	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	21	295.05	10.13	0.00
			Max. My	2	398.38	0.00	-0.00
			Max. Vy	21	11.05	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Bottom Girt	Max Tension	7	427.30	0.00	0.00
			Max. Compression	2	-53.71	0.00	0.00
			Max. Mx	21	286.11	10.13	0.00
			Max. My	2	-53.71	0.00	-0.00
			Max. Vy	21	11.05	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T9	140 - 120	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-83107.60	-322.83	-574.32
			Max. Mx	23	-80703.47	-672.40	-5.37
			Max. My	20	-76036.63	-285.01	608.35
			Max. Vy	3	1631.99	-254.59	-449.81
			Max. Vx	12	-1695.30	-260.98	396.60
		Diagonal	Max Tension	12	2032.32	0.00	0.00
			Max. Compression	4	-3130.86	0.00	0.00
			Max. Mx	25	-76.24	17.86	0.00
			Max. My	3	660.32	0.00	0.04
			Max. Vy	25	-14.47	0.00	0.00
			Max. Vx	3	-0.04	0.00	0.00
		Horizontal	Max Tension	15	1439.47	0.00	0.00
			Max. Compression	15	-1439.47	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	19	1426.78	9.99	0.00
			Max. My	2	1201.57	0.00	-0.00
			Max. Vy	19	-10.90	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Top Girt	Max Tension	3	375.43	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	21	286.54	9.99	0.00
			Max. My	2	243.39	0.00	-0.00
			Max. Vy	21	-10.90	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Bottom Girt	Max Tension	17	397.85	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	383.93	9.99	0.00
			Max. My	13	243.93	0.00	-0.00
			Max. Vy	18	-10.90	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T10	120 - 100	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-94133.97	-377.86	-683.97
			Max. Mx	11	-64491.50	1193.41	101.99
			Max. My	7	-71988.02	-276.78	-1276.04
			Max. Vy	5	-5444.71	-597.84	-558.98
			Max. Vx	9	-4816.91	769.89	-269.42
		Diagonal	Max Tension	9	8526.77	0.00	0.00
			Max. Compression	11	-9292.70	0.00	0.00
			Max. Mx	25	238.32	22.79	0.00
			Max. My	3	337.58	0.00	0.07
			Max. Vy	25	-18.47	0.00	0.00
			Max. Vx	3	-0.05	0.00	0.00
		Horizontal	Max Tension	13	11717.69	0.00	0.00
			Max. Compression	7	-10424.37	0.00	0.00
			Max. Mx	22	1578.43	9.83	0.00
			Max. My	13	1314.13	0.00	-0.00
			Max. Vy	22	10.72	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Top Girt	Max Tension	3	753.00	0.00	0.00
			Max. Compression	9	-78.69	0.00	0.00
			Max. Mx	18	290.46	9.83	0.00
			Max. My	13	496.69	0.00	-0.00
			Max. Vy	18	10.72	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	8	821.27	0.00	0.00
			Max. Compression	10	-157.81	0.00	0.00
			Max. Mx	18	310.67	9.83	0.00
			Max. My	13	675.51	0.00	-0.00
			Max. Vy	18	10.72	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Guy A	Bottom Tension	8	12437.24		
			Top Tension	8	12512.34		
			Top Cable Vert	8	4797.63		
			Top Cable Norm	8	11556.01		
			Top Cable Tan	8	1.42		
			Bot Cable Vert	8	-4548.74		
			Bot Cable Norm	8	11575.57		
			Bot Cable Tan	8	0.86		
		Guy B	Bottom Tension	12	12813.60		
			Top Tension	12	12918.64		
			Top Cable Vert	12	6474.65		
			Top Cable Norm	12	11179.00		
			Top Cable Tan	12	0.73		
			Bot Cable Vert	12	-6185.95		
			Bot Cable Norm	12	11221.51		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Bot Cable Tan	12	2.13		
		Guy C	Bottom Tension	3	12855.13		
			Top Tension	3	12958.34		
			Top Cable Vert	3	6424.57		
			Top Cable Norm	3	11253.55		
			Top Cable Tan	3	33.56		
			Bot Cable Vert	3	-6126.22		
			Bot Cable Norm	3	11301.23		
			Bot Cable Tan	3	78.05		
		Torque Arm Top	Max Tension	3	12718.84	0.00	0.00
			Max. Compression	3	-6137.60	0.00	0.00
			Max. Mx	3	599.25	-23841.85	0.00
			Max. My	13	-2749.56	-12981.72	-0.00
			Max. Vy	3	6436.36	-23841.85	0.00
			Max. Vx	13	-0.00	-12981.72	-0.00
T11	100 - 80	Leg	Max Tension	2	2417.91	-405.00	-19.59
			Max. Compression	4	-110154.72	-345.93	-628.22
			Max. Mx	21	-101788.15	-906.00	-14.72
			Max. My	2	-95299.90	468.89	-831.51
			Max. Vy	5	-5445.79	-144.13	-556.74
			Max. Vx	9	-4815.43	535.83	131.97
		Diagonal	Max Tension	9	7015.16	0.00	0.00
			Max. Compression	11	-8125.88	0.00	0.00
			Max. Mx	26	-1612.56	19.84	0.00
			Max. My	2	-419.98	0.00	0.06
			Max. Vy	26	-16.07	0.00	0.00
			Max. Vx	2	-0.05	0.00	0.00
		Horizontal	Max Tension	4	1957.22	0.00	0.00
			Max. Compression	4	-1907.94	0.00	0.00
			Max. Mx	24	1626.34	9.65	0.00
			Max. My	2	1697.40	0.00	-0.00
			Max. Vy	24	-10.52	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Top Girt	Max Tension	24	462.30	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	438.76	9.65	0.00
			Max. My	13	155.06	0.00	-0.00
			Max. Vy	18	-10.52	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	3	647.32	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	15	516.98	9.65	0.00
			Max. My	2	363.08	0.00	-0.00
			Max. Vy	15	-10.52	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T12	80 - 60	Leg	Max Tension	2	1232.14	-410.45	-157.17
			Max. Compression	4	-110646.09	434.08	591.30
			Max. Mx	18	-95898.97	924.83	-45.25
			Max. My	9	-70928.18	-259.19	834.83
			Max. Vy	11	-2592.07	-431.52	-433.75
			Max. Vx	3	-2972.27	603.20	-165.46
		Diagonal	Max Tension	3	2936.72	0.00	0.00
			Max. Compression	3	-5722.29	0.00	0.00
			Max. Mx	26	-650.71	17.05	0.00
			Max. My	2	108.17	0.00	0.07
			Max. Vy	26	-13.81	0.00	0.00
			Max. Vx	2	0.05	0.00	0.00
		Horizontal	Max Tension	4	1916.45	0.00	0.00
			Max. Compression	4	-1916.45	0.00	0.00
			Max. Mx	15	1812.37	9.42	0.00
			Max. My	13	1879.22	0.00	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vy	15	10.28	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Top Girt	Max Tension	7	564.89	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	15	501.71	9.42	0.00
			Max. My	13	408.25	0.00	-0.00
			Max. Vy	15	10.28	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	3	527.58	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	15	486.99	9.42	0.00
			Max. My	13	268.10	0.00	-0.00
			Max. Vy	15	10.28	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T13	60 - 40	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-115783.33	-442.90	-831.18
			Max. Mx	5	-71569.55	-997.71	194.07
			Max. My	2	-94272.26	683.08	959.18
			Max. Vy	11	-2594.02	-215.40	-438.19
			Max. Vx	3	-2973.14	461.38	82.25
		Diagonal	Max Tension	3	4064.40	0.00	0.00
			Max. Compression	9	-4504.05	0.00	0.00
			Max. Mx	26	-1662.82	16.65	0.00
			Max. My	2	-201.47	0.00	0.07
			Max. Vy	26	-13.49	0.00	0.00
			Max. Vx	2	0.06	0.00	0.00
		Horizontal	Max Tension	7	5635.66	0.00	0.00
			Max. Compression	13	-4266.56	0.00	0.00
			Max. Mx	15	1932.68	9.14	0.00
			Max. My	13	1925.82	0.00	-0.00
			Max. Vy	15	-9.97	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Top Girt	Max Tension	22	545.42	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	15	488.41	9.14	0.00
			Max. My	13	428.79	0.00	-0.00
			Max. Vy	15	-9.97	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	3	541.41	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	15	537.90	9.14	0.00
			Max. My	13	453.46	0.00	-0.00
			Max. Vy	15	-9.97	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Guy A	Bottom Tension	8	5786.36		
			Top Tension	8	5803.31		
			Top Cable Vert	8	1108.52		
			Top Cable Norm	8	5696.46		
			Top Cable Tan	8	0.47		
			Bot Cable Vert	8	-1008.79		
			Bot Cable Norm	8	5697.74		
			Bot Cable Tan	8	0.16		
		Guy B	Bottom Tension	12	5924.31		
			Top Tension	12	5955.98		
			Top Cable Vert	12	2007.28		
			Top Cable Norm	12	5607.54		
			Top Cable Tan	12	0.34		
			Bot Cable Vert	12	-1888.87		
			Bot Cable Norm	12	5615.12		
			Bot Cable Tan	12	0.81		
		Guy C	Bottom Tension	3	5852.83		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Tension	3	5883.61		
			Top Cable Vert	3	1944.86		
			Top Cable Norm	3	5552.83		
			Top Cable Tan	3	21.02		
			Bot Cable Vert	3	-1816.74		
			Bot Cable Norm	3	5563.60		
			Bot Cable Tan	3	37.05		
		Torque Arm Top	Max Tension	3	6199.79	0.00	0.00
			Max. Compression	3	-2858.38	0.00	0.00
			Max. Mx	3	338.00	-7671.36	0.00
			Max. My	13	4548.00	-4682.48	0.00
			Max. Vy	25	2128.00	-7543.22	-0.00
			Max. Vx	13	0.00	-4682.48	0.00
T14	40 - 20	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-115787.94	-436.58	-829.46
			Max. Mx	23	-109564.36	-999.82	-24.33
			Max. My	16	-114594.32	-499.10	-878.75
			Max. Vy	6	2956.39	-205.25	-585.38
			Max. Vx	2	-2951.41	505.52	-61.38
		Diagonal	Max Tension	6	3140.10	0.00	0.00
			Max. Compression	2	-5569.57	0.00	0.00
			Max. Mx	26	-951.24	16.19	0.00
			Max. My	2	174.17	0.00	0.08
			Max. Vy	26	-13.12	0.00	0.00
			Max. Vx	2	-0.06	0.00	0.00
		Horizontal	Max Tension	17	2005.51	0.00	0.00
			Max. Compression	17	-2005.51	0.00	0.00
			Max. Mx	14	1823.91	8.82	0.00
			Max. My	13	1925.85	0.00	-0.00
			Max. Vy	14	9.63	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Top Girt	Max Tension	7	534.89	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	15	514.50	8.82	0.00
			Max. My	13	351.05	0.00	-0.00
			Max. Vy	15	9.63	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	15	533.56	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	501.35	8.82	0.00
			Max. My	13	394.53	0.00	-0.00
			Max. Vy	14	9.63	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T15	20 - 6.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-115270.94	-488.30	-841.98
			Max. Mx	23	-109645.57	-1010.72	-12.45
			Max. My	26	-112817.60	513.52	-885.22
			Max. Vy	6	4944.50	-260.81	-399.52
			Max. Vx	2	-4567.71	380.90	65.92
		Diagonal	Max Tension	6	6020.62	0.00	0.00
			Max. Compression	2	-8333.84	0.00	0.00
			Max. Mx	16	277.23	16.25	0.00
			Max. My	2	444.28	0.00	0.08
			Max. Vy	16	-13.12	0.00	0.00
			Max. Vx	2	-0.07	0.00	0.00
		Horizontal	Max Tension	17	1996.55	0.00	0.00
			Max. Compression	17	-1996.55	0.00	0.00
			Max. Mx	14	1852.71	8.82	0.00
			Max. My	7	1709.98	0.00	-0.00
			Max. Vy	14	9.63	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Top Girt	Max Tension	7	644.19	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	493.89	8.82	0.00
			Max. My	13	431.10	0.00	-0.00
			Max. Vy	14	9.63	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	15	580.07	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	525.83	8.82	0.00
			Max. My	13	357.34	0.00	-0.00
			Max. Vy	14	9.63	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T16	6.5 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	16	-112291.20	-389.30	-637.74
			Max. Mx	6	-70479.91	-1853.11	159.67
			Max. My	21	-108200.60	270.66	-1935.26
			Max. Vy	6	5494.79	-1853.11	159.67
			Max. Vx	9	4861.71	542.47	-1800.30
		Diagonal	Max Tension	2	5695.64	0.00	0.00
			Max. Compression	2	-6870.15	0.00	0.00
			Max. Mx	16	690.35	13.08	0.00
			Max. My	2	272.73	0.00	0.02
			Max. Vy	16	-13.10	0.00	0.00
			Max. Vx	2	-0.02	0.00	0.00
		Horizontal	Max Tension	16	1944.94	0.00	0.00
			Max. Compression	16	-1944.94	0.00	0.00
			Max. Mx	14	1854.73	8.82	0.00
			Max. My	13	1459.70	0.00	-0.00
			Max. Vy	14	9.63	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Top Girt	Max Tension	20	633.48	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	585.96	8.82	0.00
			Max. My	13	473.91	0.00	-0.00
			Max. Vy	14	9.63	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	2	911.13	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	807.18	8.82	0.00
			Max. My	2	631.14	0.00	0.00
			Max. Vy	14	9.63	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Base Beam	Max Tension	2	3361.99	-152200.14	4957.12
			Max. Compression	6	-5094.85	1684.44	-9.05
			Max. Mx	15	-110266.46	-231541.69	419.58
			Max. My	3	-72902.03	-153833.61	5635.35
			Max. Vy	15	-110266.46	-231541.69	419.58
			Max. Vx	3	2664.99	-153833.61	5635.35

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy C @ 231 ft Elev -21 ft Azimuth 240 deg	Max. Vert	10	-15467.18	-11192.92	6465.04

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Max. H_x	10	-15467.18	-11192.92	6465.04
	Max. H_z	4	-86581.16	-90314.71	52160.71
	Min. Vert	4	-86581.16	-90314.71	52160.71
	Min. H_x	4	-86581.16	-90314.71	52160.71
	Min. H_z	10	-15467.18	-11192.92	6465.04
Guy B @ 231 ft Elev -23 ft Azimuth 120 deg	Max. Vert	6	-15359.80	11007.73	6362.12
	Max. H_x	12	-87810.98	90511.63	52242.55
	Max. H_z	12	-87810.98	90511.63	52242.55
	Min. Vert	12	-87810.98	90511.63	52242.55
	Min. H_x	6	-15359.80	11007.73	6362.12
	Min. H_z	6	-15359.80	11007.73	6362.12
Guy A @ 231 ft Elev 14 ft Azimuth 0 deg	Max. Vert	2	-11852.83	-3.92	-11937.67
	Max. H_x	11	-42319.18	3499.15	-58223.98
	Max. H_z	2	-11852.83	-3.92	-11937.67
	Min. Vert	8	-73407.12	22.57	-106952.89
	Min. H_x	5	-43246.27	-3508.88	-59650.93
	Min. H_z	8	-73407.12	22.57	-106952.89
Mast	Max. Vert	15	330548.39	-141.92	698.10
	Max. H_x	11	216206.88	4343.35	-64.77
	Max. H_z	2	218114.58	-271.58	4656.57
	Max. M_x	1	0.00	-27.07	20.17
	Max. M_z	1	0.00	-27.07	20.17
	Max. Torsion	13	4879.13	1985.98	3829.27
	Min. Vert	1	181377.80	-27.07	20.17
	Min. H_x	5	216223.33	-4497.34	201.14
	Min. H_z	8	213349.17	-26.06	-4391.72
	Min. M_x	1	0.00	-27.07	20.17
	Min. M_z	1	0.00	-27.07	20.17
	Min. Torsion	7	-4204.71	-2201.14	-3814.81

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	181377.80	27.07	-20.17	0.00	0.00	-209.77
Dead+Wind 0 deg - No Ice+Guy	218114.58	271.58	-4656.57	0.00	0.00	-4173.35
Dead+Wind 30 deg - No Ice+Guy	220296.99	2375.31	-3829.40	0.00	0.00	-3040.22
Dead+Wind 60 deg - No Ice+Guy	218066.39	3890.76	-2294.47	0.00	0.00	-736.00
Dead+Wind 90 deg - No Ice+Guy	216223.33	4497.34	-201.14	0.00	0.00	732.53
Dead+Wind 120 deg - No Ice+Guy	210500.17	4216.98	2150.29	0.00	0.00	2951.09
Dead+Wind 150 deg - No Ice+Guy	212712.48	2201.14	3814.81	0.00	0.00	4204.71
Dead+Wind 180 deg - No Ice+Guy	213349.17	26.06	4391.72	0.00	0.00	3291.81
Dead+Wind 210 deg - No Ice+Guy	212717.30	-2266.60	3848.93	0.00	0.00	1434.19
Dead+Wind 240 deg - No	210552.97	-4075.29	2339.52	0.00	0.00	-346.95

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Ice+Guy						
Dead+Wind 270 deg - No Ice+Guy	216206.88	-4343.35	64.77	0.00	0.00	-2475.01
Dead+Wind 300 deg - No Ice+Guy	218473.76	-3721.38	-2098.40	0.00	0.00	-3954.15
Dead+Wind 330 deg - No Ice+Guy	220160.37	-1985.98	-3829.27	0.00	0.00	-4879.13
Dead+Ice+Temp+Guy	321204.42	90.57	-20.25	0.00	0.00	-334.82
Dead+Wind 0 deg+Ice+Temp+Guy	330548.39	141.92	-698.10	0.00	0.00	-978.73
Dead+Wind 30 deg+Ice+Temp+Guy	328804.15	480.40	-608.20	0.00	0.00	-780.44
Dead+Wind 60 deg+Ice+Temp+Guy	326895.41	709.24	-399.69	0.00	0.00	-590.95
Dead+Wind 90 deg+Ice+Temp+Guy	326919.03	782.84	-73.60	0.00	0.00	-537.24
Dead+Wind 120 deg+Ice+Temp+Guy	327137.58	709.64	306.29	0.00	0.00	45.89
Dead+Wind 150 deg+Ice+Temp+Guy	325395.56	403.30	605.28	0.00	0.00	403.84
Dead+Wind 180 deg+Ice+Temp+Guy	324241.36	86.48	702.46	0.00	0.00	190.44
Dead+Wind 210 deg+Ice+Temp+Guy	325485.32	-248.76	609.88	0.00	0.00	-131.92
Dead+Wind 240 deg+Ice+Temp+Guy	327293.45	-509.30	345.50	0.00	0.00	-292.16
Dead+Wind 270 deg+Ice+Temp+Guy	327074.93	-582.13	-13.46	0.00	0.00	-530.93
Dead+Wind 300 deg+Ice+Temp+Guy	326992.05	-504.34	-360.64	0.00	0.00	-833.17
Dead+Wind 330 deg+Ice+Temp+Guy	328853.01	-228.51	-610.28	0.00	0.00	-1161.99
Dead+Wind 0 deg - Service+Guy	186306.17	111.91	-1648.85	0.00	0.00	-1477.24
Dead+Wind 30 deg - Service+Guy	185691.44	877.02	-1405.94	0.00	0.00	-1076.09
Dead+Wind 60 deg - Service+Guy	185054.07	1424.95	-851.23	0.00	0.00	-333.29
Dead+Wind 90 deg - Service+Guy	184746.87	1633.09	-93.94	0.00	0.00	124.86
Dead+Wind 120 deg - Service+Guy	184648.37	1463.35	719.98	0.00	0.00	816.45
Dead+Wind 150 deg - Service+Guy	184126.27	792.44	1342.47	0.00	0.00	1172.38
Dead+Wind 180 deg - Service+Guy	183936.37	26.51	1552.01	0.00	0.00	900.18
Dead+Wind 210 deg - Service+Guy	184164.27	-776.96	1351.86	0.00	0.00	368.50
Dead+Wind 240 deg - Service+Guy	184701.03	-1377.27	784.80	0.00	0.00	-239.51
Dead+Wind 270 deg - Service+Guy	184810.80	-1544.28	-2.98	0.00	0.00	-951.91
Dead+Wind 300 deg - Service+Guy	185082.17	-1331.49	-786.79	0.00	0.00	-1368.34
Dead+Wind 330 deg - Service+Guy	185673.21	-708.47	-1405.97	0.00	0.00	-1666.85

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	-69543.87	0.00	-0.12	69543.90	-0.98	0.001%
2	146.90	-70593.96	-80022.52	-146.93	70593.50	80013.56	0.008%
3	39133.47	-69752.86	-69527.66	-39137.99	69752.19	69509.89	0.017%
4	68290.23	-68874.66	-39969.91	-68295.52	68874.65	39961.05	0.010%
5	79458.35	-69534.24	337.95	-79452.85	69533.99	-331.74	0.008%
6	68669.48	-70195.37	39945.66	-68661.09	70194.90	-39939.94	0.010%
7	39272.41	-69325.24	69393.88	-39266.38	69325.03	-69391.93	0.006%
8	100.90	-68493.76	79833.31	-106.83	68493.83	-79834.81	0.006%
9	-38840.89	-69334.86	69398.17	38834.40	69334.64	-69396.05	0.006%
10	-67929.40	-70213.06	40002.43	67920.61	70212.57	-39996.51	0.010%
11	-79225.86	-69553.48	-909.88	79220.21	69553.22	916.25	0.008%
12	-68544.29	-68892.35	-39965.41	68554.95	68892.43	39948.98	0.019%
13	-39434.73	-69762.48	-69228.71	39439.08	69761.88	69211.80	0.016%
14	-0.00	-166209.92	-0.00	-0.17	166209.92	-2.04	0.001%
15	141.16	-167074.01	-31128.13	-141.33	167073.93	31121.28	0.004%
16	15420.84	-166364.95	-26980.31	-15421.44	166364.91	26975.82	0.003%
17	26891.50	-165631.04	-15573.60	-26891.34	165631.03	15567.71	0.003%
18	31222.17	-166203.23	-59.11	-31220.76	166203.22	59.50	0.001%
19	26956.04	-166776.28	15496.71	-26953.35	166776.25	-15495.51	0.002%
20	15407.76	-166048.20	26874.32	-15406.21	166048.18	-26873.91	0.001%
21	63.93	-165345.83	30999.23	-64.30	165345.83	-30998.98	0.000%
22	-15322.74	-166054.89	26899.18	15320.92	166054.88	-26898.73	0.001%
23	-26812.99	-166788.79	15544.31	26810.01	166788.76	-15543.07	0.002%
24	-31099.48	-166216.61	-157.36	31097.89	166216.59	157.71	0.001%
25	-26850.66	-165643.55	-15466.65	26850.53	165643.55	15465.24	0.001%
26	-15302.37	-166371.64	-26948.28	15302.72	166371.60	26943.92	0.003%
27	50.83	-69907.22	-27689.45	-50.89	69907.14	27682.95	0.009%
28	13540.99	-69616.19	-24058.01	-13541.86	69616.15	24054.50	0.005%
29	23629.84	-69312.31	-13830.42	-23630.13	69312.31	13828.37	0.003%
30	27494.24	-69540.54	116.94	-27492.88	69540.53	-115.72	0.002%
31	23761.07	-69769.30	13822.03	-23758.33	69769.26	-13820.42	0.004%
32	13589.07	-69468.22	24011.72	-13587.41	69468.20	-24011.26	0.002%
33	34.92	-69180.51	27623.98	-35.56	69180.51	-27623.00	0.002%
34	-13439.75	-69471.55	24013.21	13437.99	69471.53	-24012.73	0.002%
35	-23504.98	-69775.42	13841.67	23502.12	69775.38	-13840.05	0.004%
36	-27413.79	-69547.20	-314.84	27412.46	69547.18	315.99	0.002%
37	-23717.75	-69318.43	-13828.86	23717.77	69318.43	13827.00	0.002%
38	-13645.23	-69619.52	-23954.57	13645.98	69619.49	23951.32	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	9	0.00000001	0.00004202
2	Yes	15	0.00000001	0.00005618
3	Yes	14	0.00009707	0.00013100
4	Yes	12	0.00000001	0.00007875
5	Yes	14	0.00000001	0.00006734
6	Yes	14	0.00000001	0.00009163
7	Yes	14	0.00000001	0.00007358
8	Yes	10	0.00000001	0.00006905
9	Yes	14	0.00000001	0.00007115
10	Yes	14	0.00000001	0.00009237
11	Yes	14	0.00000001	0.00006972
12	Yes	11	0.00014041	0.00013197

13	Yes	14	0.00009485	0.00014275
14	Yes	10	0.00000001	0.00003545
15	Yes	11	0.00000001	0.00008182
16	Yes	11	0.00000001	0.00006589
17	Yes	10	0.00000001	0.00005310
18	Yes	11	0.00000001	0.00004929
19	Yes	11	0.00000001	0.00007791
20	Yes	11	0.00000001	0.00007427
21	Yes	10	0.00000001	0.00004171
22	Yes	11	0.00000001	0.00006800
23	Yes	11	0.00000001	0.00007617
24	Yes	11	0.00000001	0.00005336
25	Yes	11	0.00000001	0.00001955
26	Yes	11	0.00000001	0.00007607
27	Yes	10	0.00000001	0.00013305
28	Yes	10	0.00000001	0.00007720
29	Yes	9	0.00000001	0.00003950
30	Yes	10	0.00000001	0.00004748
31	Yes	10	0.00000001	0.00007719
32	Yes	10	0.00000001	0.00004946
33	Yes	8	0.00000001	0.00007220
34	Yes	10	0.00000001	0.00004960
35	Yes	10	0.00000001	0.00007839
36	Yes	10	0.00000001	0.00004654
37	Yes	9	0.00000001	0.00003840
38	Yes	10	0.00000001	0.00007233

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	317 - 287	1.035	37	0.0233	0.0704
T1	287 - 280	1.097	37	0.0826	0.0639
T2	280 - 260	1.193	37	0.0874	0.0689
T3	260 - 240	1.481	37	0.0935	0.0551
T4	240 - 220	1.769	37	0.0849	0.0605
T5	220 - 200	1.971	37	0.0713	0.0580
T6	200 - 180	2.151	37	0.0560	0.0680
T7	180 - 160	2.185	37	0.0182	0.0708
T8	160 - 140	2.127	37	0.0198	0.0801
T9	140 - 120	2.140	27	0.0141	0.1014
T10	120 - 100	2.129	27	0.0216	0.1183
T11	100 - 80	2.083	27	0.0162	0.1129
T12	80 - 60	2.000	27	0.0424	0.1049
T13	60 - 40	1.727	27	0.0827	0.0846
T14	40 - 20	1.311	27	0.1191	0.0667
T15	20 - 6.5	0.724	27	0.1561	0.0392
T16	6.5 - 0	0.244	27	0.1710	0.0133

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
322.00	Lightning Rod 5/8"x4'	37	1.035	0.0233	0.0704	69965

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
321.00	Flash Beacon Lighting	37	1.035	0.0233	0.0704	69965
305.00	1 bay FM antenna	37	1.012	0.0495	0.0805	29152
283.50	Guy	37	1.142	0.0854	0.0609	20007
274.00	6' Omni	37	1.279	0.0903	0.0719	31320
257.00	15' Omni	37	1.526	0.0931	0.0536	82932
256.61	Guy	37	1.532	0.0930	0.0535	88756
235.00	(4) DB844H90E-XY w/Mount Pipe	37	1.826	0.0815	0.0605	44497
216.61	Guy	37	2.005	0.0697	0.0589	206921
210.00	1 bay FM antenna	37	2.070	0.0664	0.0623	57656
197.00	1 bay FM antenna	37	2.167	0.0506	0.0690	24373
186.00	7770.00 w/ Mount Pipe	37	2.190	0.0273	0.0703	33515
172.00	DB872H120-X w/Mount Pipe	37	2.163	0.0156	0.0730	136207
171.00	3' Grid Dish	37	2.160	0.0158	0.0734	195543
166.69	Guy	37	2.146	0.0174	0.0755	111377
158.00	18"x12"x4"	37	2.124	0.0200	0.0819	50818
156.00	Side Lights	37	2.121	0.0199	0.0837	62922
125.00	7' Ice Shield	27	2.138	0.0211	0.1161	98237
120.00	Side Arm Mount [SO 602-1]	27	2.129	0.0216	0.1183	194625
117.00	5' Ice Shield	27	2.123	0.0209	0.1186	198856
116.00	6' Dish	27	2.120	0.0206	0.1186	190017
111.00	10' Omni	27	2.109	0.0184	0.1175	161950
106.69	Guy	27	2.099	0.0166	0.1158	138891
104.00	6' Dish	27	2.093	0.0159	0.1146	123870
95.00	5' Grid Dish	27	2.072	0.0192	0.1114	86763
92.00	2' Yagi	27	2.064	0.0223	0.1105	49706
83.00	(2) 4'x8"x9.5" Panel	27	2.022	0.0365	0.1070	21904
71.00	2' Dipole	27	1.900	0.0608	0.0957	25351
56.61	Guy	27	1.666	0.0890	0.0815	40931
18.00	6' Yagi	27	0.656	0.1588	0.0356	35165
13.00	4' Dish	27	0.481	0.1644	0.0261	44296

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	317 - 287	4.955	12	0.1127	0.2511
T1	287 - 280	4.909	12	0.2908	0.2389
T2	280 - 260	5.136	12	0.3039	0.2570
T3	260 - 240	5.833	12	0.3363	0.2197
T4	240 - 220	6.533	12	0.3361	0.2169
T5	220 - 200	6.988	12	0.3296	0.2074
T6	200 - 180	7.508	13	0.3038	0.2168
T7	180 - 160	8.069	2	0.1856	0.2266
T8	160 - 140	8.756	2	0.1676	0.2548
T9	140 - 120	9.352	2	0.0880	0.3153
T10	120 - 100	9.514	2	0.0802	0.3646
T11	100 - 80	9.323	2	0.0840	0.3470
T12	80 - 60	8.776	2	0.2213	0.3247
T13	60 - 40	7.468	2	0.3860	0.2621
T14	40 - 20	5.557	2	0.5301	0.2047
T15	20 - 6.5	3.013	2	0.6622	0.1227
T16	6.5 - 0	1.009	2	0.7130	0.0432

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
322.00	Lightning Rod 5/8"x4'	12	4.955	0.1127	0.2579	24827
321.00	Flash Beacon Lighting	12	4.955	0.1127	0.2579	24827
305.00	1 bay FM antenna	12	4.797	0.1878	0.2587	10344
283.50	Guy	12	5.015	0.2984	0.2490	4050
274.00	6' Omni	12	5.344	0.3144	0.2555	2557
257.00	15' Omni	12	5.943	0.3385	0.2155	5663
256.61	Guy	12	5.958	0.3387	0.2151	5744
235.00	(4) DB844H90E-XY w/Mount Pipe	12	6.664	0.3336	0.2157	13100
216.61	Guy	12	7.064	0.3299	0.2075	26042
210.00	1 bay FM antenna	12	7.211	0.3280	0.2103	21088
197.00	1 bay FM antenna	13	7.610	0.2882	0.2184	8682
186.00	7770.00 w/ Mount Pipe	13	7.885	0.2162	0.2230	10586
172.00	DB872H120-X w/Mount Pipe	2	8.363	0.1715	0.2346	24539
171.00	3' Grid Dish	2	8.397	0.1712	0.2359	28279
166.69	Guy	2	8.539	0.1711	0.2421	31253
158.00	18"x12"x4"	2	8.822	0.1641	0.2597	16204
156.00	Side Lights	2	8.889	0.1592	0.2650	19757
125.00	7' Ice Shield	2	9.515	0.0787	0.3581	12159
120.00	Side Arm Mount [SO 602-1]	2	9.514	0.0802	0.3646	14396
117.00	5' Ice Shield	2	9.503	0.0783	0.3655	15486
116.00	6' Dish	2	9.498	0.0773	0.3653	15800
111.00	10' Omni	2	9.462	0.0711	0.3618	17471
106.69	Guy	2	9.416	0.0696	0.3565	19219
104.00	6' Dish	2	9.382	0.0740	0.3526	20477
95.00	5' Grid Dish	2	9.236	0.1114	0.3426	12007
92.00	2' Yagi	2	9.172	0.1316	0.3407	9355
83.00	(2) 4'x8"x9.5" Panel	2	8.901	0.1976	0.3305	5649
71.00	2' Dipole	2	8.279	0.2959	0.2992	6387
56.61	Guy	2	7.185	0.4117	0.2518	9131
18.00	6' Yagi	2	2.727	0.6714	0.1118	10371
13.00	4' Dish	2	1.994	0.6907	0.0826	13192

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	287	Leg	A325N	1.0000	4	1727.87	34556.60	0.050 ✔	1.333	Bolt Tension
T2	280	Leg	A325N	1.0000	4	0.00	34557.50	0.000 ✔	1.333	Bolt Tension
T3	260	Leg	A325N	1.0000	4	0.00	34557.30	0.000 ✔	1.333	Bolt Tension
T4	240	Leg	A325N	1.0000	4	0.00	34557.50	0.000 ✔	1.333	Bolt Tension
T5	220	Leg	A325N	1.0000	4	0.00	34556.30	0.000 ✔	1.333	Bolt Tension
T6	200	Leg	A325N	1.0000	4	0.00	34557.50	0.000 ✔	1.333	Bolt Tension
T7	180	Leg	A325N	1.0000	4	0.00	34554.20	0.000 ✔	1.333	Bolt Tension
T8	160	Leg	A325N	1.0000	4	0.00	34556.50	0.000 ✔	1.333	Bolt Tension
T9	140	Leg	A325N	1.0000	4	0.00	34557.50	0.000 ✔	1.333	Bolt Tension
T10	120	Leg	A325N	1.2500	4	0.00	53996.00	0.000 ✔	1.333	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T11	100	Leg	A325N	1.2500	4	0.00	53994.40	0.000 ✔	1.333	Bolt Tension
T12	80	Leg	A325N	1.2500	4	201.93	53995.70	0.004 ✔	1.333	Bolt Tension
T13	60	Leg	A325N	1.2500	4	0.00	53995.90	0.000 ✔	1.333	Bolt Tension
T14	40	Leg	A325N	1.2500	4	0.00	53996.00	0.000 ✔	1.333	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
T1	283.50 (A) (694)	3/4 EHS	5830.00	58299.91	10583.30	29150.00	2.000	5.509 ✔
	283.50 (A) (695)	3/4 EHS	5830.00	58299.91	10636.10	29150.00	2.000	5.481 ✔
	283.50 (B) (690)	3/4 EHS	5830.00	58299.91	11416.40	29150.00	2.000	5.107 ✔
	283.50 (B) (691)	3/4 EHS	5830.00	58299.91	11404.00	29150.00	2.000	5.112 ✔
	283.50 (C) (686)	3/4 EHS	5830.00	58299.91	11306.40	29150.00	2.000	5.156 ✔
	283.50 (C) (687)	3/4 EHS	5830.00	58299.91	11302.30	29150.00	2.000	5.158 ✔
T3	256.61 (A) (682)	3/4 EHS	5830.00	58299.91	11114.60	29150.00	2.000	5.245 ✔
	256.61 (A) (683)	3/4 EHS	5830.00	58299.91	11267.90	29150.00	2.000	5.174 ✔
	256.61 (B) (678)	3/4 EHS	5830.00	58299.91	11946.20	29150.00	2.000	4.880 ✔
	256.61 (B) (679)	3/4 EHS	5830.00	58299.91	11855.90	29150.00	2.000	4.917 ✔
	256.61 (C) (674)	3/4 EHS	5830.00	58299.91	11770.00	29150.00	2.000	4.953 ✔
	256.61 (C) (675)	3/4 EHS	5830.00	58299.91	11730.30	29150.00	2.000	4.970 ✔
T5	216.61 (A) (670)	3/4 EHS	5830.00	58299.91	12848.40	29150.00	2.000	4.538 ✔
	216.61 (A) (671)	3/4 EHS	5830.00	58299.91	13077.10	29150.00	2.000	4.458 ✔
	216.61 (B) (666)	3/4 EHS	5830.00	58299.91	13707.60	29150.00	2.000	4.253 ✔
	216.61 (B) (667)	3/4 EHS	5830.00	58299.91	13653.80	29150.00	2.000	4.270 ✔
	216.61 (C) (662)	3/4 EHS	5830.00	58299.91	13666.60	29150.00	2.000	4.266 ✔
	216.61 (C) (663)	3/4 EHS	5830.00	58299.91	13504.60	29150.00	2.000	4.317 ✔
T7	166.69 (A) (658)	3/4 EHS	5830.00	58299.91	14622.80	29150.00	2.000	3.987 ✔
	166.69 (A) (659)	3/4 EHS	5830.00	58299.91	14906.10	29150.00	2.000	3.911 ✔
	166.69 (B) (654)	3/4 EHS	5830.00	58299.91	15557.50	29150.00	2.000	3.747 ✔

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
	166.69 (B) (655)	3/4 EHS	5830.00	58299.91	15346.90	29150.00	2.000	3.799 ✔
	166.69 (C) (650)	3/4 EHS	5830.00	58299.91	15509.70	29150.00	2.000	3.759 ✔
	166.69 (C) (651)	3/4 EHS	5830.00	58299.91	15248.20	29150.00	2.000	3.823 ✔
T10	106.69 (A) (646)	5/8 EHS	4240.00	42399.99	12082.70	21200.00	2.000	3.509 ✔
	106.69 (A) (647)	5/8 EHS	4240.00	42399.99	12512.30	21200.00	2.000	3.389 ✔
	106.69 (B) (642)	5/8 EHS	4240.00	42399.99	12918.60	21200.00	2.000	3.282 ✔
	106.69 (B) (643)	5/8 EHS	4240.00	42399.99	12414.30	21200.00	2.000	3.415 ✔
	106.69 (C) (638)	5/8 EHS	4240.00	42399.99	12958.30	21200.00	2.000	3.272 ✔
	106.69 (C) (639)	5/8 EHS	4240.00	42399.99	12570.60	21200.00	2.000	3.373 ✔
T13	56.61 (A) (634)	7/16 EHS	2080.00	20800.02	5557.81	10400.00	2.000	3.742 ✔
	56.61 (A) (635)	7/16 EHS	2080.00	20800.02	5803.31	10400.00	2.000	3.584 ✔
	56.61 (B) (630)	7/16 EHS	2080.00	20800.02	5955.98	10400.00	2.000	3.492 ✔
	56.61 (B) (631)	7/16 EHS	2080.00	20800.02	5766.61	10400.00	2.000	3.607 ✔
	56.61 (C) (626)	7/16 EHS	2080.00	20800.02	5883.61	10400.00	2.000	3.535 ✔
	56.61 (C) (627)	7/16 EHS	2080.00	20800.02	5883.14	10400.00	2.000	3.536 ✔

Compression Checks

Pole Design Data

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 $\frac{P}{P_a}$
L1	317 - 287 (1)	P12x.5	30.00	30.00	83.1	14.723	19.2423	-2284.43	283302.00	0.008

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	317 - 287 (1)	P12x.5	24247.67	-5.131	23.100	0.222	0.00	0.000	23.100	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	317 - 287 (1)	P12x.5	0.008	0.222	0.000	0.230 ✔	1.066	H1-3 ✔

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	287 - 280	2	7.00	3.42	82.0 K=1.00	1.00	18.610	3.1416	-17581.60	58463.80	0.301*
T2	280 - 260	2	20.00	3.31	79.3 K=1.00	1.00	19.145	3.1416	-18813.80	60146.80	0.313*
T3	260 - 240	2 1/4	20.00	3.31	70.5 K=1.00	1.00	20.842	3.9761	-35442.60	82867.60	0.428*
T4	240 - 220	2 1/4	20.00	3.31	70.5 K=1.00	1.00	20.842	3.9761	-36900.50	82867.60	0.445*
T5	220 - 200	2 1/2	20.00	3.31	63.5 K=1.00	1.00	22.117	4.9087	-52912.00	108567.00	0.487*
T6	200 - 180	2 1/2	20.00	3.31	63.5 K=1.00	1.00	22.117	4.9087	-58125.20	108567.00	0.535*
T7	180 - 160	2 3/4	20.00	3.31	57.7 K=1.00	1.00	23.107	5.9396	-72885.80	137244.00	0.531*
T8	160 - 140	2 1/2	20.00	3.31	63.5 K=1.00	1.00	22.117	4.9087	-75223.40	108567.00	0.693*
T9	140 - 120	2 3/4	20.00	3.31	57.7 K=1.00	1.00	23.107	5.9396	-78230.00	137244.00	0.570*
T10	120 - 100	2 3/4	20.00	3.31	57.7 K=1.00	1.00	23.107	5.9396	-88831.90	137244.00	0.647*
T11	100 - 80	3	20.00	3.31	52.9 K=1.00	1.00	23.894	7.0686	-93320.20	168898.00	0.553*
T12	80 - 60	3	20.00	3.31	52.9 K=1.00	1.00	23.894	7.0686	-96441.30	168898.00	0.571*
T13	60 - 40	3	20.00	3.31	52.9 K=1.00	1.00	23.894	7.0686	-102679.00	168898.00	0.608*
T14	40 - 20	3	20.00	3.31	52.9 K=1.00	1.00	23.894	7.0686	-105303.00	168898.00	0.623*
T15	20 - 6.5	3	13.50	3.33	53.3 K=1.00	1.00	23.823	7.0686	-106966.00	168393.00	0.635*
T16	6.5 - 0	3	6.50	1.58	25.3 K=1.00	0.94	26.004	7.0686	-107083.00	183814.00	0.583*

* DL controls

Leg Bending Design Data (Compression)

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	287 - 280	2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T2	280 - 260	2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T3	260 - 240	2 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T4	240 - 220	2 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T5	220 - 200	2 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T6	200 - 180	2 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T7	180 - 160	2 3/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T8	160 - 140	2 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T9	140 - 120	2 3/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T10	120 - 100	2 3/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T11	100 - 80	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T12	80 - 60	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T13	60 - 40	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T14	40 - 20	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T15	20 - 6.5	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T16	6.5 - 0	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	287 - 280	2	0.301	0.000	0.000	0.301* ✔	1.000	H1-3 ✔
T2	280 - 260	2	0.313	0.000	0.000	0.313* ✔	1.000	H1-3 ✔
T3	260 - 240	2 1/4	0.428	0.000	0.000	0.428* ✔	1.000	H1-3 ✔
T4	240 - 220	2 1/4	0.445	0.000	0.000	0.445* ✔	1.000	H1-3 ✔
T5	220 - 200	2 1/2	0.487	0.000	0.000	0.487* ✔	1.000	H1-3 ✔
T6	200 - 180	2 1/2	0.535	0.000	0.000	0.535* ✔	1.000	H1-3 ✔
T7	180 - 160	2 3/4	0.531	0.000	0.000	0.531* ✔	1.000	H1-3 ✔
T8	160 - 140	2 1/2	0.693	0.000	0.000	0.693* ✔	1.000	H1-3 ✔
T9	140 - 120	2 3/4	0.570	0.000	0.000	0.570* ✔	1.000	H1-3 ✔
T10	120 - 100	2 3/4	0.647	0.000	0.000	0.647* ✔	1.000	H1-3 ✔
T11	100 - 80	3	0.553	0.000	0.000	0.553* ✔	1.000	H1-3 ✔
T12	80 - 60	3	0.571	0.000	0.000	0.571* ✔	1.000	H1-3 ✔
T13	60 - 40	3	0.608	0.000	0.000	0.608* ✔	1.000	H1-3 ✔
T14	40 - 20	3	0.623	0.000	0.000	0.623* ✔	1.000	H1-3 ✔
T15	20 - 6.5	3	0.635	0.000	0.000	0.635* ✔	1.000	H1-3 ✔
T16	6.5 - 0	3	0.583	0.000	0.000	0.583* ✔	1.000	H1-3 ✔

* DL controls

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	287 - 280	1 3/8	5.01	4.78	116.9 K=0.70	10.721	1.4849	-1414.54	15919.80	0.089 ✔
T2	280 - 260	1 3/8	4.94	4.71	115.2 K=0.70	10.966	1.4849	-1623.76	16283.30	0.100 ✔
T3	260 - 240	1 3/8	4.94	4.68	114.5 K=0.70	11.061	1.4849	-3248.79	16424.50	0.198 ✔
T4	240 - 220	1 3/8	4.94	4.68	114.5 K=0.70	11.061	1.4849	-3844.36	16424.50	0.234 ✔
T5	220 - 200	1 1/4	4.94	4.66	125.2 K=0.70	9.530	1.2272	-5895.72	11694.90	0.504 ✔
T6	200 - 180	1 1/4	4.94	4.66	125.2 K=0.70	9.530	1.2272	-8736.34	11694.90	0.747 ✔
T7	180 - 160	1 1/2	4.94	4.63	103.7 K=0.70	12.507	1.7672	-9857.95	22101.70	0.446 ✔
T8	160 - 140	1 3/8	4.94	4.66	113.8 K=0.70	11.156	1.4849	-5877.08	16565.10	0.355 ✔
T9	140 - 120	1 1/4	4.94	4.63	124.4 K=0.70	9.641	1.2272	-3130.86	11831.60	0.265 ✔
T10	120 - 100	1 1/2	4.94	4.63	103.7 K=0.70	12.507	1.7672	-9292.70	22101.70	0.420 ✔
T11	100 - 80	1 3/8	4.94	4.60	112.4 K=0.70	11.344	1.4849	-8125.88	16844.60	0.482 ✔
T12	80 - 60	1 1/4	4.94	4.60	123.7 K=0.70	9.752	1.2272	-5722.29	11967.60	0.478 ✔
T13	60 - 40	1 1/4	4.94	4.60	123.7 K=0.70	9.752	1.2272	-4504.05	11967.60	0.376 ✔
T14	40 - 20	1 1/4	4.94	4.60	123.7 K=0.70	9.752	1.2272	-5569.57	11967.60	0.465 ✔
T15	20 - 6.5	1 1/4	4.96	4.62	124.1 K=0.70	9.684	1.2272	-8333.84	11883.50	0.701 ✔
T16	6.5 - 0	1 1/4	3.99	3.72	100.0 K=0.70	12.972	1.2272	-6870.15	15919.10	0.432 ✔

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 $\frac{P}{P_a}$
T1	287 - 280	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-1781.37	8342.71	0.214 ✔
T2	280 - 260	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-325.86	8342.71	0.039* ✔
T3	260 - 240	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-3211.27	8420.16	0.381 ✔
T4	240 - 220	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-639.14	8420.16	0.076* ✔
T5	220 - 200	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-6666.52	8497.28	0.785 ✔
T6	200 - 180	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-2841.08	8497.28	0.334 ✔

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	180 - 160	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-10063.60	8574.06	1.174 ✔
T8	160 - 140	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-1302.91	8497.28	0.153* ✔
T9	140 - 120	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-1354.98	8574.06	0.158* ✔
T10	120 - 100	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-10424.40	8574.06	1.216 ✔
T11	100 - 80	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-1616.35	8650.51	0.187* ✔
T12	80 - 60	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-1670.41	8650.51	0.193* ✔
T13	60 - 40	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-4266.56	8650.51	0.493 ✔
T14	40 - 20	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-1823.91	8650.51	0.211* ✔
T15	20 - 6.5	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-1852.71	8650.51	0.214* ✔
T16	6.5 - 0	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-1854.73	8650.51	0.214* ✔

* DL controls

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	287 - 280	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-9.82	8342.71	0.001 ✔
T2	280 - 260	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-69.85	8342.71	0.008 ✔
T3	260 - 240	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-205.32	8420.16	0.024 ✔
T4	240 - 220	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-95.05	8420.16	0.011 ✔
T5	220 - 200	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-180.02	8497.28	0.021 ✔
T7	180 - 160	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-264.43	8574.06	0.031 ✔
T10	120 - 100	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-78.69	8574.06	0.009 ✔

Bottom 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	287 - 280	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-85.29	8342.71	0.010 ✔
T2	280 - 260	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-170.24	8342.71	0.020 ✔
T3	260 - 240	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-102.02	8420.16	0.012 ✔
T4	240 - 220	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-181.35	8420.16	0.022 ✔
T5	220 - 200	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-184.69	8497.28	0.022 ✔
T6	200 - 180	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-267.70	8497.28	0.032 ✔
T7	180 - 160	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-346.30	8574.06	0.040 ✔
T8	160 - 140	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-53.71	8497.28	0.006 ✔
T10	120 - 100	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-157.81	8574.06	0.018 ✔

Torque-Arm Top Design Data

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	287 - 280 (688)	C15x40	3.67	3.58	48.5 K=1.00	21.600	11.8000	0.00	107676.00	0.000*
T1	287 - 280 (689)	C15x40	3.67	3.58	48.5 K=1.00	21.600	11.8000	0.00	107676.00	0.000*
T1	287 - 280 (692)	C15x40	3.67	3.58	48.5 K=1.00	21.600	11.8000	0.00	107676.00	0.000*
T1	287 - 280 (693)	C15x40	3.67	3.58	48.5 K=1.00	21.600	11.8000	0.00	107676.00	0.000*
T1	287 - 280 (696)	C15x40	3.67	3.58	48.5 K=1.00	21.600	11.8000	0.00	107676.00	0.000*
T1	287 - 280 (697)	C15x40	3.67	3.58	48.5 K=1.00	21.600	11.8000	0.00	107676.00	0.000*
T3	260 - 240 (676)	C15x40	3.67	3.57	48.4 K=1.00	21.600	11.8000	0.00	108177.00	0.000*
T3	260 - 240 (677)	C15x40	3.67	3.57	48.4 K=1.00	21.600	11.8000	0.00	108177.00	0.000*
T3	260 - 240 (680)	C15x40	3.67	3.57	48.4 K=1.00	21.600	11.8000	0.00	108177.00	0.000*
T3	260 - 240 (681)	C15x40	3.67	3.57	48.4 K=1.00	21.600	11.8000	0.00	108177.00	0.000*
T3	260 - 240 (684)	C15x40	3.67	3.57	48.4 K=1.00	21.600	11.8000	0.00	108177.00	0.000*
T3	260 - 240 (685)	C15x40	3.67	3.57	48.4 K=1.00	21.600	11.8000	0.00	108177.00	0.000*
T5	220 - 200 (664)	C15x40	3.67	3.56	127.3 K=1.00	9.210	11.8000	-1570.67	108682.00	0.014
T5	220 - 200 (665)	C15x40	3.67	3.56	127.3 K=1.00	9.210	11.8000	-1704.01	108682.00	0.016
T5	220 - 200 (668)	C15x40	3.67	3.56	127.3 K=1.00	9.210	11.8000	-1611.18	108682.00	0.015

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	220 - 200 (669)	C15x40	3.67	3.56	127.3 K=1.00	9.210	11.8000	-1481.03	108682.00	0.014
T5	220 - 200 (672)	C15x40	3.67	3.56	127.3 K=1.00	9.210	11.8000	-1653.44	108682.00	0.015
T5	220 - 200 (673)	C15x40	3.67	3.56	127.3 K=1.00	9.210	11.8000	-1391.99	108682.00	0.013
T7	180 - 160 (652)	C15x40	3.67	3.55	127.0 K=1.00	9.254	11.8000	-3676.71	109191.00	0.034
T7	180 - 160 (653)	C15x40	3.67	3.55	127.0 K=1.00	9.254	11.8000	-3532.13	109191.00	0.032
T7	180 - 160 (656)	C15x40	3.67	3.55	127.0 K=1.00	9.254	11.8000	-3253.44	109191.00	0.030
T7	180 - 160 (657)	C15x40	3.67	3.55	127.0 K=1.00	9.254	11.8000	-3529.38	109191.00	0.032
T7	180 - 160 (660)	C15x40	3.67	3.55	127.0 K=1.00	9.254	11.8000	-3455.43	109191.00	0.032
T7	180 - 160 (661)	C15x40	3.67	3.55	127.0 K=1.00	9.254	11.8000	-3232.56	109191.00	0.030
T10	120 - 100 (640)	C15x40	3.75	3.64	129.4 K=1.00	8.918	11.8000	-6137.52	105238.00	0.058
T10	120 - 100 (641)	C15x40	3.75	3.64	129.4 K=1.00	8.918	11.8000	-5903.65	105238.00	0.056
T10	120 - 100 (644)	C15x40	3.75	3.64	129.4 K=1.00	8.918	11.8000	-5722.95	105238.00	0.054
T10	120 - 100 (645)	C15x40	3.75	3.64	129.4 K=1.00	8.918	11.8000	-5805.89	105238.00	0.055
T10	120 - 100 (648)	C15x40	3.75	3.64	129.4 K=1.00	8.918	11.8000	-5512.80	105238.00	0.052
T10	120 - 100 (649)	C15x40	3.75	3.64	129.4 K=1.00	8.918	11.8000	-5528.79	105238.00	0.053
T13	60 - 40 (628)	C15x40	3.75	3.63	129.1 K=1.00	8.959	11.8000	-2754.05	105718.00	0.026
T13	60 - 40 (629)	C15x40	3.75	3.63	129.1 K=1.00	8.959	11.8000	-2858.05	105718.00	0.027
T13	60 - 40 (632)	C15x40	3.75	3.63	129.1 K=1.00	8.959	11.8000	-2741.02	105718.00	0.026
T13	60 - 40 (633)	C15x40	3.75	3.63	129.1 K=1.00	8.959	11.8000	-2762.12	105718.00	0.026
T13	60 - 40 (636)	C15x40	3.75	3.63	129.1 K=1.00	8.959	11.8000	-2621.12	105718.00	0.025
T13	60 - 40 (637)	C15x40	3.75	3.63	129.1 K=1.00	8.959	11.8000	-2544.59	105718.00	0.024

* DL controls

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	287 - 280 (688)	C15x40	-26020.25	-6.715	21.600	0.311	0.00	-0.000	21.600	0.000
T1	287 - 280 (689)	C15x40	-28964.17	-7.475	21.600	0.346	0.00	-0.000	21.600	0.000
T1	287 - 280 (692)	C15x40	-29245.83	-7.547	21.600	0.349	0.00	-0.000	21.600	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	287 - 280 (693)	C15x40	-28814.92	-7.436	21.600	0.344	0.00	-0.000	21.600	0.000
T1	287 - 280 (696)	C15x40	-29060.75	-7.500	21.600	0.347	0.00	-0.000	21.600	0.000
T1	287 - 280 (697)	C15x40	-26189.08	-6.758	21.600	0.313	0.00	-0.000	21.600	0.000
T3	260 - 240 (676)	C15x40	-24696.67	-6.373	21.600	0.295	0.00	-0.000	21.600	0.000
T3	260 - 240 (677)	C15x40	-27943.00	-7.211	21.600	0.334	0.00	-0.000	21.600	0.000
T3	260 - 240 (680)	C15x40	-28188.75	-7.275	21.600	0.337	0.00	-0.000	21.600	0.000
T3	260 - 240 (681)	C15x40	-27864.50	-7.191	21.600	0.333	0.00	-0.000	21.600	0.000
T3	260 - 240 (684)	C15x40	-28047.17	-7.238	21.600	0.335	0.00	-0.000	21.600	0.000
T3	260 - 240 (685)	C15x40	-24807.92	-6.402	21.600	0.296	0.00	-0.000	21.600	0.000
T5	220 - 200 (664)	C15x40	-31593.92	-8.153	21.600	0.377	0.00	-0.000	21.600	0.000
T5	220 - 200 (665)	C15x40	-35927.83	-9.272	21.600	0.429	-0.00	-0.000	21.600	0.000
T5	220 - 200 (668)	C15x40	-36348.25	-9.380	21.600	0.434	-0.00	-0.000	21.600	0.000
T5	220 - 200 (669)	C15x40	-35872.50	-9.257	21.600	0.429	-0.00	-0.000	21.600	0.000
T5	220 - 200 (672)	C15x40	-36245.00	-9.354	21.600	0.433	-0.00	-0.000	21.600	0.000
T5	220 - 200 (673)	C15x40	-31631.83	-8.163	21.600	0.378	0.00	-0.000	21.600	0.000
T7	180 - 160 (652)	C15x40	-35640.25	-9.197	21.600	0.426	-0.00	-0.000	21.600	0.000
T7	180 - 160 (653)	C15x40	-30166.58	-7.785	21.600	0.360	0.00	-0.000	21.600	0.000
T7	180 - 160 (656)	C15x40	-35786.17	-9.235	21.600	0.428	-0.00	-0.000	21.600	0.000
T7	180 - 160 (657)	C15x40	-36075.58	-9.310	21.600	0.431	-0.00	-0.000	21.600	0.000
T7	180 - 160 (660)	C15x40	-36062.08	-9.306	21.600	0.431	-0.00	-0.000	21.600	0.000
T7	180 - 160 (661)	C15x40	-30020.58	-7.747	21.600	0.359	0.00	-0.000	21.600	0.000
T10	120 - 100 (640)	C15x40	-23495.83	-6.063	21.600	0.281	-0.00	-0.000	21.600	0.000
T10	120 - 100 (641)	C15x40	-17198.00	-4.438	21.600	0.205	0.00	-0.000	21.600	0.000
T10	120 - 100 (644)	C15x40	-22811.08	-5.887	21.600	0.273	-0.00	-0.000	21.600	0.000
T10	120 - 100 (645)	C15x40	-23204.08	-5.988	21.600	0.277	-0.00	-0.000	21.600	0.000
T10	120 - 100 (648)	C15x40	-22611.33	-5.835	21.600	0.270	-0.00	-0.000	21.600	0.000
T10	120 - 100 (649)	C15x40	-16398.50	-4.232	21.600	0.196	0.00	-0.000	21.600	0.000
T13	60 - 40 (628)	C15x40	-4214.10	-1.088	21.600	0.050	0.00	-0.000	21.600	0.000
T13	60 - 40 (629)	C15x40	-7371.87	-1.902	21.600	0.088	-0.00	-0.000	21.600	0.000
T13	60 - 40 (632)	C15x40	-7393.10	-1.908	21.600	0.088	-0.00	-0.000	21.600	0.000
T13	60 - 40 (633)	C15x40	-7237.55	-1.868	21.600	0.086	0.00	-0.000	21.600	0.000
T13	60 - 40 (636)	C15x40	-7374.68	-1.903	21.600	0.088	-0.00	-0.000	21.600	0.000
T13	60 - 40 (637)	C15x40	-4132.95	-1.067	21.600	0.049	0.00	-0.000	21.600	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	287 - 280 (688)	C15x40	0.000	0.311	0.000	0.311* ✔	1.000	H1-3 ✔
T1	287 - 280 (689)	C15x40	0.000	0.346	0.000	0.346* ✔	1.000	H1-3 ✔
T1	287 - 280 (692)	C15x40	0.000	0.349	0.000	0.349* ✔	1.000	H1-3 ✔
T1	287 - 280 (693)	C15x40	0.000	0.344	0.000	0.344* ✔	1.000	H1-3 ✔
T1	287 - 280 (696)	C15x40	0.000	0.347	0.000	0.347* ✔	1.000	H1-3 ✔
T1	287 - 280 (697)	C15x40	0.000	0.313	0.000	0.313* ✔	1.000	H1-3 ✔
T3	260 - 240 (676)	C15x40	0.000	0.295	0.000	0.295* ✔	1.000	H1-3 ✔
T3	260 - 240 (677)	C15x40	0.000	0.334	0.000	0.334* ✔	1.000	H1-3 ✔
T3	260 - 240 (680)	C15x40	0.000	0.337	0.000	0.337* ✔	1.000	H1-3 ✔
T3	260 - 240 (681)	C15x40	0.000	0.333	0.000	0.333* ✔	1.000	H1-3 ✔
T3	260 - 240 (684)	C15x40	0.000	0.335	0.000	0.335* ✔	1.000	H1-3 ✔
T3	260 - 240 (685)	C15x40	0.000	0.296	0.000	0.296* ✔	1.000	H1-3 ✔
T5	220 - 200 (664)	C15x40	0.014	0.377	0.000	0.392 ✔	1.333	H1-3 ✔
T5	220 - 200 (665)	C15x40	0.016	0.429	0.000	0.445 ✔	1.333	H1-3 ✔
T5	220 - 200 (668)	C15x40	0.015	0.434	0.000	0.449 ✔	1.333	H1-3 ✔
T5	220 - 200 (669)	C15x40	0.014	0.429	0.000	0.442 ✔	1.333	H1-3 ✔
T5	220 - 200 (672)	C15x40	0.015	0.433	0.000	0.448 ✔	1.333	H1-3 ✔
T5	220 - 200 (673)	C15x40	0.013	0.378	0.000	0.391 ✔	1.333	H1-3 ✔
T7	180 - 160 (652)	C15x40	0.034	0.426	0.000	0.459 ✔	1.333	H1-3 ✔
T7	180 - 160 (653)	C15x40	0.032	0.360	0.000	0.393 ✔	1.333	H1-3 ✔
T7	180 - 160 (656)	C15x40	0.030	0.428	0.000	0.457 ✔	1.333	H1-3 ✔
T7	180 - 160 (657)	C15x40	0.032	0.431	0.000	0.463 ✔	1.333	H1-3 ✔
T7	180 - 160 (660)	C15x40	0.032	0.431	0.000	0.462 ✔	1.333	H1-3 ✔
T7	180 - 160 (661)	C15x40	0.030	0.359	0.000	0.388 ✔	1.333	H1-3 ✔
T10	120 - 100 (640)	C15x40	0.058	0.281	0.000	0.339 ✔	1.333	H1-3 ✔
T10	120 - 100 (641)	C15x40	0.056	0.205	0.000	0.262 ✔	1.333	H1-3 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T10	120 - 100 (644)	C15x40	0.054	0.273	0.000	0.327 ✔	1.333	H1-3 ✔
T10	120 - 100 (645)	C15x40	0.055	0.277	0.000	0.332 ✔	1.333	H1-3 ✔
T10	120 - 100 (648)	C15x40	0.052	0.270	0.000	0.323 ✔	1.333	H1-3 ✔
T10	120 - 100 (649)	C15x40	0.053	0.196	0.000	0.248 ✔	1.333	H1-3 ✔
T13	60 - 40 (628)	C15x40	0.026	0.050	0.000	0.076 ✔	1.333	H1-3 ✔
T13	60 - 40 (629)	C15x40	0.027	0.088	0.000	0.115 ✔	1.333	H1-3 ✔
T13	60 - 40 (632)	C15x40	0.026	0.088	0.000	0.114 ✔	1.333	H1-3 ✔
T13	60 - 40 (633)	C15x40	0.026	0.086	0.000	0.113 ✔	1.333	H1-3 ✔
T13	60 - 40 (636)	C15x40	0.025	0.088	0.000	0.113 ✔	1.333	H1-3 ✔
T13	60 - 40 (637)	C15x40	0.024	0.049	0.000	0.073 ✔	1.333	H1-3 ✔

* DL controls

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	287 - 280	2	7.00	3.42	82.0	30.000	3.1416	7832.37	94247.80	0.083
T11	100 - 80	3	20.00	3.31	52.9	30.000	7.0686	2417.91	212058.00	0.011
T12	80 - 60	3	20.00	3.31	52.9	30.000	7.0686	1232.14	212058.00	0.006

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	287 - 280	2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T11	100 - 80	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T12	80 - 60	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	287 - 280	2	0.083	0.000	0.000	0.083 ✔	1.333	H2-1 ✔
T11	100 - 80	3	0.011	0.000	0.000	0.011 ✔	1.333	H2-1 ✔
T12	80 - 60	3	0.006	0.000	0.000	0.006 ✔	1.333	H2-1 ✔

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	287 - 280	1 3/8	5.01	4.78	167.0	21.600	1.4849	1393.95	32073.70	0.043 ✔
T2	280 - 260	1 3/8	4.94	4.71	164.5	21.600	1.4849	1247.93	32073.70	0.039 ✔
T3	260 - 240	1 3/8	4.94	4.68	163.5	21.600	1.4849	2757.51	32073.70	0.086 ✔
T4	240 - 220	1 3/8	4.94	4.68	163.5	21.600	1.4849	3341.97	32073.70	0.104 ✔
T5	220 - 200	1 1/4	4.94	4.66	178.8	21.600	1.2272	5346.96	26507.20	0.202 ✔
T6	200 - 180	1 1/4	4.94	4.66	178.8	21.600	1.2272	7574.16	26507.20	0.286 ✔
T7	180 - 160	1 1/2	4.94	4.63	148.1	21.600	1.7672	8853.26	38170.40	0.232 ✔
T8	160 - 140	1 3/8	4.94	4.66	162.6	21.600	1.4849	3929.53	32073.70	0.123 ✔
T9	140 - 120	1 1/4	4.94	4.63	177.7	21.600	1.2272	2032.32	26507.20	0.077 ✔
T10	120 - 100	1 1/2	4.94	4.63	148.1	21.600	1.7672	8526.78	38170.40	0.223 ✔
T11	100 - 80	1 3/8	4.94	4.60	160.6	21.600	1.4849	7015.16	32073.70	0.219 ✔
T12	80 - 60	1 1/4	4.94	4.60	176.7	21.600	1.2272	2936.72	26507.20	0.111 ✔
T13	60 - 40	1 1/4	4.94	4.60	176.7	21.600	1.2272	4064.40	26507.20	0.153 ✔
T14	40 - 20	1 1/4	4.94	4.60	176.7	21.600	1.2272	3140.10	26507.20	0.118 ✔
T15	20 - 6.5	1 1/4	4.96	4.62	177.3	21.600	1.2272	6020.62	26507.20	0.227 ✔
T16	6.5 - 0	1 1/4	3.99	3.72	142.9	21.600	1.2272	5695.64	26507.20	0.215 ✔

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 $\frac{P}{P_a}$
T1	287 - 280	1	3.67	3.50	168.0	21.600	0.7854	2058.73	16964.60	0.121 ✔
T2	280 - 260	1	3.67	3.50	168.0	21.600	0.7854	583.65	16964.60	0.034 ✔
T3	260 - 240	1	3.67	3.48	167.0	21.600	0.7854	3381.34	16964.60	0.199 ✔
T4	240 - 220	1	3.67	3.48	167.0	21.600	0.7854	1130.10	16964.60	0.067 ✔
T5	220 - 200	1	3.67	3.46	166.0	21.600	0.7854	7111.46	16964.60	0.419 ✔
T6	200 - 180	1	3.67	3.46	166.0	21.600	0.7854	3471.65	16964.60	0.205 ✔
T7	180 - 160	1	3.67	3.44	165.0	21.600	0.7854	11047.40	16964.60	0.651 ✔
T8	160 - 140	1	3.67	3.46	166.0	21.600	0.7854	1302.91	16964.60	0.077* ✔
T9	140 - 120	1	3.67	3.44	165.0	21.600	0.7854	1354.98	16964.60	0.080* ✔
T10	120 - 100	1	3.67	3.44	165.0	21.600	0.7854	11717.70	16964.60	0.691 ✔
T11	100 - 80	1	3.67	3.42	164.0	21.600	0.7854	1616.35	16964.60	0.095* ✔
T12	80 - 60	1	3.67	3.42	164.0	21.600	0.7854	1670.41	16964.60	0.098* ✔
T13	60 - 40	1	3.67	3.42	164.0	21.600	0.7854	5635.66	16964.60	0.332 ✔
T14	40 - 20	1	3.67	3.42	164.0	21.600	0.7854	1823.91	16964.60	0.108* ✔
T15	20 - 6.5	1	3.67	3.42	164.0	21.600	0.7854	1852.71	16964.60	0.109* ✔
T16	6.5 - 0	1	3.67	3.42	164.0	21.600	0.7854	1854.73	16964.60	0.109* ✔

* DL controls

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	287 - 280	1	3.67	3.50	168.0	21.600	0.7854	7238.08	16964.60	0.427* ✔
T2	280 - 260	1	3.67	3.50	168.0	21.600	0.7854	115.17	16964.60	0.007 ✔
T3	260 - 240	1	3.67	3.48	167.0	21.600	0.7854	284.67	16964.60	0.017 ✔
T4	240 - 220	1	3.67	3.48	167.0	21.600	0.7854	287.11	16964.60	0.017

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	220 - 200	1	3.67	3.46	166.0	21.600	0.7854	401.98	16964.60	0.024
T6	200 - 180	1	3.67	3.46	166.0	21.600	0.7854	280.84	16964.60	0.017
T7	180 - 160	1	3.67	3.44	165.0	21.600	0.7854	648.87	16964.60	0.038
T8	160 - 140	1	3.67	3.46	166.0	21.600	0.7854	406.90	16964.60	0.024
T9	140 - 120	1	3.67	3.44	165.0	21.600	0.7854	300.30	16964.60	0.018*
T10	120 - 100	1	3.67	3.44	165.0	21.600	0.7854	753.00	16964.60	0.044
T11	100 - 80	1	3.67	3.42	164.0	21.600	0.7854	413.92	16964.60	0.024*
T12	80 - 60	1	3.67	3.42	164.0	21.600	0.7854	456.15	16964.60	0.027*
T13	60 - 40	1	3.67	3.42	164.0	21.600	0.7854	495.88	16964.60	0.029*
T14	40 - 20	1	3.67	3.42	164.0	21.600	0.7854	484.59	16964.60	0.029*
T15	20 - 6.5	1	3.67	3.42	164.0	21.600	0.7854	493.89	16964.60	0.029*
T16	6.5 - 0	1	3.67	3.42	164.0	21.600	0.7854	585.96	16964.60	0.035*

* DL controls

Bottom 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	287 - 280	1	3.67	3.50	168.0	21.600	0.7854	185.81	16964.60	0.011
T2	280 - 260	1	3.67	3.50	168.0	21.600	0.7854	249.43	16964.60	0.015
T3	260 - 240	1	3.67	3.48	167.0	21.600	0.7854	270.81	16964.60	0.016
T4	240 - 220	1	3.67	3.48	167.0	21.600	0.7854	368.08	16964.60	0.022
T5	220 - 200	1	3.67	3.46	166.0	21.600	0.7854	433.65	16964.60	0.026
T6	200 - 180	1	3.67	3.46	166.0	21.600	0.7854	594.38	16964.60	0.035
T7	180 - 160	1	3.67	3.44	165.0	21.600	0.7854	708.27	16964.60	0.042
T8	160 - 140	1	3.67	3.46	166.0	21.600	0.7854	427.30	16964.60	0.025
T9	140 - 120	1	3.67	3.44	165.0	21.600	0.7854	346.09	16964.60	0.020*

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 $\frac{P}{P_a}$
T10	120 - 100	1	3.67	3.44	165.0	21.600	0.7854	821.27	16964.60	0.048
T11	100 - 80	1	3.67	3.42	164.0	21.600	0.7854	647.32	16964.60	0.038
T12	80 - 60	1	3.67	3.42	164.0	21.600	0.7854	455.90	16964.60	0.027*
T13	60 - 40	1	3.67	3.42	164.0	21.600	0.7854	496.42	16964.60	0.029*
T14	40 - 20	1	3.67	3.42	164.0	21.600	0.7854	508.26	16964.60	0.030*
T15	20 - 6.5	1	3.67	3.42	164.0	21.600	0.7854	532.39	16964.60	0.031*
T16	6.5 - 0	1	3.67	3.42	164.0	21.600	0.7854	819.01	16964.60	0.048*

* DL controls

Torque-Arm Top Design Data

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	287 - 280 (688)	C15x40	3.67	3.58	48.5	21.600	11.8000	2925.24	254880.00	0.011*
T1	287 - 280 (689)	C15x40	3.67	3.58	48.5	21.600	11.8000	3022.43	254880.00	0.012*
T1	287 - 280 (692)	C15x40	3.67	3.58	48.5	21.600	11.8000	2958.19	254880.00	0.012*
T1	287 - 280 (693)	C15x40	3.67	3.58	48.5	21.600	11.8000	2970.53	254880.00	0.012*
T1	287 - 280 (696)	C15x40	3.67	3.58	48.5	21.600	11.8000	2994.96	254880.00	0.012*
T1	287 - 280 (697)	C15x40	3.67	3.58	48.5	21.600	11.8000	2960.53	254880.00	0.012*
T3	260 - 240 (676)	C15x40	3.67	3.57	48.4	21.600	11.8000	3139.73	254880.00	0.012*
T3	260 - 240 (677)	C15x40	3.67	3.57	48.4	21.600	11.8000	3157.59	254880.00	0.012*
T3	260 - 240 (680)	C15x40	3.67	3.57	48.4	21.600	11.8000	3148.82	254880.00	0.012*
T3	260 - 240 (681)	C15x40	3.67	3.57	48.4	21.600	11.8000	3147.11	254880.00	0.012*
T3	260 - 240 (684)	C15x40	3.67	3.57	48.4	21.600	11.8000	3137.97	254880.00	0.012*
T3	260 - 240 (685)	C15x40	3.67	3.57	48.4	21.600	11.8000	3161.75	254880.00	0.012*
T5	220 - 200 (664)	C15x40	3.67	3.56	48.3	21.600	11.8000	3459.54	254880.00	0.014*
T5	220 - 200 (665)	C15x40	3.67	3.56	48.3	21.600	11.8000	3434.16	254880.00	0.013*
T5	220 - 200 (668)	C15x40	3.67	3.56	48.3	21.600	11.8000	3459.65	254880.00	0.014*
T5	220 - 200 (669)	C15x40	3.67	3.56	48.3	21.600	11.8000	3445.83	254880.00	0.014*
T5	220 - 200 (672)	C15x40	3.67	3.56	48.3	21.600	11.8000	3410.73	254880.00	0.013*
T5	220 - 200 (673)	C15x40	3.67	3.56	48.3	21.600	11.8000	3483.94	254880.00	0.014*
T7	180 - 160 (652)	C15x40	3.67	3.55	48.1	21.600	11.8000	282.01	254880.00	0.001
T7	180 - 160 (653)	C15x40	3.67	3.55	48.1	21.600	11.8000	77.52	254880.00	0.000
T7	180 - 160 (656)	C15x40	3.67	3.55	48.1	21.600	11.8000	721.21	254880.00	0.003
T7	180 - 160 (657)	C15x40	3.67	3.55	48.1	21.600	11.8000	50.01	254880.00	0.000
T7	180 - 160 (660)	C15x40	3.67	3.55	48.1	21.600	11.8000	203.40	254880.00	0.001
T7	180 - 160 (661)	C15x40	3.67	3.55	48.1	21.600	11.8000	338.36	254880.00	0.001
T10	120 - 100 (640)	C15x40	3.75	3.64	49.2	21.600	11.8000	3451.02	254880.00	0.014*
T10	120 - 100 (641)	C15x40	3.75	3.64	49.2	21.600	11.8000	3432.27	254880.00	0.013*
T10	120 - 100 (644)	C15x40	3.75	3.64	49.2	21.600	11.8000	599.27	254880.00	0.002
T10	120 - 100 (645)	C15x40	3.75	3.64	49.2	21.600	11.8000	3414.31	254880.00	0.013*
T10	120 - 100 (648)	C15x40	3.75	3.64	49.2	21.600	11.8000	3467.22	254880.00	0.014*
T10	120 - 100 (649)	C15x40	3.75	3.64	49.2	21.600	11.8000	3422.60	254880.00	0.013*

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 $\frac{P}{P_a}$
T13	60 - 40 (628)	C15x40	3.75	3.63	49.1	21.600	11.8000	2141.55	254880.00	0.008*
T13	60 - 40 (629)	C15x40	3.75	3.63	49.1	21.600	11.8000	2220.34	254880.00	0.009*
T13	60 - 40 (632)	C15x40	3.75	3.63	49.1	21.600	11.8000	2204.55	254880.00	0.009*
T13	60 - 40 (633)	C15x40	3.75	3.63	49.1	21.600	11.8000	2149.09	254880.00	0.008*
T13	60 - 40 (636)	C15x40	3.75	3.63	49.1	21.600	11.8000	2162.30	254880.00	0.008*
T13	60 - 40 (637)	C15x40	3.75	3.63	49.1	21.600	11.8000	2198.64	254880.00	0.009*

* DL controls

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	287 - 280 (688)	C15x40	-26020.25	6.715	21.600	0.311	0.00	0.000	27.000	0.000
T1	287 - 280 (689)	C15x40	-28964.17	7.475	21.600	0.346	0.00	0.000	27.000	0.000
T1	287 - 280 (692)	C15x40	-29245.83	7.547	21.600	0.349	0.00	0.000	27.000	0.000
T1	287 - 280 (693)	C15x40	-28814.92	7.436	21.600	0.344	0.00	0.000	27.000	0.000
T1	287 - 280 (696)	C15x40	-29060.75	7.500	21.600	0.347	0.00	0.000	27.000	0.000
T1	287 - 280 (697)	C15x40	-26189.08	6.758	21.600	0.313	0.00	0.000	27.000	0.000
T3	260 - 240 (676)	C15x40	-24696.67	6.373	21.600	0.295	0.00	0.000	27.000	0.000
T3	260 - 240 (677)	C15x40	-27943.00	7.211	21.600	0.334	0.00	0.000	27.000	0.000
T3	260 - 240 (680)	C15x40	-28188.75	7.275	21.600	0.337	0.00	0.000	27.000	0.000
T3	260 - 240 (681)	C15x40	-27864.50	7.191	21.600	0.333	0.00	0.000	27.000	0.000
T3	260 - 240 (684)	C15x40	-28047.17	7.238	21.600	0.335	0.00	0.000	27.000	0.000
T3	260 - 240 (685)	C15x40	-24807.92	6.402	21.600	0.296	0.00	0.000	27.000	0.000
T5	220 - 200 (664)	C15x40	-22522.42	5.812	21.600	0.269	0.00	0.000	27.000	0.000
T5	220 - 200 (665)	C15x40	-26135.42	6.745	21.600	0.312	0.00	0.000	27.000	0.000
T5	220 - 200 (668)	C15x40	-26403.50	6.814	21.600	0.315	0.00	0.000	27.000	0.000
T5	220 - 200 (669)	C15x40	-26073.17	6.729	21.600	0.312	0.00	0.000	27.000	0.000
T5	220 - 200 (672)	C15x40	-26236.42	6.771	21.600	0.313	0.00	0.000	27.000	0.000
T5	220 - 200 (673)	C15x40	-22638.25	5.842	21.600	0.270	0.00	0.000	27.000	0.000
T7	180 - 160 (652)	C15x40	-33974.58	8.768	21.600	0.406	-0.00	0.000	27.000	0.000
T7	180 - 160 (653)	C15x40	-28348.92	7.316	21.600	0.339	0.00	0.000	27.000	0.000
T7	180 - 160 (656)	C15x40	-34395.00	8.876	21.600	0.411	-0.00	0.000	27.000	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T7	180 - 160 (657)	C15x40	-33995.92	8.773	21.600	0.406	-0.00	0.000	27.000	0.000
T7	180 - 160 (660)	C15x40	-34520.50	8.909	21.600	0.412	-0.00	0.000	27.000	0.000
T7	180 - 160 (661)	C15x40	-28470.25	7.347	21.600	0.340	0.00	0.000	27.000	0.000
T10	120 - 100 (640)	C15x40	-14663.00	3.784	21.600	0.175	-0.00	0.000	27.000	0.000
T10	120 - 100 (641)	C15x40	-11387.25	2.939	21.600	0.136	-0.00	0.000	27.000	0.000
T10	120 - 100 (644)	C15x40	-23841.83	6.153	21.600	0.285	0.00	0.000	27.000	0.000
T10	120 - 100 (645)	C15x40	-14949.50	3.858	21.600	0.179	-0.00	0.000	27.000	0.000
T10	120 - 100 (648)	C15x40	-14960.75	3.861	21.600	0.179	-0.00	0.000	27.000	0.000
T10	120 - 100 (649)	C15x40	-11310.58	2.919	21.600	0.135	-0.00	0.000	27.000	0.000
T13	60 - 40 (628)	C15x40	-4181.80	1.079	21.600	0.050	0.00	0.000	27.000	0.000
T13	60 - 40 (629)	C15x40	-6323.48	1.632	21.600	0.076	0.00	0.000	27.000	0.000
T13	60 - 40 (632)	C15x40	-6545.32	1.689	21.600	0.078	-0.00	0.000	27.000	0.000
T13	60 - 40 (633)	C15x40	-6362.91	1.642	21.600	0.076	-0.00	0.000	27.000	0.000
T13	60 - 40 (636)	C15x40	-6444.88	1.663	21.600	0.077	0.00	0.000	27.000	0.000
T13	60 - 40 (637)	C15x40	-4207.34	1.086	21.600	0.050	0.00	0.000	27.000	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	287 - 280 (688)	C15x40	0.011	0.311	0.000	0.322* ✔	1.000	H2-1 ✔
T1	287 - 280 (689)	C15x40	0.012	0.346	0.000	0.358* ✔	1.000	H2-1 ✔
T1	287 - 280 (692)	C15x40	0.012	0.349	0.000	0.361* ✔	1.000	H2-1 ✔
T1	287 - 280 (693)	C15x40	0.012	0.344	0.000	0.356* ✔	1.000	H2-1 ✔
T1	287 - 280 (696)	C15x40	0.012	0.347	0.000	0.359* ✔	1.000	H2-1 ✔
T1	287 - 280 (697)	C15x40	0.012	0.313	0.000	0.325* ✔	1.000	H2-1 ✔
T3	260 - 240 (676)	C15x40	0.012	0.295	0.000	0.307* ✔	1.000	H2-1 ✔
T3	260 - 240 (677)	C15x40	0.012	0.334	0.000	0.346* ✔	1.000	H2-1 ✔
T3	260 - 240 (680)	C15x40	0.012	0.337	0.000	0.349* ✔	1.000	H2-1 ✔
T3	260 - 240 (681)	C15x40	0.012	0.333	0.000	0.345* ✔	1.000	H2-1 ✔
T3	260 - 240 (684)	C15x40	0.012	0.335	0.000	0.347* ✔	1.000	H2-1 ✔
T3	260 - 240 (685)	C15x40	0.012	0.296	0.000	0.309* ✔	1.000	H2-1 ✔
T5	220 - 200 (664)	C15x40	0.014	0.269	0.000	0.283* ✔	1.000	H2-1 ✔
T5	220 - 200 (665)	C15x40	0.013	0.312	0.000	0.326* ✔	1.000	H2-1 ✔
T5	220 - 200 (668)	C15x40	0.014	0.315	0.000	0.329* ✔	1.000	H2-1 ✔
T5	220 - 200 (669)	C15x40	0.014	0.312	0.000	0.325* ✔	1.000	H2-1 ✔
T5	220 - 200 (672)	C15x40	0.013	0.313	0.000	0.327* ✔	1.000	H2-1 ✔
T5	220 - 200 (673)	C15x40	0.014	0.270	0.000	0.284* ✔	1.000	H2-1 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T7	180 - 160 (652)	C15x40	0.001	0.406	0.000	0.407 ✔	1.333	H2-1 ✔
T7	180 - 160 (653)	C15x40	0.000	0.339	0.000	0.339 ✔	1.333	H2-1 ✔
T7	180 - 160 (656)	C15x40	0.003	0.411	0.000	0.414 ✔	1.333	H2-1 ✔
T7	180 - 160 (657)	C15x40	0.000	0.406	0.000	0.406 ✔	1.333	H2-1 ✔
T7	180 - 160 (660)	C15x40	0.001	0.412	0.000	0.413 ✔	1.333	H2-1 ✔
T7	180 - 160 (661)	C15x40	0.001	0.340	0.000	0.341 ✔	1.333	H2-1 ✔
T10	120 - 100 (640)	C15x40	0.014	0.175	0.000	0.189* ✔	1.000	H2-1 ✔
T10	120 - 100 (641)	C15x40	0.013	0.136	0.000	0.150* ✔	1.000	H2-1 ✔
T10	120 - 100 (644)	C15x40	0.002	0.285	0.000	0.287 ✔	1.333	H2-1 ✔
T10	120 - 100 (645)	C15x40	0.013	0.179	0.000	0.192* ✔	1.000	H2-1 ✔
T10	120 - 100 (648)	C15x40	0.014	0.179	0.000	0.192* ✔	1.000	H2-1 ✔
T10	120 - 100 (649)	C15x40	0.013	0.135	0.000	0.149* ✔	1.000	H2-1 ✔
T13	60 - 40 (628)	C15x40	0.008	0.050	0.000	0.058* ✔	1.000	H2-1 ✔
T13	60 - 40 (629)	C15x40	0.009	0.076	0.000	0.084* ✔	1.000	H2-1 ✔
T13	60 - 40 (632)	C15x40	0.009	0.078	0.000	0.087* ✔	1.000	H2-1 ✔
T13	60 - 40 (633)	C15x40	0.008	0.076	0.000	0.084* ✔	1.000	H2-1 ✔
T13	60 - 40 (636)	C15x40	0.008	0.077	0.000	0.085* ✔	1.000	H2-1 ✔
T13	60 - 40 (637)	C15x40	0.009	0.050	0.000	0.059* ✔	1.000	H2-1 ✔

* DL controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
L1	317 - 287	Pole	P12x.5	1	-2284.43	302113.27	21.6	Pass
T1	287 - 280	Leg	2	2	-17581.60	58463.80	30.1	Pass
T2	280 - 260	Leg	2	20	-18813.80	60146.80	31.3	Pass
T3	260 - 240	Leg	2 1/4	62	-35442.60	82867.60	42.8	Pass
T4	240 - 220	Leg	2 1/4	106	-36900.50	82867.60	44.5	Pass
T5	220 - 200	Leg	2 1/2	146	-52912.00	108567.00	48.7	Pass
T6	200 - 180	Leg	2 1/2	190	-58125.20	108567.00	53.5	Pass
T7	180 - 160	Leg	2 3/4	231	-72885.80	137244.00	53.1	Pass
T8	160 - 140	Leg	2 1/2	273	-75223.40	108567.00	69.3	Pass
T9	140 - 120	Leg	2 3/4	316	-78230.00	137244.00	57.0	Pass
T10	120 - 100	Leg	2 3/4	357	-88831.90	137244.00	64.7	Pass
T11	100 - 80	Leg	3	398	-93320.20	168898.00	55.3	Pass
T12	80 - 60	Leg	3	440	-96441.30	168898.00	57.1	Pass
T13	60 - 40	Leg	3	483	-102679.00	168898.00	60.8	Pass
T14	40 - 20	Leg	3	525	-105303.00	168898.00	62.3	Pass
T15	20 - 6.5	Leg	3	566	-106966.00	168393.00	63.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T16	6.5 - 0	Leg	3	596	-107083.00	183814.00	58.3	Pass
T1	287 - 280	Diagonal	1 3/8	19	-1414.54	21221.09	6.7	Pass
T2	280 - 260	Diagonal	1 3/8	31	-1623.76	21705.64	7.5	Pass
T3	260 - 240	Diagonal	1 3/8	97	-3248.79	21893.86	14.8	Pass
T4	240 - 220	Diagonal	1 3/8	113	-3844.36	21893.86	17.6	Pass
T5	220 - 200	Diagonal	1 1/4	175	-5895.72	15589.30	37.8	Pass
T6	200 - 180	Diagonal	1 1/4	198	-8736.34	15589.30	56.0	Pass
T7	180 - 160	Diagonal	1 1/2	252	-9857.95	29461.56	33.5	Pass
T8	160 - 140	Diagonal	1 3/8	313	-5877.08	22081.28	26.6	Pass
T9	140 - 120	Diagonal	1 1/4	325	-3130.86	15771.52	19.9	Pass
T10	120 - 100	Diagonal	1 1/2	371	-9292.70	29461.56	31.5	Pass
T11	100 - 80	Diagonal	1 3/8	437	-8125.88	22453.85	36.2	Pass
T12	80 - 60	Diagonal	1 1/4	451	-5722.29	15952.81	35.9	Pass
T13	60 - 40	Diagonal	1 1/4	523	-4504.05	15952.81	28.2	Pass
T14	40 - 20	Diagonal	1 1/4	535	-5569.57	15952.81	34.9	Pass
T15	20 - 6.5	Diagonal	1 1/4	577	-8333.84	15840.70	52.6	Pass
T16	6.5 - 0	Diagonal	1 1/4	619	-6870.15	21220.16	32.4	Pass
T1	287 - 280	Horizontal	1	14	-1781.37	11120.83	16.0	Pass
T2	280 - 260	Horizontal	1	32	-325.86	8342.71	3.9	Pass
T3	260 - 240	Horizontal	1	98	-3211.27	11224.07	28.6	Pass
T4	240 - 220	Horizontal	1	118	-639.14	8420.16	7.6	Pass
T5	220 - 200	Horizontal	1	182	-6666.52	11326.87	58.9	Pass
T6	200 - 180	Horizontal	1	207	-2841.08	11326.87	25.1	Pass
T7	180 - 160	Horizontal	1	250	-10063.60	11429.22	88.1	Pass
T8	160 - 140	Horizontal	1	290	-1302.91	8497.28	15.3	Pass
T9	140 - 120	Horizontal	1	327	-1354.98	8574.06	15.8	Pass
T10	120 - 100	Horizontal	1	376	-10424.40	11429.22	91.2	Pass
T11	100 - 80	Horizontal	1	410	-1616.35	8650.51	18.7	Pass
T12	80 - 60	Horizontal	1	452	-1670.41	8650.51	19.3	Pass
T13	60 - 40	Horizontal	1	518	-4266.56	11531.13	37.0	Pass
T14	40 - 20	Horizontal	1	536	-1823.91	8650.51	21.1	Pass
T15	20 - 6.5	Horizontal	1	584	-1852.71	8650.51	21.4	Pass
T16	6.5 - 0	Horizontal	1	610	-1854.73	8650.51	21.4	Pass
T1	287 - 280	Top Girt	1	7	7238.08	16964.60	42.7	Pass
T2	280 - 260	Top Girt	1	25	-69.85	11120.83	0.6	Pass
T3	260 - 240	Top Girt	1	65	-205.32	11224.07	1.8	Pass
T4	240 - 220	Top Girt	1	109	287.11	22613.81	1.3	Pass
T5	220 - 200	Top Girt	1	151	401.98	22613.81	1.8	Pass
T6	200 - 180	Top Girt	1	193	280.84	22613.81	1.2	Pass
T7	180 - 160	Top Girt	1	234	648.87	22613.81	2.9	Pass
T8	160 - 140	Top Girt	1	277	406.90	22613.81	1.8	Pass
T9	140 - 120	Top Girt	1	317	300.30	16964.60	1.8	Pass
T10	120 - 100	Top Girt	1	359	753.00	22613.81	3.3	Pass
T11	100 - 80	Top Girt	1	401	413.92	16964.60	2.4	Pass
T12	80 - 60	Top Girt	1	443	456.15	16964.60	2.7	Pass
T13	60 - 40	Top Girt	1	487	495.88	16964.60	2.9	Pass
T14	40 - 20	Top Girt	1	527	484.59	16964.60	2.9	Pass
T15	20 - 6.5	Top Girt	1	569	493.89	16964.60	2.9	Pass
T16	6.5 - 0	Top Girt	1	599	585.96	16964.60	3.5	Pass
T1	287 - 280	Bottom Girt	1	9	185.81	22613.81	0.8	Pass
T2	280 - 260	Bottom Girt	1	26	-170.24	11120.83	1.5	Pass
T3	260 - 240	Bottom Girt	1	70	270.81	22613.81	1.2	Pass
T4	240 - 220	Bottom Girt	1	110	368.08	22613.81	1.6	Pass
T5	220 - 200	Bottom Girt	1	152	433.65	22613.81	1.9	Pass
T6	200 - 180	Bottom Girt	1	195	594.38	22613.81	2.6	Pass
T7	180 - 160	Bottom Girt	1	238	708.27	22613.81	3.1	Pass
T8	160 - 140	Bottom Girt	1	280	427.30	22613.81	1.9	Pass
T9	140 - 120	Bottom Girt	1	321	346.09	16964.60	2.0	Pass
T10	120 - 100	Bottom Girt	1	364	821.27	22613.81	3.6	Pass
T11	100 - 80	Bottom Girt	1	404	647.32	22613.81	2.9	Pass
T12	80 - 60	Bottom Girt	1	448	455.90	16964.60	2.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
T13	60 - 40	Bottom Girt	1	490	496.42	16964.60	2.9	Pass
T14	40 - 20	Bottom Girt	1	532	508.26	16964.60	3.0	Pass
T15	20 - 6.5	Bottom Girt	1	574	532.39	16964.60	3.1	Pass
T16	6.5 - 0	Bottom Girt	1	604	819.01	16964.60	4.8	Pass
T1	287 - 280	Guy A@283.5	3/4	695	10636.10	29150.00	36.5	Pass
T3	260 - 240	Guy A@256.611	3/4	683	11267.90	29150.00	38.7	Pass
T5	220 - 200	Guy A@216.611	3/4	671	13077.10	29150.00	44.9	Pass
T7	180 - 160	Guy A@166.694	3/4	659	14906.10	29150.00	51.1	Pass
T10	120 - 100	Guy A@106.694	5/8	647	12512.30	21200.00	59.0	Pass
T13	60 - 40	Guy A@56.6111	7/16	635	5803.31	10400.00	55.8	Pass
T1	287 - 280	Guy B@283.5	3/4	690	11416.40	29150.00	39.2	Pass
T3	260 - 240	Guy B@256.611	3/4	678	11946.20	29150.00	41.0	Pass
T5	220 - 200	Guy B@216.611	3/4	666	13707.60	29150.00	47.0	Pass
T7	180 - 160	Guy B@166.694	3/4	654	15557.50	29150.00	53.4	Pass
T10	120 - 100	Guy B@106.694	5/8	642	12918.60	21200.00	60.9	Pass
T13	60 - 40	Guy B@56.6111	7/16	630	5955.98	10400.00	57.3	Pass
T1	287 - 280	Guy C@283.5	3/4	686	11306.40	29150.00	38.8	Pass
T3	260 - 240	Guy C@256.611	3/4	674	11770.00	29150.00	40.4	Pass
T5	220 - 200	Guy C@216.611	3/4	662	13666.60	29150.00	46.9	Pass
T7	180 - 160	Guy C@166.694	3/4	650	15509.70	29150.00	53.2	Pass
T10	120 - 100	Guy C@106.694	5/8	638	12958.30	21200.00	61.1	Pass
T13	60 - 40	Guy C@56.6111	7/16	626	5883.61	10400.00	56.6	Pass
T1	287 - 280	Torque Arm Top@283.5	C15x40	692	2958.19	254880.00	36.1	Pass
T3	260 - 240	Torque Arm Top@256.611	C15x40	680	3148.82	254880.00	34.9	Pass
T5	220 - 200	Torque Arm Top@216.611	C15x40	668	3459.65	254880.00	33.7	Pass
T7	180 - 160	Torque Arm Top@166.694	C15x40	657	-3529.38	145551.60	34.8	Pass
T10	120 - 100	Torque Arm Top@106.694	C15x40	640	-6137.52	140282.25	25.4	Pass
T13	60 - 40	Torque Arm Top@56.6111	C15x40	632	-2741.02	140922.09	8.7	Pass
						Summary		
						Pole (L1)	21.6	Pass
						Leg (T8)	69.3	Pass
						Diagonal (T6)	56.0	Pass
						Horizontal (T10)	91.2	Pass
						Top Girt (T1)	42.7	Pass
						Bottom Girt (T16)	4.8	Pass
						Guy A (T10)	59.0	Pass
						Guy B (T10)	60.9	Pass
						Guy C (T10)	61.1	Pass
						Torque Arm Top (T1)	36.1	Pass
						Bolt Checks	3.8	Pass
						RATING =	**91.2**	**Pass**

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT1077

Uconn
60 North Eagleville Road
Mansfield, CT 06269

December 1, 2014

EBI Project Number: 62146228

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	97.59 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

December 1, 2014

AT&T Mobility – New England
Attn: Cameron Syme
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 01701

Emissions Analysis for Site: **CT1077 – Uconn**

EBI Consulting was directed to analyze the proposed AT&T facility located at **60 North Eagleville Road, Mansfield, 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 public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 MHz and 800 MHz Bands are 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the PCS, AWS & 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 done for the proposed AT&T Wireless antenna facility located at **60 North Eagleville Road, Mansfield, 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.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 60 Watts.

7) 2 LTE channel (850 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 60 Watts

8) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

9) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antennas used in this modeling are the **Powerwave 7770** for 850 MHz and 1900 MHz (PCS) channels and the **CCI OPA-65R-LCUU-H8 / H6** for 700 MHz, 850 MHz, 1900 MHz and 2300 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Powerwave 7770** has a maximum gain of **11.4 dBd for 850 MHz and 15.5 dBd for 1900 MHz** at its main lobe. The **CCI OPA-65R-LCUU-H8 / H6** has a maximum gain of **13.2 / 12 dBd for 700 MHz, 14.1 / 12.7 dBd for 850 MHz, 15 / 14.8 dBd for 1900 MHz and 15.6 / 15.3 dBd for 2300 MHz** at its main lobe. 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.

11) The antenna mounting height centerlines of the proposed antennas are **186 feet** above ground level (AGL).

12) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	13.4 / 11.4 dBd	Gain:	13.4 / 11.4 dBd	Gain:	13.4 / 11.4 dBd
Height (AGL):	186 feet	Height (AGL):	186 feet	Height (AGL):	186 feet
Frequency Bands	1900 MHz(PCS) / 850 MHz	Frequency Bands	1900 MHz(PCS) / 850 MHz	Frequency Bands	1900 MHz(PCS) / 850 MHz
Channel Count	8	Channel Count	8	# PCS Channels:	8
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	2791.80	ERP (W):	2791.80	ERP (W):	2791.80
Antenna A1 MPE%	0.62	Antenna B1 MPE%	0.62	Antenna C1 MPE%	0.62
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI OPA-65R-LCUU-H8	Make / Model:	CCI OPA-65R-LCUU-H8	Make / Model:	CCI OPA-65R-LCUU-H8
Gain:	12 / 15.3 dBd	Gain:	12 / 15.3 dBd	Gain:	12 / 15.3 dBd
Height (AGL):	186 feet	Height (AGL):	186 feet	Height (AGL):	186 feet
Frequency Bands	700 MHz / 2300 MHz (WCS)	Frequency Bands	700 MHz / 2300 MHz (WCS)	Frequency Bands	700 MHz / 2300 MHz (WCS)
Channel Count	3	Channel Count	3	Channel Count	3
Total TX Power:	180	Total TX Power:	180	Total TX Power:	180
ERP (W):	2523.71	ERP (W):	2523.71	ERP (W):	2523.71
Antenna A2 MPE%	0.68	Antenna B2 MPE%	0.68	Antenna C2 MPE%	0.68
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6
Gain:	12.7 / 14.8 dBd	Gain:	12.7 / 14.8 dBd	Gain:	12.7 / 14.8 dBd
Height (AGL):	186 feet	Height (AGL):	186 feet	Height (AGL):	186 feet
Frequency Bands	850 MHz MHz / 1900 (PCS)	Frequency Bands	850 MHz MHz / 1900 (PCS)	Frequency Bands	850 MHz MHz / 1900 (PCS)
Channel Count	3	Channel Count	3	Channel Count	3
Total TX Power:	180	Total TX Power:	180	Total TX Power:	180
ERP (W):	2359.34	ERP (W):	2359.34	ERP (W):	2359.34
Antenna A3 MPE%	0.64	Antenna B3 MPE%	0.64	Antenna C3 MPE%	0.64
Antenna #:	**4**	Antenna #:	**4**	Antenna #:	**4**
Make / Model:	CCI OPA-65R-LCUU-H8	Make / Model:	CCI OPA-65R-LCUU-H8	Make / Model:	CCI OPA-65R-LCUU-H8
Gain:	12 / 14.8 dBd	Gain:	12 / 14.8 dBd	Gain:	12 / 14.8 dBd
Height (AGL):	186 feet	Height (AGL):	186 feet	Height (AGL):	186 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power:	120	Total TX Power:	60	Total TX Power:	60
ERP (W):	1564.15	ERP (W):	1564.15	ERP (W):	1564.15
Antenna A4 MPE%	0.43	Antenna B4 MPE%	0.43	Antenna C4 MPE%	0.43

Site Composite MPE%	
Carrier	**MPE%**
AT&T	**7.07 %**
UConn Police	1.14%
Existing	14.12%
Nextel	0.99%
MetroPCS	1.29%
Verizon Wireless	72.98%
Site Total MPE %:	**97.59 %**

AT&T Sector 1 Total:	2.36 %
AT&T Sector 2 Total:	2.36 %
AT&T Sector 3 Total:	2.36 %
Site Total:	**97.59 %**

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector 1:	2.36 %
Sector 2:	2.36 %
Sector 3 :	2.36 %
AT&T Total:	7.07 %
Site Total:	97.59 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **97.59%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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