NORTHEAST
SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
4 Angela's Way
Burlington, CT 06013
860-209-4690
denise@northeastsitesolutions.com

June 5, 2019

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

RE: Notice of Exempt Modification
82 North Eagle Road, Mansfield CT 06268
Latitude: 41.814537
Longitude: -72.259742
T-Mobile Site#: CT11303B_Anchor

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 232-foot level of the existing 245-foot lattice at 82 North Eagle Road, Mansfield CT 06268. The tower is owned by University of Connecticut. The property is owned by University of Connecticut. T-Mobile now intends to replace three (3) of its existing antennas with three (3) new 600/700/1900 MHz antenna and three (3) new 2500 MHz antenna. T-Mobile also plans to add three (3) new 1900/2100 MHZ antenna. The new antennas would be installed at the 232-foot level of the tower.
Tower Planned Modifications:
Remove:
(3) Twin TMA
(6) 1-5/8" Coax

Remove and Replace:
(3)AIR21 Antenna (REMOVE) - (3) AIR6488 Antenna 2500 MHz (REPLACE)
(3) LNX-6515 Antenna (REMOVE) - (3) APXVAAR24 Antenna 600/700/1900 MHZ (REPLACE)
(3)RRUS-11 B12 (REMOVE) - (3) RRUS 4449 (REPLACE)

Install New:
(4) 1-1/4" Hybrid Cable
(3) RRUS 4415
(3) AIR3246 B66 Antenna 1900/2100 MHz

Existing to Remain:
(3) AIR32 B66AA/B2A Antenna 2100 MHz
(6) 1-5/8" Coax
(2) Hybrid Cable

Ground:
Install New:
(1) 6160 Site Support Cabinet
(1) B160 Battery Cabinet

This facility was approved by the Connecticut Siting Council. Docket No.179 – 1. The height of the proposed tower shall not exceed a height of 327 feet above ground level (AGL). Please see attached.

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

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

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

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

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

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

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

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

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

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

Attachments
cc:
Town of Mansfield
4 South Eagleville Road, Storrs Mansfield, CT 06268
Attn: Town Council Office
Mayor Paul Shapiro

Town of Mansfield
4 South Eagleville Road, Storrs Mansfield, CT 06268
Attn: Town Planning Office
Linda Painter – Director of planning and zoning

University of Connecticut - as tower owner & as property owner

University of Connecticut
Office of University Planning
Real Estate & Risk Management
31 LeDoyt Road, Unit 3094
Storrs, Connecticut 06269-3094
Attn: Robert J. Sitkowski, Real Estate Officer

Exhibit A

Filing Guides
Meetings & Minutes
Public Participation
Audio Link (from PURA website)
Programs & Services
Telecommunications Database
Publications
Other Resources
Statutes & Regulations
Electric Transmission Upgrade Projects
Frequently Asked Questions

Robert Stein,
Chairman

Melanie Bachman,
Acting Executive Director

NOTICE TO USERS

The Connecticut Siting Council posts filed documents to this site as a public service.The Council disclaims any liability for the content of submissions made by parties, intervenors, public officials, and the general public. Further, while the Council seeks to be complete in its postings, the Council urges users of this site to confirm with the submitter the completeness of the postings made. The posting of any

DOCKET NO. 179 - An application of WHUS Radio for a Certificate of Environmental Compatibility and Public Need for the construction, operation, and maintenance of a telecommunications facility at the University of Connecticut Campus approximately 2,700 feet northwest of the intersection of North Eagleville Road and Storrs Road (Route 195), Storrs, Connecticut.

Connecticut Siting Council

November 19, 1997

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction of a telecommunications tower and associated equipment at the proposed site in Storrs, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to WHUS Radio for the construction of a telecommunications tower, associated equipment, and an equipment building at the proposed site, located at the University of Connecticut, north of North Eagleville Road, Storrs, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The height of the proposed tower shall not exceed a height of 327 feet above ground level (AGL).

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of construction and shall include specifications for the placement of all antennas to be attached to this tower; confirmation by a Professional Engineer that the tower design is adequate to hold all proposed antennas and meets all current applicable structural standards; plans for the new equipment building; and plans for water drainage and erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

3. The Certificate Holder shall remove the existing 212-foot WHUS tower within 60 days of the completion of the new tower.

4. No construction activities shall be undertaken on the proposed site from March 1 to June 30, so that the two existing populations of species of special concern are not affected.

5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies used at this facility, the facility granted herein shall be brought into compliance with such standards.

6. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

7. The Certificate Holder shall permit public and/or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

8. If the facility does not provide, or permanently ceases to provide the proposed telecommunications services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply to the Council for any proposed new use. If any associated equipment permanently ceases to provide the proposed telecommunications services, such equipment shall be removed within 60 days after such equipment ceases to provide the proposed telecommunications services.

9. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The

Hartford Courant and The Willimantic Chronicle.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

APPLICANT
WHUS Radio,
The University of Connecticut

ITS REPRESENTATIVE
Paul ShapiroAssistant Attorney General
University of ConnecticutBox U-177, 605 Gilbert Road
Storrs, CT 06269-1177(860) 486-4241

John Murphy
General Manager
WHUS Radio
The University of Connecticut
Box U-8R, 2110 Hillside Road
Storrs, CT 06269-3008(860) 486-2955

INTERVENOR
Bell Atlantic NYNEX Mobile

ITS REPRESENTATIVE
Jennifer Young Gaudet
Regulatory Manager
Bell Atlantic NYNEX Mobile
20 Alexander Drive, P.O. Box 5029
Wallingford, CT 06492(203) 949-2805

Content Last Modified on 8/9/2002 1:15:53 PM

Exhibit B


Discovery Drive
North Hillside Road
Glenbrook Road
Moulton

Town of Mansfield, Connecticut
Property Record Card Card 1 of 1

82 NO EAGLEVILLE RD

ID: **9.23.UC159** Account #: **9 23 UC159**

Owner: UNIVERSITY OF CONNECTICUT
Co-Owner: NORTH CAMPUS RESIDENCES
Address: U BOX 3038 FACILITIES MGMT
STORRS CT 06269

Assessment: Total: 6059200, Assessed Value:
Building: 5867300 Land: 191900 Yard: 0

Sales History

Grantor	Book / Page	Sale Date	Sale Price
UNIVERSITY OF CONNECTICUT	51/ 518	1919-09-27	

MainStreetGIS, LLC
www.mainstreetgis.com

Land Information
Land Area: 1 AC Zoning: (See Official Zoning Map)
Land Use: 902 - State Com
Neighborhood: C200

Building Information
Style:
Year Built: 1950
Stories:
Rooms: Bedrooms:
Baths: Half Baths:
Living Area:
Finished Basement:

Heat Fuel:
Heat Type:
AC Type:
Roof Structure:
Roof Covering:
Exterior Wall 1:
Exterior Wall 2:
Interior Floor 1:
Interior Floor 2:

Extra Features

Description	Area / Units	Assessment
Covered Loading Platform	240	2900

Sub Areas

Description	Living Area	Gross Area
FUS - Finished Upper Story	49389	49389
BAS - First Floor	25463	25463
BSM - Basement	0	24439
SLB - Slab	0	1024
OLP - Loading Platform	0	240

Printed from: http://www.mainstreetmaps.com/ct/mansfield/

Exhibit C

WIRELESS SITE UPGRADES BY

T-Mobile

T-MOBILE NORTHEAST LLC

PROJECT: ANCHOR
SITE NUMBER: CT11303B
SITE NAME: UCONN
SITE ADDRESS: 82 NORTH EAGLEVILLE ROAD
STORRS, CT 06268
(RF CONFIGURATION: 67D5994DB_2XAIR+1QP+1OP)

PROJECT SCOPE:

UPGRADE OF EXISTING WIRELESS FACILITY AS FOLLOWS:
UPGADE EXISTING RBS 6102 CABINET INTERNALLY.
REPLACE (6) OF (9) AND ADD (6) NEW ANTENNAS FOR A TOTAL OF (12).
REMOVE (3) REMOTE RADIO UNITS AND ADD (6) AT ANTENNAS.
REMOVE (6) OF (12) EXISTING 1-5/8" COAX AND ADD (4) HYBRID CABLES FOR FINAL COUNT OF (6) HYBRID AND (6) COAX CABLES.
ADD (1) 6160 AND (1) B160 CABINETS ON EXISTING CONCRETE PAD.

PROJECT NOTES:

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
   HANDICAPPED ACCESS IS NOT REQUIRED.
   POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   NO OUTDOOR STORAGE OR ANY
   SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES, ORDINANCES AND SPECIFICATIONS.
4. REFER TO STRUCTURAL ANALYSIS REPORT AND MOUNT ANALYSIS BY DESTEK ENGINEERING DATED JUNE 4, 2019.

APPLICABLE STATE ADOPTED CODES:

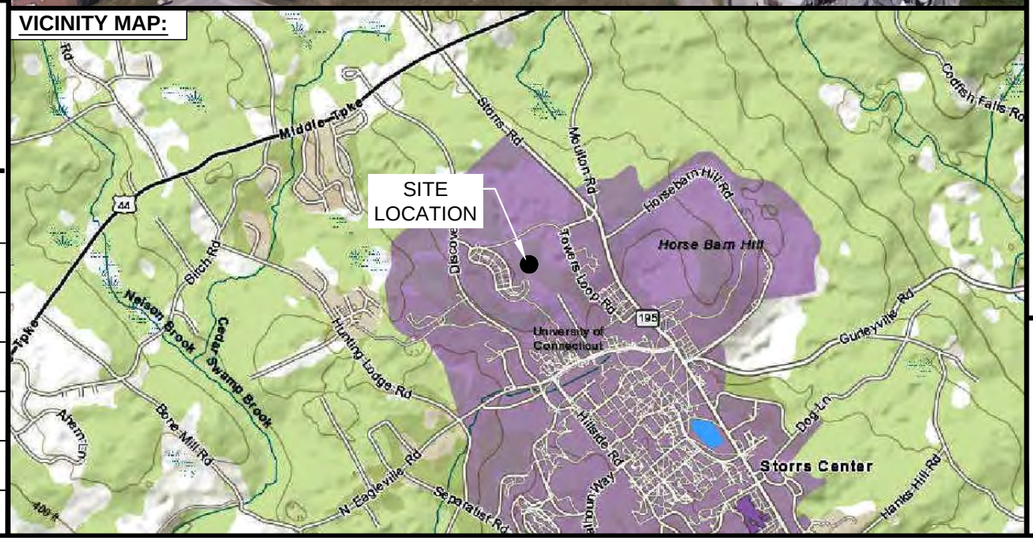
LATEST EDITION OF:
CONNECTICUT STATE BUILDING CODE (CSBC).
ANSI/TIA-222-G STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
NATIONAL ELECTRICAL CODE (NEC) FOR POWER AND GROUNDING REQUIREMENTS.
OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION.

APPROVALS:

FSA CM	DATE
RF ENGINEER	DATE
FOPS	DATE
T-MOBILE ENGINEERING AND DEVELOPMENT	DATE
	DATE
	DATE

SITE IMAGE:

VICINITY MAP:



PROJECT INFORMATION:

ADDRESS:	82 NORTH EAGLEVILLE ROAD STORRS, CT 06268
STRUCTURE TYPE:	LATTICE TOWER
COORDINATES:	N 41.814537 / W -72.259742
TOWER HEIGHT:	245'-0" AGL
TOP OF T-MOBILE ANTENNAS ELEV:	236'-0" AGL

PROJECT TEAM:

APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860-692-7100
LANDLORD:	UNIVERSITY OF CONNECTICUT OFFICE OF UNIVERSITY PLANNING REAL ESTATE & RISK MANAGEMENT 31 LEDOYT ROAD, UNIT 3094 STORRS, CONNECTICUT 06269-3094 ATTN: ROBERT J. SITKOWSKI, REAL ESTATE OFFICER ROBERT.SITKOWSKI@UCONN.EDU DESK: 860-486-3396 CELL: 860-803-7913
PROJECT MANAGER:	NORTHEAST SITE SOLUTIONS 420 MAIN STREET, BLDG 4 STURBRIDGE, MA 01566 SHELDON FREINCLE SHELDON@NORTHEASTSITESOLUTIONS.COM 201-776-8521
CONSULTANTS:	FORESITE LLC 462 WALNUT ST NEWTON, MA 02460 SAEED MOSSAVAT SMOSSAVAT@FORESITELLC.COM 617-212-3123

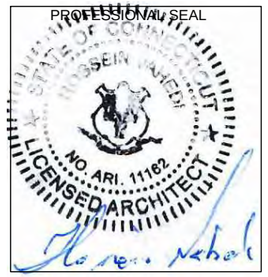
SHEET INDEX:

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

PROJECT MANAGER
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL



REV	DESCRIPTION	DATE
A	PRELIMINARY	04/23/19
B	REVISED PER NHP18 PROJECT	05/02/19
0	SIGNED AND SEALED	05/06/19
1	UPDATED STRUCTURAL REF.	06/04/19

SITE NUMBER: CT11303B
SITE NAME: UCONN
SITE ADDRESS: 82 NORTH EAGLEVILLE ROAD
STORRS, CT 06268

SHEET TITLE:
T-1: TITLE SHEET

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

11. BOLTING:

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

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

C. ALL CONNECTIONS SHALL BE 2 BOLTS MINIMUM.

12. FABRICATION:

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

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

13. ERECTION OF STEEL:

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

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

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

14. ANTENNA INSTALLATION:

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

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

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

15. ANTENNA AND COAXIAL / FIBER CABLE GROUNDING:

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

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

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

A. FLASHING OF OPENING INTO OUTSIDE WALLS

B. SEALING AND CAULKING ALL OPENINGS

C. PAINTING

D. CUTTING AND PATCHING

17. REQUIREMENTS OF REGULATORY AGENCIES:

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

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

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

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

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

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

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

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

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

J. 2009 LIFE SAFETY CODE NFPA – 101.

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

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PROFESSIONAL SEAL

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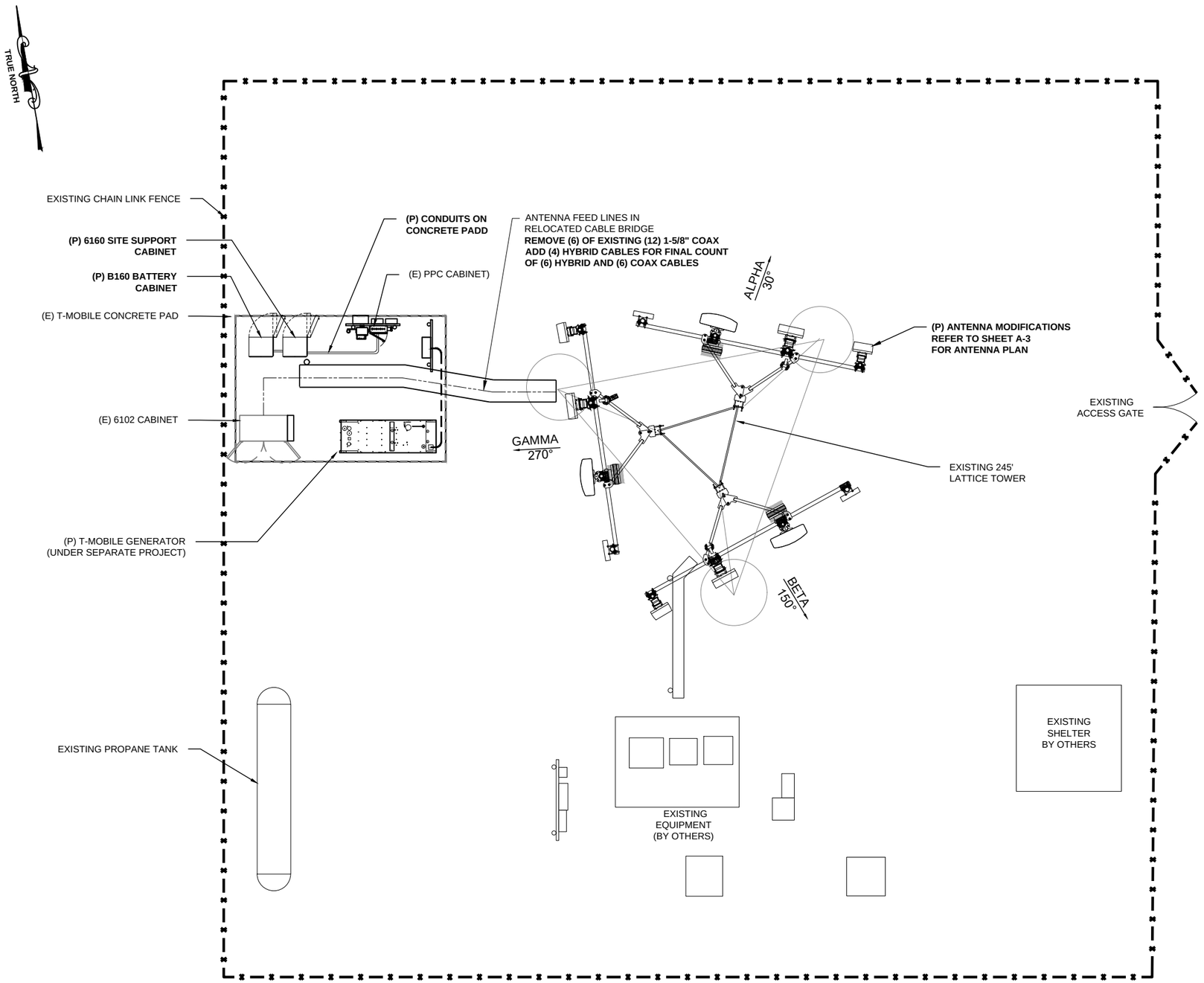
SITE NUMBER: CT11303B
SITE NAME: UCONN
SITE ADDRESS: 82 NORTH EAGLEVILLE ROAD
STORRS, CT 06268

SHEET TITLE:
N-1: GENERAL NOTES



SITE PLAN (1 / A-1)
SCALE: 1/8" = 1'-0"

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

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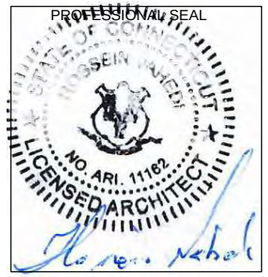

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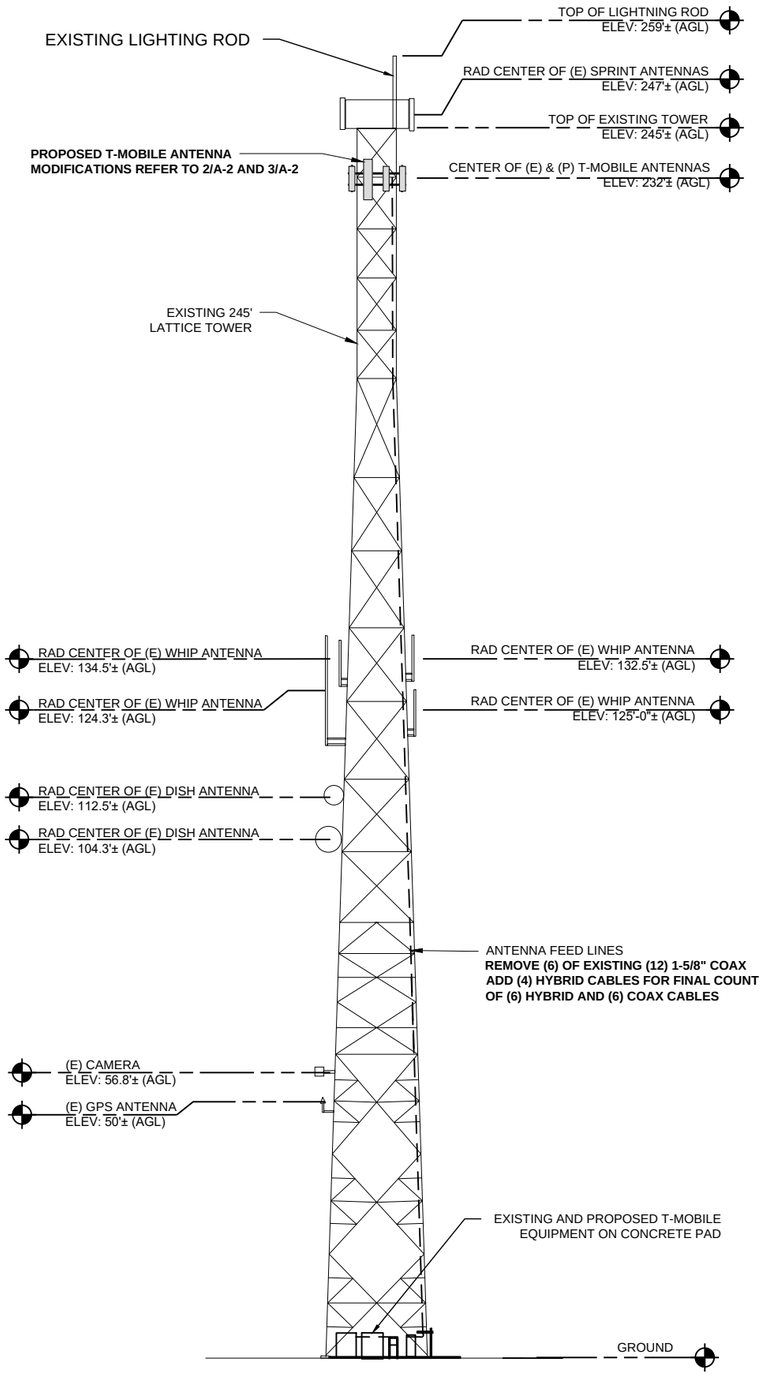
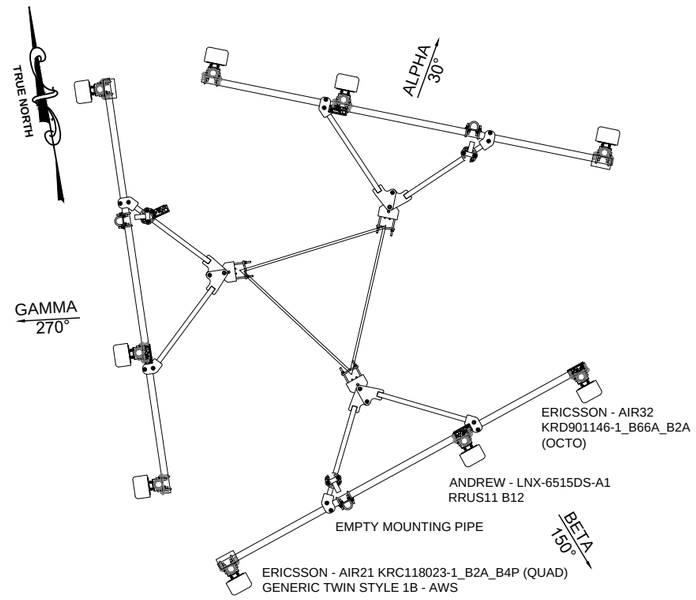
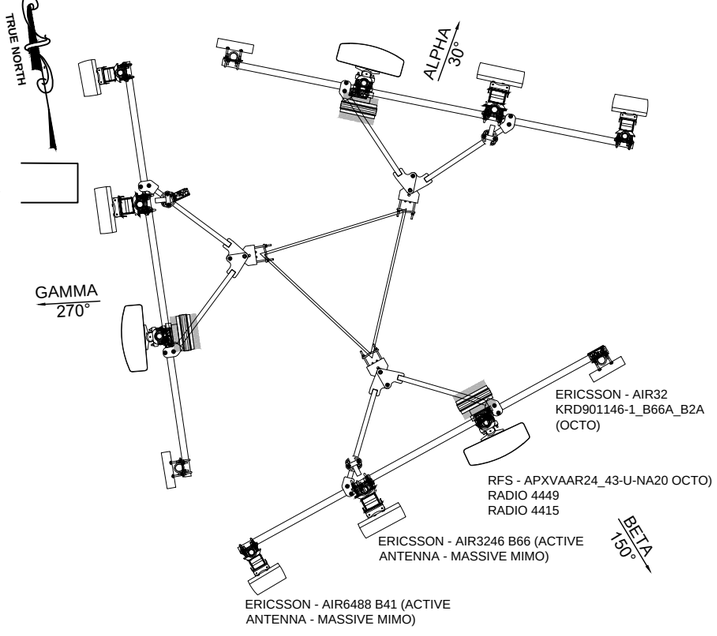
SHEET TITLE:
A-1: PLAN



ELEVATION
N.T.S. 1 A-2



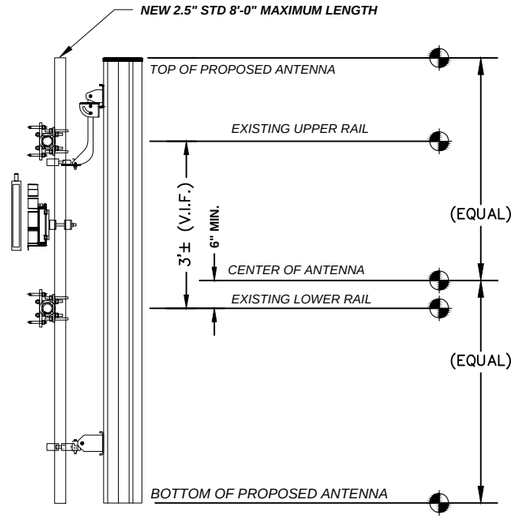
EXISTING ANTENNA PLAN
N.T.S. 2 A-2



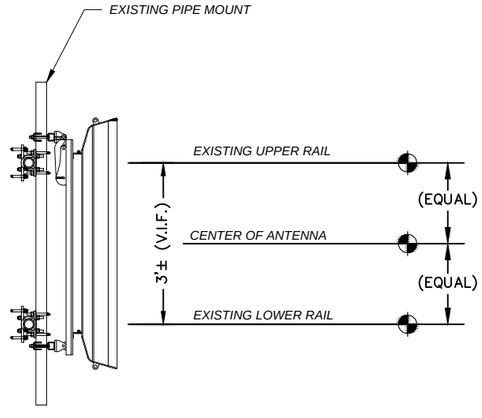
FINAL ANTENNA PLAN
N.T.S. 3 A-2

STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY OTHERS TO DETERMINE IF THERE ARE ANY SUPPLEMENTAL OR SPECIAL REQUIREMENTS FOR TOWER TOP EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING OR RELOCATION ARRANGEMENTS.

REFER TO STRUCTURAL ANALYSIS REPORT AND MOUNT ANALYSIS BY DESTEK ENGINEERING DATED JUNE 4, 2019.



APXVAAR24_43-U-NA20 ANTENNA MOUNTING
N.T.S. 4 A-2



AIR32 KRD901146-1_B66A_B2A ANTENNA MOUNTING
N.T.S. 5 A-2

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

PROJECT MANAGER
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL

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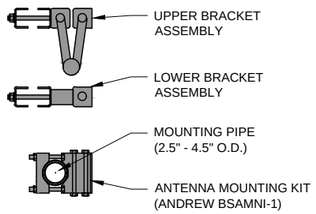
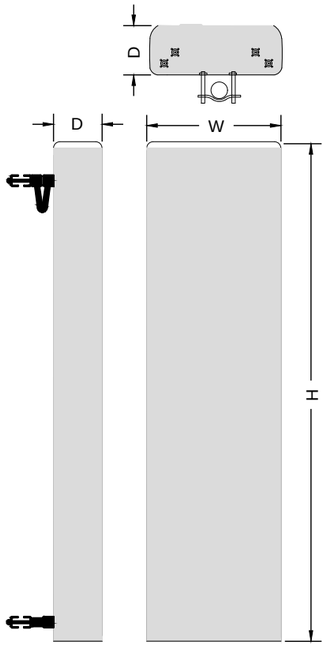
1	UPDATED STRUCTURAL REF.	06/04/19

SITE NUMBER: CT11303B
SITE NAME: UCONN
SITE ADDRESS: 82 NORTH EAGLEVILLE ROAD
STORRS, CT 06268

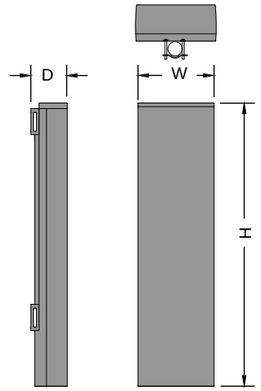
SHEET TITLE:
A-2: ELEVATION





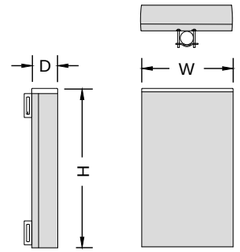
RFS ANTENNA SPECIFICATIONS	
MODEL #	APXVAARR24_43-U-NA20
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.7"
WEIGHT	128 LB

RFS APX ANTENNA 1 A-3
N.T.S.



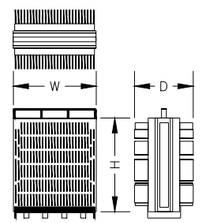
ERICSSON ANTENNA SPECIFICATIONS	
MODEL #	AIR3246 B66
MANUF.	ERICSSON
HEIGHT	58.1"
WIDTH	15.7"
DEPTH	9.4"
WEIGHT	180 LB

AIR3246 ANTENNA 2 A-3
N.T.S.



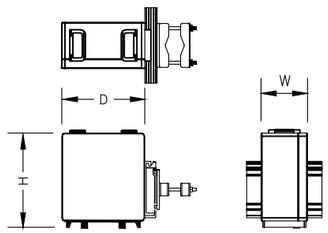
ERICSON ANTENNA SPECIFICATIONS	
MODEL #	AIR6488 B41
MANUF.	ERICSSON
HEIGHT	34.8"
WIDTH	20.5"
DEPTH	7.2"
WEIGHT	128 LB

AIR6488 ANTENNA 3 A-3
N.T.S.



REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4449 B71+B12
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	10.4"
WEIGHT	74 LB

REMOTE RADIO UNIT 4 A-3
N.T.S.



REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4415 B25
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	5.4"
WEIGHT	46.3 LB

REMOTE RADIO UNIT 5 A-3
N.T.S.

SITE SUPPORT CABINET SPECIFICATIONS	
MODEL #	6160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	25.6"
DEPTH	25.6"
WEIGHT	

SITE SUPPORT CABINET 6 A-3
N.T.S.

BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	

BATTERY CABINET 7 A-3
N.T.S.

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

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Turnkey Wireless Development
420 MAIN STREET, BLDG 4
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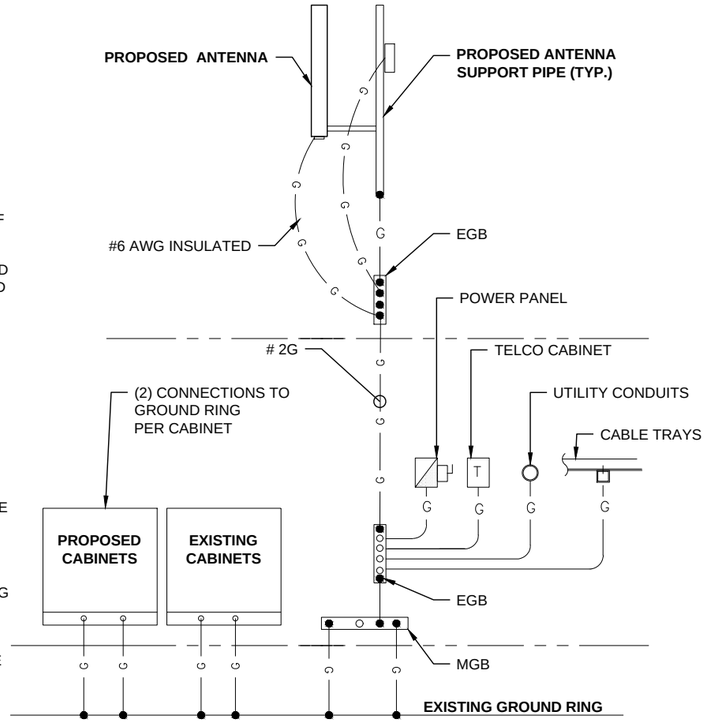
SITE NUMBER: CT11303B
SITE NAME: UCONN
SITE ADDRESS: 82 NORTH EAGLEVILLE ROAD
STORRS, CT 06268

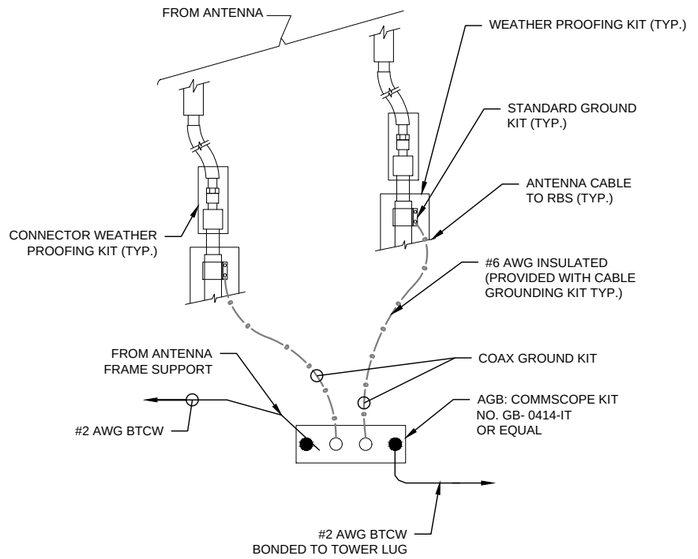
SHEET TITLE:
A-3: ANTENNA DETAILS

ELECTRICAL & GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PRODUCED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) ND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLING BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE ARE PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELECOM CABINET AND RBS CABINET AS INDICATED ON DRAWING A -1. PROVIDE FULL LENGTH PULL ROPE INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NAME 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250.
12. GROUNDING COAX CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURES COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSTALLATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE GROUND.
14. ALL GROUND CONNECTION TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
15. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AS RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY BOND ANY METER OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PROCEDURES (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN RBS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTION.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20 BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.



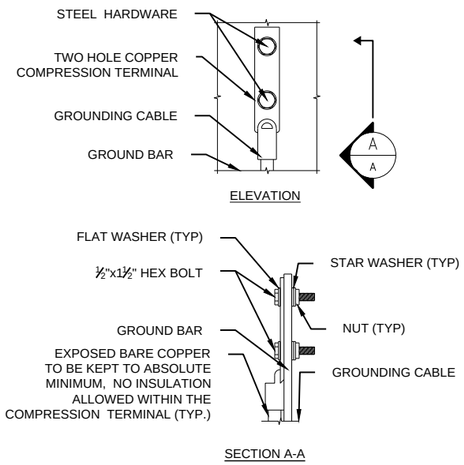
GROUNDING RISER DIAGRAM
N.T.S.
1 E-1



NOTES:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB

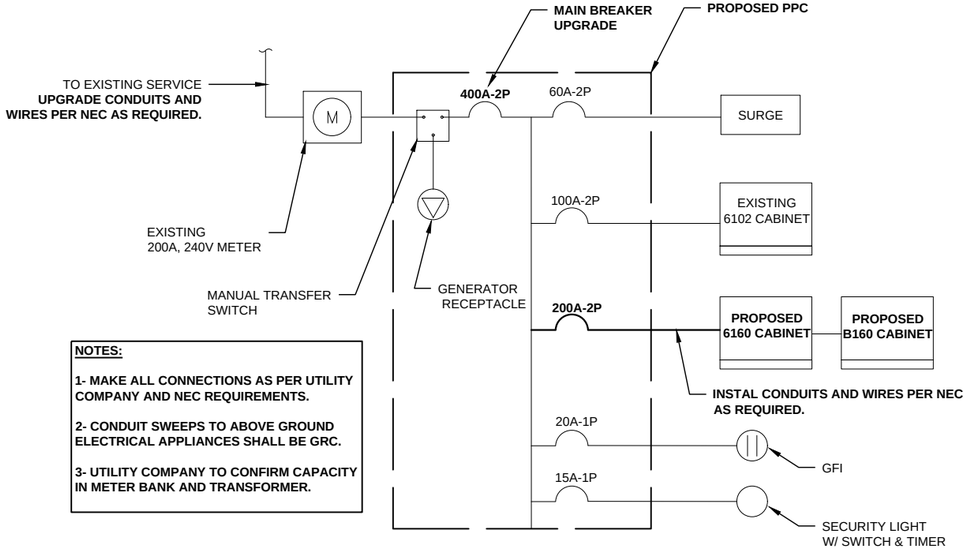
ANTENNA CABLE GROUNDING
N.T.S.
2 E-1

NOTE:
CONTRACTOR TO VERIFY THE POWER FEED & PHASE OF METER BANK AND THAT THE EXISTING AND PROPOSED CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.



NOTES:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

GROUND BAR CONNECTIONS
N.T.S.
3 E-1



NOTES:

1- MAKE ALL CONNECTIONS AS PER UTILITY COMPANY AND NEC REQUIREMENTS.

2- CONDUIT SWEEPS TO ABOVE GROUND ELECTRICAL APPLIANCES SHALL BE GRC.

3- UTILITY COMPANY TO CONFIRM CAPACITY IN METER BANK AND TRANSFORMER.

TYPICAL ONE LINE DIAGRAM
N.T.S.
4 E-1

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

PROJECT MANAGER
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:
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Architects . Engineers . Surveyors
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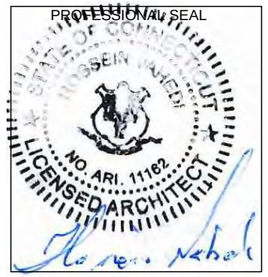
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL



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SITE NUMBER: CT11303B
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SITE ADDRESS: 82 NORTH EAGLEVILLE ROAD
STORRS, CT 06268

SHEET TITLE:
E-1: GROUNDING AND ELECTRICAL DETAILS

Exhibit D

STRUCTURAL ANALYSIS REPORT
SELF-SUPPORT

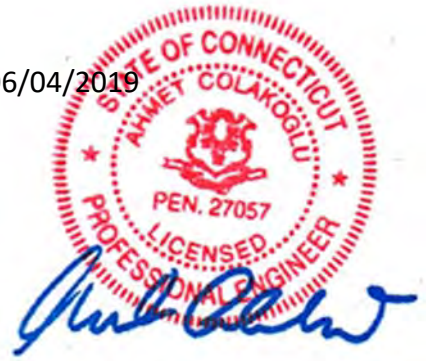
Prepared For:

T-Mobile Northeast, LLC
35 Griffin Road South
Bloomfield, CT 06002

Structure Rating	
Self-Support Tower:	**Pass (96%)**
Foundation:	**Pass (90%)**

Sincerely,
Destek Engineering, LLC
License No: PEC0001429

06/04/2019



Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

Site ID: CT11303B
Site Name: UCONN
82 North Eagleville Road
Storrs, CT 06268

Destek Job No: 1975055 June 04, 2019

CONTENTS

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 -Tel: (770) 693-0835

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the 245 ft. self-support tower located at 82 North Eagleville Road, Storrs, CT 06268 for the additions and alterations proposed by T-Mobile.

The structural analysis is based on the following information provided to Destek Engineering, LLC (Destek):

- RFDS provided by T-Mobile, dated 3/10/2019.
- Construction Drawings prepared by Foresite, LLC, dated 2/27/2019.
- Modification Drawings prepared by Infinigy, dated 12/14/2018.
- Structural Analysis Report prepared by Infinigy, dated 12/19/2018.
- Structural Analysis Report prepared by AECOM, dated 04/01/2015.
- Mount Analysis Report prepared by Infinigy, dated 05/20/2018.

1.1 STRUCTURE

The subject structure is a 245 ft. tall self-support tower. Truss legs are X-Braced with single/double angles and solid round members throughout the length of the tower. The tower is 24 ft wide at the base and 4 ft at the top. Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

2.0 EXISTING AND PROPOSED APPURTENANCES

Existing Configuration of T-Mobile Appurtenances:

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
232.0	(3) Ericsson AIR32 B66A/B2A (3) LNX6515DS – A1M (3) Ericsson AIR21 B2A/B4P (3) Generic Twin Style 1B - AWS	(12) 1-5/8 Coax (2) Hybrid	(3) Sector Mounts

Proposed and Final Configuration of T-Mobile Appurtenances:

Rad Center (ft.)	Antennas & Equipment*	Coax*	Mounts
232.0	(3) Ericsson AIR32 B66A/B2A (3) RFS APXVAARR24_43-U-NA20 (3) Ericsson - AIR3246 B66 (3) Ericsson - AIR6488 B41 (3) Radio 4449 B71+B12 (3) Radio 4415 B25	(6) 1-5/8 Coax (6) Hybrid	(3) Sector Mounts

*** All unused equipment and coax to be removed from tower**

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Appurtenances by Others:

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
245.0	(3) RFS APXVSPP18-C-A20 (3) 800 MHz w/ Notch Filter (6) 1900MHz RRH (3) TD-RRH8x20-25 (6) TMA	(6) 1-5/8 Coax (3) Hybrid	Platform Mount
145.0	-	(1) 0.6	-
134.5	(2) 7’ Omni	(2) 1/2	(2) Side Arm Mount
132.5	(1) 8’ Omni	(1) 7/8	(1) Side Arm Mount
124.25	(1) 20’ Omni	(1) 1-1/4 Coax (1) 0.6	(1) Side Arm Mount
112.0	(1) 7’ Omni (1) 8’ Omni (1) 4' Grid Dish	(1) 1/2 (1) 0.4	(2) Side Arm Mount (1) Pipe Mount
104.25	(1) Andrew D6E-6	(1) EW63	(1) Side Arm Mount
71.5	(1) 15' Omni	(1) 7/8	(1) Side Arm Mount
71.0	Camera	-	Leg Mounted
56.75	Camera	(1) 1/4 (2) 0.3	Leg Mounted
50.0	GPS	(1) 1/2	(1) Side Arm Mount

3.0 CODES AND LOADING

The analysis is in accordance with the following codes and loading as adopted in Connecticut:

- *2018 Connecticut State Building Code*.
- *Minimum Design Loads for Buildings and Other Structures SEI/ASCE 7-10*, American Society of Civil Engineers
- *Specifications for Structural Steel Buildings – Allowable Stress ANSI/AISC 360-10*, American National Standards Institute/American Institute for Steel Construction.

The following load parameters were used:

- Ultimate wind speed, 130 mph converted to 101 mph without ice (V)
- Basic wind speed, 50 mph with 1.00” radial and escalating ice (V_i and t_i)
- Exposure Category C
- Topographic Category 1, K_{zt}=1.0
- Structure Class II, I_w=1.0

DESTEK ENGINEERING, LLC
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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 and the foundation system are 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.

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 additions and alterations. Any deviation of the proposed equipment and placement, etc., will require Destek to generate an additional structural analysis.

5.0 ANALYSIS AND ASSUMPTIONS

The tower was analyzed by utilizing tnxTower, a non-linear, three-dimensional, finite element-analysis software package, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix A of this report.

Additional calculations were performed to determine the stresses in the reinforced truss leg sections. These calculations are presented in Appendix A.

This analysis was completed with the assumption that the tower has been upgraded according to the referenced Modification Drawings prepared by Infinigy. If this assumption is found to be invalid, Destek should be contacted immediately.

DESTEK ENGINEERING, LLC
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6.0 RESULTS AND CONCLUSION

Based on a structural analysis per ANSI/TIA-222-G, the existing self-support tower is found to have **adequate** structural capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, the tower legs from 160' to 180' are stressed to **95.7%** of their structural capacity. The tower diagonals, horizontals, and anchor bolts are stressed to **78.6%, 40.8%**, and **87.4%** of their structural capacity, respectively.

The existing foundation has **adequate** capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, the foundation is stressed to **90.2%** of its structural capacity.

Therefore, the proposed additions and alterations by T-Mobile **can** be implemented as intended and with the conditions outlined in this report.

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

DESTEK ENGINEERING, LLC
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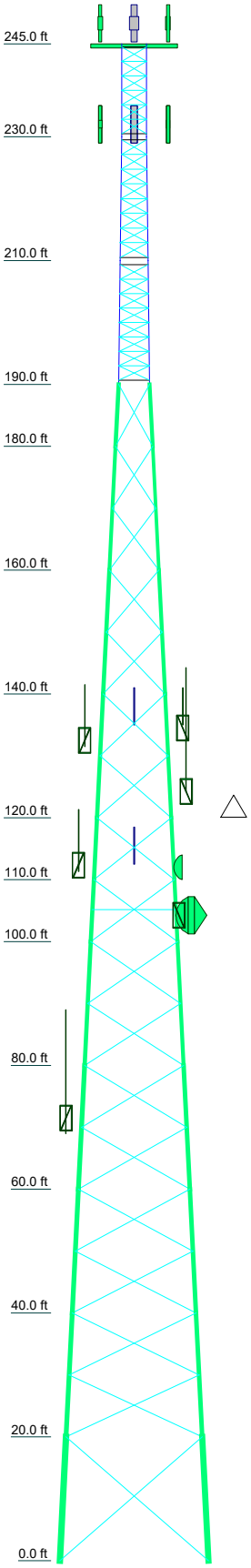
APPENDIX A
SOFTWARE OUTPUT

Section	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	Pirod 112738		Pirod 105220		Pirod 105219			Pirod 105218		Pirod 105217	A	SR 2 1/2	SR 2	SR 1 1/2
Leg Grade							A572-50							
Diagonals	B	L 4 x 4 x 3/8	L 4 x 4 x 1/4	L3 1/2x3 1/2x5/16	L 4 x 4 x 1/4	L 3 x 3 x 5/16		L 3 x 3 x 3/16	L 3 x 3 x 1/4	L2 1/2x2 1/2x3/16		SR 1	SR 7/8	SR 3/4
Diagonal Grade					A36							A572-50		
Top Girts					N.A.							SR 1	SR 7/8	SR 7/8
Bottom Girts					N.A.							SR 1	SR 7/8	SR 7/8
Horizontals					N.A.							SR 7/8	SR 3/4	SR 3/4
Sec. Horizontals			N.A.			C		N.A.			5	4.5	4	
Face Width (ft)	24	22	20	18	16	14	13	12	10	8	6	9 @ 2.333	8 @ 2.375	6 @ 2.33333
# Panels @ (ft)		1 @ 20				17 @ 10								
Weight (K)	46.4	7.8	6.2	5.2	5.1	4.3	2.3	2.0	3.0	3.1	2.3	1.2	1.9	1.3	0.6



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Top Beacon	245	AIR 3246 B66 w/ Mount Pipe	232
Lightning Rod	245	AIR 3246 B66 w/ Mount Pipe	232
Platform Mount [LP 1201-1]	245	AIR 6488 B41 w/ Mount Pipe	232
Miscellaneous [NA 510-1]	245	AIR 6488 B41 w/ Mount Pipe	232
(2) 8'x2" Antenna Mount Pipe	245	AIR 6488 B41 w/ Mount Pipe	232
(2) 8'x2" Antenna Mount Pipe	245	RADIO 4449 B12/B71	232
(2) 8'x2" Antenna Mount Pipe	245	RADIO 4449 B12/B71	232
APXVSPP18-C-A20 w/ Mount Pipe	245	RADIO 4449 B12/B71	232
APXVSPP18-C-A20 w/ Mount Pipe	245	Ericson Radio 4415 B25	232
APXVSPP18-C-A20 w/ Mount Pipe	245	Ericson Radio 4415 B25	232
800 MHz w/ Notch Filter	245	Ericson Radio 4415 B25	232
800 MHz w/ Notch Filter	245	Side Arm Mount [SO 305-1]	134.5
800 MHz w/ Notch Filter	245	Side Arm Mount [SO 305-1]	134.5
TD-RRH8x20-25	245	7' Omni	134.5
TD-RRH8x20-25	245	7' Omni	134.5
TD-RRH8x20-25	245	Side Arm Mount [SO 305-1]	132.5
1900MHz RRH (65MHz)	245	8' Omni	132.5
1900MHz RRH (65MHz)	245	Side Arm Mount [SO 305-1]	124.25
1900MHz RRH (65MHz)	245	20' Omni	124.25
1900MHz RRH (65MHz)	245	Single Side Light	123
1900MHz RRH (65MHz)	245	Single Side Light	123
1900MHz RRH (65MHz)	245	Single Side Light	123
(2) TMA	245	Pipe Mount [PM 601-1]	112.5
(2) TMA	245	Side Arm Mount [SO 305-1]	112.33
(2) TMA	245	8' Omni	112.33
Sector Mount [SM 502-3]	232	7' Omni	112
AIR -32 B2A/B66AA w/ Mount Pipe	232	Side Arm Mount [SO 305-1]	112
AIR -32 B2A/B66AA w/ Mount Pipe	232	4' Grid Dish	112
AIR -32 B2A/B66AA w/ Mount Pipe	232	Side Arm Mount [SO 301-1]	104.25
APXVAARR24_43-U-NA20 w/ Mount Pipe	232	Andrew D6E-6	104.25
		Side Arm Mount [SO 305-1]	71.5
APXVAARR24_43-U-NA20 w/ Mount Pipe	232	15' Omni	71.5
		Camera	71
APXVAARR24_43-U-NA20 w/ Mount Pipe	232	Camera	56.75
		Side Arm Mount [SO 305-1]	50
AIR 3246 B66 w/ Mount Pipe	232	GPS	50

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pirod 105245	C	L 3 x 3 x 5/16
B	2L3 1/2x3 1/2x5/16x3/8		

MATERIAL STRENGTH

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

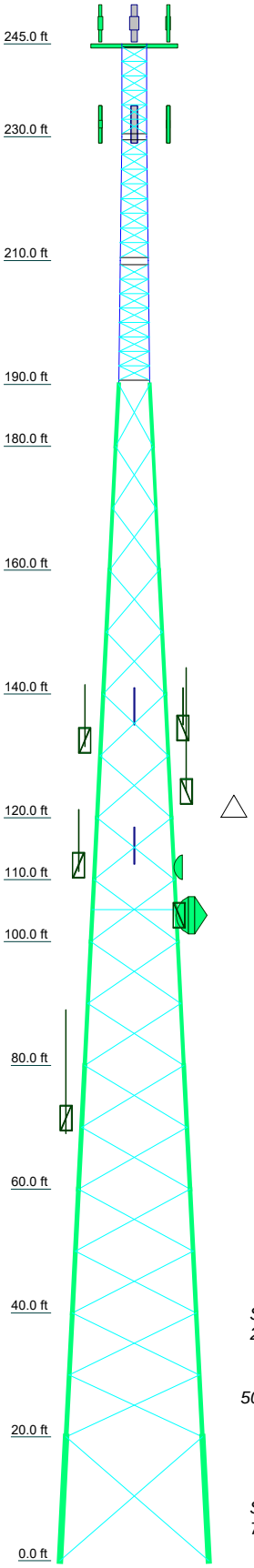
TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft

Destek Engineering, LLC
1281 Kennestone Circle, Ste 100
Marietta, GA
Phone: (770) 693-0835
FAX:

Job: ***CT11303B***			
Project: ***1975055***			
Client: Foresite LLC	Drawn by: Ahmet Colakoglu	App'd:	
Code: TIA-222-G	Date: 06/04/19	Scale: NTS	
Path: S:\Projects\2019\75 - Foresite LLC\055 - CT11303B\SA\tnx Tower\1975055 CT11303B.eri		Dwg No. E-1	

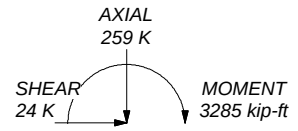
Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14
Legs	SR 1 1/2	SR 2	SR 2 1/2	A	Pirod 105217	Pirod 105218			Pirod 105219			Pirod 105220		Pirod 112738
Leg Grade	A572-50													
Diagonals	SR 3/4	SR 7/8	SR 1	SR 3/4	L2 1/2x2 1/2x3/16	L 3 x 3 x 1/4	L 3 x 3 x 3/16	L 3 x 3 x 5/16	L 3 x 3 x 5/16	L 4 x 4 x 1/4	L3 1/2x3 1/2x5/16	L 4 x 4 x 1/4	L 4 x 4 x 3/8	B
Diagonal Grade	A572-50								C	A36				
Top Girts		SR 7/8	SR 1							N.A.				
Bottom Girts		SR 7/8	SR 1							N.A.				
Horizontals		SR 3/4	SR 7/8							N.A.				
Sec. Horizontals	4		4.5	5	N.A.	8	10	12	13	14	16	18	20	22
Face Width (ft)	6 @ 2.33333	8 @ 2.375	9 @ 2.333						17 @ 10					1 @ 20
# Panels @ (ft)	0.6	1.3	1.9	1.2	2.3	3.1	3.0	2.0	2.3	4.3	5.1	5.2	6.2	7.8
Weight (K)														46.4



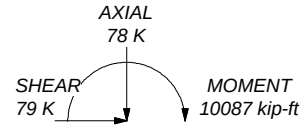
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 511 K
SHEAR: 59 K

UPLIFT: -455 K
SHEAR: 52 K



TORQUE 27 kip-ft
50 mph WIND - 1.000 in ICE



TORQUE 74 kip-ft
REACTIONS - 101 mph WIND

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pirod 105245	C	L 3 x 3 x 5/16
B	2L3 1/2x3 1/2x5/16x3/8		

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 Exposure C to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 95.7%

Destek Engineering, LLC
1281 Kennestone Circle, Ste 100
Marietta, GA
Phone: (770) 693-0835
FAX:

Job: **CT11303B**			
Project: ***1975055***			
Client: Foresite LLC	Drawn by: Ahmet Colakoglu	App'd:	
Code: TIA-222-G	Date: 06/04/19	Scale: NTS	
Path: S:\Projects\2019\75 - Foresite LLC\055 - CT11303B\SA\tnx Tower\1975055 CT11303B.eri		Dwg No. E-1	

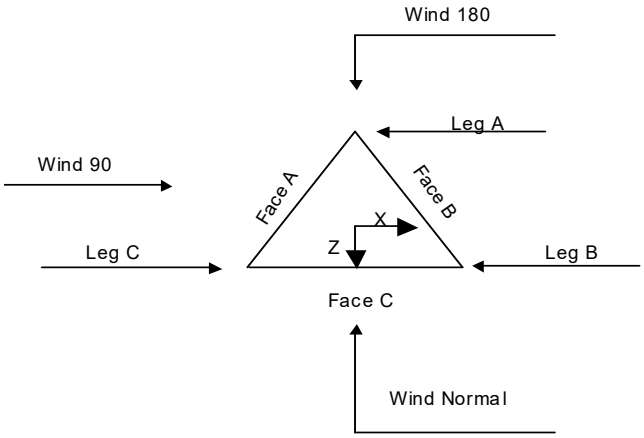
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 245.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 4.000 ft at the top and 24.000 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Tolland County, Connecticut.
Basic wind speed of 101 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	245.000-230.000			4.000	1	15.000
T2	230.000-210.000			4.000	1	20.000
T3	210.000-190.000			4.500	1	20.000
T4	190.000-180.000			5.000	1	10.000
T5	180.000-160.000			6.000	1	20.000
T6	160.000-140.000			8.000	1	20.000
T7	140.000-120.000			10.000	1	20.000
T8	120.000-110.000			12.000	1	10.000
T9	110.000-100.000			13.000	1	10.000
T10	100.000-80.000			14.000	1	20.000
T11	80.000-60.000			16.000	1	20.000
T12	60.000-40.000			18.000	1	20.000
T13	40.000-20.000			20.000	1	20.000
T14	20.000-0.000			22.000	1	20.000

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	245.000-230.000	2.333	X Brace	No	Steps	6.000	6.000

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
T2	230.000-210.000	2.375	X Brace	No	Steps	6.000	6.000
T3	210.000-190.000	2.333	X Brace	No	Steps	8.016	8.016
T4	190.000-180.000	10.000	X Brace	No	No	0.000	0.000
T5	180.000-160.000	10.000	X Brace	No	No	0.000	0.000
T6	160.000-140.000	10.000	X Brace	No	No	0.000	0.000
T7	140.000-120.000	10.000	X Brace	No	No	0.000	0.000
T8	120.000-110.000	10.000	X Brace	No	No	0.000	0.000
T9	110.000-100.000	10.000	X Brace	No	Yes	0.000	0.000
T10	100.000-80.000	10.000	X Brace	No	No	0.000	0.000
T11	80.000-60.000	10.000	X Brace	No	No	0.000	0.000
T12	60.000-40.000	10.000	X Brace	No	No	0.000	0.000
T13	40.000-20.000	10.000	X Brace	No	No	0.000	0.000
T14	20.000-0.000	20.000	X Brace	No	No	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 245.000-230.000	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 230.000-210.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 210.000-190.000	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T4 190.000-180.000	Truss Leg	Pirod 105245	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 180.000-160.000	Truss Leg	Pirod 105217	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T6 160.000-140.000	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L 3 x 3 x 1/4	A36 (36 ksi)
T7 140.000-120.000	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 3/16	A36 (36 ksi)
T8 120.000-110.000	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 5/16	A36 (36 ksi)
T9 110.000-100.000	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 5/16	A36 (36 ksi)
T10 100.000-80.000	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L 4 x 4 x 1/4	A36 (36 ksi)
T11 80.000-60.000	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T12 60.000-40.000	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Equal Angle	L 4 x 4 x 1/4	A36 (36 ksi)
T13 40.000-20.000	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Equal Angle	L 4 x 4 x 3/8	A36 (36 ksi)
T14 20.000-0.000	Truss Leg	Pirod 112738	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16x3/8	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 245.000-230.000	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 230.000-210.000	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T3 210.000-190.000	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 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 245.000-230.000	None	Solid Round		A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 230.000-210.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 210.000-190.000	None	Solid Round		A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T9 110.000-100.000	Single Angle	L 3 x 3 x 5/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 245.000-230.000	0.000	0.000	A36 (36 ksi)	1	1	1.02	36.000	36.000	36.000
T2 230.000-210.000	0.000	0.000	A36 (36 ksi)	1	1	1.02	36.000	36.000	36.000
T3 210.000-190.000	0.000	0.000	A36 (36 ksi)	1	1	1.02	36.000	36.000	36.000
T4 190.000-180.0	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
00									
T5 180.000-160.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T6 160.000-140.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T7 140.000-120.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T8 120.000-110.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T9 110.000-100.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T10 100.000-80.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T11 80.000-60.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T12 60.000-40.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T13 40.000-20.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T14 20.000-0.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000

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 245.000-230.000	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 230.000-210.000	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 210.000-190.000	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 190.000-180.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 180.000-160.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 160.000-140.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7	Yes	No	1	1	1	1	1	1	1	1

			K Factors[1]							
Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	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
140.000-120.000				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
120.000-110.000				1	1	1	1	1	1	1
T9	Yes	No	1	1	1	1	1	1	1	1
110.000-100.000				1	1	1	1	1	1	1
T10	Yes	No	1	1	1	1	1	1	1	1
100.000-80.000				1	1	1	1	1	1	1
T11	Yes	No	1	1	1	1	1	1	1	1
80.000-60.000				1	1	1	1	1	1	1
T12	Yes	No	1	0.97	0.97	0.97	1	1	1	1
60.000-40.000				0.97	0.97	0.97	1	1	1	1
T13	Yes	No	1	1	1	1	1	1	1	1
40.000-20.000				1	1	1	1	1	1	1
T14	Yes	No	1	1	1	1	1	1	1	1
20.000-0.000				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)*

	Truss-Leg K Factors					
	Truss-Legs Used As Leg Members			Truss-Legs Used As Inner Members		
Tower Elevation ft	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4	1	0.35	0.7	1	0.5	0.85
190.000-180.000						
T5	1	0.35	0.65	1	0.5	0.85
180.000-160.000						
T6	1	0.35	0.7	1	0.5	0.85
160.000-140.000						
T7	1	0.35	0.65	1	0.5	0.85
140.000-120.000						
T8	1	0.35	0.7	1	0.5	0.85
120.000-110.000						
T9	1	0.35	0.7	1	0.5	0.85
110.000-100.000						
T10	1	0.35	0.7	1	0.5	0.85
100.000-80.000						
T11	1	0.35	0.7	1	0.5	0.85
80.000-60.000						

T12 60.000-40.000	1	0.35	0.7	1	0.5	0.85
T13 40.000-20.000	1	0.35	0.65	1	0.5	0.85
T14 20.000-0.000	1	0.35	0.7	1	0.5	0.85

Tower Section Geometry *(cont'd)*

Tower Elevation ft	*Leg*		*Diagonal*		*Top Girt*		*Bottom Girt*		*Mid Girt*		*Long Horizontal*		*Short Horizontal*	
	Net Width Deduct in	*U*	*Net Width Deduct* in	*U*	*Net Width Deduct* in	*U*	*Net Width Deduct* in	*U*	*Net Width Deduct* in	*U*	*Net Width Deduct* in	*U*	*Net Width Deduct* in	*U*
T1 245.000-230.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T2 230.000-210.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T3 210.000-190.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T4 190.000-180.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T5 180.000-160.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T6 160.000-140.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T7 140.000-120.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T8 120.000-110.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T9 110.000-100.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T10 100.000-80.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T11 80.000-60.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T12 60.000-40.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T13 40.000-20.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T14 20.000-0.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1

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 245.000-230.000	Sleeve DS	0.625 A325N	5	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T2 230.000-210.000	Sleeve DS	0.750 A325N	5	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T3 210.000-190.000	Flange	1.000 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T4 190.000-180.000	Flange	1.000 A325N	6	1.000 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T5 180.000-160.000	Flange	1.000 A325N	6	1.000 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T6 160.000-140.000	Flange	1.000 A325N	6	1.000 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T7 140.000-120.000	Flange	1.000 A325N	6	1.000 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T8 120.000-110.000	Flange	0.000 A325N	6	1.250 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T9 110.000-100.000	Flange	1.250 A325N	6	1.250 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T10 100.000-80.000	Flange	1.250 A325N	6	1.250 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T11 80.000-60.000	Flange	1.250 A325N	6	1.250 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T12 60.000-40.000	Flange	1.250 A325N	6	1.250 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T13 40.000-20.000	Flange	1.250 A325N	12	1.250 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T14 20.000-0.000	Flange	2.000 A687	6	1.000 A325N	2	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
** 245' **													
T-Brackets	A	No	No	Af (CaAa)	245.000 - 0.000	0.000	0.45	1	1	1.000	1.000		3.650
T-Brackets	B	No	No	Af (CaAa)	245.000 - 0.000	0.000	0.45	1	1	1.000	1.000		3.650
Waveguide	C	No	No	Af (CaAa)	245.000 - 0.000	0.000	0.45	1	1	2.000	2.000		3.650
1-5/8" Coax	A	No	No	Ar (CaAa)	245.000 -	-10.000	0.42	6	3	1.980	1.980		0.820

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
					0.000								
1-1/4" Hybrid	A	No	No	Ar (CaAa)	245.000 - 0.000	-15.000	0.4	3	3	1.250	1.250		0.830
** 232' **													
1-5/8" Coax	B	No	No	Ar (CaAa)	232.000 - 0.000	-10.000	0.39	18	9	0.750	1.980		0.820
Hybrid	B	No	No	Ar (CaAa)	232.000 - 0.000	-10.000	0.39	6	3	1.625	1.625		1.000
***													
0.6"	A	No	No	Ar (CaAa)	145.000 - 0.000	-8.000	0.45	1	1	0.880	0.880		0.400
1/2" Coax	A	No	No	Ar (CaAa)	134.500 - 0.000	-8.000	0.45	2	2	0.630	0.630		0.150
7/8" Coax	A	No	No	Ar (CaAa)	132.500 - 0.000	-8.000	0.45	1	1	0.875	0.875		0.310
1-1/4"	A	No	No	Ar (CaAa)	124.300 - 0.000	-8.000	0.45	1	1	1.550	1.550		0.660
0.6"	A	No	No	Ar (CaAa)	123.000 - 0.000	-8.000	0.45	1	1	0.880	0.880		0.400
0.40"	A	No	No	Ar (CaAa)	112.000 - 0.000	-8.000	0.45	1	1	0.438	0.438		0.250
1/2"	A	No	No	Ar (CaAa)	112.300 - 0.000	-8.000	0.45	1	1	0.580	0.580		0.250
EW63	A	No	No	Ar (CaAa)	104.300 - 0.000	-8.000	0.45	1	1	1.574	1.574		0.510
1.05" Conduit	A	No	No	Ar (CaAa)	71.000 - 0.000	-8.000	0.45	1	1	1.250	1.250		0.700
7/8" Coax	A	No	No	Ar (CaAa)	71.500 - 0.000	-8.000	0.45	1	1	0.875	0.875		0.310
0.3"	A	No	No	Ar (CaAa)	56.900 - 0.000	-8.000	0.45	2	2	0.440	0.440		0.080
1/4"	A	No	No	Ar (CaAa)	56.900 - 0.000	-8.000	0.45	1	1	0.250	0.250		2.000
1/2"	A	No	No	Ar (CaAa)	50.000 - 0.000	-8.000	0.45	1	1	0.580	0.580		0.250
***													
***													
***													
Leg reinf. with 2 1/4 SR (2)	A	No	No	Ar (CaAa)	40.000 - 20.000	0.000	0.49	1	1	0.000	2.250		3.500
Leg reinf. with 2 1/4 SR (2)	A	No	No	Ar (CaAa)	40.000 - 20.000	0.000	-0.49	1	1	0.000	2.250		3.500
Leg reinf. with 2 1/4 SR (2)	B	No	No	Ar (CaAa)	40.000 - 20.000	0.000	0.49	1	1	0.000	2.250		3.500
Leg reinf. with 2 1/4 SR (2)	B	No	No	Ar (CaAa)	40.000 - 20.000	0.000	-0.49	1	1	0.000	2.250		3.500
Leg reinf. with 2 1/4 SR (2)	C	No	No	Ar (CaAa)	40.000 - 20.000	0.000	0.49	1	1	0.000	2.250		3.500
Leg reinf. with 2 1/4 SR (2)	C	No	No	Ar (CaAa)	40.000 - 20.000	0.000	-0.49	1	1	0.000	2.250		3.500
***													
**													
*													

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
***								
***								
***								
**								
*								

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 K
T1	245.000-230.000	A	0.000	0.000	25.945	0.000	0.166
		B	0.000	0.000	11.578	0.000	0.096
		C	0.000	0.000	5.000	0.000	0.055
T2	230.000-210.000	A	0.000	0.000	34.593	0.000	0.221
		B	0.000	0.000	94.113	0.000	0.488
		C	0.000	0.000	6.667	0.000	0.073
T3	210.000-190.000	A	0.000	0.000	34.593	0.000	0.221
		B	0.000	0.000	94.113	0.000	0.488
		C	0.000	0.000	6.667	0.000	0.073
T4	190.000-180.000	A	0.000	0.000	17.297	0.000	0.111
		B	0.000	0.000	47.057	0.000	0.244
		C	0.000	0.000	3.333	0.000	0.036
T5	180.000-160.000	A	0.000	0.000	34.593	0.000	0.221
		B	0.000	0.000	94.113	0.000	0.488
		C	0.000	0.000	6.667	0.000	0.073
T6	160.000-140.000	A	0.000	0.000	35.033	0.000	0.223
		B	0.000	0.000	94.113	0.000	0.488
		C	0.000	0.000	6.667	0.000	0.073
T7	140.000-120.000	A	0.000	0.000	40.205	0.000	0.241
		B	0.000	0.000	94.113	0.000	0.488
		C	0.000	0.000	6.667	0.000	0.073
T8	120.000-110.000	A	0.000	0.000	22.963	0.000	0.132
		B	0.000	0.000	47.057	0.000	0.244
		C	0.000	0.000	3.333	0.000	0.036
T9	110.000-100.000	A	0.000	0.000	24.436	0.000	0.138
		B	0.000	0.000	47.057	0.000	0.244
		C	0.000	0.000	3.333	0.000	0.036
T10	100.000-80.000	A	0.000	0.000	50.667	0.000	0.283
		B	0.000	0.000	94.113	0.000	0.488
		C	0.000	0.000	6.667	0.000	0.073
T11	80.000-60.000	A	0.000	0.000	53.048	0.000	0.294
		B	0.000	0.000	94.113	0.000	0.488
		C	0.000	0.000	6.667	0.000	0.073
T12	60.000-40.000	A	0.000	0.000	57.406	0.000	0.342
		B	0.000	0.000	94.113	0.000	0.488
		C	0.000	0.000	6.667	0.000	0.073
T13	40.000-20.000	A	0.000	0.000	67.337	0.000	0.491
		B	0.000	0.000	103.113	0.000	0.628
		C	0.000	0.000	15.667	0.000	0.213
T14	20.000-0.000	A	0.000	0.000	58.337	0.000	0.351
		B	0.000	0.000	94.113	0.000	0.488
		C	0.000	0.000	6.667	0.000	0.073

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 K
T1	245.000-230.000	A	2.436	0.000	0.000	67.941	0.000	1.427
		B		0.000	0.000	21.434	0.000	0.508
		C		0.000	0.000	12.309	0.000	0.250
T2	230.000-210.000	A	2.418	0.000	0.000	90.258	0.000	1.888
		B		0.000	0.000	129.001	0.000	3.139
		C		0.000	0.000	16.338	0.000	0.330
T3	210.000-190.000	A	2.395	0.000	0.000	89.850	0.000	1.871
		B		0.000	0.000	128.604	0.000	3.115
		C		0.000	0.000	16.246	0.000	0.326
T4	190.000-180.000	A	2.376	0.000	0.000	44.760	0.000	0.929
		B		0.000	0.000	64.141	0.000	1.548
		C		0.000	0.000	8.086	0.000	0.161
T5	180.000-160.000	A	2.356	0.000	0.000	89.164	0.000	1.843
		B		0.000	0.000	127.935	0.000	3.076
		C		0.000	0.000	16.092	0.000	0.319
T6	160.000-140.000	A	2.327	0.000	0.000	91.410	0.000	1.869
		B		0.000	0.000	127.428	0.000	3.047
		C		0.000	0.000	15.974	0.000	0.314
T7	140.000-120.000	A	2.294	0.000	0.000	125.176	0.000	2.334
		B		0.000	0.000	126.856	0.000	3.013
		C		0.000	0.000	15.842	0.000	0.308
T8	120.000-110.000	A	2.266	0.000	0.000	78.561	0.000	1.415
		B		0.000	0.000	63.186	0.000	1.493
		C		0.000	0.000	7.865	0.000	0.152
T9	110.000-100.000	A	2.245	0.000	0.000	88.580	0.000	1.570
		B		0.000	0.000	63.008	0.000	1.483
		C		0.000	0.000	7.824	0.000	0.150
T10	100.000-80.000	A	2.211	0.000	0.000	182.262	0.000	3.203
		B		0.000	0.000	125.423	0.000	2.931
		C		0.000	0.000	15.511	0.000	0.294
T11	80.000-60.000	A	2.156	0.000	0.000	191.451	0.000	3.309
		B		0.000	0.000	124.474	0.000	2.877
		C		0.000	0.000	15.291	0.000	0.285
T12	60.000-40.000	A	2.085	0.000	0.000	223.894	0.000	3.667
		B		0.000	0.000	123.242	0.000	2.808
		C		0.000	0.000	15.006	0.000	0.274
T13	40.000-20.000	A	1.981	0.000	0.000	249.773	0.000	4.101
		B		0.000	0.000	146.298	0.000	3.258
		C		0.000	0.000	39.439	0.000	0.807
T14	20.000-0.000	A	1.775	0.000	0.000	209.315	0.000	3.109
		B		0.000	0.000	117.899	0.000	2.515
		C		0.000	0.000	13.766	0.000	0.228

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	245.000-230.000	2.290	-6.134	0.954	-2.029
T2	230.000-210.000	5.882	2.426	2.425	0.287
T3	210.000-190.000	6.227	2.189	2.663	0.149
T4	190.000-180.000	5.165	1.565	1.952	-0.034

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T5	180.000-160.000	6.547	1.285	3.515	-0.412
T6	160.000-140.000	7.649	0.751	5.189	-1.328
T7	140.000-120.000	8.826	-1.159	6.649	-5.999
T8	120.000-110.000	9.360	-3.249	7.376	-11.085
T9	110.000-100.000	8.854	-4.202	6.866	-13.298
T10	100.000-80.000	9.566	-5.349	8.020	-16.840
T11	80.000-60.000	10.590	-7.077	8.619	-20.628
T12	60.000-40.000	10.650	-9.092	8.633	-26.883
T13	40.000-20.000	10.317	-9.424	8.047	-26.670
T14	20.000-0.000	13.467	-12.079	9.807	-31.309

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	T-Brackets	230.00 - 245.00	0.6000	0.3398
T1	3	T-Brackets	230.00 - 245.00	0.6000	0.3398
T1	4	Waveguide	230.00 - 245.00	0.6000	0.3398
T1	5	1-5/8" Coax	230.00 - 245.00	0.6000	0.3398
T1	6	1-1/4" Hybrid	230.00 - 245.00	0.6000	0.3398
T1	8	1-5/8" Coax	230.00 - 232.00	0.6000	0.3398
T1	9	Hybrid	230.00 - 232.00	0.6000	0.3398
T2	2	T-Brackets	210.00 - 230.00	0.6000	0.3529
T2	3	T-Brackets	210.00 - 230.00	0.6000	0.3529
T2	4	Waveguide	210.00 - 230.00	0.6000	0.3529
T2	5	1-5/8" Coax	210.00 - 230.00	0.6000	0.3529
T2	6	1-1/4" Hybrid	210.00 - 230.00	0.6000	0.3529
T2	8	1-5/8" Coax	210.00 - 230.00	0.6000	0.3529
T2	9	Hybrid	210.00 - 230.00	0.6000	0.3529
T3	2	T-Brackets	190.00 - 210.00	0.6000	0.3677
T3	3	T-Brackets	190.00 - 210.00	0.6000	0.3677
T3	4	Waveguide	190.00 - 210.00	0.6000	0.3677
T3	5	1-5/8" Coax	190.00 - 210.00	0.6000	0.3677
T3	6	1-1/4" Hybrid	190.00 - 210.00	0.6000	0.3677
T3	8	1-5/8" Coax	190.00 - 210.00	0.6000	0.3677

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	9	Hybrid	190.00 - 210.00	0.6000	0.3677
T4	2	T-Brackets	180.00 - 190.00	0.6000	0.2517
T4	3	T-Brackets	180.00 - 190.00	0.6000	0.2517
T4	4	Waveguide	180.00 - 190.00	0.6000	0.2517
T4	5	1-5/8" Coax	180.00 - 190.00	0.6000	0.2517
T4	6	1-1/4" Hybrid	180.00 - 190.00	0.6000	0.2517
T4	8	1-5/8" Coax	180.00 - 190.00	0.6000	0.2517
T4	9	Hybrid	180.00 - 190.00	0.6000	0.2517
T5	2	T-Brackets	160.00 - 180.00	0.6000	0.3681
T5	3	T-Brackets	160.00 - 180.00	0.6000	0.3681
T5	4	Waveguide	160.00 - 180.00	0.6000	0.3681
T5	5	1-5/8" Coax	160.00 - 180.00	0.6000	0.3681
T5	6	1-1/4" Hybrid	160.00 - 180.00	0.6000	0.3681
T5	8	1-5/8" Coax	160.00 - 180.00	0.6000	0.3681
T5	9	Hybrid	160.00 - 180.00	0.6000	0.3681
T6	2	T-Brackets	140.00 - 160.00	0.6000	0.4611
T6	3	T-Brackets	140.00 - 160.00	0.6000	0.4611
T6	4	Waveguide	140.00 - 160.00	0.6000	0.4611
T6	5	1-5/8" Coax	140.00 - 160.00	0.6000	0.4611
T6	6	1-1/4" Hybrid	140.00 - 160.00	0.6000	0.4611
T6	8	1-5/8" Coax	140.00 - 160.00	0.6000	0.4611
T6	9	Hybrid	140.00 - 160.00	0.6000	0.4611
T6	11	0.6"	140.00 - 145.00	0.6000	0.4611
T7	2	T-Brackets	120.00 - 140.00	0.6000	0.5336
T7	3	T-Brackets	120.00 - 140.00	0.6000	0.5336
T7	4	Waveguide	120.00 - 140.00	0.6000	0.5336
T7	5	1-5/8" Coax	120.00 - 140.00	0.6000	0.5336
T7	6	1-1/4" Hybrid	120.00 - 140.00	0.6000	0.5336
T7	8	1-5/8" Coax	120.00 - 140.00	0.6000	0.5336
T7	9	Hybrid	120.00 - 140.00	0.6000	0.5336
T7	11	0.6"	120.00 - 140.00	0.6000	0.5336

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	12	1/2" Coax	120.00 - 134.50	0.6000	0.5336
T7	13	7/8" Coax	120.00 - 132.50	0.6000	0.5336
T7	14	1-1/4"	120.00 - 124.30	0.6000	0.5336
T7	15	0.6"	120.00 - 123.00	0.6000	0.5336
T8	2	T-Brackets	110.00 - 120.00	0.6000	0.5720
T8	3	T-Brackets	110.00 - 120.00	0.6000	0.5720
T8	4	Waveguide	110.00 - 120.00	0.6000	0.5720
T8	5	1-5/8" Coax	110.00 - 120.00	0.6000	0.5720
T8	6	1-1/4" Hybrid	110.00 - 120.00	0.6000	0.5720
T8	8	1-5/8" Coax	110.00 - 120.00	0.6000	0.5720
T8	9	Hybrid	110.00 - 120.00	0.6000	0.5720
T8	11	0.6"	110.00 - 120.00	0.6000	0.5720
T8	12	1/2" Coax	110.00 - 120.00	0.6000	0.5720
T8	13	7/8" Coax	110.00 - 120.00	0.6000	0.5720
T8	14	1-1/4"	110.00 - 120.00	0.6000	0.5720
T8	15	0.6"	110.00 - 120.00	0.6000	0.5720
T8	16	0.40"	110.00 - 112.00	0.6000	0.5720
T8	17	1/2"	110.00 - 112.30	0.6000	0.5720
T9	2	T-Brackets	100.00 - 110.00	0.6000	0.5431
T9	3	T-Brackets	100.00 - 110.00	0.6000	0.5431
T9	4	Waveguide	100.00 - 110.00	0.6000	0.5431
T9	5	1-5/8" Coax	100.00 - 110.00	0.6000	0.5431
T9	6	1-1/4" Hybrid	100.00 - 110.00	0.6000	0.5431
T9	8	1-5/8" Coax	100.00 - 110.00	0.6000	0.5431
T9	9	Hybrid	100.00 - 110.00	0.6000	0.5431
T9	11	0.6"	100.00 - 110.00	0.6000	0.5431
T9	12	1/2" Coax	100.00 - 110.00	0.6000	0.5431
T9	13	7/8" Coax	100.00 - 110.00	0.6000	0.5431
T9	14	1-1/4"	100.00 - 110.00	0.6000	0.5431
T9	15	0.6"	100.00 - 110.00	0.6000	0.5431
T9	16	0.40"	100.00 - 110.00	0.6000	0.5431

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	17	1/2"	100.00 - 110.00	0.6000	0.5431
T9	18	EW63	100.00 - 104.30	0.6000	0.5431
T10	2	T-Brackets	80.00 - 100.00	0.6000	0.6000
T10	3	T-Brackets	80.00 - 100.00	0.6000	0.6000
T10	4	Waveguide	80.00 - 100.00	0.6000	0.6000
T10	5	1-5/8" Coax	80.00 - 100.00	0.6000	0.6000
T10	6	1-1/4" Hybrid	80.00 - 100.00	0.6000	0.6000
T10	8	1-5/8" Coax	80.00 - 100.00	0.6000	0.6000
T10	9	Hybrid	80.00 - 100.00	0.6000	0.6000
T10	11	0.6"	80.00 - 100.00	0.6000	0.6000
T10	12	1/2" Coax	80.00 - 100.00	0.6000	0.6000
T10	13	7/8" Coax	80.00 - 100.00	0.6000	0.6000
T10	14	1-1/4"	80.00 - 100.00	0.6000	0.6000
T10	15	0.6"	80.00 - 100.00	0.6000	0.6000
T10	16	0.40"	80.00 - 100.00	0.6000	0.6000
T10	17	1/2"	80.00 - 100.00	0.6000	0.6000
T10	18	EW63	80.00 - 100.00	0.6000	0.6000
T11	2	T-Brackets	60.00 - 80.00	0.6000	0.6000
T11	3	T-Brackets	60.00 - 80.00	0.6000	0.6000
T11	4	Waveguide	60.00 - 80.00	0.6000	0.6000
T11	5	1-5/8" Coax	60.00 - 80.00	0.6000	0.6000
T11	6	1-1/4" Hybrid	60.00 - 80.00	0.6000	0.6000
T11	8	1-5/8" Coax	60.00 - 80.00	0.6000	0.6000
T11	9	Hybrid	60.00 - 80.00	0.6000	0.6000
T11	11	0.6"	60.00 - 80.00	0.6000	0.6000
T11	12	1/2" Coax	60.00 - 80.00	0.6000	0.6000
T11	13	7/8" Coax	60.00 - 80.00	0.6000	0.6000
T11	14	1-1/4"	60.00 - 80.00	0.6000	0.6000
T11	15	0.6"	60.00 - 80.00	0.6000	0.6000
T11	16	0.40"	60.00 - 80.00	0.6000	0.6000
T11	17	1/2"	60.00 - 80.00	0.6000	0.6000
T11	18	EW63	60.00 - 80.00	0.6000	0.6000
T11	19	1.05" Conduit	60.00 - 71.00	0.6000	0.6000
T11	20	7/8" Coax	60.00 - 71.50	0.6000	0.6000
T12	2	T-Brackets	40.00 - 60.00	0.6000	0.6000
T12	3	T-Brackets	40.00 - 60.00	0.6000	0.6000
T12	4	Waveguide	40.00 - 60.00	0.6000	0.6000
T12	5	1-5/8" Coax	40.00 - 60.00	0.6000	0.6000
T12	6	1-1/4" Hybrid	40.00 - 60.00	0.6000	0.6000
T12	8	1-5/8" Coax	40.00 - 60.00	0.6000	0.6000
T12	9	Hybrid	40.00 - 60.00	0.6000	0.6000
T12	11	0.6"	40.00 - 60.00	0.6000	0.6000
T12	12	1/2" Coax	40.00 - 60.00	0.6000	0.6000
T12	13	7/8" Coax	40.00 - 60.00	0.6000	0.6000
T12	14	1-1/4"	40.00 - 60.00	0.6000	0.6000
T12	15	0.6"	40.00 - 60.00	0.6000	0.6000
T12	16	0.40"	40.00 - 60.00	0.6000	0.6000
T12	17	1/2"	40.00 - 60.00	0.6000	0.6000
T12	18	EW63	40.00 - 60.00	0.6000	0.6000
T12	19	1.05" Conduit	40.00 - 60.00	0.6000	0.6000
T12	20	7/8" Coax	40.00 - 60.00	0.6000	0.6000
T12	21	0.3"	40.00 - 56.90	0.6000	0.6000
T12	22	1/4"	40.00 - 56.90	0.6000	0.6000
T12	23	1/2"	40.00 - 50.00	0.6000	0.6000
T13	2	T-Brackets	20.00 - 40.00	0.6000	0.6000
T13	3	T-Brackets	20.00 - 40.00	0.6000	0.6000
T13	4	Waveguide	20.00 - 40.00	0.6000	0.6000
T13	5	1-5/8" Coax	20.00 - 40.00	0.6000	0.6000
T13	6	1-1/4" Hybrid	20.00 - 40.00	0.6000	0.6000
T13	8	1-5/8" Coax	20.00 - 40.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	9	Hybrid	20.00 - 40.00	0.6000	0.6000
T13	11	0.6"	20.00 - 40.00	0.6000	0.6000
T13	12	1/2" Coax	20.00 - 40.00	0.6000	0.6000
T13	13	7/8" Coax	20.00 - 40.00	0.6000	0.6000
T13	14	1-1/4"	20.00 - 40.00	0.6000	0.6000
T13	15	0.6"	20.00 - 40.00	0.6000	0.6000
T13	16	0.40"	20.00 - 40.00	0.6000	0.6000
T13	17	1/2"	20.00 - 40.00	0.6000	0.6000
T13	18	EW63	20.00 - 40.00	0.6000	0.6000
T13	19	1.05" Conduit	20.00 - 40.00	0.6000	0.6000
T13	20	7/8" Coax	20.00 - 40.00	0.6000	0.6000
T13	21	0.3"	20.00 - 40.00	0.6000	0.6000
T13	22	1/4"	20.00 - 40.00	0.6000	0.6000
T13	23	1/2"	20.00 - 40.00	0.6000	0.6000
T13	27	Leg reinf. with 2 1/4 SR (2)	20.00 - 40.00	0.6000	0.6000
T13	28	Leg reinf. with 2 1/4 SR (2)	20.00 - 40.00	0.6000	0.6000
T13	29	Leg reinf. with 2 1/4 SR (2)	20.00 - 40.00	0.6000	0.6000
T13	30	Leg reinf. with 2 1/4 SR (2)	20.00 - 40.00	0.6000	0.6000
T13	31	Leg reinf. with 2 1/4 SR (2)	20.00 - 40.00	0.6000	0.6000
T13	32	Leg reinf. with 2 1/4 SR (2)	20.00 - 40.00	0.6000	0.6000
T14	2	T-Brackets	0.00 - 20.00	0.6000	0.6000
T14	3	T-Brackets	0.00 - 20.00	0.6000	0.6000
T14	4	Waveguide	0.00 - 20.00	0.6000	0.6000
T14	5	1-5/8" Coax	0.00 - 20.00	0.6000	0.6000
T14	6	1-1/4" Hybrid	0.00 - 20.00	0.6000	0.6000
T14	8	1-5/8" Coax	0.00 - 20.00	0.6000	0.6000
T14	9	Hybrid	0.00 - 20.00	0.6000	0.6000
T14	11	0.6"	0.00 - 20.00	0.6000	0.6000
T14	12	1/2" Coax	0.00 - 20.00	0.6000	0.6000
T14	13	7/8" Coax	0.00 - 20.00	0.6000	0.6000
T14	14	1-1/4"	0.00 - 20.00	0.6000	0.6000
T14	15	0.6"	0.00 - 20.00	0.6000	0.6000
T14	16	0.40"	0.00 - 20.00	0.6000	0.6000
T14	17	1/2"	0.00 - 20.00	0.6000	0.6000
T14	18	EW63	0.00 - 20.00	0.6000	0.6000
T14	19	1.05" Conduit	0.00 - 20.00	0.6000	0.6000
T14	20	7/8" Coax	0.00 - 20.00	0.6000	0.6000
T14	21	0.3"	0.00 - 20.00	0.6000	0.6000
T14	22	1/4"	0.00 - 20.00	0.6000	0.6000
T14	23	1/2"	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Top Beacon	C	From Leg	0.000 0.000 0.000	0.000	245.000	No Ice 1/2" Ice 1" Ice	1.750 2.680 3.610	1.750 2.680 3.610	0.068 0.102 0.136
Lightning Rod	C	From Leg	0.000 0.000	0.000	245.000	No Ice 1/2" Ice	0.520 1.050	0.520 1.050	0.025 0.030

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 K
			6.000			1" Ice	1.580	1.580	0.035
Single Side Light	A	From Leg	1.000	0.000	123.000	No Ice	0.140	0.140	0.002
			0.000			1/2" Ice	0.240	0.240	0.005
			0.000			1" Ice	0.340	0.340	0.007
Single Side Light	B	From Leg	1.000	0.000	123.000	No Ice	0.140	0.140	0.002
			0.000			1/2" Ice	0.240	0.240	0.005
			0.000			1" Ice	0.340	0.340	0.007
Single Side Light	C	From Leg	1.000	0.000	123.000	No Ice	0.140	0.140	0.002
			0.000			1/2" Ice	0.240	0.240	0.005
			0.000			1" Ice	0.340	0.340	0.007
** 245' **									
Platform Mount [LP 1201-1]	A	None		0.000	245.000	No Ice	23.100	23.100	2.100
						1/2" Ice	26.800	26.800	2.500
						1" Ice	30.500	30.500	2.900
Miscellaneous [NA 510-1]	C	None		0.000	245.000	No Ice	6.000	6.000	0.256
						1/2" Ice	8.500	8.500	0.340
						1" Ice	11.000	11.000	0.423
(2) 8'x2" Antenna Mount Pipe	A	From Leg	4.000	0.000	245.000	No Ice	1.900	1.900	0.030
			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.064
(2) 8'x2" Antenna Mount Pipe	B	From Leg	4.000	0.000	245.000	No Ice	1.900	1.900	0.030
			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.064
(2) 8'x2" Antenna Mount Pipe	C	From Leg	4.000	0.000	245.000	No Ice	1.900	1.900	0.030
			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.064
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.000	0.000	245.000	No Ice	8.262	6.946	0.083
			0.000			1/2" Ice	8.822	8.127	0.151
			3.330			1" Ice	9.346	9.021	0.227
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.000	0.000	245.000	No Ice	8.262	6.946	0.083
			0.000			1/2" Ice	8.822	8.127	0.151
			3.330			1" Ice	9.346	9.021	0.227
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.000	0.000	245.000	No Ice	8.262	6.946	0.083
			0.000			1/2" Ice	8.822	8.127	0.151
			3.330			1" Ice	9.346	9.021	0.227
800 MHz w/ Notch Filter	A	From Leg	4.000	0.000	245.000	No Ice	2.130	2.500	0.062
			0.000			1/2" Ice	2.320	2.690	0.088
			3.330			1" Ice	2.510	2.880	0.114
800 MHz w/ Notch Filter	B	From Leg	4.000	0.000	245.000	No Ice	2.130	2.500	0.062
			0.000			1/2" Ice	2.320	2.690	0.088
			3.330			1" Ice	2.510	2.880	0.114
800 MHz w/ Notch Filter	C	From Leg	4.000	0.000	245.000	No Ice	2.130	2.500	0.062
			0.000			1/2" Ice	2.320	2.690	0.088
			3.330			1" Ice	2.510	2.880	0.114
TD-RRH8x20-25	A	From Leg	4.000	0.000	245.000	No Ice	4.045	1.535	0.070
			0.000			1/2" Ice	4.298	1.714	0.097
			3.330			1" Ice	4.557	1.901	0.128
TD-RRH8x20-25	B	From Leg	4.000	0.000	245.000	No Ice	4.045	1.535	0.070
			0.000			1/2" Ice	4.298	1.714	0.097
			3.330			1" Ice	4.557	1.901	0.128
TD-RRH8x20-25	C	From Leg	4.000	0.000	245.000	No Ice	4.045	1.535	0.070
			0.000			1/2" Ice	4.298	1.714	0.097
			3.330			1" Ice	4.557	1.901	0.128
1900MHz RRH (65MHz)	A	From Leg	4.000	0.000	245.000	No Ice	2.322	2.380	0.060
			0.000			1/2" Ice	2.527	2.580	0.084
			0.000			1" Ice	2.739	2.780	0.108
1900MHz RRH (65MHz)	B	From Leg	4.000	0.000	245.000	No Ice	2.322	2.380	0.060

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 K
			0.000				1/2" Ice	2.527	2.580	0.084
			0.000				1" Ice	2.739	2.780	0.108
1900MHz RRH (65MHz)	C	From Leg	4.000		0.000	245.000	No Ice	2.322	2.380	0.060
			0.000				1/2" Ice	2.527	2.580	0.084
			0.000				1" Ice	2.739	2.780	0.108
1900MHz RRH (65MHz)	A	From Leg	4.000		0.000	245.000	No Ice	2.322	2.380	0.060
			0.000				1/2" Ice	2.527	2.580	0.084
			3.330				1" Ice	2.739	2.780	0.108
1900MHz RRH (65MHz)	B	From Leg	4.000		0.000	245.000	No Ice	2.322	2.380	0.060
			0.000				1/2" Ice	2.527	2.580	0.084
			3.330				1" Ice	2.739	2.780	0.108
1900MHz RRH (65MHz)	C	From Leg	4.000		0.000	245.000	No Ice	2.322	2.380	0.060
			0.000				1/2" Ice	2.527	2.580	0.084
			3.330				1" Ice	2.739	2.780	0.108
(2) TMA	A	From Leg	4.000		0.000	245.000	No Ice	0.720	0.660	0.021
			0.000				1/2" Ice	0.830	0.790	0.029
			3.330				1" Ice	0.950	0.920	0.038
(2) TMA	B	From Leg	4.000		0.000	245.000	No Ice	0.720	0.660	0.021
			0.000				1/2" Ice	0.830	0.790	0.029
			3.330				1" Ice	0.950	0.920	0.038
(2) TMA	C	From Leg	4.000		0.000	245.000	No Ice	0.720	0.660	0.021
			0.000				1/2" Ice	0.830	0.790	0.029
			3.330				1" Ice	0.950	0.920	0.038
** 232' ** Sector Mount [SM 502-3]	C	None			0.000	232.000	No Ice	33.020	33.020	1.673
							1/2" Ice	47.360	47.360	2.224
							1" Ice	61.700	61.700	2.775
AIR -32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.000		0.000	232.000	No Ice	6.747	6.070	0.153
			0.000				1/2" Ice	7.202	6.867	0.214
			0.000				1" Ice	7.648	7.583	0.282
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.000		0.000	232.000	No Ice	6.747	6.070	0.153
			0.000				1/2" Ice	7.202	6.867	0.214
			0.000				1" Ice	7.648	7.583	0.282
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.000		0.000	232.000	No Ice	6.747	6.070	0.153
			0.000				1/2" Ice	7.202	6.867	0.214
			0.000				1" Ice	7.648	7.583	0.282
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000		0.000	232.000	No Ice	20.480	11.024	0.161
			0.000				1/2" Ice	21.231	12.550	0.297
			0.000				1" Ice	21.990	14.099	0.444
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000		0.000	232.000	No Ice	20.480	11.024	0.161
			0.000				1/2" Ice	21.231	12.550	0.297
			0.000				1" Ice	21.990	14.099	0.444
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000		0.000	232.000	No Ice	20.480	11.024	0.161
			0.000				1/2" Ice	21.231	12.550	0.297
			0.000				1" Ice	21.990	14.099	0.444
AIR 3246 B66 w/ Mount Pipe	A	From Leg	4.000		0.000	232.000	No Ice	8.177	6.559	0.201
			0.000				1/2" Ice	8.656	7.393	0.272
			0.000				1" Ice	9.124	8.128	0.349
AIR 3246 B66 w/ Mount Pipe	B	From Leg	4.000		0.000	232.000	No Ice	8.177	6.559	0.201
			0.000				1/2" Ice	8.656	7.393	0.272
			0.000				1" Ice	9.124	8.128	0.349
AIR 3246 B66 w/ Mount Pipe	C	From Leg	4.000		0.000	232.000	No Ice	8.177	6.559	0.201
			0.000				1/2" Ice	8.656	7.393	0.272
			0.000				1" Ice	9.124	8.128	0.349
AIR 6488 B41 w/ Mount Pipe	A	From Leg	4.000		0.000	232.000	No Ice	6.201	3.536	0.127
			0.000				1/2" Ice	6.574	4.015	0.178
			0.000				1" Ice	6.958	4.510	0.236

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 K
AIR 6488 B41 w/ Mount Pipe	B	From Leg	4.000	0.000	232.000	No Ice	6.201	3.536	0.127
			0.000			1/2" Ice	6.574	4.015	0.178
			0.000			1" Ice	6.958	4.510	0.236
AIR 6488 B41 w/ Mount Pipe	C	From Leg	4.000	0.000	232.000	No Ice	6.201	3.536	0.127
			0.000			1/2" Ice	6.574	4.015	0.178
			0.000			1" Ice	6.958	4.510	0.236
13"x9"x5.5" TMA	A	From Leg	4.000	0.000	232.000	No Ice	0.975	0.596	0.025
			0.000			1/2" Ice	1.101	0.702	0.034
			0.000			1" Ice	1.234	0.816	0.044
13"x9"x5.5" TMA	B	From Leg	4.000	0.000	232.000	No Ice	0.975	0.596	0.025
			0.000			1/2" Ice	1.101	0.702	0.034
			0.000			1" Ice	1.234	0.816	0.044
13"x9"x5.5" TMA	C	From Leg	4.000	0.000	232.000	No Ice	0.975	0.596	0.025
			0.000			1/2" Ice	1.101	0.702	0.034
			0.000			1" Ice	1.234	0.816	0.044
RADIO 4449 B12/B71	A	From Leg	4.000	0.000	232.000	No Ice	1.650	1.300	0.075
			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
RADIO 4449 B12/B71	B	From Leg	4.000	0.000	232.000	No Ice	1.650	1.300	0.075
			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
RADIO 4449 B12/B71	C	From Leg	4.000	0.000	232.000	No Ice	1.650	1.300	0.075
			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
Ericson Radio 4415 B25	A	From Leg	4.000	0.000	232.000	No Ice	2.150	0.946	0.046
			0.000			1/2" Ice	2.348	1.096	0.060
			0.000			1" Ice	2.554	1.254	0.077
Ericson Radio 4415 B25	B	From Leg	4.000	0.000	232.000	No Ice	2.150	0.946	0.046
			0.000			1/2" Ice	2.348	1.096	0.060
			0.000			1" Ice	2.554	1.254	0.077
Ericson Radio 4415 B25	C	From Leg	4.000	0.000	232.000	No Ice	2.150	0.946	0.046
			0.000			1/2" Ice	2.348	1.096	0.060
			0.000			1" Ice	2.554	1.254	0.077
*****									
Side Arm Mount [SO 305-1]	A	From Leg	3.000	0.000	134.500	No Ice	0.940	1.410	0.030
			0.000			1/2" Ice	1.480	2.170	0.043
			0.000			1" Ice	2.020	2.930	0.057
Side Arm Mount [SO 305-1]	B	From Leg	3.000	0.000	134.500	No Ice	0.940	1.410	0.030
			0.000			1/2" Ice	1.480	2.170	0.043
			0.000			1" Ice	2.020	2.930	0.057
Side Arm Mount [SO 305-1]	C	From Leg	3.000	0.000	132.500	No Ice	0.940	1.410	0.030
			0.000			1/2" Ice	1.480	2.170	0.043
			0.000			1" Ice	2.020	2.930	0.057
7' Omni	A	From Leg	3.000	0.000	134.500	No Ice	2.100	2.100	0.022
			0.000			1/2" Ice	2.640	2.640	0.037
			3.500			1" Ice	3.180	3.180	0.053
7' Omni	B	From Leg	3.000	0.000	134.500	No Ice	2.100	2.100	0.022
			0.000			1/2" Ice	2.640	2.640	0.037
			3.500			1" Ice	3.180	3.180	0.053
8' Omni	C	From Leg	3.000	0.000	132.500	No Ice	2.400	2.400	0.025
			0.000			1/2" Ice	3.190	3.190	0.425
			4.000			1" Ice	3.980	3.980	0.825
***									
Side Arm Mount [SO 305-1]	B	From Leg	3.000	0.000	124.250	No Ice	0.940	1.410	0.030
			0.000			1/2" Ice	1.480	2.170	0.043
			0.000			1" Ice	2.020	2.930	0.057
20' Omni	B	From Leg	3.000	0.000	124.250	No Ice	6.000	6.000	0.055

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 K
			0.000			1/2" Ice	8.030	8.030	0.098
			10.000			1" Ice	10.060	10.060	0.141
***									
Side Arm Mount [SO 305-1]	A	From Leg	3.000	0.000	112.000	No Ice	0.940	1.410	0.030
			0.000			1/2" Ice	1.480	2.170	0.043
			0.000			1" Ice	2.020	2.930	0.057
Side Arm Mount [SO 305-1]	C	From Leg	3.000	0.000	112.330	No Ice	0.940	1.410	0.030
			0.000			1/2" Ice	1.480	2.170	0.043
			0.000			1" Ice	2.020	2.930	0.057
7' Omni	A	From Leg	3.000	0.000	112.000	No Ice	2.100	2.100	0.022
			0.000			1/2" Ice	2.640	2.640	0.037
			3.500			1" Ice	3.180	3.180	0.053
8' Omni	C	From Leg	3.000	0.000	112.330	No Ice	2.400	2.400	0.025
			0.000			1/2" Ice	3.190	3.190	0.425
			4.000			1" Ice	3.980	3.980	0.825
Pipe Mount [PM 601-1]	B	From Leg	0.500	0.000	112.500	No Ice	3.000	0.900	0.065
			0.000			1/2" Ice	3.740	1.120	0.079
			0.000			1" Ice	4.480	1.340	0.093
***									
Side Arm Mount [SO 301-1]	B	From Leg	0.500	0.000	104.250	No Ice	1.000	0.900	0.023
			0.000			1/2" Ice	1.390	1.420	0.033
			0.000			1" Ice	1.780	1.940	0.042
***									
Side Arm Mount [SO 305-1]	C	From Leg	3.000	0.000	71.500	No Ice	0.940	1.410	0.030
			0.000			1/2" Ice	1.480	2.170	0.043
			0.000			1" Ice	2.020	2.930	0.057
15' Omni	C	From Leg	3.000	0.000	71.500	No Ice	4.500	4.500	0.015
			0.000			1/2" Ice	6.030	6.030	0.047
			7.500			1" Ice	7.560	7.560	0.080
Camera	A	From Leg	0.000	0.000	71.000	No Ice	1.200	2.400	0.015
			0.000			1/2" Ice	1.340	2.600	0.040
			0.000			1" Ice	1.480	2.800	0.065
***									
Camera	A	From Leg	0.000	0.000	56.750	No Ice	1.200	2.400	0.015
			0.000			1/2" Ice	1.340	2.600	0.040
			0.000			1" Ice	1.480	2.800	0.065
***									
Side Arm Mount [SO 305-1]	A	From Leg	3.000	0.000	50.000	No Ice	0.940	1.410	0.030
			0.000			1/2" Ice	1.480	2.170	0.043
			0.000			1" Ice	2.020	2.930	0.057
GPS	A	From Leg	3.000	0.000	50.000	No Ice	0.380	0.380	0.010
			0.000			1/2" Ice	0.570	0.570	0.016
			0.000			1" Ice	0.760	0.760	0.022
***									
**									
*									

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 ft²	Weight K
4' Grid Dish	B	Grid	From Leg	0.000 0.000 0.000	0.000		112.000	4.000	No Ice 1/2" Ice 1" Ice	12.570 13.100 13.630	0.051 0.118 0.186
Andrew D6E-6	B	Paraboloid w/Radome	From Leg	0.000 0.000 0.000	0.000		104.250	6.000	No Ice 1/2" Ice 1" Ice	28.270 29.070 29.870	0.250 0.399 0.548
*** ** *											

Truss-Leg Properties

Section Designation	Area in²	Area Ice in²	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in²
Pirod 105245	1090.334	3473.380	0.677	1.032	7.572	24.121	5.301
Pirod 105217	2130.748	7115.980	0.619	1.944	7.398	24.708	5.301
Pirod 105218	2263.469	7162.072	0.755	1.930	7.859	24.868	7.216
Pirod 105218	2263.469	7132.845	0.755	1.885	7.859	24.767	7.216
Pirod 105219	2441.869	7180.136	0.944	1.905	8.479	24.931	9.425
Pirod 105219	2441.869	7161.996	0.944	1.877	8.479	24.868	9.425
Pirod 105219	2441.869	7131.633	0.944	1.831	8.479	24.763	9.425
Pirod 105220	2578.801	7155.123	1.121	1.783	8.954	24.844	11.928
Pirod 105220	2578.801	7092.056	1.121	1.691	8.954	24.625	11.928
Pirod 105220	2578.801	7000.274	1.121	1.560	8.954	24.307	11.928
Pirod 112738	3466.516	8985.647	1.689	1.820	12.037	31.200	14.726

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	1.2D+1.6W (pattern 1) 0 deg - No Ice
4	1.2D+1.6W (pattern 2) 0 deg - No Ice
5	0.9 Dead+1.6 Wind 0 deg - No Ice
6	1.2 Dead+1.6 Wind 30 deg - No Ice
7	1.2D+1.6W (pattern 1) 30 deg - No Ice
8	1.2D+1.6W (pattern 2) 30 deg - No Ice
9	0.9 Dead+1.6 Wind 30 deg - No Ice
10	1.2 Dead+1.6 Wind 60 deg - No Ice
11	1.2D+1.6W (pattern 1) 60 deg - No Ice
12	1.2D+1.6W (pattern 2) 60 deg - No Ice
13	0.9 Dead+1.6 Wind 60 deg - No Ice
14	1.2 Dead+1.6 Wind 90 deg - No Ice
15	1.2D+1.6W (pattern 1) 90 deg - No Ice
16	1.2D+1.6W (pattern 2) 90 deg - No Ice
17	0.9 Dead+1.6 Wind 90 deg - No Ice
18	1.2 Dead+1.6 Wind 120 deg - No Ice
19	1.2D+1.6W (pattern 1) 120 deg - No Ice
20	1.2D+1.6W (pattern 2) 120 deg - No Ice
21	0.9 Dead+1.6 Wind 120 deg - No Ice

Comb. No.	Description
22	1.2 Dead+1.6 Wind 150 deg - No Ice
23	1.2D+1.6W (pattern 1) 150 deg - No Ice
24	1.2D+1.6W (pattern 2) 150 deg - No Ice
25	0.9 Dead+1.6 Wind 150 deg - No Ice
26	1.2 Dead+1.6 Wind 180 deg - No Ice
27	1.2D+1.6W (pattern 1) 180 deg - No Ice
28	1.2D+1.6W (pattern 2) 180 deg - No Ice
29	0.9 Dead+1.6 Wind 180 deg - No Ice
30	1.2 Dead+1.6 Wind 210 deg - No Ice
31	1.2D+1.6W (pattern 1) 210 deg - No Ice
32	1.2D+1.6W (pattern 2) 210 deg - No Ice
33	0.9 Dead+1.6 Wind 210 deg - No Ice
34	1.2 Dead+1.6 Wind 240 deg - No Ice
35	1.2D+1.6W (pattern 1) 240 deg - No Ice
36	1.2D+1.6W (pattern 2) 240 deg - No Ice
37	0.9 Dead+1.6 Wind 240 deg - No Ice
38	1.2 Dead+1.6 Wind 270 deg - No Ice
39	1.2D+1.6W (pattern 1) 270 deg - No Ice
40	1.2D+1.6W (pattern 2) 270 deg - No Ice
41	0.9 Dead+1.6 Wind 270 deg - No Ice
42	1.2 Dead+1.6 Wind 300 deg - No Ice
43	1.2D+1.6W (pattern 1) 300 deg - No Ice
44	1.2D+1.6W (pattern 2) 300 deg - No Ice
45	0.9 Dead+1.6 Wind 300 deg - No Ice
46	1.2 Dead+1.6 Wind 330 deg - No Ice
47	1.2D+1.6W (pattern 1) 330 deg - No Ice
48	1.2D+1.6W (pattern 2) 330 deg - No Ice
49	0.9 Dead+1.6 Wind 330 deg - No Ice
50	1.2 Dead+1.0 Ice+1.0 Temp
51	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
52	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
53	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
54	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
55	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
56	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
57	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
58	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
59	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
60	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
61	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
62	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
63	Dead+Wind 0 deg - Service
64	Dead+Wind 30 deg - Service
65	Dead+Wind 60 deg - Service
66	Dead+Wind 90 deg - Service
67	Dead+Wind 120 deg - Service
68	Dead+Wind 150 deg - Service
69	Dead+Wind 180 deg - Service
70	Dead+Wind 210 deg - Service
71	Dead+Wind 240 deg - Service
72	Dead+Wind 270 deg - Service
73	Dead+Wind 300 deg - Service
74	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	245 - 230	Leg	Max Tension	13	26.033	0.866	-0.522
			Max. Compression	18	-31.746	-1.060	-0.659
			Max. Mx	14	-28.172	-1.193	-0.125
			Max. My	2	-31.653	0.004	1.249
			Max. Vy	14	4.425	-1.193	-0.125
			Max. Vx	2	-4.619	0.004	1.249
		Diagonal	Max Tension	22	4.723	0.000	0.000
			Max. Compression	46	-4.701	0.000	0.000
			Max. Mx	57	1.433	-0.008	0.000
			Max. My	18	-4.665	0.000	-0.002
			Max. Vy	57	0.015	-0.008	0.000
			Max. Vx	18	0.001	0.000	-0.002
		Horizontal	Max Tension	26	0.790	0.000	0.000
			Max. Compression	5	-0.658	0.000	0.000
			Max. Mx	51	0.079	0.023	0.000
			Max. My	34	-0.182	0.000	0.000
			Max. Vy	51	0.023	0.000	0.000
			Max. Vx	34	-0.000	0.000	0.000
		Top Girt	Max Tension	20	1.167	0.000	0.000
			Max. Compression	12	-1.255	0.000	0.000
			Max. Mx	59	0.311	0.025	0.000
			Max. My	6	0.155	0.000	-0.000
			Max. Vy	59	-0.025	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Bottom Girt	Max Tension	10	2.614	0.000	0.000
			Max. Compression	18	-2.809	0.000	0.000
			Max. Mx	59	-0.841	0.025	0.000
			Max. My	6	0.445	0.000	-0.000
			Max. Vy	59	-0.025	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
T2	230 - 210	Leg	Max Tension	13	94.987	1.870	0.117
			Max. Compression	34	-101.864	0.706	0.028
			Max. Mx	2	-31.743	3.245	-0.009
			Max. My	14	-3.342	-0.004	2.935
			Max. Vy	34	-5.329	0.706	0.028
			Max. Vx	6	4.437	0.022	-0.512
		Diagonal	Max Tension	46	6.360	0.000	0.000
			Max. Compression	22	-6.548	0.000	0.000
			Max. Mx	55	1.620	-0.010	0.000
			Max. My	14	-6.431	0.000	0.004
			Max. Vy	55	0.018	-0.010	0.000
			Max. Vx	14	-0.002	0.000	0.004
		Horizontal	Max Tension	26	1.875	0.000	0.000
			Max. Compression	5	-1.621	0.000	0.000
			Max. Mx	51	0.213	0.030	0.000
			Max. My	34	0.351	0.000	0.000
			Max. Vy	51	0.027	0.000	0.000
			Max. Vx	34	-0.000	0.000	0.000
		Top Girt	Max Tension	18	3.191	0.000	0.000
			Max. Compression	10	-2.996	0.000	0.000
			Max. Mx	59	1.027	0.027	0.000
			Max. My	6	-0.442	0.000	-0.000
			Max. Vy	59	-0.027	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Bottom Girt	Max Tension	26	2.948	0.000	0.000
			Max. Compression	2	-3.071	0.000	0.000
			Max. Mx	50	0.108	0.034	0.000
			Max. My	6	0.554	0.000	-0.000
			Max. Vy	50	-0.030	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
T3	210 - 190	Leg	Max Tension	10	166.345	0.490	0.100

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	34	-174.258	4.302	0.357
			Max. Mx	34	-174.258	4.302	0.357
			Max. My	6	-5.402	0.028	-3.480
			Max. Vy	34	-7.260	4.302	0.357
			Max. Vx	6	4.452	0.028	-3.480
		Diagonal	Max Tension	10	7.509	0.000	0.000
			Max. Compression	34	-7.836	0.000	0.000
			Max. Mx	51	1.786	-0.014	-0.000
			Max. My	34	-7.832	0.002	-0.007
			Max. Vy	51	0.021	-0.014	0.000
			Max. Vx	34	0.003	0.002	-0.007
		Horizontal	Max Tension	26	2.180	0.000	0.000
			Max. Compression	5	-1.969	0.000	0.000
			Max. Mx	51	-0.082	0.037	0.000
			Max. My	34	0.506	0.000	0.000
			Max. Vy	51	0.030	0.000	0.000
			Max. Vx	34	-0.000	0.000	0.000
		Top Girt	Max Tension	34	2.741	0.000	0.000
			Max. Compression	10	-2.533	0.000	0.000
			Max. Mx	50	0.049	0.034	0.000
			Max. My	6	-0.568	0.000	-0.000
			Max. Vy	50	-0.030	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Bottom Girt	Max Tension	26	2.107	0.000	0.000
			Max. Compression	5	-1.955	0.000	0.000
			Max. Mx	50	0.107	0.041	0.000
			Max. My	6	-0.195	0.000	-0.000
			Max. Vy	50	-0.033	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
T4	190 - 180	Leg	Max Tension	10	166.645	-4.058	-0.338
			Max. Compression	34	-173.345	7.797	0.069
			Max. Mx	10	166.337	-8.415	-0.167
			Max. My	14	-5.158	-0.234	13.582
			Max. Vy	10	0.591	-8.415	-0.167
			Max. Vx	6	1.319	-0.251	-13.271
		Diagonal	Max Tension	9	7.086	0.106	-0.018
			Max. Compression	6	-7.584	0.000	0.000
			Max. Mx	10	3.329	0.127	0.007
			Max. My	34	-7.084	-0.105	0.051
			Max. Vy	53	0.044	0.076	0.003
			Max. Vx	34	-0.010	0.000	0.000
T5	180 - 160	Leg	Max Tension	13	196.436	-8.049	-0.073
			Max. Compression	34	-205.589	8.343	0.404
			Max. Mx	10	195.964	-8.486	-0.398
			Max. My	14	-6.217	-0.234	13.582
			Max. Vy	61	-0.228	-3.306	-0.086
			Max. Vx	6	-0.815	-0.251	-13.271
		Diagonal	Max Tension	34	6.197	0.064	0.001
			Max. Compression	10	-6.795	0.000	0.000
			Max. Mx	34	3.312	0.119	0.010
			Max. My	9	-3.640	-0.068	-0.019
			Max. Vy	53	0.056	0.091	0.015
			Max. Vx	56	-0.005	0.000	0.000
T6	160 - 140	Leg	Max Tension	13	224.187	-7.433	-0.084
			Max. Compression	34	-236.908	6.535	-0.148
			Max. Mx	10	210.149	-8.486	-0.398
			Max. My	6	-8.409	0.000	-7.620
			Max. Vy	10	-0.269	-8.486	-0.398
			Max. Vx	6	-0.341	0.000	-7.620
		Diagonal	Max Tension	13	6.570	0.000	0.000
			Max. Compression	34	-7.174	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	34	3.150	0.164	0.014
			Max. My	51	-0.013	0.115	-0.022
			Max. Vy	53	0.082	0.140	0.018
			Max. Vx	51	0.006	0.000	0.000
T7	140 - 120	Leg	Max Tension	13	253.060	-8.227	-0.518
			Max. Compression	34	-269.547	8.272	0.523
			Max. Mx	10	252.019	-8.275	-0.522
			Max. My	6	-11.461	-0.033	-8.440
			Max. Vy	37	-0.394	8.251	0.526
			Max. Vx	6	0.588	-0.033	-8.440
		Diagonal	Max Tension	13	7.125	0.000	0.000
			Max. Compression	34	-7.825	0.000	0.000
			Max. Mx	51	1.790	0.154	0.017
			Max. My	51	-0.128	0.137	-0.023
			Max. Vy	53	0.088	0.153	0.021
			Max. Vx	51	-0.006	0.000	0.000
T8	120 - 110	Leg	Max Tension	13	268.639	-8.227	-0.518
			Max. Compression	34	-287.155	1.285	-0.028
			Max. Mx	10	267.490	-8.275	-0.522
			Max. My	6	-11.710	-0.033	-8.440
			Max. Vy	34	0.903	8.272	0.523
			Max. Vx	6	-0.521	-0.033	-8.440
		Diagonal	Max Tension	10	8.459	0.000	0.000
			Max. Compression	34	-9.179	0.000	0.000
			Max. Mx	54	1.072	0.197	-0.021
			Max. My	56	1.024	0.161	0.029
			Max. Vy	53	0.107	0.193	0.026
			Max. Vx	56	-0.007	0.000	0.000
T9	110 - 100	Leg	Max Tension	13	282.014	-1.896	-0.015
			Max. Compression	34	-302.568	18.396	-0.290
			Max. Mx	34	-302.568	18.396	-0.290
			Max. My	14	-11.775	-0.293	7.135
			Max. Vy	34	-3.632	18.396	-0.290
			Max. Vx	6	1.265	-0.318	-7.031
		Diagonal	Max Tension	13	10.835	0.116	-0.010
			Max. Compression	34	-11.869	0.000	0.000
			Max. Mx	53	1.790	0.206	-0.016
			Max. My	34	-11.829	-0.019	0.028
			Max. Vy	53	0.113	0.206	-0.016
			Max. Vx	56	0.006	0.000	0.000
		Secondary Horizontal	Max Tension	34	5.247	0.000	0.000
			Max. Compression	34	-5.247	0.036	-0.009
			Max. Mx	62	0.066	0.145	0.033
			Max. My	52	-0.532	0.143	0.040
			Max. Vy	62	0.107	0.145	0.033
			Max. Vx	54	-0.009	0.000	0.000
T10	100 - 80	Leg	Max Tension	13	316.434	-6.706	-0.023
			Max. Compression	34	-342.712	6.439	0.091
			Max. Mx	10	314.475	-6.752	-0.028
			Max. My	14	-13.057	-0.069	7.563
			Max. Vy	34	-0.682	6.692	-0.014
			Max. Vx	6	-0.439	-0.034	-7.244
		Diagonal	Max Tension	34	10.026	0.000	0.000
			Max. Compression	34	-10.656	0.000	0.000
			Max. Mx	51	2.803	0.326	0.034
			Max. My	55	-0.084	0.246	0.043
			Max. Vy	53	0.151	0.309	0.039
			Max. Vx	55	-0.009	0.000	0.000
T11	80 - 60	Leg	Max Tension	13	349.177	-6.189	-0.035
			Max. Compression	34	-381.666	5.785	-0.074

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	34	-361.624	6.439	0.091
			Max. My	14	-15.203	-0.036	5.985
			Max. Vy	42	0.254	-5.544	-0.043
			Max. Vx	14	-0.329	-0.036	5.985
		Diagonal	Max Tension	34	10.689	0.000	0.000
			Max. Compression	34	-11.605	0.000	0.000
			Max. Mx	53	2.292	0.336	0.042
			Max. My	55	0.003	0.286	0.046
			Max. Vy	53	0.157	0.336	0.042
			Max. Vx	55	0.009	0.000	0.000
T12	60 - 40	Leg	Max Tension	13	382.322	-5.637	0.013
			Max. Compression	34	-421.138	5.671	0.394
			Max. Mx	10	378.594	-6.885	-0.373
			Max. My	14	-19.006	-0.835	10.848
			Max. Vy	42	0.308	-6.239	-0.365
			Max. Vx	6	0.786	-0.824	-10.749
		Diagonal	Max Tension	34	11.489	0.000	0.000
			Max. Compression	34	-11.732	0.000	0.000
			Max. Mx	53	2.097	0.408	0.051
			Max. My	55	-0.231	0.353	0.055
			Max. Vy	53	0.177	0.408	0.051
			Max. Vx	55	0.010	0.000	0.000
T13	40 - 20	Leg	Max Tension	13	417.607	-7.235	0.115
			Max. Compression	34	-464.175	7.470	0.471
			Max. Mx	10	413.027	-10.070	-0.479
			Max. My	14	-22.384	-1.638	26.940
			Max. Vy	57	-0.571	-4.099	-0.100
			Max. Vx	14	-3.521	-1.638	26.940
		Diagonal	Max Tension	34	14.905	0.000	0.000
			Max. Compression	34	-15.178	0.000	0.000
			Max. Mx	54	-1.404	0.563	-0.070
			Max. My	10	-13.348	0.164	-0.099
			Max. Vy	54	0.215	0.563	-0.070
			Max. Vx	54	-0.013	0.000	0.000
T14	20 - 0	Leg	Max Tension	13	431.910	-9.670	-0.469
			Max. Compression	34	-480.892	-0.000	-0.001
			Max. Mx	10	427.810	-10.070	-0.479
			Max. My	14	-21.686	-1.639	26.939
			Max. Vy	10	-0.871	-10.070	-0.479
			Max. Vx	14	1.729	-1.639	26.939
		Diagonal	Max Tension	13	21.812	0.000	0.000
			Max. Compression	34	-25.481	0.000	0.000
			Max. Mx	54	5.082	-0.883	-0.141
			Max. My	62	-0.913	-0.851	0.152
			Max. Vy	54	-0.282	-0.883	-0.141
			Max. Vx	62	0.018	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	34	511.464	51.588	-28.250
	Max. H_x	35	511.464	51.588	-28.250
	Max. H_z	13	-455.346	-45.384	24.693
	Min. Vert	13	-455.346	-45.384	24.693
	Min. H_x	13	-455.346	-45.384	24.693

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H_z	34	511.464	51.588	-28.250
Leg B	Max. Vert	18	463.066	-45.183	-27.789
	Max. H_x	45	-401.134	38.805	24.086
	Max. H_z	45	-401.134	38.805	24.086
	Min. Vert	45	-401.134	38.805	24.086
	Min. H_x	18	463.066	-45.183	-27.789
	Min. H_z	18	463.066	-45.183	-27.789
Leg A	Max. Vert	2	453.073	1.168	51.876
	Max. H_x	11	263.347	4.108	29.886
	Max. H_z	2	453.073	1.168	51.876
	Min. Vert	29	-387.804	-1.092	-43.991
	Min. H_x	34	-216.208	-3.845	-24.788
	Min. H_z	29	-387.804	-1.092	-43.991

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	65.361	0.000	0.000	-0.858	-26.619	-0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	78.434	-0.197	-69.252	-8873.531	-11.588	46.956
1.2D+1.6W (pattern 1) 0 deg - No Ice	78.434	-0.197	-69.252	-8873.531	-11.588	46.956
1.2D+1.6W (pattern 2) 0 deg - No Ice	78.434	-0.118	-52.023	-6825.517	-19.858	45.062
0.9 Dead+1.6 Wind 0 deg - No Ice	58.825	-0.197	-69.252	-8853.045	-3.508	46.882
1.2 Dead+1.6 Wind 30 deg - No Ice	78.434	35.878	-62.311	-8075.954	-4683.046	74.114
1.2D+1.6W (pattern 1) 30 deg - No Ice	78.434	35.878	-62.311	-8075.954	-4683.046	74.114
1.2D+1.6W (pattern 2) 30 deg - No Ice	78.434	27.861	-48.359	-6386.393	-3712.114	72.108
0.9 Dead+1.6 Wind 30 deg - No Ice	58.825	35.878	-62.311	-8057.219	-4664.253	74.035
1.2 Dead+1.6 Wind 60 deg - No Ice	78.434	65.870	-37.926	-4930.170	-8586.735	54.537
1.2D+1.6W (pattern 1) 60 deg - No Ice	78.434	65.870	-37.926	-4930.170	-8586.735	54.537
1.2D+1.6W (pattern 2) 60 deg - No Ice	78.434	52.171	-30.059	-3971.023	-6918.764	52.622
0.9 Dead+1.6 Wind 60 deg - No Ice	58.825	65.870	-37.926	-4918.665	-8559.110	54.485
1.2 Dead+1.6 Wind 90 deg - No Ice	78.434	75.334	0.100	9.544	-9784.697	-17.564
1.2D+1.6W (pattern 1) 90 deg - No Ice	78.434	75.334	0.100	9.544	-9784.697	-17.564
1.2D+1.6W (pattern 2) 90 deg - No Ice	78.434	59.055	0.060	5.327	-7817.153	-18.913
0.9 Dead+1.6 Wind 90 deg - No Ice	58.825	75.334	0.100	9.790	-9754.375	-17.578
1.2 Dead+1.6 Wind 120 deg - No Ice	78.434	61.420	35.420	4523.922	-7874.232	-60.944
1.2D+1.6W (pattern 1) 120 deg - No Ice	78.434	61.420	35.420	4523.922	-7874.232	-60.944
1.2D+1.6W (pattern 2) 120 deg	78.434	46.498	26.821	3508.834	-6114.237	-61.078

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
- No Ice						
0.9 Dead+1.6 Wind 120 deg - No Ice	58.825	61.420	35.420	4513.888	-7848.341	-60.916
1.2 Dead+1.6 Wind 150 deg - No Ice	78.434	32.316	55.702	7215.715	-4213.626	-50.287
1.2D+1.6W (pattern 1) 150 deg - No Ice	78.434	32.316	55.702	7215.715	-4213.626	-50.287
1.2D+1.6W (pattern 2) 150 deg - No Ice	78.434	24.207	41.765	5540.054	-3240.277	-49.168
0.9 Dead+1.6 Wind 150 deg - No Ice	58.825	32.316	55.702	7199.195	-4195.862	-50.236
1.2 Dead+1.6 Wind 180 deg - No Ice	78.434	0.055	65.286	8487.373	-38.404	-46.662
1.2D+1.6W (pattern 1) 180 deg - No Ice	78.434	0.055	65.286	8487.373	-38.404	-46.662
1.2D+1.6W (pattern 2) 180 deg - No Ice	78.434	0.033	49.643	6593.010	-35.947	-44.885
0.9 Dead+1.6 Wind 180 deg - No Ice	58.825	0.055	65.286	8467.898	-30.299	-46.594
1.2 Dead+1.6 Wind 210 deg - No Ice	78.434	-35.923	61.911	8000.786	4603.813	-74.098
1.2D+1.6W (pattern 1) 210 deg - No Ice	78.434	-35.923	61.911	8000.786	4603.813	-74.098
1.2D+1.6W (pattern 2) 210 deg - No Ice	78.434	-27.889	48.118	6340.542	3638.744	-72.099
0.9 Dead+1.6 Wind 210 deg - No Ice	58.825	-35.923	61.911	7982.694	4601.347	-74.019
1.2 Dead+1.6 Wind 240 deg - No Ice	78.434	-68.815	39.462	5037.205	8739.440	-54.811
1.2D+1.6W (pattern 1) 240 deg - No Ice	78.434	-68.815	39.462	5037.205	8739.440	-54.811
1.2D+1.6W (pattern 2) 240 deg - No Ice	78.434	-53.938	30.980	4034.549	6984.558	-52.790
0.9 Dead+1.6 Wind 240 deg - No Ice	58.825	-68.815	39.462	5026.122	8727.894	-54.760
1.2 Dead+1.6 Wind 270 deg - No Ice	78.434	-75.313	-0.088	-10.340	9681.234	17.337
1.2D+1.6W (pattern 1) 270 deg - No Ice	78.434	-75.313	-0.088	-10.340	9681.234	17.337
1.2D+1.6W (pattern 2) 270 deg - No Ice	78.434	-59.043	-0.053	-6.609	7729.313	18.777
0.9 Dead+1.6 Wind 270 deg - No Ice	58.825	-75.313	-0.088	-10.068	9667.284	17.351
1.2 Dead+1.6 Wind 300 deg - No Ice	78.434	-58.643	-33.816	-4392.179	7577.441	60.927
1.2D+1.6W (pattern 1) 300 deg - No Ice	78.434	-58.643	-33.816	-4392.179	7577.441	60.927
1.2D+1.6W (pattern 2) 300 deg - No Ice	78.434	-44.832	-25.859	-3430.630	5910.352	61.067
0.9 Dead+1.6 Wind 300 deg - No Ice	58.825	-58.642	-33.816	-4381.801	7567.979	60.904
1.2 Dead+1.6 Wind 330 deg - No Ice	78.434	-32.457	-55.971	-7245.965	4163.725	50.502
1.2D+1.6W (pattern 1) 330 deg - No Ice	78.434	-32.457	-55.971	-7245.965	4163.725	50.502
1.2D+1.6W (pattern 2) 330 deg - No Ice	78.434	-24.291	-41.926	-5559.029	3184.510	49.297
0.9 Dead+1.6 Wind 330 deg - No Ice	58.825	-32.457	-55.970	-7228.959	4162.107	50.451
1.2 Dead+1.0 Ice+1.0 Temp	259.389	-0.000	0.000	-87.677	-140.538	0.003
1.2 Dead+1.0 Wind 0 deg+1.0	259.389	-0.152	-22.706	-3100.559	-124.143	10.812

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Ice+1.0 Temp						
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	259.389	11.473	-19.907	-2733.506	-1666.023	5.288
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	259.389	20.387	-11.737	-1645.023	-2843.604	-5.195
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	259.389	23.633	0.022	-85.657	-3268.460	-20.663
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	259.389	19.621	11.321	1378.268	-2681.570	-27.216
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	259.389	10.874	18.776	2365.118	-1560.429	-19.999
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	259.389	0.023	21.583	2736.574	-143.548	-10.961
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	259.389	-11.191	19.323	2428.165	1315.105	-5.245
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	259.389	-20.305	11.540	1404.208	2478.027	5.389
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	259.389	-23.081	-0.091	-97.951	2850.111	20.957
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	259.389	-19.349	-11.164	-1542.497	2378.864	27.207
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	259.389	-10.980	-18.824	-2546.041	1290.164	19.686
Dead+Wind 0 deg - Service	65.361	-0.043	-15.275	-1955.035	-22.218	10.348
Dead+Wind 30 deg - Service	65.361	7.913	-13.744	-1779.395	-1051.083	16.320
Dead+Wind 60 deg - Service	65.361	14.529	-8.365	-1086.538	-1910.932	12.023
Dead+Wind 90 deg - Service	65.361	16.616	0.022	1.519	-2174.836	-3.856
Dead+Wind 120 deg - Service	65.361	13.547	7.812	995.841	-1754.032	-13.440
Dead+Wind 150 deg - Service	65.361	7.128	12.286	1588.622	-947.724	-11.097
Dead+Wind 180 deg - Service	65.361	0.012	14.400	1868.678	-28.130	-10.284
Dead+Wind 210 deg - Service	65.361	-7.923	13.655	1761.542	994.369	-16.319
Dead+Wind 240 deg - Service	65.361	-15.178	8.704	1108.850	1905.303	-12.086
Dead+Wind 270 deg - Service	65.361	-16.612	-0.019	-2.864	2112.647	3.807
Dead+Wind 300 deg - Service	65.361	-12.935	-7.459	-967.937	1649.215	13.437
Dead+Wind 330 deg - Service	65.361	-7.159	-12.345	-1596.491	897.353	11.147

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-65.361	0.000	0.000	65.361	0.000	0.000%
2	-0.197	-78.434	-69.252	0.197	78.434	69.252	0.000%
3	-0.197	-78.434	-69.252	0.197	78.434	69.252	0.000%
4	-0.118	-78.434	-52.023	0.118	78.434	52.023	0.000%
5	-0.197	-58.825	-69.252	0.197	58.825	69.252	0.000%
6	35.878	-78.434	-62.311	-35.878	78.434	62.311	0.000%
7	35.878	-78.434	-62.311	-35.878	78.434	62.311	0.000%
8	27.861	-78.434	-48.359	-27.861	78.434	48.359	0.000%
9	35.878	-58.825	-62.311	-35.878	58.825	62.311	0.000%
10	65.870	-78.434	-37.926	-65.870	78.434	37.926	0.001%
11	65.870	-78.434	-37.926	-65.870	78.434	37.926	0.001%
12	52.171	-78.434	-30.059	-52.171	78.434	30.059	0.000%
13	65.870	-58.825	-37.926	-65.870	58.825	37.926	0.000%
14	75.334	-78.434	0.100	-75.334	78.434	-0.100	0.000%
15	75.334	-78.434	0.100	-75.334	78.434	-0.100	0.000%
16	59.055	-78.434	0.060	-59.055	78.434	-0.060	0.000%
17	75.334	-58.825	0.100	-75.334	58.825	-0.100	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
18	61.421	-78.434	35.420	-61.420	78.434	-35.420	0.000%
19	61.421	-78.434	35.420	-61.420	78.434	-35.420	0.000%
20	46.498	-78.434	26.821	-46.498	78.434	-26.821	0.000%
21	61.421	-58.825	35.420	-61.420	58.825	-35.420	0.000%
22	32.316	-78.434	55.702	-32.316	78.434	-55.702	0.000%
23	32.316	-78.434	55.702	-32.316	78.434	-55.702	0.000%
24	24.207	-78.434	41.765	-24.207	78.434	-41.765	0.000%
25	32.316	-58.825	55.702	-32.316	58.825	-55.702	0.000%
26	0.055	-78.434	65.286	-0.055	78.434	-65.286	0.000%
27	0.055	-78.434	65.286	-0.055	78.434	-65.286	0.000%
28	0.033	-78.434	49.643	-0.033	78.434	-49.643	0.000%
29	0.055	-58.825	65.286	-0.055	58.825	-65.286	0.000%
30	-35.923	-78.434	61.910	35.923	78.434	-61.911	0.000%
31	-35.923	-78.434	61.910	35.923	78.434	-61.911	0.000%
32	-27.889	-78.434	48.118	27.889	78.434	-48.118	0.000%
33	-35.923	-58.825	61.910	35.923	58.825	-61.911	0.000%
34	-68.815	-78.434	39.462	68.815	78.434	-39.462	0.000%
35	-68.815	-78.434	39.462	68.815	78.434	-39.462	0.000%
36	-53.938	-78.434	30.980	53.938	78.434	-30.980	0.000%
37	-68.815	-58.825	39.462	68.815	58.825	-39.462	0.000%
38	-75.313	-78.434	-0.087	75.313	78.434	0.088	0.000%
39	-75.313	-78.434	-0.087	75.313	78.434	0.088	0.000%
40	-59.043	-78.434	-0.052	59.043	78.434	0.053	0.000%
41	-75.313	-58.825	-0.087	75.313	58.825	0.088	0.000%
42	-58.642	-78.434	-33.816	58.643	78.434	33.816	0.000%
43	-58.642	-78.434	-33.816	58.643	78.434	33.816	0.000%
44	-44.831	-78.434	-25.859	44.832	78.434	25.859	0.000%
45	-58.642	-58.825	-33.816	58.642	58.825	33.816	0.000%
46	-32.457	-78.434	-55.971	32.457	78.434	55.971	0.000%
47	-32.457	-78.434	-55.971	32.457	78.434	55.971	0.000%
48	-24.291	-78.434	-41.926	24.291	78.434	41.926	0.000%
49	-32.457	-58.825	-55.971	32.457	58.825	55.970	0.000%
50	0.000	-259.389	0.000	0.000	259.389	-0.000	0.000%
51	-0.152	-259.389	-22.706	0.152	259.389	22.706	0.000%
52	11.473	-259.389	-19.907	-11.473	259.389	19.907	0.000%
53	20.387	-259.389	-11.737	-20.387	259.389	11.737	0.000%
54	23.633	-259.389	0.022	-23.633	259.389	-0.022	0.000%
55	19.621	-259.389	11.321	-19.621	259.389	-11.321	0.000%
56	10.874	-259.389	18.776	-10.874	259.389	-18.776	0.000%
57	0.023	-259.389	21.583	-0.023	259.389	-21.583	0.000%
58	-11.191	-259.389	19.323	11.191	259.389	-19.323	0.000%
59	-20.305	-259.389	11.540	20.305	259.389	-11.540	0.000%
60	-23.081	-259.389	-0.091	23.081	259.389	0.091	0.000%
61	-19.349	-259.389	-11.164	19.349	259.389	11.164	0.000%
62	-10.980	-259.389	-18.824	10.980	259.389	18.824	0.000%
63	-0.043	-65.361	-15.275	0.043	65.361	15.275	0.000%
64	7.913	-65.361	-13.744	-7.913	65.361	13.744	0.000%
65	14.529	-65.361	-8.365	-14.529	65.361	8.365	0.000%
66	16.616	-65.361	0.022	-16.616	65.361	-0.022	0.000%
67	13.547	-65.361	7.812	-13.547	65.361	-7.812	0.000%
68	7.128	-65.361	12.286	-7.128	65.361	-12.286	0.000%
69	0.012	-65.361	14.400	-0.012	65.361	-14.400	0.000%
70	-7.923	-65.361	13.655	7.923	65.361	-13.655	0.000%
71	-15.178	-65.361	8.704	15.178	65.361	-8.704	0.000%
72	-16.612	-65.361	-0.019	16.612	65.361	0.019	0.000%
73	-12.935	-65.361	-7.459	12.935	65.361	7.459	0.000%
74	-7.159	-65.361	-12.345	7.159	65.361	12.345	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000571
3	Yes	4	0.00000001	0.00000571
4	Yes	4	0.00000001	0.00000673
5	Yes	4	0.00000001	0.00000235
6	Yes	4	0.00000001	0.00001008
7	Yes	4	0.00000001	0.00001008
8	Yes	4	0.00000001	0.00000894
9	Yes	4	0.00000001	0.00000738
10	Yes	4	0.00000001	0.00000732
11	Yes	4	0.00000001	0.00000732
12	Yes	4	0.00000001	0.00000801
13	Yes	4	0.00000001	0.00000312
14	Yes	4	0.00000001	0.00000858
15	Yes	4	0.00000001	0.00000858
16	Yes	4	0.00000001	0.00000791
17	Yes	4	0.00000001	0.00000611
18	Yes	4	0.00000001	0.00000556
19	Yes	4	0.00000001	0.00000556
20	Yes	4	0.00000001	0.00000655
21	Yes	4	0.00000001	0.00000235
22	Yes	4	0.00000001	0.00000808
23	Yes	4	0.00000001	0.00000808
24	Yes	4	0.00000001	0.00000808
25	Yes	4	0.00000001	0.00000489
26	Yes	4	0.00000001	0.00000761
27	Yes	4	0.00000001	0.00000761
28	Yes	4	0.00000001	0.00000841
29	Yes	4	0.00000001	0.00000285
30	Yes	4	0.00000001	0.00000957
31	Yes	4	0.00000001	0.00000957
32	Yes	4	0.00000001	0.00000879
33	Yes	4	0.00000001	0.00000675
34	Yes	4	0.00000001	0.00000561
35	Yes	4	0.00000001	0.00000561
36	Yes	4	0.00000001	0.00000633
37	Yes	4	0.00000001	0.00000287
38	Yes	4	0.00000001	0.00000852
39	Yes	4	0.00000001	0.00000852
40	Yes	4	0.00000001	0.00000795
41	Yes	4	0.00000001	0.00000594
42	Yes	4	0.00000001	0.00000762
43	Yes	4	0.00000001	0.00000762
44	Yes	4	0.00000001	0.00000835
45	Yes	4	0.00000001	0.00000306
46	Yes	4	0.00000001	0.00000832
47	Yes	4	0.00000001	0.00000832
48	Yes	4	0.00000001	0.00000817
49	Yes	4	0.00000001	0.00000516
50	Yes	4	0.00000001	0.00002986
51	Yes	4	0.00000001	0.00023063
52	Yes	4	0.00000001	0.00023668
53	Yes	4	0.00000001	0.00024191
54	Yes	4	0.00000001	0.00023912
55	Yes	4	0.00000001	0.00022924
56	Yes	4	0.00000001	0.00023009
57	Yes	4	0.00000001	0.00023148
58	Yes	4	0.00000001	0.00022786
59	Yes	4	0.00000001	0.00022389

60	Yes	4	0.00000001	0.00022615
61	Yes	4	0.00000001	0.00022830
62	Yes	4	0.00000001	0.00022518
63	Yes	4	0.00000001	0.00000505
64	Yes	4	0.00000001	0.00000522
65	Yes	4	0.00000001	0.00000537
66	Yes	4	0.00000001	0.00000519
67	Yes	4	0.00000001	0.00000504
68	Yes	4	0.00000001	0.00000525
69	Yes	4	0.00000001	0.00000542
70	Yes	4	0.00000001	0.00000523
71	Yes	4	0.00000001	0.00000498
72	Yes	4	0.00000001	0.00000520
73	Yes	4	0.00000001	0.00000541
74	Yes	4	0.00000001	0.00000525

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	245 - 230	11.781	65	0.565	0.083
T2	230 - 210	9.963	65	0.543	0.084
T3	210 - 190	7.733	65	0.474	0.076
T4	190 - 180	5.860	65	0.388	0.061
T5	180 - 160	5.083	65	0.343	0.050
T6	160 - 140	3.796	65	0.265	0.035
T7	140 - 120	2.784	65	0.213	0.028
T8	120 - 110	1.972	65	0.166	0.021
T9	110 - 100	1.638	71	0.148	0.018
T10	100 - 80	1.340	71	0.131	0.016
T11	80 - 60	0.848	71	0.097	0.012
T12	60 - 40	0.478	71	0.071	0.008
T13	40 - 20	0.210	71	0.045	0.004
T14	20 - 0	0.049	71	0.020	0.002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
245.000	Top Beacon	65	11.781	0.565	0.083	62203
232.000	Sector Mount [SM 502-3]	65	10.201	0.548	0.084	24130
134.500	Side Arm Mount [SO 305-1]	65	2.542	0.200	0.026	25641
132.500	Side Arm Mount [SO 305-1]	65	2.457	0.195	0.025	25276
124.250	Side Arm Mount [SO 305-1]	65	2.128	0.175	0.022	23879
123.000	Single Side Light	65	2.082	0.172	0.022	23742
112.500	Pipe Mount [PM 601-1]	65	1.718	0.152	0.019	34272
112.330	Side Arm Mount [SO 305-1]	65	1.712	0.152	0.019	34582
112.000	4' Grid Dish	65	1.702	0.151	0.019	35169
104.250	Andrew D6E-6	71	1.462	0.138	0.017	34986
71.500	Side Arm Mount [SO 305-1]	71	0.677	0.085	0.010	42683
71.000	Camera	71	0.668	0.085	0.010	42909
56.750	Camera	71	0.428	0.067	0.007	48387
50.000	Side Arm Mount [SO 305-1]	71	0.331	0.058	0.006	48070

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	245 - 230	53.319	10	2.564	0.377
T2	230 - 210	45.077	10	2.464	0.381
T3	210 - 190	34.969	10	2.150	0.345
T4	190 - 180	26.527	34	1.759	0.276
T5	180 - 160	23.039	34	1.555	0.226
T6	160 - 140	17.247	34	1.198	0.160
T7	140 - 120	12.679	34	0.963	0.129
T8	120 - 110	9.003	34	0.750	0.095
T9	110 - 100	7.485	34	0.671	0.083
T10	100 - 80	6.122	34	0.594	0.072
T11	80 - 60	3.873	34	0.441	0.052
T12	60 - 40	2.182	34	0.323	0.035
T13	40 - 20	0.956	34	0.207	0.018
T14	20 - 0	0.222	34	0.091	0.007

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
245.000	Top Beacon	10	53.319	2.564	0.377	13707
232.000	Sector Mount [SM 502-3]	10	46.155	2.483	0.382	5316
134.500	Side Arm Mount [SO 305-1]	34	11.583	0.902	0.119	5659
132.500	Side Arm Mount [SO 305-1]	34	11.200	0.879	0.116	5578
124.250	Side Arm Mount [SO 305-1]	34	9.710	0.790	0.101	5266
123.000	Single Side Light	34	9.498	0.778	0.099	5235
112.500	Pipe Mount [PM 601-1]	34	7.848	0.690	0.086	7603
112.330	Side Arm Mount [SO 305-1]	34	7.823	0.688	0.086	7673
112.000	4' Grid Dish	34	7.775	0.686	0.085	7806
104.250	Andrew D6E-6	34	6.683	0.627	0.077	7762
71.500	Side Arm Mount [SO 305-1]	34	3.093	0.388	0.045	9460
71.000	Camera	34	3.050	0.385	0.044	9511
56.750	Camera	34	1.952	0.305	0.032	10716
50.000	Side Arm Mount [SO 305-1]	34	1.512	0.266	0.026	10574

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	245	Leg	A325N	0.625	5	6.349	24.851	0.255	1	Bolt DS
T2	230	Leg	A325N	0.750	5	20.373	35.785	0.569	1	Bolt DS
T4	190	Leg	A325N	1.000	6	27.774	53.014	0.524	1	Bolt Tension
		Diagonal	A325N	1.000	1	7.086	9.144	0.775	1	Member Block

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
										Shear
T5	180	Leg	A325N	1.000	6	32.739	53.014	0.618	1	Bolt Tension
		Diagonal	A325N	1.000	1	6.197	9.144	0.678	1	Member Block Shear
T6	160	Leg	A325N	1.000	6	37.365	53.014	0.705	1	Bolt Tension
		Diagonal	A325N	1.000	1	6.570	13.552	0.485	1	Member Block Shear
T7	140	Leg	A325N	1.000	6	42.177	53.014	0.796	1	Bolt Tension
		Diagonal	A325N	1.000	1	7.125	10.164	0.701	1	Member Block Shear
T8	120	Diagonal	A325N	1.250	1	8.459	17.139	0.494	1	Member Block Shear
T9	110	Leg	A325N	1.250	6	46.908	82.835	0.566	1	Bolt Tension
		Diagonal	A325N	1.250	1	10.835	17.139	0.632	1	Member Block Shear
T10	100	Leg	A325N	1.250	6	52.739	82.835	0.637	1	Bolt Tension
		Diagonal	A325N	1.250	1	10.026	16.430	0.610	1	Member Block Shear
T11	80	Leg	A325N	1.250	6	58.196	82.835	0.703	1	Bolt Tension
		Diagonal	A325N	1.250	1	10.689	20.537	0.520	1	Member Block Shear
T12	60	Leg	A325N	1.250	6	63.721	82.835	0.769	1	Bolt Tension
		Diagonal	A325N	1.250	1	11.489	16.430	0.699	1	Member Block Shear
T13	40	Leg	A325N	1.250	12	34.801	82.835	0.420	1	Bolt Tension
		Diagonal	A325N	1.250	1	14.905	24.645	0.605	1	Member Block Shear
T14	20	Leg	A687	2.000	6	71.985	247.400	0.291	1	Bolt Tension
		Diagonal	A325N	1.000	2	10.906	35.525	0.307	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	245 - 230	1 1/2	15.000	2.333	74.7 K=1.00	1.767	-27.404	52.899	0.518 [1]
T2	230 - 210	2	20.002	2.375	57.0 K=1.00	3.142	-96.392	111.473	0.865 [1]
T3	210 - 190	2 1/2	20.002	2.333	44.8 K=1.00	4.909	-169.097	190.746	0.887 [1]
T4	190 - 180	Pirod 105245	10.017	10.017	37.8 K=1.00	5.301	-173.345	214.859	0.807 [1]
T5	180 - 160	Pirod 105217	20.033	10.017	37.8 K=1.00	5.301	-205.589	214.859	0.957 [1]
T6	160 - 140	Pirod 105218	20.033	10.017	32.4 K=1.00	7.216	-236.908	300.681	0.788 [1]
T7	140 - 120	Pirod 105218	20.033	10.017	32.4 K=1.00	7.216	-269.547	300.681	0.896 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	120 - 110	Pirod 105219	10.017	10.017	28.4 K=1.00	9.425	-287.155	399.868	0.718 [1]
T9	110 - 100	Pirod 105219	10.017	4.823	28.4 K=1.00	9.425	-302.568	399.868	0.757 [1]
T10	100 - 80	Pirod 105219	20.033	10.017	28.4 K=1.00	9.425	-342.712	399.868	0.857 [1]
T11	80 - 60	Pirod 105220	20.033	10.017	25.2 K=1.00	11.928	-381.666	512.375	0.745 [1]
T12	60 - 40	Pirod 105220	20.033	10.017	25.2 K=1.00	11.928	-421.138	512.375	0.822 [1]
T13	40 - 20	Pirod 105220	20.033	10.017	25.2 K=1.00	11.928	-464.176	512.375	0.906 [1]
T14	20 - 0	Pirod 112738	20.033	20.033	32.6 K=1.00	14.726	-480.892	613.145	0.784 [1]

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	190 - 180	0.5	1.471	98.8	238.565	0.196	1.320	4.841	0.274
T5	180 - 160	0.5	1.471	91.8	238.565	0.196	0.816	4.570	0.180
T6	160 - 140	0.5	1.459	98.0	324.713	0.196	0.348	4.294	0.082
T7	140 - 120	0.5	1.459	91.0	324.713	0.196	0.589	4.604	0.129
T8	120 - 110	0.625	1.446	77.8	424.115	0.307	0.911	8.092	0.113
T9	110 - 100	0.625	1.446	77.8	424.115	0.307	3.633	8.092	0.449
T10	100 - 80	0.625	1.446	77.8	424.115	0.307	0.685	8.092	0.085
T11	80 - 60	0.625	1.435	77.1	536.771	0.307	0.330	8.134	0.042
T12	60 - 40	0.625	1.435	77.1	536.771	0.307	0.798	8.134	0.100
T13	40 - 20	0.625	1.435	71.6	536.771	0.307	3.536	8.493	0.418
T14	20 - 0	0.75	1.727	77.4	662.680	0.442	1.734	17.678	0.099

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	245 - 230	3/4	4.631	2.243	129.2 K=0.90	0.442	-4.701	5.979	0.786 [1]
T2	230 - 210	7/8	5.051	2.448	120.9 K=0.90	0.601	-6.280	9.300	0.675 [1]
T3	210 - 190	1	5.110	2.456	107.3 K=0.91	0.785	-7.836	15.219	0.515 [1]
T4	190 - 180	L2 1/2x2 1/2x3/16	11.416	5.024	121.8 K=1.00	0.902	-7.584	13.384	0.567 [1]
T5	180 - 160	L2 1/2x2 1/2x3/16	12.503	5.669	137.4 K=1.00	0.902	-6.539	10.790	0.606 [1]
T6	160 - 140	L 3 x 3 x 1/4	13.796	6.369	129.1 K=1.00	1.440	-7.174	19.404	0.370 [1]
T7	140 - 120	L 3 x 3 x 3/16	15.243	7.123	143.3 K=1.00	1.090	-7.825	11.982	0.653 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	120 - 110	L 3 x 3 x 5/16	16.010	7.487	152.5 K=1.00	1.780	-9.179	17.282	0.531 [1]
T9	110 - 100	L 3 x 3 x 5/16	16.803	7.892	160.8 K=1.00	1.780	-11.869	15.553	0.763 [1]
T10	100 - 80	L 4 x 4 x 1/4	18.448	8.729	131.8 K=1.00	1.940	-10.656	25.116	0.424 [1]
T11	80 - 60	L3 1/2x3 1/2x5/16	20.158	9.593	166.8 K=1.00	2.090	-11.605	16.963	0.684 [1]
T12	60 - 40	L 4 x 4 x 1/4	21.916	10.677	156.3 K=0.97	1.940	-11.712	17.933	0.653 [1]
T13	40 - 20	L 4 x 4 x 3/8	22.811	10.934	166.5 K=1.00	2.860	-15.178	23.303	0.651 [1]
T14	20 - 0	2L3 1/2x3 1/2x5/16x3/8	30.485	14.620	152.4 K=0.94	4.180	-25.481	40.668	0.627 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	245 - 230	3/4	4.000	3.875	173.6 K=0.70	0.442	-0.658	3.312	0.199 [1]
T2	230 - 210	7/8	4.072	3.905	150.0 K=0.70	0.601	-1.621	6.041	0.268 [1]
T3	210 - 190	7/8	4.575	4.367	167.7 K=0.70	0.601	-1.969	4.831	0.408 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T9	110 - 100	L 3 x 3 x 5/16	13.481	12.481	146.2 K=0.90	1.780	-5.247	18.811	0.279 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	245 - 230	7/8	4.000	3.875	148.8	0.601	-1.255	6.135	0.204 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	230 - 210	1	4.013	3.846	K=0.70 129.2	0.785	-2.996	10.626	0.282 [1]
T3	210 - 190	1	4.517	4.308	K=0.70 144.8	0.785	-2.533	8.467	0.299 [1]
					K=0.70				

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	245 - 230	7/8	4.000	3.875	148.8 K=0.70	0.601	-2.809	6.135	0.458 [1]
T2	230 - 210	1	4.487	4.321	145.2 K=0.70	0.785	-3.071	8.418	0.365 [1]
T3	210 - 190	1	4.983	4.775	160.4 K=0.70	0.785	-1.955	6.893	0.284 [1]

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	245 - 230	1 1/2	15.000	0.500	16.0	1.767	26.033	79.522	0.327 [1]
T2	230 - 210	2	20.002	0.500	12.0	3.142	94.987	141.372	0.672 [1 #]
T3	210 - 190	2 1/2	20.002	0.668	12.8	4.909	166.345	220.893	0.753 [1]
T4	190 - 180	Pirod 105245	10.017	10.017	37.8	5.301	166.645	238.565	0.699 [1]
T5	180 - 160	Pirod 105217	20.033	10.017	37.8	5.301	196.436	238.565	0.823 [1]
T6	160 - 140	Pirod 105218	20.033	10.017	32.4	7.216	224.187	324.713	0.690 [1]
T7	140 - 120	Pirod 105218	20.033	10.017	32.4	7.216	253.060	324.713	0.779 [1]
T8	120 - 110	Pirod 105219	10.017	10.017	28.4	9.425	268.639	424.115	0.633 [1]
T9	110 - 100	Pirod 105219	10.017	4.823	28.4	9.425	282.014	424.115	0.665 [1]
T10	100 - 80	Pirod 105219	20.033	10.017	28.4	9.425	316.434	424.115	0.746 [1]
T11	80 - 60	Pirod 105220	20.033	10.017	25.2	11.928	349.177	536.771	0.651 [1]
T12	60 - 40	Pirod 105220	20.033	10.017	25.2	11.928	382.326	536.771	0.712 [1]
T13	40 - 20	Pirod 105220	20.033	10.017	25.2	11.928	417.607	536.771	0.778 [1]
T14	20 - 0	Pirod 112738	20.033	20.033	32.6	14.726	431.910	662.680	0.652 [1]

[1] P_u / ϕP_n controls
[#] Based on net area of leg in section below

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	190 - 180	0.5	1.471	98.8	238.565	0.196	1.320	4.841	0.274
T5	180 - 160	0.5	1.471	91.8	238.565	0.196	0.816	4.570	0.180
T6	160 - 140	0.5	1.459	98.0	324.713	0.196	0.348	4.294	0.082
T7	140 - 120	0.5	1.459	91.0	324.713	0.196	0.589	4.604	0.129
T8	120 - 110	0.625	1.446	77.8	424.115	0.307	0.911	8.092	0.113
T9	110 - 100	0.625	1.446	77.8	424.115	0.307	3.633	8.092	0.449
T10	100 - 80	0.625	1.446	77.8	424.115	0.307	0.685	8.092	0.085
T11	80 - 60	0.625	1.435	77.1	536.771	0.307	0.330	8.134	0.042
T12	60 - 40	0.625	1.435	77.1	536.771	0.307	0.798	8.134	0.100
T13	40 - 20	0.625	1.435	71.6	536.771	0.307	3.536	8.493	0.418
T14	20 - 0	0.75	1.727	77.4	662.680	0.442	1.734	17.678	0.099

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	245 - 230	3/4	4.631	2.243	143.6	0.442	4.723	19.880	0.238 [1]
T2	230 - 210	7/8	4.688	2.267	124.4	0.601	6.360	27.059	0.235 [1]
T3	210 - 190	1	5.110	2.456	117.9	0.785	7.509	35.343	0.212 [1]
T4	190 - 180	L2 1/2x2 1/2x3/16	11.416	5.024	80.1	0.518	7.086	22.546	0.314 [1]
T5	180 - 160	L2 1/2x2 1/2x3/16	11.930	5.424	86.2	0.518	6.197	22.546	0.275 [1]
T6	160 - 140	L 3 x 3 x 1/4	13.796	6.369	84.3	0.869	6.570	37.804	0.174 [1]
T7	140 - 120	L 3 x 3 x 3/16	15.243	7.123	93.1	0.659	7.125	28.674	0.248 [1]
T8	120 - 110	L 3 x 3 x 5/16	16.010	7.487	100.1	1.013	8.459	44.054	0.192 [1]
T9	110 - 100	L 3 x 3 x 5/16	16.803	7.892	105.4	1.013	10.835	44.054	0.246 [1]
T10	100 - 80	L 4 x 4 x 1/4	18.448	8.729	85.7	1.197	10.026	52.078	0.193 [1]
T11	80 - 60	L3 1/2x3 1/2x5/16	20.158	9.593	108.8	1.245	10.689	54.168	0.197 [1]
T12	60 - 40	L 4 x 4 x 1/4	21.916	10.677	102.5	1.197	11.489	52.078	0.221 [1]
T13	40 - 20	L 4 x 4 x 3/8	23.714	11.383	113.0	1.758	14.905	76.485	0.195 [1]
T14	20 - 0	2L3 1/2x3 1/2x5/16x3/8	30.485	14.620	165.7	2.608	21.813	113.433	0.192 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	245 - 230	3/4	4.000	3.875	248.0	0.442	0.790	19.880	0.040 [1]
T2	230 - 210	7/8	4.072	3.905	214.2	0.601	1.875	27.059	0.069 [1]
T3	210 - 190	7/8	4.575	4.367	239.5	0.601	2.180	27.059	0.081 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T9	110 - 100	L 3 x 3 x 5/16	13.481	12.481	162.6	1.780	5.247	57.672	0.091 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	245 - 230	7/8	4.000	3.875	212.6	0.601	1.167	27.059	0.043 [1]
T2	230 - 210	1	4.013	3.846	184.6	0.785	3.191	35.343	0.090 [1]
T3	210 - 190	1	4.517	4.308	206.8	0.785	2.741	35.343	0.078 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	245 - 230	7/8	4.000	3.875	212.6	0.601	2.614	27.059	0.097 [1]
T2	230 - 210	1	4.487	4.321	207.4	0.785	2.948	35.343	0.083 [1]
T3	210 - 190	1	4.983	4.775	229.2	0.785	2.107	35.343	0.060 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	245 - 230	Leg	1 1/2	1	-27.404	52.899	51.8	Pass
T2	230 - 210	Leg	2	51	-96.392	111.473	86.5	Pass
T3	210 - 190	Leg	2 1/2	115	-169.097	190.746	88.7	Pass
T4	190 - 180	Leg	Pirod 105245	179	-173.345	214.859	80.7	Pass
T5	180 - 160	Leg	Pirod 105217	188	-205.589	214.859	95.7	Pass
T6	160 - 140	Leg	Pirod 105218	203	-236.908	300.681	78.8	Pass
T7	140 - 120	Leg	Pirod 105218	218	-269.547	300.681	89.6	Pass
T8	120 - 110	Leg	Pirod 105219	233	-287.155	399.868	71.8	Pass
T9	110 - 100	Leg	Pirod 105219	242	-302.568	399.868	75.7	Pass
T10	100 - 80	Leg	Pirod 105219	254	-342.712	399.868	85.7	Pass
T11	80 - 60	Leg	Pirod 105220	269	-381.666	512.375	74.5	Pass
T12	60 - 40	Leg	Pirod 105220	284	-421.138	512.375	82.2	Pass
T13	40 - 20	Leg	Pirod 105220	299	-464.176	512.375	90.6	Pass
T14	20 - 0	Leg	Pirod 112738	314	-480.892	613.145	78.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	øP$_{allow}$ K	% Capacity	Pass Fail
T1	245 - 230	Diagonal	3/4	13	-4.701	5.979	78.6	Pass
T2	230 - 210	Diagonal	7/8	61	-6.280	9.300	67.5	Pass
T3	210 - 190	Diagonal	1	173	-7.836	15.219	51.5	Pass
T4	190 - 180	Diagonal	L2 1/2x2 1/2x3/16	185	-7.584	13.384	56.7 77.5 (b)	Pass
T5	180 - 160	Diagonal	L2 1/2x2 1/2x3/16	191	-6.539	10.790	60.6 67.8 (b)	Pass
T6	160 - 140	Diagonal	L 3 x 3 x 1/4	206	-7.174	19.404	37.0 48.5 (b)	Pass
T7	140 - 120	Diagonal	L 3 x 3 x 3/16	221	-7.825	11.982	65.3 70.1 (b)	Pass
T8	120 - 110	Diagonal	L 3 x 3 x 5/16	236	-9.179	17.282	53.1	Pass
T9	110 - 100	Diagonal	L 3 x 3 x 5/16	245	-11.869	15.553	76.3	Pass
T10	100 - 80	Diagonal	L 4 x 4 x 1/4	257	-10.656	25.116	42.4 61.0 (b)	Pass
T11	80 - 60	Diagonal	L3 1/2x3 1/2x5/16	272	-11.605	16.963	68.4	Pass
T12	60 - 40	Diagonal	L 4 x 4 x 1/4	287	-11.712	17.933	65.3 69.9 (b)	Pass
T13	40 - 20	Diagonal	L 4 x 4 x 3/8	308	-15.178	23.303	65.1	Pass
T14	20 - 0	Diagonal	2L3 1/2x3 1/2x5/16x3/8	317	-25.481	40.668	62.7	Pass
T1	245 - 230	Horizontal	3/4	23	-0.658	3.312	19.9	Pass
T2	230 - 210	Horizontal	7/8	108	-1.621	6.041	26.8	Pass
T3	210 - 190	Horizontal	7/8	172	-1.969	4.831	40.8	Pass
T9	110 - 100	Secondary Horizontal	L 3 x 3 x 5/16	253	-5.247	18.811	27.9	Pass
T1	245 - 230	Top Girt	7/8	5	-1.255	6.135	20.4	Pass
T2	230 - 210	Top Girt	1	55	-2.996	10.626	28.2	Pass
T3	210 - 190	Top Girt	1	119	-2.533	8.467	29.9	Pass
T1	245 - 230	Bottom Girt	7/8	9	-2.809	6.135	45.8	Pass
T2	230 - 210	Bottom Girt	1	57	-3.071	8.418	36.5	Pass
T3	210 - 190	Bottom Girt	1	121	-1.955	6.893	28.4	Pass
							Summary	
						Leg (T5)	95.7	Pass
						Diagonal (T1)	78.6	Pass
						Horizontal (T3)	40.8	Pass
						Secondary Horizontal (T9)	27.9	Pass
						Top Girt (T3)	29.9	Pass
						Bottom Girt (T1)	45.8	Pass
						Bolt Checks	79.6	Pass
						RATING =	**95.7**	**Pass**

BU#:	CT11303B
Site Name:	UCONN
App#:	

MODIFIED TRUSS LEG CAPACITY CALCULATIONS
TIA-222-G

*Values in shaded cells are user input.

							Geometric Properties												
Elev	Truss Width (in)	Leg Rod Dia (in)	Tie Rod Dia (in)	A_leg ea (in^2)	A_tie ea (in^2)	A_total (in^2)	I_leg ea (in^4)	I_tie ea (in^4)	Δ_tr (in)	y tie rod (in)	A*y tie rod (in^3)	e=dy_leg (in)	dy_tie (in)	Ady^2 leg (in^4)	Ady^2 tie (in^4)	Orig Truss Ix/Iy (in^4)	Ix modified truss (in^4)	x tie rod (in)	Iy modified truss (in^4)
20-40	12	2.25	2.25	3.976	3.976	19.880	1.258	1.258	1.525	2.4946	19.837	0.998	1.497	11.876	17.814	290.052	322.259	4.3207	441.022

ϕ = 0.9 | Tie Rod Fy = 36 ksi | For 12" Truss legs: Max tie-rod unsupported length = 23.375 in | (23.375 is the Default Value)

				Component Capacities														
				Individual Leg Rod Capacity					Individual Tie Rod Capacity					Global (Orig or Modified) Truss Capacity				
Elev	Truss Width (in)	Leg Rod Dia (in)	Tie Rod Dia (in)	Lb_leg (in)	r_leg (in)	λc_leg	Fcr_leg (ksi)	ϕPn_leg (kip)	Lb_tie (in)	r_tie (in)	λc_tie	Fcr_tie (ksi)	ϕPn_tie (kip)	Lb_truss (in)	r_truss (in)	λc_truss	Fcr_truss (ksi)	ϕPn_truss (kip)
20-40	12	2.25	2.25	14.188	0.563	0.283	34.814	124.582	23.375	0.563	0.466	32.872	117.630	120.000	4.026	0.334	34.355	614.695

							Load Distribution to Components						Load Ratios			Leg Capacities Based on Component Capacity				
Elev	Truss Size (in)	Leg Rod Dia (in)	Tie Rod Dia (in)	A_leg (in^2)	A_tie (in^2)	A_total (in^2)	Design Load (kip)	Dead Load (kip)	Live Load (kip)	P_Live leg (kip)	P_Live tie (kip)	P_tot leg (kip)	Ratio Leg	Ratio Tie	Ratio Truss	Leg Rod	Tie Rod	Truss	Final Capacity ϕPn	Final Ratio
20-40	12	2.25	2.25	3.976	3.976	19.880	464.175	20.178	443.997	88.799	88.799	95.525	76.68%	75.49%	75.51%	609.458	608.328	614.695	608.328	76.3%

Project Information

BU #	CT11303B
Site Name	UCONN
Order #	

Tower Information

Tower Type	Self Support
TIA-222 Rev	G

☐ Load Z Normalization

Applied Loads

	Comp.	Uplift
Axial (k)	511.00	455.00
Shear (k)	59.00	52.00

Anchor Rod Data

Quantity:	6
Diameter (in):	2
Material Grade:	A572-42
Grout Considered:	No
l_{ar} (in):	0
Eta Factor, η:	0.5
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=42 ksi Fu=60 ksi

Anchor Rod Results

Axial, Pu_c (kips)	85.17
Shear, Vu (kips)	9.83
Moment, Mu (kip-in)	-
Axial Cap., φPn_t (kips)	120.00
Shear Cap., ϕVn (kips)	-
Moment Cap., ϕMn (kip-in)	-
Stress Rating	87.4%

Pass

Analysis Date: 4/1/2019

Drilled Pier Foundation

BU # :	CT11303B
Site Name:	UCONN
Order Number:	

TIA-222 Revison:	G
Tower Type:	Self Support

Applied Loads	Comp.	Uplift
Moment (kip-ft)	0	0
Axial Force (kips)	511	455
Shear Force (kips)	59	52

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	31	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 31' below grade		
Pier Diameter	5.5	ft
Rebar Quantity	11	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	4	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	16.16	16.16
Soil Safety Factor	12.28	13.94
Max Moment (kip-ft)	673.10	593.24
Rating	*10.8%*	*9.5%*
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	537.87	537.87
End Bearing (kips)	178.19	-
Weight of Concrete (kips)	134.71	101.03
Total Capacity (kips)	716.05	638.90
Axial (kips)	645.71	455.00
Rating	*90.2%*	*71.2%*
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	16.90	14.36
Critical Moment (kip-ft)	670.91	582.46
Critical Moment Capacity	2638.77	1580.67
Rating	*25.4%*	*36.8%*

Min. Steel is assumed

Soil Interaction Rating	**90.2%**
Structural Foundation Rating	**36.8%**

Check Limitation	
N/A	☑
Load Z Normalization:	☐

Soil Profile

Groundwater Depth	n/a	ft	
# of Layers	2		

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.33	3.33	125	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3.33	31	27.67	125	150	0	30	0.000	0.000	1.50	1.50	10		Cohesionless

Exhibit E

Date: 6/4/2019

To: T-Mobile Northeast, LLC
35 Griffin Road South
Bloomfield, CT06002

Subject:	**Mount Structural Analysis Report**	
T-Mobile Designation:	**Site ID:**	CT11303B
	Site Name:	UCONN
Destek Designation:	**Project Number:**	1975055
Site Data:	**82 North Eagleville Road, Storrs, CT 06268** **Latitude 41.814537˚, Longitude -72.259742˚**	

Destek Engineering, LLC is pleased to submit this **"Mount Structural Analysis Report"** to determine the structural capacity of the antenna mount utilized by T-Mobile at the above referenced site.

The purpose of the analysis is to determine acceptability of the mount stress level for the changes proposed by T-Mobile. Under the following load case we have determined the mount to have:

Existing + Proposed Equipment **Adequate Capacity (90.7%)**
Note: See Analysis Criteria for loading configuration

The analysis has been performed in accordance with TIA-222-G Standard and the 2018 Connecticut State Building Code (2015 IBC).

We at *Destek Engineering, LLC* appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please give us a call.

Sincerely,
Destek Engineering, LLC
License No: PEC0001429

6/4/2019

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

1) ANALYSIS CRITERIA

The analysis was performed for the existing and proposed appurtenances as specified in the loading information referenced below, and per the following loading criteria of Table 1.

Table 1 – Loading and Analysis Criteria

Rad Center	232’
Structure Type	Self-Support Tower
Exposure Category	C
Wind Speed	130 mph* √0.6 = 101 mph (ASD)
Ice Loading	1.00” with 50 mph Wind
Risk Category	II
Topographic Factor	Kzt = 1.0

Table 1.1 – Existing Appurtenance Configuration

Qty	Model
3	Ericsson AIR 32 B66A/B2A – Antennas
3	Ericsson AIR 21 B2A/B4P – Antennas
3	Andrew LNX-6515DS-A1M – Antennas
3	RRUS 11 B12 – RRUs
3	Generic AWS TMA - TMAs

Table 1.2 – Proposed and Final Appurtenance Configuration

Qty	Model
3	Ericsson AIR 32 B66A/B2A – Antennas
3	RFS APXVAARR24-43-U-NA20 – Antennas
3	Ericsson Air 3246 B66A – Antennas
3	Ericsson Air 6488 B41 – Antennas
3	Radio 4449 B12/B71 – RRUs*
3	Radio 4415 B25 – RRUs*

***To be mounted behind antennas.**

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Table 1.3 – Assumed Material Properties

Member Type	ASTM Material Designation	Fy (ksi)	Fu (ksi)
Pipes	A53 Gr. B	35	60
Angles/Channels	A36	36	58
Rectangular HSS	A500 Gr. B - 46	46	58
Round HSS	A500 Gr. B - 42	42	58
Others (UNO)	A572 Gr. 50	50	65

2) ANALYSIS PROCEDURE

The analysis is based on the following information:

Table 2 – Documents

Document	Provided By	Date
RFDS	T-Mobile	03/10/2019
Construction Drawings	ForeSite	02/27/2019
Mount Analysis Report	Infinigy	05/20/2018

2.1) Analysis Method

Risa-3D, a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses for various loading cases. Selected output from the analysis is included in the Appendix

2.2) Analysis Conditions and Assumptions

1) The mount was built and installed in accordance with the manufacturer's specifications.
2) The mount has been maintained and will be maintained in accordance with the manufacturer's specifications. All structural members and connections of the mount are in good condition and can achieve theoretical strength.
3) The configuration of antennas is as specified in "1) Analysis Criteria".
4) The analysis was performed for the subject mount only. It does not include an evaluation of the other mounts or the tower, which should be analyzed by others.
5) The evaluation does not include any antenna rigging loads. The equipment should not be rigged using the subject antenna mount as the support.
6) The analysis includes a minimum 250 lbf maintenance point load at the worst-case location on the mount, as well as a minimum 250 lbf maintenance point load at each antenna location in conjunction with a 30 mph wind load.
7) Any steel grating represented in this model is for loading purposes only and it is not considered to provide any structural restraint or support.

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8) Member sizes per the available specifications and available mount analysis report and assumed based on our experience with similar structures. Please refer to calculation output in the appendix of this report for sizes and lengths assumed.
9) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

Destek Engineering, LLC must be notified immediately if any of these assumptions are discovered to be incorrect. The results of this analysis may be affected if any of the assumptions are not valid or have been made in error.

3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

Table 3.1 – Mount Component Stresses vs. Capacity

Component	% Capacity	Pass / Fail
Horizontal Face Pipe	32.2	Pass
Horizontal Standoff Pipe	41.6	Pass
Diagonal Standoff Solid Rod	31.1	Pass
Vertical Standoff Solid Rod	90.7	Pass
Antenna Mount Pipe	33.8	Pass
Pipe Kicker	<20	Pass

Sector Mounts: The proposed sector mounts have **adequate** capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, the mount members are stressed to **90.7%** of their structural capacity.

Destek has assumed that Site Pro 1-Valmont VFA12 HD mount (Specs attached) has been or will be installed at this site prior to the equipment installation proposed in this analysis. The analysis also assumes the following:

- **The mount centerline is equal to the RAD centerline**
- **(4) 96" long 2.5 STD mount pipes are equally spaced along the face**
- **The tieback arm is attached directly to the adjacent mount's tower leg**
- **Tieback arms go to (2) separate tower legs**

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APPENDIX

INPUT LOADS
ANALYSIS OUTPUT
MOUNT SPECS

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

CLIENT: Foresite LLC / T-Mobile

PROJECT: CT11303B

SUBJECT: Antenna Loads -TIA 222 G Stanadard (chapter 16 revisions)

Tower Height	245.00	ft	Type of Mount: Sector
Basic Wind Speed, V	101	mph (=Ultimate Speed*Sqrt(0.6))	
Basic Wind Speed with Ice, V_i	50	mph	
Maintanence Load Factor, L_{FM}	0.0882	Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)	
Design Ice Thickness, t_i	1	inches	

Table 2-3 Importance Factors

Structure Classification	Wind Load Without Ice	Wind Load With Ice	Ice Thickness	Earthquake
II	1	1	1	1

1

Table 2-4 Exposure Category Coefficients

Exposure Category	Zg	α	Kzmin	Ke	m
C	900	9.5	0.85	1	0.6

Table 2-5 Topographic Categories

Kzt 1.000

Table 2-2 Wind Directionality Factor, Kd

Structure Type	Kd	
1 Lattice Tower	0.95	DOES NOT CHANGE

Gust Effect Factor Gh

Structure Type	Gh	
1 Lattice Tower	1.00	DOES NOT CHANGE

Shielding Factor, Ka

Structure Type	Ka	
Lattice Tower	0.90	DOES NOT CHANGE

Seismic Factors

Ss	0.173
S1	0.062
Fa	1.6
Fv	2.4
R	3 Truss or Pole

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Rad Center **232.00** ft

Antenna AND Mount Without Ice

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A_N (ft2)	***A_T (ft2)	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K_z	q_z (psf)	Pounds: Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load	Lateral Load (Seismic)	Vertical Load (Seismic)
Pos. 1	**232.00**	Ericsson AIR 32 B66A/B2A	1	132.2	56.6	12.9	8.7	0.90	5.06	3.40	4.40	6.54	1.28	1.38	1.511	37.5	219.2	158.4	132.2	219	158	132	4	5
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				110	**80**	**67**	**2**	**2**
Pos.2	**232.00**	RFS APXVAARR24_43-U-NA20	1	128.0	95.9	24.0	8.7	0.90	15.98	5.79	4.00	11.02	1.27	1.53	1.511	37.5	682.9	299.8	128	683	371	248	7	9
	232.00	Radio 4449 B12/B71	1	74.0	14.9	N/A	10.4	0.90	-	1.08	-	1.43	-	1.20	1.511	37.5	0.0	43.6	74					
	232.00	Radio 4415 B25	1	46.0	16.5	N/A	5.9	0.90	-	0.68	-	2.80	-	1.21	1.511	37.5	0.0	27.7	46					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				342	**186**	**124**	**4**	**5**
Pos.3	**232.00**	Ericsson AIR 3246 B66A	1	180.0	58.1	15.7	9.4	0.90	6.33	3.79	3.70	6.18	1.25	1.36	1.511	37.5	267.8	174.4	180	268	174	180	5	7
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				134	**88**	**90**	**3**	**3**
Pos.4	**232.00**	Ericsson AIR 6488 B41	1	112.4	35.0	20.5	8.7	0.90	4.99	2.13	1.71	4.01	1.20	1.27	1.511	37.5	201.9	90.9	112.44	202	91	112	3	4
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				101	**46**	**57**	**2**	**2**

* Enter N/A in the W column for front sheilded apurtanances.

** A_N is the product of H and W

*** A_T is the product of H and D

DL 673

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	Weight (lb/ft)	*** Ca	K_z	q_z (psf)	Wind Load (PLF)	Lateral Load (Seismic)	Vertical Load (Seismic)
	232.00	2 STD Pipe	12.00	2.38	0.00		1.20	1.511	33.7	8	-	-
	232.00	2.5 STD Pipe	12.00	2.88	0.00		1.20	1.511	33.7	10	-	-
	232.00	3/4" SR	12.00	0.75	0.00		1.20	1.511	33.7	3	-	-
	232.00	5/8" SR	12.00	0.63	0.00		1.20	1.511	33.7	2	-	-
	232.00	(L2.5x2.5)	0.00	2.50	2.50		-	-	-	-	-	-
	232.00	Angle Diagonal	0.00	0.00	0.00		-	-	-	-	-	-
	232.00	Plate Horizontal (PL6x3/8)	0.00	6.00	0.38		-	-	-	-	-	-
	232.00	Plate Horizontal (PL7x0.4)	0.00	0.40	7.00		-	-	-	-	-	-
	232.00	Tube Radial (4x4)	0.00	4.00	4.00		-	-	-	-	-	-
	232.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00		-	-	-	-	-	-
	232.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00		-	-	-	-	-	-
	232.00	Channel (Weak Axis Bending)	0.00	0.00	0.00		-	-	-	-	-	-
	232.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38		-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

*** Ca will equal 1.2 for round members and 2.0 for flat members

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ti (in) 2.430678 Kiz 1.2153389 reduction 0.24507

Antenna AND Mount With Ice

Mounting Pole	Height (ft)	Model Number	#	H (in)	W (in)	D (in)	Ka	*A_N (ft2)	*A_T (ft2)	*Volume Ice (ft3)	*Weight Ice (lbs)	**Ca (FRONT)	**Ca (SIDE)	Kz	q_z (psf)	Pounds: Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)	Ice Dead Load	**Total Wind Load (Front)	**Total Wind Load (Side)	Total Ice Load
Pos. 1	**232.00**	Ericsson AIR 32 B66A/B2A	1	56.6	12.9	8.7	0.90	2.51	2.37	4.88	273.10	0.72	0.75	1.511	9.2	15.0	14.6	68.7	53.4	273	69	53	273
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					35	**27**	**137**
Pos.2	**232.00**	RFS APXVAARR24_43-U-NA20	1	95.9	24.0	8.7	0.90	4.21	3.70	11.23	629.16	0.72	0.81	1.511	9.2	25.1	24.7	192.5	98.2	629	192	127	833
	232.00	Radio 4449 B12/B71	1	14.9	13.2	10.4	0.90	-	1.02	1.97	110.24	0.70	0.70	1.511	9.2	0.0	5.9	0.0	16.6	110			
	232.00	Radio 4415 B25	1	16.5	13.4	5.9	0.90	-	0.92	1.67	93.77	0.70	0.70	1.511	9.2	0.0	5.3	0.0	12.1	94			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					97	**64**	**417**
Pos.3	**232.00**	Ericsson AIR 3246 B66A	1	58.1	15.7	9.4	0.90	2.66	2.44	5.72	320.44	0.71	0.74	1.511	9.2	15.6	15.0	81.3	57.7	320	81	58	320
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					41	**29**	**161**
Pos.4	**232.00**	Ericsson AIR 6488 B41	1	35.0	20.5	8.7	0.90	2.04	1.64	4.33	242.60	0.70	0.71	1.511	9.2	11.8	9.6	61.3	31.9	243	61	32	243
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					31	**16**	**122**

* A_N ,A_T, Volume Ice and Weight Ice are calculated per unit

** Ca will equal 1.2 for all ice load calculations

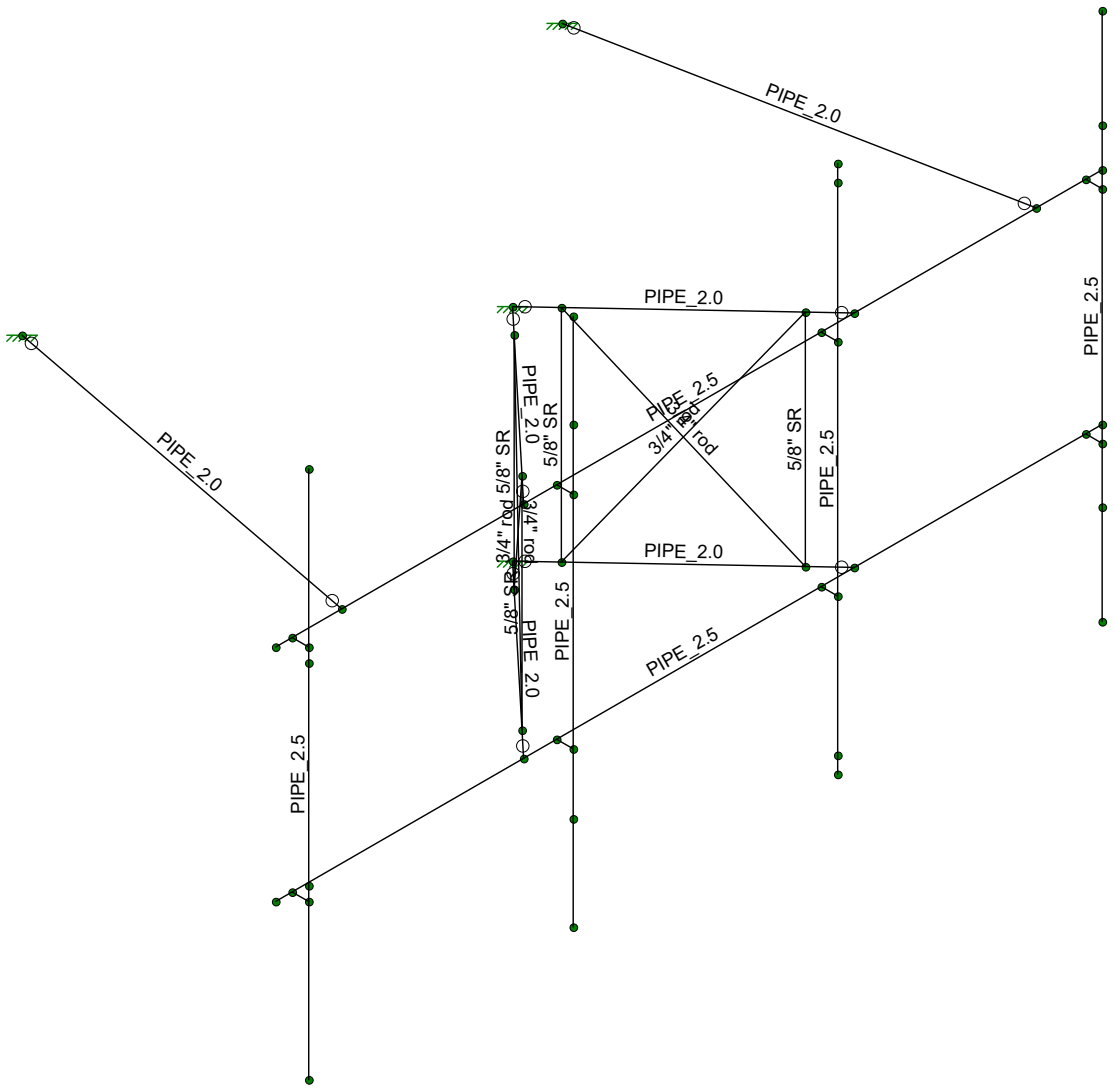
Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A_N (ft2)	Volume Ice (ft3)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q_z (psf)	PLF: Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	232.00	2 STD Pipe	12.00	2.38	0.00	0.65	0.26	14.29	1.20	1.511	8.3	6.4	8.4	14
	232.00	2.5 STD Pipe	12.00	2.88	0.00	0.67	0.28	15.76	1.20	1.511	8.3	6.6	9.0	16
	232.00	3/4" SR	12.00	0.75	0.00	0.59	0.17	9.45	1.20	1.511	8.3	5.9	6.5	9
	232.00	5/8" SR	12.00	0.63	0.00	0.59	0.16	9.07	1.20	1.511	8.3	5.9	6.4	9
	232.00	(L2.5x2.5)	0.00	2.50	2.50	-	-	-	-	-	-	-	-	-
	232.00	Angle Diagonal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	232.00	Plate Horizontal (PL6x3/8)	0.00	6.00	0.38	-	-	-	-	-	-	-	-	-
	232.00	Plate Horizontal (PL7x0.4)	0.00	0.40	7.00	-	-	-	-	-	-	-	-	-
	232.00	Tube Radial (4x4)	0.00	4.00	4.00	-	-	-	-	-	-	-	-	-
	232.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00	-	-	-	-	-	-	-	-	-
	232.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	232.00	Channel (Weak Axis Bending)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	232.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38	-	-	-	-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

*** A_N is the area of ice built up on the LW plane

**** Ca will equal 1.2 for all ice load calculations



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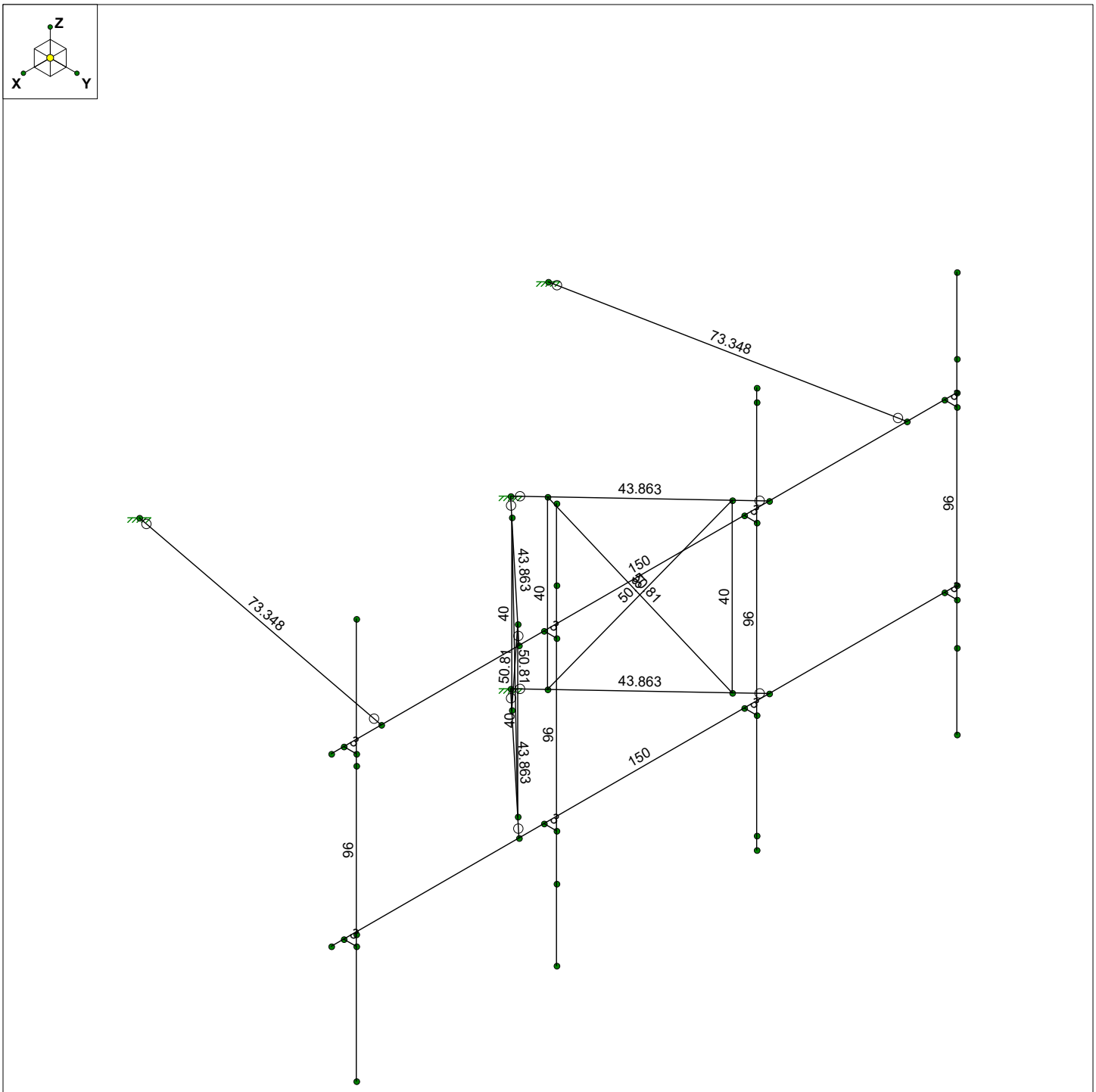
1975055		CT11303B - Mount Model - VFA12...



Member Length (in) Displayed

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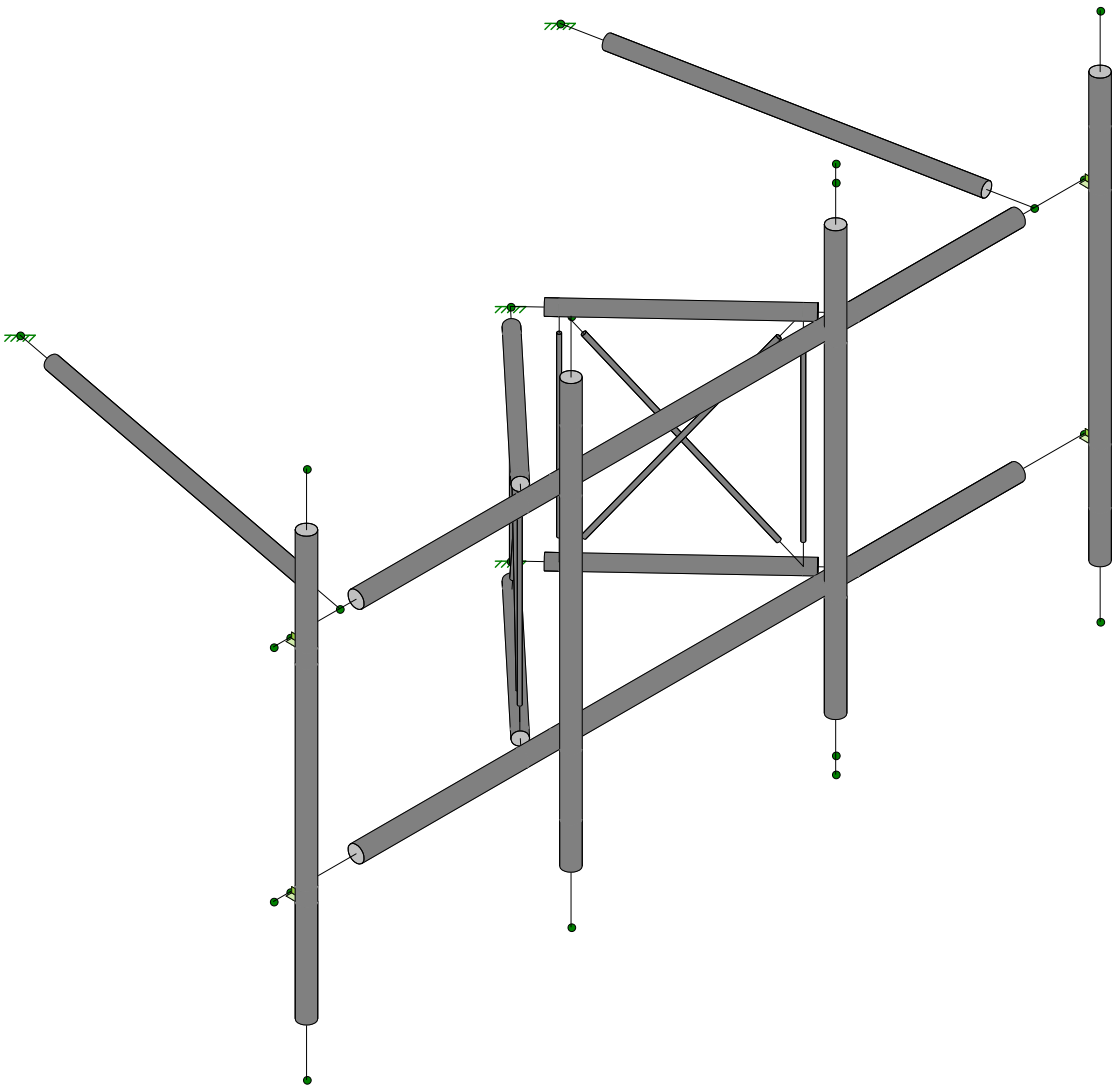

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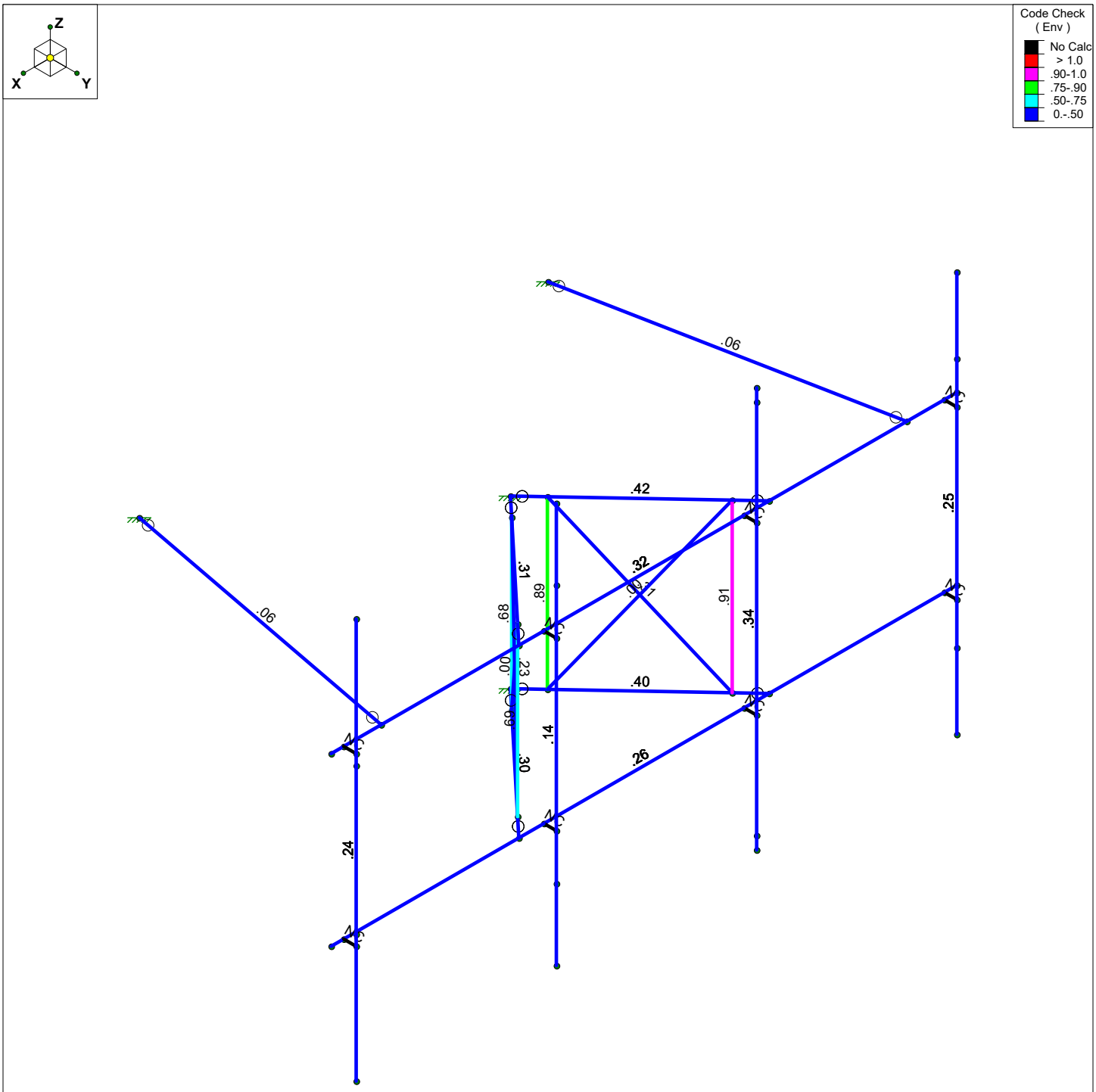

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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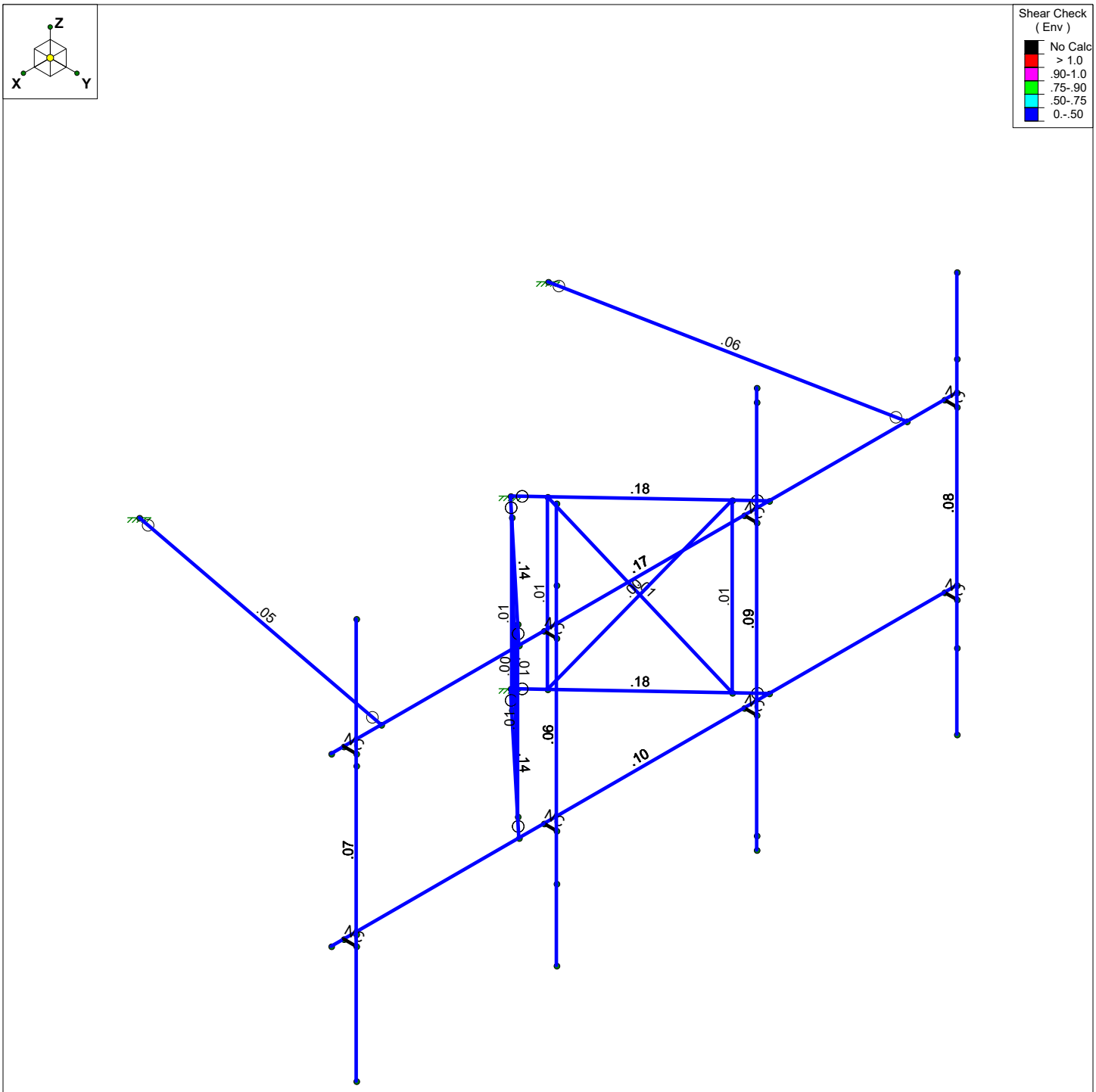

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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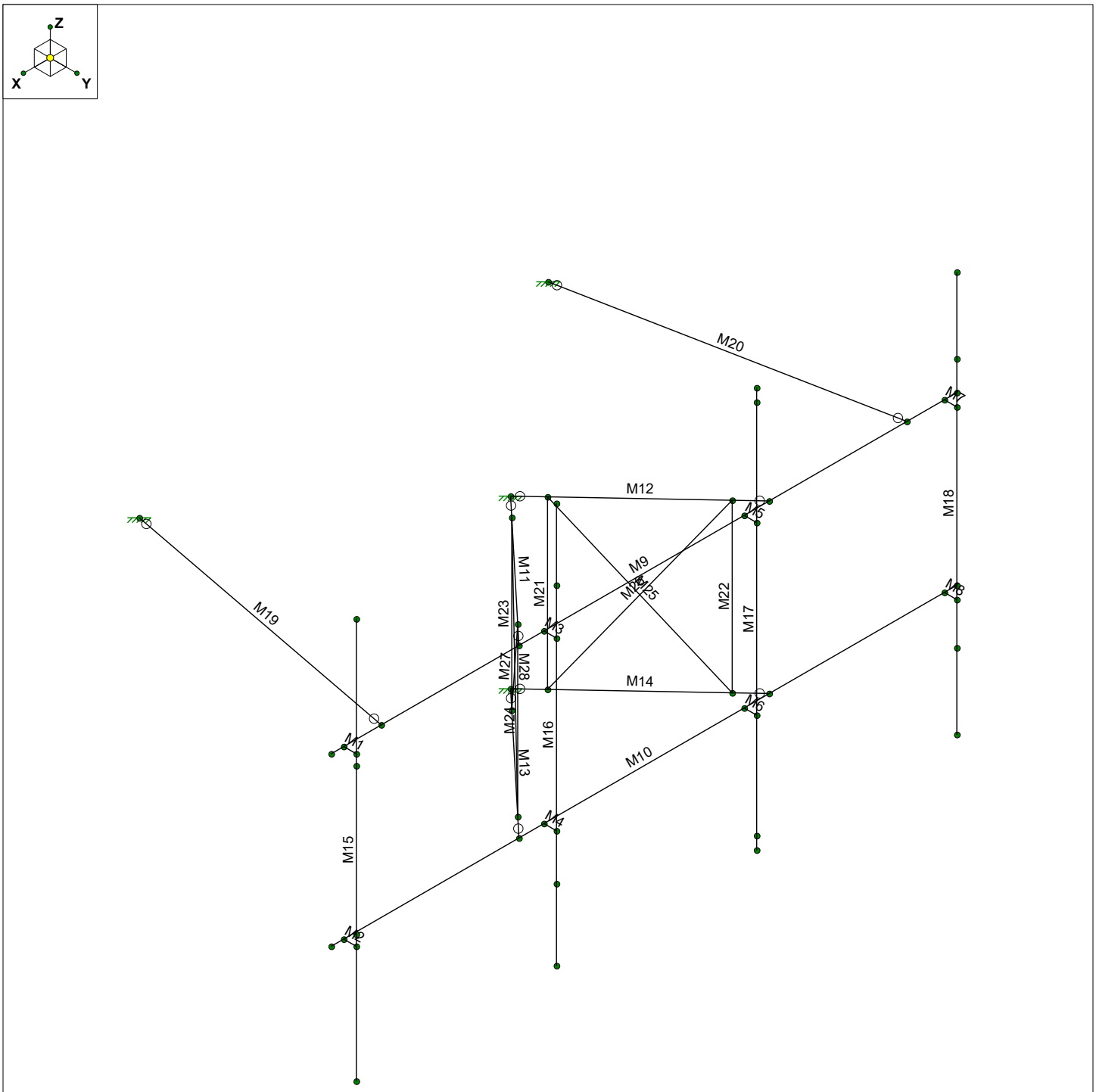

Envelope Only Solution

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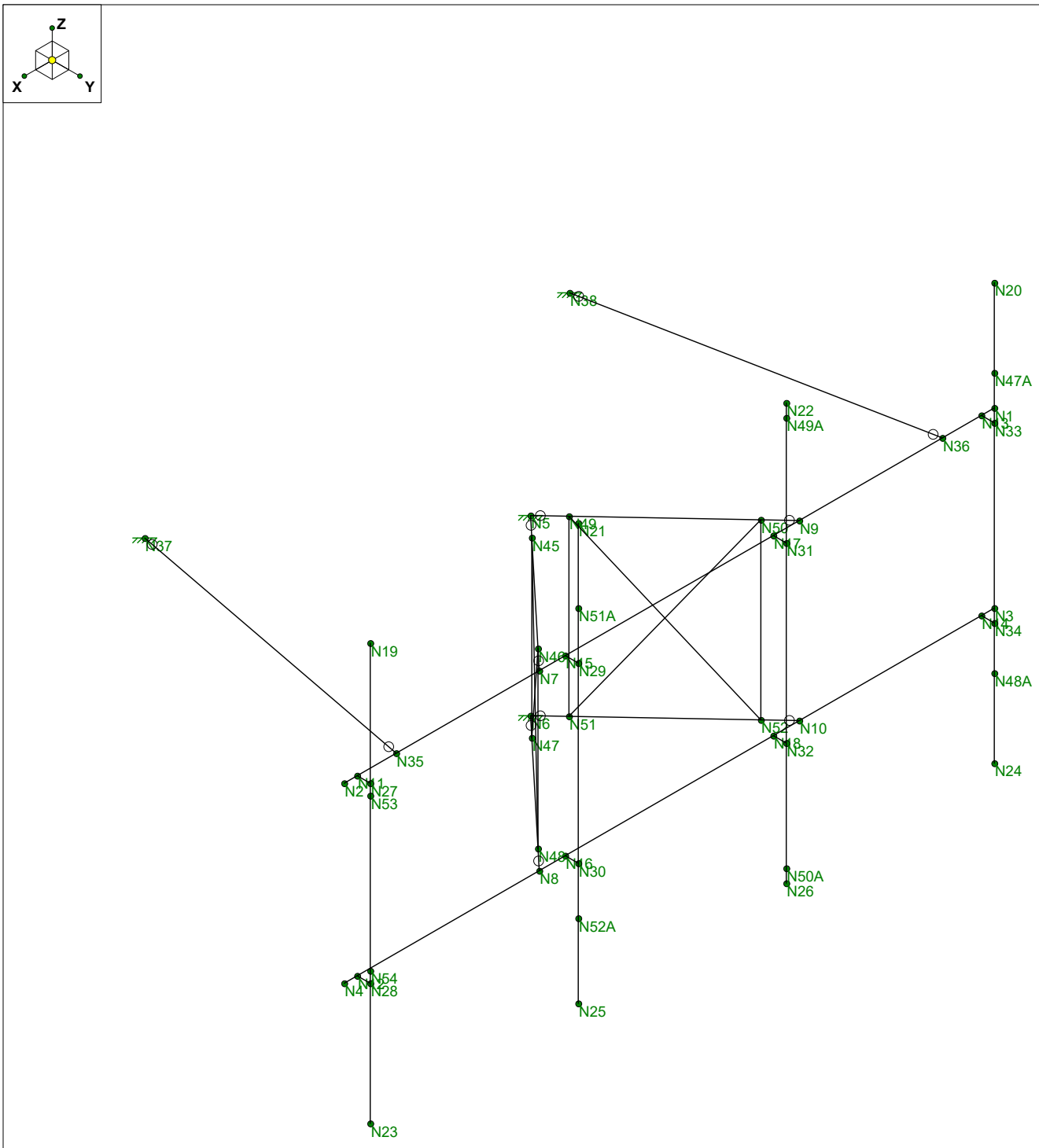

Envelope Only Solution

Destek/ForeSite	CT11303B - VFA12-HD	SK - 7
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1975055		CT11303B - Mount Model - VFA12...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	DEAD LOAD	None			-1	8				
2	DEAD LOAD ICE	None				8		20		
3	WIND LOAD (NO ICE) FRONT	None				8		20		
4	WIND LOAD (NO ICE) SIDE	None				8		20		
5	WIND LOAD (ICE) FRONT	None				8		20		
6	WIND LOAD (ICE) SIDE	None				8		20		
7	LIVE LOAD1	None				1				
8	LIVE LOAD2	None				1				
9	LIVE LOAD3	None								
10	MAINTENANCE LOAD 1	None				1				
11	MAINTENANCE LOAD 2	None				1				
12	MAINTENANCE LOAD 3	None				1				
13	MAINTENANCE LOAD 4	None				1				

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N6	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N38	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N37	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M9	PIPE_2.5	150			Lbyy						Lateral
2	M10	PIPE_2.5	150			Lbyy						Lateral
3	M11	PIPE_2.0	43.863			Lbyy						Lateral
4	M12	PIPE_2.0	43.863			Lbyy						Lateral
5	M13	PIPE_2.0	43.863			Lbyy						Lateral
6	M14	PIPE_2.0	43.863			Lbyy						Lateral
7	M15	PIPE_2.5	96			Lbyy						Lateral
8	M16	PIPE_2.5	96			Lbyy						Lateral
9	M17	PIPE_2.5	96			Lbyy						Lateral
10	M18	PIPE_2.5	96			Lbyy						Lateral
11	M19	PIPE_2.0	73.348			Lbyy						Lateral
12	M20	PIPE_2.0	73.348			Lbyy						Lateral
13	M21	5/8" SR	40			Lbyy			.7	.7		Lateral
14	M22	5/8" SR	40			Lbyy			.7	.7		Lateral
15	M23	5/8" SR	40			Lbyy			.7	.7		Lateral
16	M24	5/8" SR	40			Lbyy			.7	.7		Lateral
17	M25	3/4" rod	50.81			Lbyy			.7	.7		Lateral
18	M26	3/4" rod	50.81			Lbyy			.7	.7		Lateral
19	M27	3/4" rod	50.81			Lbyy			.7	.7		Lateral
20	M28	3/4" rod	50.81			Lbyy			.7	.7		Lateral

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	HR1A	C15X50	Beam	Wide Flange	A36 Gr.36	Typical	14.7	11	404	2.65

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

	Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	M9	PIPE_2.5	.322	104.6...	4	.173	104.6...		8	14558.792	50715	3.596	3.596	1....	H1-1b
2	M10	PIPE_2.5	.262	146.8...	43	.095	104.6...		4	14558.792	50715	3.596	3.596	2....	H1-1b
3	M11	PIPE_2.0	.314	5.94	24	.142	0		40	27373.973	32130	1.872	1.872	1....	H1-1b
4	M12	PIPE_2.0	.416	5.94	13	.184	0		16	27373.973	32130	1.872	1.872	1....	H1-1b
5	M13	PIPE_2.0	.297	6.397	21	.138	37.924		40	27373.973	32130	1.872	1.872	1....	H1-1b
6	M14	PIPE_2.0	.399	37.467	15	.178	37.924		14	27373.973	32130	1.872	1.872	1....	H1-1b
7	M15	PIPE_2.5	.243	68	40	.069	28		5	30038.461	50715	3.596	3.596	4....	H1-1b
8	M16	PIPE_2.5	.136	68	6	.056	28		5	30038.461	50715	3.596	3.596	1....	H1-1b
9	M17	PIPE_2.5	.338	68	7	.091	28		2	30038.461	50715	3.596	3.596	1....	H1-1b
10	M18	PIPE_2.5	.251	68	39	.079	28		2	30038.461	50715	3.596	3.596	3....	H1-1b
11	M19	PIPE_2.0	.055	36.674	17	.054	0		40	20528.962	32130	1.872	1.872	1....	H1-1b
12	M20	PIPE_2.0	.056	36.674	21	.057	0		35	20528.962	32130	1.872	1.872	1....	H1-1b
13	M21	5/8" SR	.888	40	16	.010	40		35	2158.31	9940.196	.104	.104	2....	H1-1a
14	M22	5/8" SR	.907	40	18	.009	40		35	2158.31	9940.196	.104	.104	2....	H1-1a
15	M23	5/8" SR	.682	40	21	.009	0		35	2158.31	9940.196	.104	.104	2....	H1-1a
16	M24	5/8" SR	.688	40	21	.009	0		35	2158.31	9940.196	.104	.104	2....	H1-1a
17	M25	3/4" rod	.311	0	16	.010	50.81		1	2773.81	14313.866	.179	.179	2....	H1-1a*
18	M26	3/4" rod	.000	0	43	.000	0		43	2773.81	14313.866	.179	.179	1	H1-1a
19	M27	3/4" rod	.000	0	43	.000	0		43	2773.81	14313.866	.179	.179	1	H1-1a
20	M28	3/4" rod	.232	0	22	.008	50.81		23	2773.81	14313.866	.179	.179	2....	H1-1a*

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	150	0	0	0	
3	N3	0	0	-40	0	
4	N4	150	0	-40	0	
5	N5	75	-32	0	0	
6	N6	75	-32	-40	0	
7	N7	105	0	0	0	
8	N8	105	0	-40	0	
9	N9	45	0	0	0	
10	N10	45	0	-40	0	
11	N11	147	0	0	0	
12	N12	147	0	-40	0	
13	N13	3	0	0	0	
14	N14	3	0	-40	0	
15	N15	99	0	0	0	
16	N16	99	0	-40	0	
17	N17	51	0	0	0	
18	N18	51	0	-40	0	
19	N19	147	3	28	0	
20	N20	3	3	28	0	
21	N21	99	3	28	0	
22	N22	51	3	28	0	
23	N23	147	3	-68	0	
24	N24	3	3	-68	0	
25	N25	99	3	-68	0	
26	N26	51	3	-68	0	
27	N27	147	3	0	0	
28	N28	147	3	-40	0	
29	N29	99	3	0	0	
30	N30	99	3	-40	0	
31	N31	51	3	0	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
32	N32	51	3	-40	0	
33	N33	3	3	0	0	
34	N34	3	3	-40	0	
35	N35	138	0	0	0	
36	N36	12	0	0	0	
37	N37	124	-72	0	0	
38	N38	26	-72	0	0	
39	N45	79.285714	-27.428571	0	0	
40	N46	100.714286	-4.571429	0	0	
41	N47	79.285714	-27.428571	-40	0	
42	N48	100.714286	-4.571429	-40	0	
43	N49	70.714286	-27.428571	0	0	
44	N50	49.285714	-4.571429	0	0	
45	N51	70.714286	-27.428571	-40	0	
46	N52	49.285714	-4.571429	-40	0	
47	N47A	3	3	10	0	
48	N48A	3	3	-50	0	
49	N49A	51	3	25	0	
50	N50A	51	3	-65	0	
51	N51A	99	3	11	0	
52	N52A	99	3	-51	0	
53	N53	147	3	-2.5	0	
54	N54	147	3	-37.5	0	

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
1	N1	max	.138	4	.024	12	-.019	40	4.713e-03	3	8.09e-04	40	3.489e-03	5
2		min	-.141	9	-.026	6	-.339	35	-5.061e-03	9	-3.64e-03	35	-3.285e-03	11
3	N2	max	.139	4	.031	2	-.002	35	4.223e-03	10	3.45e-03	40	4.273e-03	3
4		min	-.14	9	-.034	8	-.323	40	-4.753e-03	5	-1.01e-03	35	-4.546e-03	9
5	N3	max	.189	4	.28	2	-.018	40	7.686e-03	2	8.116e-04	9	3.689e-03	6
6		min	-.185	9	-.291	8	-.34	35	-8.067e-03	8	-3.816e-03	35	-3.602e-03	12
7	N4	max	.188	4	.214	11	-.002	35	4.79e-03	11	3.609e-03	40	4.358e-03	2
8		min	-.185	9	-.234	5	-.324	40	-5.36e-03	5	-9.94e-04	35	-4.51e-03	8
9	N5	max	0	43	0	43	0	43	0	43	0	43	0	43
10		min	0	1	0	1	0	1	0	1	0	1	0	1
11	N6	max	0	43	0	43	0	43	0	43	0	43	0	43
12		min	0	1	0	1	0	1	0	1	0	1	0	1
13	N7	max	.138	4	.128	9	-.014	35	1.908e-03	8	3.817e-03	40	1.108e-03	8
14		min	-.14	9	-.126	4	-.084	21	-2.274e-03	2	-4.126e-04	35	-1.184e-03	2
15	N8	max	.188	4	.17	10	-.013	35	2.11e-03	12	3.659e-03	40	3.435e-03	10
16		min	-.185	9	-.177	4	-.082	22	-2.582e-03	6	-4.386e-04	35	-3.636e-03	4
17	N9	max	.138	4	.128	3	-.017	12	3.907e-03	6	2.202e-04	36	1.108e-03	11
18		min	-.14	9	-.129	9	-.112	18	-4.159e-03	12	-4.011e-03	31	-1.013e-03	5
19	N10	max	.189	4	.175	3	-.014	9	5.225e-03	1	5.226e-04	10	4.409e-03	9
20		min	-.185	9	-.176	9	-.111	15	-5.592e-03	7	-3.87e-03	35	-4.34e-03	3
21	N11	max	.139	4	.02	1	-.005	35	4.223e-03	10	3.45e-03	40	4.273e-03	3
22		min	-.14	9	-.021	7	-.312	40	-4.753e-03	5	-1.01e-03	35	-4.546e-03	9
23	N12	max	.188	4	.211	11	-.005	35	4.79e-03	11	3.608e-03	40	4.358e-03	2
24		min	-.185	9	-.231	5	-.313	40	-5.36e-03	5	-9.941e-04	35	-4.51e-03	8
25	N13	max	.138	4	.018	1	-.021	40	4.713e-03	3	8.091e-04	40	3.489e-03	5
26		min	-.141	9	-.019	7	-.328	35	-5.061e-03	9	-3.64e-03	35	-3.285e-03	11
27	N14	max	.189	4	.274	3	-.021	40	7.686e-03	2	8.117e-04	9	3.689e-03	6
28		min	-.185	9	-.284	9	-.329	35	-8.067e-03	8	-3.816e-03	35	-3.602e-03	12
29	N15	max	.138	4	.117	10	-.013	2	2.121e-03	8	2.289e-03	40	3.069e-03	9

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
30		min	-.14	9	-.115	4	-.078	20	-2.448e-03	2	-8.032e-04	35	-3.165e-03	3
31	N16	max	.189	4	.148	9	-.017	35	1.936e-03	12	2.164e-03	40	4.495e-03	10
32		min	-.185	9	-.153	3	-.076	22	-2.379e-03	6	-8.434e-04	35	-4.632e-03	4
33	N17	max	.138	4	.119	3	-.011	12	4.554e-03	7	6.353e-04	36	3.029e-03	10
34		min	-.14	9	-.12	9	-.103	18	-4.771e-03	1	-2.446e-03	31	-2.878e-03	4
35	N18	max	.189	4	.148	4	-.015	8	5.265e-03	1	1.437e-03	10	5.054e-03	9
36		min	-.185	9	-.148	9	-.101	14	-5.603e-03	7	-2.37e-03	35	-5.076e-03	3
37	N19	max	.116	32	.135	4	-.011	35	4.224e-03	10	3.443e-03	40	4.273e-03	3
38		min	-.089	10	-.122	10	-.31	40	-4.744e-03	4	-1.002e-03	35	-4.546e-03	9
39	N20	max	.092	3	.135	10	-.027	40	4.511e-03	3	7.895e-04	40	3.489e-03	5
40		min	-.127	9	-.127	4	-.326	35	-4.859e-03	9	-3.621e-03	35	-3.285e-03	11
41	N21	max	.146	3	.108	11	-.021	2	2.584e-03	8	2.268e-03	40	3.069e-03	9
42		min	-.138	9	-.096	5	-.078	20	-2.911e-03	2	-7.815e-04	35	-3.165e-03	3
43	N22	max	.202	4	.283	2	-.025	28	9.809e-03	7	2.814e-03	4	3.029e-03	10
44		min	-.223	10	-.277	8	-.101	18	-1.003e-02	1	-3.475e-03	10	-2.878e-03	4
45	N23	max	.211	4	.347	11	-.011	35	4.863e-03	11	3.585e-03	40	4.358e-03	2
46		min	-.231	10	-.382	5	-.311	40	-5.432e-03	5	-1.002e-03	35	-4.51e-03	8
47	N24	max	.257	3	.496	2	-.027	40	8.037e-03	2	1.122e-03	9	3.689e-03	6
48		min	-.218	9	-.517	8	-.327	35	-8.417e-03	8	-3.802e-03	35	-3.602e-03	12
49	N25	max	.231	4	.169	10	-.021	2	2.397e-03	12	2.185e-03	40	4.495e-03	10
50		min	-.234	9	-.187	4	-.078	20	-2.841e-03	6	-1.118e-03	3	-4.632e-03	4
51	N26	max	.317	4	.336	2	-.024	12	1.05e-02	1	4.356e-03	10	5.054e-03	9
52		min	-.297	10	-.347	8	-.101	18	-1.083e-02	7	-4.907e-03	4	-5.076e-03	3
53	N27	max	.129	4	.02	1	-.011	35	4.223e-03	10	3.45e-03	40	4.273e-03	3
54		min	-.129	10	-.021	7	-.31	40	-4.753e-03	5	-1.01e-03	35	-4.546e-03	9
55	N28	max	.185	4	.211	11	-.011	35	4.79e-03	11	3.608e-03	40	4.358e-03	2
56		min	-.181	10	-.231	5	-.31	40	-5.36e-03	5	-9.941e-04	35	-4.51e-03	8
57	N29	max	.147	3	.117	10	-.021	2	2.121e-03	8	2.289e-03	40	3.069e-03	9
58		min	-.149	9	-.115	4	-.078	20	-2.448e-03	2	-8.032e-04	35	-3.165e-03	3
59	N30	max	.202	4	.148	9	-.021	2	1.936e-03	12	2.164e-03	40	4.495e-03	10
60		min	-.198	10	-.153	3	-.078	20	-2.379e-03	6	-8.434e-04	35	-4.632e-03	4
61	N31	max	.147	4	.119	3	-.024	28	4.554e-03	7	6.353e-04	36	3.029e-03	10
62		min	-.149	10	-.12	9	-.101	18	-4.771e-03	1	-2.446e-03	31	-2.878e-03	4
63	N32	max	.204	3	.148	4	-.024	12	5.265e-03	1	1.437e-03	10	5.054e-03	9
64		min	-.201	9	-.148	9	-.101	18	-5.603e-03	7	-2.37e-03	35	-5.076e-03	3
65	N33	max	.132	3	.018	1	-.027	40	4.713e-03	3	8.091e-04	40	3.489e-03	5
66		min	-.135	9	-.019	7	-.326	35	-5.061e-03	9	-3.64e-03	35	-3.285e-03	11
67	N34	max	.191	3	.274	3	-.027	40	7.686e-03	2	8.117e-04	9	3.689e-03	6
68		min	-.188	9	-.284	9	-.326	35	-8.067e-03	8	-3.816e-03	35	-3.602e-03	12
69	N35	max	.139	4	.029	10	-.011	35	3.535e-03	10	5.485e-03	40	4.642e-03	3
70		min	-.14	9	-.029	4	-.271	40	-4.039e-03	4	-3.802e-04	35	-4.789e-03	9
71	N36	max	.138	4	.03	3	-.025	40	3.77e-03	4	1.349e-04	40	3.936e-03	4
72		min	-.141	9	-.03	9	-.285	35	-4.089e-03	10	-5.749e-03	35	-3.891e-03	10
73	N37	max	0	43	0	43	0	43	0	43	0	43	0	43
74		min	0	1	0	1	0	1	0	1	0	1	0	1
75	N38	max	0	43	0	43	0	43	0	43	0	43	0	43
76		min	0	1	0	1	0	1	0	1	0	1	0	1
77	N45	max	.021	4	.02	10	-.006	35	-6.413e-04	35	3.071e-03	22	4.551e-03	10
78		min	-.021	10	-.019	4	-.034	22	-2.99e-03	20	3.617e-04	35	-4.51e-03	4
79	N46	max	.12	4	.111	10	-.011	35	2.791e-04	10	3.493e-03	40	4.218e-03	9
80		min	-.121	10	-.109	4	-.065	21	-1.314e-03	16	-7.919e-04	3	-4.143e-03	3
81	N47	max	.028	4	.025	10	-.005	35	-4.659e-04	2	2.348e-03	21	5.951e-03	10
82		min	-.028	10	-.026	4	-.027	21	-2.386e-03	21	2.633e-04	35	-6.116e-03	4
83	N48	max	.163	4	.146	10	-.009	35	4.833e-05	11	3.819e-03	40	5.609e-03	9
84		min	-.159	10	-.152	4	-.058	21	-1.876e-03	17	-6.748e-04	5	-5.749e-03	3
85	N49	max	.021	3	.02	3	-.007	40	-6.258e-04	8	-5.251e-04	40	4.648e-03	9
86		min	-.022	9	-.02	9	-.044	16	-3.78e-03	15	-3.979e-03	16	-4.591e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
87	N50	max	.12	3	.111	3	-.014	40	4.303e-04	4	1.396e-03	12	4.073e-03	10
88		min	-.122	9	-.112	9	-.086	17	-1.582e-03	22	-3.782e-03	39	-4.042e-03	4
89	N51	max	.029	3	.026	3	-.006	40	-3.201e-04	1	-3.906e-04	40	6.138e-03	9
90		min	-.028	9	-.027	9	-.035	16	-2.995e-03	18	-3.03e-03	16	-6.18e-03	3
91	N52	max	.163	3	.151	3	-.013	40	4.4e-04	2	2.492e-03	8	5.53e-03	10
92		min	-.16	9	-.152	9	-.076	16	-2.383e-03	20	-4.472e-03	2	-5.601e-03	4
93	N47A	max	.117	3	.049	10	-.027	40	4.53e-03	3	7.916e-04	40	3.489e-03	5
94		min	-.131	9	-.047	4	-.326	35	-4.878e-03	9	-3.623e-03	35	-3.285e-03	11
95	N48A	max	.214	3	.352	2	-.027	40	8.004e-03	2	1.089e-03	9	3.689e-03	6
96		min	-.198	9	-.366	8	-.326	35	-8.384e-03	8	-3.814e-03	35	-3.602e-03	12
97	N49A	max	.194	4	.258	2	-.025	28	9.809e-03	7	2.814e-03	4	3.029e-03	10
98		min	-.212	10	-.253	8	-.101	18	-1.003e-02	1	-3.475e-03	10	-2.878e-03	4
99	N50A	max	.303	4	.307	2	-.024	12	1.05e-02	1	4.356e-03	10	5.054e-03	9
100		min	-.284	10	-.317	8	-.101	18	-1.083e-02	7	-4.907e-03	4	-5.076e-03	3
101	N51A	max	.146	3	.109	10	-.021	2	2.556e-03	8	2.27e-03	40	3.069e-03	9
102		min	-.144	9	-.103	4	-.078	20	-2.883e-03	2	-7.833e-04	35	-3.165e-03	3
103	N52A	max	.213	4	.155	10	-.021	2	2.369e-03	12	2.184e-03	40	4.495e-03	10
104		min	-.211	9	-.166	4	-.078	20	-2.813e-03	6	-1.09e-03	3	-4.632e-03	4
105	N53	max	.132	4	.023	12	-.011	35	4.468e-03	11	2.773e-03	40	4.246e-03	2
106		min	-.133	10	-.026	6	-.31	40	-4.977e-03	5	-1.204e-03	35	-4.52e-03	8
107	N54	max	.183	4	.199	11	-.011	35	4.951e-03	11	2.91e-03	40	4.351e-03	2
108		min	-.177	10	-.217	5	-.31	40	-5.483e-03	5	-1.188e-03	35	-4.511e-03	8

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N5	max	1516.405	10	-376.633	7	2504.447	20	.037	1	.088	35	0	43
2		min	-1312.814	4	-3916.301	13	593.696	1	-.06	7	-.081	40	0	1
3	N6	max	1223.157	40	4259.743	19	2054.646	14	.064	7	.084	35	0	43
4		min	-1426.59	35	-570.62	1	470.745	7	-.082	1	-.077	40	0	1
5	N38	max	150.644	2	885.131	8	56.627	15	.003	10	.09	35	0	43
6		min	-152.975	8	-886.578	2	12.102	7	-.018	35	-.014	10	0	1
7	N37	max	102.449	5	696.443	5	56.25	23	.003	4	.015	4	0	43
8		min	-100.812	11	-698.539	11	12.327	6	-.017	40	-.086	40	0	1
9	Totals:	max	2233.713	10	3393.13	7	4650.443	22						
10		min	-2233.714	4	-3393.132	1	1352.189	3						

Load Combination Design

	Description	ASIF	CD	Service	Hot Rolled	Cold For...	Wood	Concrete	Masonry	Aluminum	Stainless	Connection
1	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	DL + WL (N...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
15	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Load Combination Design (Continued)

	Description	ASIF	CD	Service	Hot Rolled	Cold For...	Wood	Concrete	Masonry	Aluminum	Stainless	Connection
17	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
18	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
19	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
21	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
22	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
23	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24	DL + DL ICE ...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
25	DEAD LOAD...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
26	DEAD LOAD...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
27	DEAD LOAD...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
28	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
29	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
30	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
32	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
33	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
34	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
35	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
36	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
37	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
38	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
39	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
40	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
41	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
42	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
43	DL + MAIN L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	DL + WL (NO ICE) 0 Degree	Yes	Y		1	1.2			3	1.6																
2	DL + WL (NO ICE) 30 Degree	Yes	Y		1	1.2			3	1.3...	4	.8														
3	DL + WL (NO ICE) 60 Degree	Yes	Y		1	1.2			3	.8	4	1.3...														
4	DL + WL (NO ICE) 90 Degree	Yes	Y		1	1.2					4	1.6														
5	DL + WL (NO ICE) 120 Deg...	Yes	Y		1	1.2			3	-.8	4	1.3...														
6	DL + WL (NO ICE) 150 Deg...	Yes	Y		1	1.2			3	-1....	4	.8														
7	DL + WL (NO ICE) 180 Deg...	Yes	Y		1	1.2			3	-1.6																
8	DL + WL (NO ICE) 210 Deg...	Yes	Y		1	1.2			3	-1....	4	-.8														
9	DL + WL (NO ICE) 240 Deg...	Yes	Y		1	1.2			3	-.8	4	-1....														
10	DL + WL (NO ICE) 270 Deg...	Yes	Y		1	1.2					4	-1.6														
11	DL + WL (NO ICE) 300 Deg...	Yes	Y		1	1.2			3	.8	4	-1....														
12	DL + WL (NO ICE) 330 Deg...	Yes	Y		1	1.2			3	1.3...	4	-.8														
13	DL + DL ICE + WL (ICE) 0 ...	Yes	Y		1	1.2	2	1	5	1																
14	DL + DL ICE + WL (ICE) 30 ...	Yes	Y		1	1.2	2	1	5	.866	6	.5														
15	DL + DL ICE + WL (ICE) 60 ...	Yes	Y		1	1.2	2	1	5	.5	6	.866														
16	DL + DL ICE + WL (ICE) 90 ...	Yes	Y		1	1.2	2	1			6	1														
17	DL + DL ICE + WL (ICE) 12...	Yes	Y		1	1.2	2	1	5	-.5	6	.866														
18	DL + DL ICE + WL (ICE) 15...	Yes	Y		1	1.2	2	1	5	-.866	6	.5														
19	DL + DL ICE + WL (ICE) 18...	Yes	Y		1	1.2	2	1	5	-1																
20	DL + DL ICE + WL (ICE) 21...	Yes	Y		1	1.2	2	1	5	-.866	6	-.5														
21	DL + DL ICE + WL (ICE) 24...	Yes	Y		1	1.2	2	1	5	-.5	6	-.866														
22	DL + DL ICE + WL (ICE) 27...	Yes	Y		1	1.2	2	1			6	-1														
23	DL + DL ICE + WL (ICE) 30...	Yes	Y		1	1.2	2	1	5	.5	6	-.866														
24	DL + DL ICE + WL (ICE) 33...	Yes	Y		1	1.2	2	1	5	.866	6	-.5														
25	DEAD LOAD + LIVE LOAD1	Yes	Y		1	1.2					7	1.5														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
26	DEAD LOAD + LIVE LOAD2	Yes	Y		1	1.2					8	1.5												
27	DEAD LOAD + LIVE LOAD3	Yes	Y		1	1.2					9	1.5												
28	DL + MAIN L1+30MPH WL ...	Yes	Y		1	1.2	10	1.5	3	.088														
29	DL + MAIN L2+30MPH WL ...	Yes	Y		1	1.2	11	1.5	3	.088														
30	DL + MAIN L3+30MPH WL ...	Yes	Y		1	1.2	12	1.5	3	.088														
31	DL + MAIN L4+30MPH WL ...	Yes	Y		1	1.2	13	1.5	3	.088														
32	DL + MAIN L1+30MPH WL ...	Yes	Y		1	1.2	10	1.5	4	.088														
33	DL + MAIN L2+30MPH WL ...	Yes	Y		1	1.2	11	1.5	4	.088														
34	DL + MAIN L3+30MPH WL ...	Yes	Y		1	1.2	12	1.5	4	.088														
35	DL + MAIN L4+30MPH WL ...	Yes	Y		1	1.2	13	1.5	4	.088														
36	DL + MAIN L1+30MPH WL ...	Yes	Y		1	1.2	10	1.5	3	-.088														
37	DL + MAIN L2+30MPH WL ...	Yes	Y		1	1.2	11	1.5	3	-.088														
38	DL + MAIN L3+30MPH WL ...	Yes	Y		1	1.2	12	1.5	3	-.088														
39	DL + MAIN L4+30MPH WL ...	Yes	Y		1	1.2	13	1.5	3	-.088														
40	DL + MAIN L1+30MPH WL ...	Yes	Y		1	1.2	10	1.5	4	-.088														
41	DL + MAIN L2+30MPH WL ...	Yes	Y		1	1.2	11	1.5	4	-.088														
42	DL + MAIN L3+30MPH WL ...	Yes	Y		1	1.2	12	1.5	4	-.088														
43	DL + MAIN L4+30MPH WL ...	Yes	Y		1	1.2	13	1.5	4	-.088														

Member Distributed Loads (BLC 2 : DEAD LOAD ICE)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M9	Z	-16	-16	0	0
2	M10	Z	-16	-16	0	0
3	M11	Z	-14	-14	0	0
4	M12	Z	-14	-14	0	0
5	M13	Z	-14	-14	0	0
6	M14	Z	-14	-14	0	0
7	M15	Z	-16	-16	0	0
8	M16	Z	-16	-16	0	0
9	M17	Z	-16	-16	0	0
10	M18	Z	-16	-16	0	0
11	M19	Z	-14	-14	0	0
12	M20	Z	-14	-14	0	0
13	M21	Z	-9	-9	0	0
14	M22	Z	-9	-9	0	0
15	M23	Z	-9	-9	0	0
16	M24	Z	-9	-9	0	0
17	M25	Z	-9	-9	0	0
18	M26	Z	-9	-9	0	0
19	M27	Z	-9	-9	0	0
20	M28	Z	-9	-9	0	0

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M9	PY	10	10	0	0
2	M10	PY	10	10	0	0
3	M11	PY	8	8	0	0
4	M12	PY	8	8	0	0
5	M13	PY	8	8	0	0
6	M14	PY	8	8	0	0
7	M15	PY	10	10	0	0
8	M16	PY	10	10	0	0
9	M17	PY	10	10	0	0
10	M18	PY	10	10	0	0
11	M19	PY	8	8	0	0

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
12	M20	PY	8	8	0	0
13	M21	PY	2	2	0	0
14	M22	PY	2	2	0	0
15	M23	PY	2	2	0	0
16	M24	PY	2	2	0	0
17	M25	PY	3	3	0	0
18	M26	PY	3	3	0	0
19	M27	PY	3	3	0	0
20	M28	PY	3	3	0	0

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M9	PX	10	10	0	0
2	M10	PX	10	10	0	0
3	M11	PX	8	8	0	0
4	M12	PX	8	8	0	0
5	M13	PX	8	8	0	0
6	M14	PX	8	8	0	0
7	M15	PX	10	10	0	0
8	M16	PX	10	10	0	0
9	M17	PX	10	10	0	0
10	M18	PX	10	10	0	0
11	M19	PX	8	8	0	0
12	M20	PX	8	8	0	0
13	M21	PX	2	2	0	0
14	M22	PX	2	2	0	0
15	M23	PX	2	2	0	0
16	M24	PX	2	2	0	0
17	M25	PX	3	3	0	0
18	M26	PX	3	3	0	0
19	M27	PX	3	3	0	0
20	M28	PX	3	3	0	0

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M9	PY	9	9	0	0
2	M10	PY	9	9	0	0
3	M11	PY	8.4	8.4	0	0
4	M12	PY	8.4	8.4	0	0
5	M13	PY	8.4	8.4	0	0
6	M14	PY	8.4	8.4	0	0
7	M15	PY	9	9	0	0
8	M16	PY	9	9	0	0
9	M17	PY	9	9	0	0
10	M18	PY	9	9	0	0
11	M19	PY	8.4	8.4	0	0
12	M20	PY	8.4	8.4	0	0
13	M21	PY	6.4	6.4	0	0
14	M22	PY	6.4	6.4	0	0
15	M23	PY	6.4	6.4	0	0
16	M24	PY	6.4	6.4	0	0
17	M25	PY	6.5	6.5	0	0
18	M26	PY	6.5	6.5	0	0
19	M27	PY	6.5	6.5	0	0
20	M28	PY	6.5	6.5	0	0

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M9	PX	9	9	0	0
2	M10	PX	9	9	0	0
3	M11	PX	8.4	8.4	0	0
4	M12	PX	8.4	8.4	0	0
5	M13	PX	8.4	8.4	0	0
6	M14	PX	8.4	8.4	0	0
7	M15	PX	9	9	0	0
8	M16	PX	9	9	0	0
9	M17	PX	9	9	0	0
10	M18	PX	9	9	0	0
11	M19	PX	8.4	8.4	0	0
12	M20	PX	8.4	8.4	0	0
13	M21	PX	6.4	6.4	0	0
14	M22	PX	6.4	6.4	0	0
15	M23	PX	6.4	6.4	0	0
16	M24	PX	6.4	6.4	0	0
17	M25	PX	6.5	6.5	0	0
18	M26	PX	6.5	6.5	0	0
19	M27	PX	6.5	6.5	0	0
20	M28	PX	6.5	6.5	0	0

Joint Loads and Enforced Displacements (BLC 1 : DEAD LOAD)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N47A	L	Z	-70
2	N48A	L	Z	-70
3	N49A	L	Z	-124
4	N50A	L	Z	-124
5	N51A	L	Z	-90
6	N52A	L	Z	-90
7	N53	L	Z	-57
8	N54	L	Z	-57

Joint Loads and Enforced Displacements (BLC 2 : DEAD LOAD ICE)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N47A	L	Z	-168
2	N48A	L	Z	-168
3	N49A	L	Z	-418
4	N50A	L	Z	-418
5	N51A	L	Z	-161
6	N52A	L	Z	-161
7	N53	L	Z	-122
8	N54	L	Z	-122

Joint Loads and Enforced Displacements (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N47A	L	Y	110
2	N48A	L	Y	110
3	N49A	L	Y	343
4	N50A	L	Y	343
5	N51A	L	Y	135
6	N52A	L	Y	135
7	N53	L	Y	102
8	N54	L	Y	102

Joint Loads and Enforced Displacements (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N47A	L	X	90
2	N48A	L	X	90
3	N49A	L	X	187
4	N50A	L	X	187
5	N51A	L	X	88
6	N52A	L	X	88
7	N53	L	X	46
8	N54	L	X	46

Joint Loads and Enforced Displacements (BLC 5 : WIND LOAD (ICE) FRONT)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N47A	L	Y	35
2	N48A	L	Y	35
3	N49A	L	Y	97
4	N50A	L	Y	97
5	N51A	L	Y	41
6	N52A	L	Y	41
7	N53	L	Y	31
8	N54	L	Y	31

Joint Loads and Enforced Displacements (BLC 6 : WIND LOAD (ICE) SIDE)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N47A	L	X	32
2	N48A	L	X	32
3	N49A	L	X	64
4	N50A	L	X	64
5	N51A	L	X	29
6	N52A	L	X	29
7	N53	L	X	17
8	N54	L	X	17

Joint Loads and Enforced Displacements (BLC 7 : LIVE LOAD1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N4	L	Z	-250

Joint Loads and Enforced Displacements (BLC 8 : LIVE LOAD2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N3	L	Z	-250

Joint Loads and Enforced Displacements (BLC 10 : MAINTENANCE LOAD 1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N23	L	Z	-500

Joint Loads and Enforced Displacements (BLC 11 : MAINTENANCE LOAD 2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N25	L	Z	-500

Joint Loads and Enforced Displacements (BLC 12 : MAINTENANCE LOAD 3)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N26	L	Z	-500

Joint Loads and Enforced Displacements (BLC 13 : MAINTENANCE LOAD 4)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...

Joint Loads and Enforced Displacements (BLC 13 : MAINTENANCE LOAD 4) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N24	L	Z	-500

Member Point Loads

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

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.5	60	1.2
7	A529 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.2

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N11	N27			RIGID	None	None	LINK	Typical
2	M2	N12	N28			RIGID	None	None	LINK	Typical
3	M3	N15	N29			RIGID	None	None	LINK	Typical
4	M4	N16	N30			RIGID	None	None	LINK	Typical
5	M5	N17	N31			RIGID	None	None	LINK	Typical
6	M6	N18	N32			RIGID	None	None	LINK	Typical
7	M7	N13	N33			RIGID	None	None	LINK	Typical
8	M8	N14	N34			RIGID	None	None	LINK	Typical
9	M9	N2	N1			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
10	M10	N4	N3			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
11	M11	N5	N7			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
12	M12	N5	N9			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
13	M13	N6	N8			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
14	M14	N6	N10			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
15	M15	N19	N23			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
16	M16	N21	N25			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
17	M17	N22	N26			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
18	M18	N20	N24			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
19	M19	N37	N35			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
20	M20	N38	N36			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
21	M21	N49	N51			5/8" SR	Beam	BAR	A36 Gr.36	Typical
22	M22	N50	N52			5/8" SR	Beam	BAR	A36 Gr.36	Typical
23	M23	N45	N47			5/8" SR	Beam	BAR	A36 Gr.36	Typical
24	M24	N46	N48			5/8" SR	Beam	BAR	A36 Gr.36	Typical
25	M25	N49	N52			3/4" rod	Beam	BAR	A36 Gr.36	Typical
26	M26	N50	N51			3/4" rod	Beam	BAR	A36 Gr.36	Typical
27	M27	N46	N47			3/4" rod	Beam	BAR	A36 Gr.36	Typical
28	M28	N45	N48			3/4" rod	Beam	BAR	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes				None
10	M10						Yes				None
11	M11	BenPIN	BenPIN				Yes				None
12	M12	BenPIN	BenPIN				Yes				None
13	M13	BenPIN	BenPIN				Yes				None
14	M14	BenPIN	BenPIN				Yes				None
15	M15						Yes				None
16	M16						Yes				None
17	M17						Yes				None
18	M18						Yes				None
19	M19	BenPIN	BenPIN				Yes				None
20	M20	BenPIN	BenPIN				Yes				None
21	M21						Yes				None
22	M22						Yes				None
23	M23						Yes				None
24	M24						Yes				None
25	M25					Tension ...	Yes				None
26	M26					Tension ...	Yes				None
27	M27					Tension ...	Yes				None
28	M28					Tension ...	Yes				None

Envelope Beam Deflections

	Member Label	Span		Location [in]	y' [in]	(n) L'/y' Ratio	LC
1	M9	1	max	3.125	0	NC	42
2		1	min	42.188	.129	1001	9
3	M10	1	max	81.25	-.01	NC	28
4		1	min	46.875	.119	694	8
5	M11	1	max	35.639	-.05	NC	15
6		1	min	21.932	-.031	8721	17
7	M12	1	max	34.725	.109	NC	5
8		1	min	21.932	-.04	8903	21
9	M13	1	max	30.613	-.048	NC	14
10		1	min	21.932	.036	8689	23
11	M14	1	max	29.242	.044	NC	6
12		1	min	21.932	.053	8499	15
13	M15	1	max	34	-.004	NC	37
14		1	min	36	.043	4005	12
15	M16	1	max	15	0	NC	33
16		1	min	52	.056	1061	7
17	M17	1	max	40	-.006	NC	40
18		1	min	50	.011	322	7
19	M18	1	max	5	-.023	NC	17
20		1	min	43	.063	987	1
21	M19	1	max	38.966	.019	NC	7
22		1	min	36.674	.098	2754	10
23	M20	1	max	38.966	-.022	NC	7

Envelope Beam Deflections (Continued)

	Member Label	Span		Location [in]	y' [in]	(n) L'/y' Ratio	LC
24		1	min	36.674	.097	2754	4
25	M21	1	max	15.833	-.014	NC	11
26		1	min	14.167	-.031	1357	19
27	M22	1	max	20.833	-.007	NC	25
28		1	min	23.75	.034	1557	13
29	M23	1	max	17.5	-.004	NC	35
30		1	min	15	-.027	1477	19
31	M24	1	max	12.917	.121	NC	10
32		1	min	22.083	.015	1660	13
33	M25	1	max	7.939	-.049	NC	10
34		1	min	21.171	-.077	1009	19
35	M26	1	max	48.163	-.032	NC	10
36		1	min	28.051	.092	966	14
37	M27	1	max	26.463	.004	NC	26
38		1	min	27.522	.078	1065	24
39	M28	1	max	40.224	.126	NC	10
40		1	min	22.229	-.066	1092	19

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
1	M1	1	max	298.725	6	503.632	32	474.561	36	.816	32	.269	11	.217	5
2			min	-324.157	12	-51.898	10	70.301	2	.148	10	-.274	5	-.167	11
3		2	max	298.725	6	503.632	32	474.561	36	.816	32	.274	11	.201	5
4			min	-324.157	12	-51.898	10	70.301	2	.148	10	-.269	5	-.165	11
5		3	max	298.725	6	503.632	32	474.561	36	.816	32	.28	11	.185	5
6			min	-324.157	12	-51.898	10	70.301	2	.148	10	-.263	5	-.164	11
7		4	max	298.725	6	503.632	32	474.561	36	.816	32	.286	11	.169	5
8			min	-324.157	12	-51.898	10	70.301	2	.148	10	-.257	5	-.162	11
9		5	max	298.725	6	503.632	32	474.561	36	.816	32	.291	11	.153	5
10			min	-324.157	12	-51.898	10	70.301	2	.148	10	-.251	5	-.16	11
11	M2	1	max	217.998	8	-3.097	4	466.624	28	.845	32	.198	10	.107	11
12			min	-191.352	2	-500.538	40	-101.027	25	.139	10	-.203	4	-.157	5
13		2	max	217.998	8	-3.097	4	466.624	28	.845	32	.204	10	.121	11
14			min	-191.352	2	-500.538	40	-101.027	25	.139	10	-.196	4	-.156	5
15		3	max	217.998	8	-3.097	4	466.624	28	.845	32	.209	10	.134	11
16			min	-191.352	2	-500.538	40	-101.027	25	.139	10	-.19	4	-.155	5
17		4	max	217.998	8	-3.097	4	466.624	28	.845	32	.215	10	.147	11
18			min	-191.352	2	-500.538	40	-101.027	25	.139	10	-.183	4	-.154	5
19		5	max	217.998	8	-3.097	4	466.624	28	.845	32	.22	10	.16	11
20			min	-191.352	2	-500.538	40	-101.027	25	.139	10	-.176	4	-.153	5
21	M3	1	max	179.106	7	397.482	4	467.443	37	.343	31	.155	32	.219	5
22			min	-224.766	1	-295.421	10	39.217	2	-.039	8	-.089	43	-.191	11
23		2	max	179.106	7	397.482	4	467.443	37	.343	31	.159	36	.198	5
24			min	-224.766	1	-295.421	10	39.217	2	-.039	8	-.081	31	-.176	11
25		3	max	179.106	7	397.482	4	467.443	37	.343	31	.164	36	.177	5
26			min	-224.766	1	-295.421	10	39.217	2	-.039	8	-.073	31	-.162	11
27		4	max	179.106	7	397.482	4	467.443	37	.343	31	.169	36	.156	5
28			min	-224.766	1	-295.421	10	39.217	2	-.039	8	-.065	31	-.147	11
29		5	max	179.106	7	397.482	4	467.443	37	.343	31	.174	36	.135	5
30			min	-224.766	1	-295.421	10	39.217	2	-.039	8	-.059	12	-.133	11
31	M4	1	max	380.894	7	19.213	5	557.28	29	.47	4	.207	6	.102	11
32			min	-335.232	1	-204.897	43	78.249	8	-.306	10	-.201	12	-.131	35
33		2	max	380.894	7	19.213	5	557.28	29	.47	4	.215	6	.11	11
34			min	-335.232	1	-204.897	43	78.249	8	-.306	10	-.19	12	-.131	5
35		3	max	380.894	7	19.213	5	557.28	29	.47	4	.223	6	.117	11

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
36			min	-335.232	1	-204.897	43	78.249	8	-.306	10	-.179	12	-.132	5
37		4	max	380.894	7	19.213	5	557.28	29	.47	4	.231	6	.125	11
38			min	-335.232	1	-204.897	43	78.249	8	-.306	10	-.168	12	-.133	5
39		5	max	380.894	7	19.213	5	557.28	29	.47	4	.24	6	.133	11
40			min	-335.232	1	-204.897	43	78.249	8	-.306	10	-.157	12	-.135	5
41	M5	1	max	482.319	7	451.386	4	641.555	20	.185	10	.554	7	.277	3
42			min	-548.878	1	-560.16	10	-218.518	2	-.374	4	-.526	1	-.292	9
43		2	max	482.319	7	451.386	4	641.555	20	.185	10	.585	7	.252	3
44			min	-548.878	1	-560.16	10	-218.518	2	-.374	4	-.539	1	-.26	9
45		3	max	482.319	7	451.386	4	641.555	20	.185	10	.617	7	.226	3
46			min	-548.878	1	-560.16	10	-218.518	2	-.374	4	-.552	1	-.227	9
47		4	max	482.319	7	451.386	4	641.555	20	.185	10	.649	7	.201	3
48			min	-548.878	1	-560.16	10	-218.518	2	-.374	4	-.565	1	-.195	9
49		5	max	482.319	7	451.386	4	641.555	20	.185	10	.68	7	.177	2
50			min	-548.878	1	-560.16	10	-218.518	2	-.374	4	-.578	1	-.164	8
51	M6	1	max	743.282	7	274.994	4	806.113	14	.667	4	.233	12	.16	8
52			min	-676.72	1	-166.378	10	-167.375	8	-.84	10	-.215	6	-.146	2
53		2	max	743.282	7	274.994	4	806.113	14	.667	4	.261	12	.161	8
54			min	-676.72	1	-166.378	10	-167.375	8	-.84	10	-.218	6	-.154	2
55		3	max	743.282	7	274.994	4	806.113	14	.667	4	.289	12	.162	8
56			min	-676.72	1	-166.378	10	-167.375	8	-.84	10	-.221	6	-.161	2
57		4	max	743.282	7	274.994	4	806.113	14	.667	4	.324	1	.163	8
58			min	-676.72	1	-166.378	10	-167.375	8	-.84	10	-.23	7	-.169	2
59		5	max	743.282	7	274.994	4	806.113	14	.667	4	.359	1	.164	8
60			min	-676.72	1	-166.378	10	-167.375	8	-.84	10	-.24	7	-.177	2
61	M7	1	max	363.48	8	108.1	4	494.719	35	-.13	11	.41	2	.22	3
62			min	-397.089	2	-522.427	43	15.4	10	-.843	35	-.41	8	-.278	9
63		2	max	363.48	8	108.1	4	494.719	35	-.13	11	.419	2	.215	3
64			min	-397.089	2	-522.427	43	15.4	10	-.843	35	-.405	8	-.257	9
65		3	max	363.48	8	108.1	4	494.719	35	-.13	11	.427	2	.21	3
66			min	-397.089	2	-522.427	43	15.4	10	-.843	35	-.4	8	-.236	9
67		4	max	363.48	8	108.1	4	494.719	35	-.13	11	.436	2	.205	3
68			min	-397.089	2	-522.427	43	15.4	10	-.843	35	-.395	8	-.215	9
69		5	max	363.48	8	108.1	4	494.719	35	-.13	11	.444	2	.203	2
70			min	-397.089	2	-522.427	43	15.4	10	-.843	35	-.391	8	-.198	8
71	M8	1	max	185.432	5	519.252	35	485.98	43	-.045	4	.225	4	.209	8
72			min	-150.478	11	-51.559	10	-85.81	26	-.877	43	-.224	9	-.151	2
73		2	max	185.432	5	519.252	35	485.98	43	-.045	4	.227	3	.206	8
74			min	-150.478	11	-51.559	10	-85.81	26	-.877	43	-.213	9	-.164	2
75		3	max	185.432	5	519.252	35	485.98	43	-.045	4	.23	3	.203	8
76			min	-150.478	11	-51.559	10	-85.81	26	-.877	43	-.201	9	-.177	2
77		4	max	185.432	5	519.252	35	485.98	43	-.045	4	.233	3	.201	8
78			min	-150.478	11	-51.559	10	-85.81	26	-.877	43	-.19	9	-.19	2
79		5	max	185.432	5	519.252	35	485.98	43	-.045	4	.236	3	.198	8
80			min	-150.478	11	-51.559	10	-85.81	26	-.877	43	-.178	9	-.203	2
81	M9	1	max	0	43	0	43	0	43	0	43	0	43	0	43
82			min	0	1	0	1	0	1	0	1	0	1	0	1
83		2	max	207.085	10	494.796	4	504.853	36	.272	5	.517	36	.804	9
84			min	-510.502	32	-474.664	10	103.755	2	-.262	11	.06	2	-.811	3
85		3	max	280.521	1	351.565	9	135.182	31	.184	6	.095	43	.099	1
86			min	-553.187	7	-345.806	3	-135.505	36	-.176	12	-.045	5	-.083	7
87		4	max	282.566	3	536.745	3	-48.301	10	.403	2	.539	35	.768	4
88			min	-553.348	21	-566.52	9	-524.653	35	-.409	8	-.017	11	-.793	10
89		5	max	0	43	0	43	0	43	0	43	0	43	0	43
90			min	0	1	0	1	0	1	0	1	0	1	0	1
91	M10	1	max	0	43	0	43	375	25	0	43	0	43	0	43
92			min	0	1	0	1	0	1	0	1	0	1	0	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
93		2	max	500.523	40	234.82	2	490.053	28	.203	4	.539	28	.655	8
94			min	3.227	4	-261.771	8	101.457	8	-.198	10	.081	6	-.625	2
95		3	max	877.847	1	272.089	9	183.016	4	.227	2	.085	32	.076	7
96			min	-610.435	7	-275.751	3	-184.095	10	-.223	8	-.043	11	-.072	1
97		4	max	519.234	35	224.306	6	-45.313	4	.225	4	.561	43	.551	5
98			min	-51.45	10	-189.445	12	-509.531	43	-.224	9	.035	5	-.506	11
99		5	max	0	43	0	43	0	43	0	43	0	43	0	43
100			min	0	1	0	1	-375	26	0	1	0	1	0	1
101	M11	1	max	438.115	9	34.19	17	1087.371	22	.043	3	0	43	0	43
102			min	-2513.568	15	-32.087	23	185.529	35	-.084	40	0	1	0	1
103		2	max	1265.992	9	7.879	6	-56.076	2	.039	3	.426	21	.023	23
104			min	-1354.19	3	-8.106	12	-361.433	21	-.084	40	.072	35	-.026	17
105		3	max	1258.019	9	1.139	40	-59.882	2	.039	3	.093	24	.026	11
106			min	-1346.216	3	-1.021	35	-378.033	21	-.084	40	.002	6	-.028	17
107		4	max	1250.045	9	8.351	11	-63.688	2	.039	3	-.022	2	.023	23
108			min	-1338.242	3	-8.53	5	-394.632	21	-.084	40	-.265	20	-.025	17
109		5	max	1229.723	9	31.714	23	806.082	21	.036	2	0	43	0	43
110			min	-1315.811	3	-33.76	17	108.3	2	-.086	36	0	1	0	1
111	M12	1	max	268.924	5	33.168	21	-247.488	28	.089	39	0	43	0	43
112			min	-3337.807	23	-33.405	15	-1427.95	17	-.051	12	0	1	0	1
113		2	max	1160.043	5	7.911	8	488.714	18	.09	39	-.094	40	.024	15
114			min	-1299.278	11	-8.045	2	49.616	1	-.052	12	-.55	17	-.025	21
115		3	max	1152.07	5	1.317	35	505.313	18	.09	39	.041	8	.026	15
116			min	-1291.304	11	-.999	40	53.422	1	-.052	12	-.112	14	-.027	21
117		4	max	1144.096	5	8.414	3	521.913	18	.09	39	.378	19	.023	15
118			min	-1283.33	11	-8.482	9	57.228	1	-.052	12	-.035	1	-.025	21
119		5	max	1123.904	5	31.273	15	7.468	1	.092	39	0	43	0	43
120			min	-1265.444	10	-33.701	21	-1125.059	19	-.054	12	0	1	0	1
121	M13	1	max	2567.92	20	33.603	17	932.352	22	.035	5	0	43	0	43
122			min	-632.81	2	-34.365	23	154.65	35	-.079	40	0	1	0	1
123		2	max	2535.36	20	8.472	5	-56.031	35	.043	5	.346	22	.025	23
124			min	-611.805	2	-8.631	11	-341.919	23	-.079	40	.059	35	-.024	17
125		3	max	2530.128	20	.343	5	-59.837	35	.043	5	.033	19	.028	23
126			min	-603.831	2	-1.226	40	-358.518	23	-.079	40	-.017	12	-.026	5
127		4	max	2524.896	20	7.626	11	-63.643	35	.043	5	-.048	5	.025	23
128			min	-595.857	2	-7.785	5	-375.118	23	-.079	40	-.31	24	-.024	17
129		5	max	1147.632	8	34.688	23	928.711	22	.051	5	0	43	0	43
130			min	-1053.223	2	-32.404	17	150.143	5	-.084	40	0	1	0	1
131	M14	1	max	3397.82	18	33.577	21	-154.851	9	.103	2	0	43	0	43
132			min	-501.641	12	-35.218	15	-1227.919	16	-.086	8	0	1	0	1
133		2	max	3363.904	18	8.84	9	478.179	14	.111	2	-.073	9	.025	15
134			min	-481.053	12	-9.008	3	9.431	8	-.094	8	-.45	15	-.024	21
135		3	max	3358.672	18	.856	8	494.779	14	.111	2	.064	2	.028	15
136			min	-473.08	12	-1.316	31	13.237	8	-.094	8	-.064	8	-.027	9
137		4	max	3353.44	18	7.249	3	511.378	14	.111	2	.455	14	.026	15
138			min	-465.106	12	-7.417	9	17.043	8	-.094	8	-.05	8	-.024	8
139		5	max	1289.945	6	35.153	15	74.95	8	.126	2	0	43	0	43
140			min	-1145.081	12	-32.454	21	-1309.427	15	-.106	8	0	1	0	1
141	M15	1	max	0	43	.067	17	.037	22	0	43	0	43	0	43
142			min	0	1	-.032	10	-.008	35	0	1	0	1	0	1
143		2	max	45.148	24	31.994	1	31.995	4	0	43	.032	4	.032	7
144			min	13.148	1	-31.99	7	-31.989	10	0	1	-.032	10	-.032	1
145		3	max	27.008	15	124.401	5	-86.167	10	.16	11	.002	8	.064	7
146			min	-379.837	36	-149.49	11	-496.46	32	-.153	5	-.028	25	-.062	1
147		4	max	-13.148	43	31.98	7	31.986	10	0	43	.032	4	.032	7
148			min	-763.148	28	-31.984	1	-31.993	4	0	1	-.032	10	-.032	1
149		5	max	0	43	.657	40	.008	35	0	43	0	43	0	43

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
150			min	-750	28	-.075	17	-2.722	40	0	1	0	1	0	1
151	M16	1	max	0	43	.02	14	.011	40	0	43	0	43	0	43
152			min	0	1	-.012	8	-.004	35	0	1	0	1	0	1
153		2	max	314.148	24	248.318	1	172.765	4	0	43	.114	4	.158	7
154			min	121.148	1	-248.277	7	-172.726	10	0	1	-.114	10	-.158	1
155		3	max	94.546	2	64.667	12	90.526	10	.133	11	.048	1	.277	7
156			min	-333.16	37	-110.209	6	-209.2	35	-.135	5	-.041	7	-.27	1
157		4	max	-121.148	43	247.705	7	172.661	10	0	43	.114	4	.158	7
158			min	-871.148	29	-247.758	1	-172.689	4	0	1	-.114	10	-.158	1
159		5	max	0	43	.011	12	.005	3	0	43	0	43	0	43
160			min	-750	29	-.42	37	-.136	41	0	1	0	1	0	1
161	M17	1	max	0	43	.008	1	.002	4	0	43	0	43	0	43
162			min	0	1	-.008	7	-.005	22	0	1	0	1	0	1
163		2	max	611.948	24	582.112	1	331.496	4	0	43	.556	4	.995	7
164			min	161.948	1	-582.078	7	-331.6	10	0	1	-.556	10	-.995	1
165		3	max	391.972	2	73.12	2	225.351	22	.164	8	.13	5	.704	7
166			min	-346.021	8	-153.641	20	-92.296	3	-.177	2	-.138	11	-.696	1
167		4	max	-161.948	43	579.36	7	330.661	10	0	43	.555	4	.99	7
168			min	-911.948	30	-579.413	1	-330.575	4	0	1	-.555	10	-.99	1
169		5	max	0	43	.159	30	.392	34	0	43	0	43	0	43
170			min	-750	30	-.713	38	-.004	10	0	1	0	1	0	1
171	M18	1	max	0	43	.037	21	.004	40	0	43	0	43	0	43
172			min	0	1	-.023	15	-.036	15	0	1	0	1	0	1
173		2	max	297.148	24	207.867	1	175.862	4	0	43	.104	4	.12	7
174			min	97.148	1	-207.835	7	-175.974	10	0	1	-.104	10	-.12	1
175		3	max	95.422	10	156.62	9	511.504	43	.198	8	.029	26	.312	7
176			min	-384.332	35	-189.964	3	99.366	3	-.203	2	-.011	9	-.31	1
177		4	max	-97.148	42	207.345	7	175.906	10	0	43	.104	4	.12	7
178			min	-847.148	31	-207.38	1	-175.783	4	0	1	-.104	10	-.12	1
179		5	max	0	42	.817	31	2.873	35	0	43	0	43	0	43
180			min	-750	31	-.049	20	-.005	9	0	1	0	1	0	1
181	M19	1	max	703.194	5	37.694	4	55.516	24	.015	4	0	43	0	43
182			min	-704.939	11	-37.694	10	12.729	1	-.087	40	0	1	0	1
183		2	max	704.536	5	18.847	4	27.758	24	.015	4	.064	24	.043	10
184			min	-706.281	11	-18.847	10	6.365	1	-.087	40	.015	1	-.043	4
185		3	max	705.878	5	0	43	0	43	.015	4	.085	24	.058	10
186			min	-707.623	11	0	1	0	1	-.087	40	.019	1	-.058	4
187		4	max	707.22	5	18.847	10	-6.365	43	.015	4	.064	24	.043	10
188			min	-708.965	11	-18.847	4	-27.758	13	-.087	40	.015	1	-.043	4
189		5	max	708.563	5	37.694	10	-12.729	43	.015	4	0	43	0	43
190			min	-710.307	11	-37.694	4	-55.516	13	-.087	40	0	1	0	1
191	M20	1	max	898.057	8	37.694	10	-12.729	43	.092	35	0	43	0	43
192			min	-899.032	2	-37.694	4	-55.516	13	-.014	10	0	1	0	1
193		2	max	896.715	8	18.847	10	-6.365	43	.092	35	-.015	43	.043	4
194			min	-897.689	2	-18.847	4	-27.758	13	-.014	10	-.064	13	-.043	10
195		3	max	895.373	8	0	43	0	43	.092	35	-.019	43	.058	4
196			min	-896.347	2	0	1	0	1	-.014	10	-.085	13	-.058	10
197		4	max	894.03	8	18.847	4	27.758	24	.092	35	-.015	43	.043	4
198			min	-895.005	2	-18.847	10	6.365	1	-.014	10	-.064	13	-.043	10
199		5	max	892.688	8	37.694	4	55.516	24	.092	35	0	43	0	43
200			min	-893.768	3	-37.694	10	12.729	1	-.014	10	0	1	0	1
201	M21	1	max	1617.659	15	6.305	19	14.875	22	0	40	0	4	.001	7
202			min	151.392	8	-14.996	13	-6.259	16	0	35	-.013	22	-.013	13
203		2	max	1626.203	15	1.497	7	9.542	22	0	40	0	10	0	40
204			min	152.436	8	-9.663	13	-1.229	4	0	35	-.005	16	-.005	19
205		3	max	1634.747	15	-.663	40	4.408	16	0	40	.003	22	.003	13
206			min	153.48	8	-4.469	16	.858	40	0	35	-.003	16	-.003	19

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
207		4	max	1643.291	15	1.507	1	9.741	16	0	40	.004	22	.004	13
208			min	154.524	8	-9.695	19	-1.764	10	0	35	0	5	0	40
209		5	max	1651.835	15	6.337	13	15.075	16	0	40	.013	16	.013	19
210			min	155.568	8	-15.028	19	-6.458	22	0	35	-.001	10	-.001	1
211	M22	1	max	1683.495	19	8.274	19	14.245	22	0	40	.002	3	.002	19
212			min	57.073	1	-12.925	13	-6.975	16	0	35	-.012	22	-.009	13
213		2	max	1692.039	19	2.941	19	8.911	22	0	40	0	1	0	40
214			min	58.117	1	-7.592	13	-1.642	16	0	35	-.004	17	-.002	19
215		3	max	1700.583	19	.229	40	3.73	14	0	40	.003	22	.003	13
216			min	59.161	1	-2.504	17	.85	8	0	35	-.003	16	-.003	19
217		4	max	1709.127	19	3.075	13	9.025	16	0	40	.004	23	.003	14
218			min	60.205	1	-7.726	19	-1.755	22	0	35	-.001	7	0	40
219		5	max	1717.671	19	8.408	13	14.358	16	0	40	.012	16	.01	19
220			min	61.249	1	-13.059	19	-7.089	22	0	35	-.002	9	-.002	1
221	M23	1	max	1190.655	22	7.271	19	7.183	22	0	40	.012	16	.001	7
222			min	198.778	35	-13.971	13	-13.951	16	0	35	0	10	-.012	13
223		2	max	1199.199	22	1.938	19	1.849	22	0	40	.004	22	0	2
224			min	199.822	35	-8.638	13	-8.618	16	0	35	0	4	-.004	19
225		3	max	1207.743	22	-.489	35	-.695	35	0	40	.003	22	.003	13
226			min	200.865	35	-3.48	21	-3.484	22	0	35	-.003	16	-.003	19
227		4	max	1216.287	22	2.029	13	2.049	16	0	40	0	43	.003	13
228			min	201.909	35	-8.729	19	-8.817	22	0	35	-.003	16	0	35
229		5	max	1224.831	22	7.362	13	7.382	16	0	40	.002	4	.011	19
230			min	202.953	35	-14.062	19	-14.151	22	0	35	-.011	22	-.002	1
231	M24	1	max	1239.567	21	9.233	19	7.843	22	0	40	.01	16	.004	19
232			min	179.638	2	-11.872	13	-13.379	16	0	35	-.001	22	-.008	13
233		2	max	1248.111	21	3.9	19	2.51	22	0	40	.003	22	0	31
234			min	180.681	2	-6.539	13	-8.045	16	0	35	0	2	-.002	19
235		3	max	1256.655	21	.401	35	-.725	6	0	40	.003	22	.003	13
236			min	181.725	2	-1.716	41	-3.102	28	0	35	-.003	16	-.003	19
237		4	max	1265.199	21	4.128	13	2.621	16	0	40	0	7	.002	24
238			min	182.769	2	-6.767	19	-8.157	22	0	35	-.003	16	0	35
239		5	max	1273.743	21	9.461	13	7.955	16	0	40	.002	5	.009	19
240			min	183.813	2	-12.1	19	-13.49	22	0	35	-.011	22	-.004	13
241	M25	1	max	-753.902	40	15.979	19	7.246	11	.001	1	.004	5	.005	8
242			min	-4453.49	16	-7.731	2	-15.994	16	-.001	7	-.012	22	-.011	14
243		2	max	-752.292	40	5.99	20	5.542	22	.001	1	0	9	0	40
244			min	-4447.118	16	-4.936	14	-5.094	16	-.001	7	-.008	16	-.007	19
245		3	max	-750.682	40	-.29	40	6.053	14	.001	1	.002	11	.001	1
246			min	-4440.745	16	-4.21	17	-.478	8	-.001	7	-.008	16	-.008	19
247		4	max	-749.071	40	2.372	1	16.705	16	.001	1	.006	23	.003	14
248			min	-4434.373	16	-14.09	19	-2.612	9	-.001	7	-.002	7	0	11
249		5	max	-747.461	40	5.668	1	27.605	16	.001	1	.027	16	.022	19
250			min	-4428.001	16	-24.113	19	-5.402	10	-.001	7	-.005	9	-.004	1
251	M26	1	max	0	43	0	43	0	43	0	43	0	43	0	43
252			min	0	1	0	1	0	1	0	1	0	1	0	1
253		2	max	0	43	0	43	0	43	0	43	0	43	0	43
254			min	0	1	0	1	0	1	0	1	0	1	0	1
255		3	max	0	43	0	43	0	43	0	43	0	43	0	43
256			min	0	1	0	1	0	1	0	1	0	1	0	1
257		4	max	0	43	0	43	0	43	0	43	0	43	0	43
258			min	0	1	0	1	0	1	0	1	0	1	0	1
259		5	max	0	43	0	43	0	43	0	43	0	43	0	43
260			min	0	1	0	1	0	1	0	1	0	1	0	1
261	M27	1	max	0	43	0	43	0	43	0	43	0	43	0	43
262			min	0	1	0	1	0	1	0	1	0	1	0	1
263		2	max	0	43	0	43	0	43	0	43	0	43	0	43

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
264			min	0	1	0	1	0	1	0	1	0	1	0	1
265		3	max	0	43	0	43	0	43	0	43	0	43	0	43
266			min	0	1	0	1	0	1	0	1	0	1	0	1
267		4	max	0	43	0	43	0	43	0	43	0	43	0	43
268			min	0	1	0	1	0	1	0	1	0	1	0	1
269		5	max	0	43	0	43	0	43	0	43	0	43	0	43
270			min	0	1	0	1	0	1	0	1	0	1	0	1
271	M28	1	max	-557.008	35	17.135	19	17.415	22	0	7	.01	16	.008	18
272			min	-3325.955	22	-7.308	12	-7.317	4	0	1	-.005	22	-.008	24
273		2	max	-555.397	35	7.136	18	6.516	22	0	7	.007	22	0	31
274			min	-3319.583	22	-4.065	12	-4.258	16	0	1	.001	5	-.006	19
275		3	max	-553.787	35	-.092	35	-.627	6	0	7	.008	22	.002	1
276			min	-3313.211	22	-3.009	21	-4.459	24	0	1	-.002	4	-.008	19
277		4	max	-552.177	35	2.75	1	2.161	4	0	7	0	39	.003	24
278			min	-3306.839	22	-12.934	19	-15.284	22	0	1	-.005	28	0	7
279		5	max	-550.566	35	6.046	1	5.32	4	0	7	.003	4	.02	19
280			min	-3300.467	22	-22.957	19	-26.184	22	0	1	-.024	22	-.004	1

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
1	M1	1	max	0	6	0	43	0	43	0	43	0	43	0	43	0	43
2			min	0	12	0	1	0	1	0	1	0	1	0	1	0	1
3		2	max	0	6	0	43	0	43	0	43	0	43	0	43	0	43
4			min	0	12	0	1	0	1	0	1	0	1	0	1	0	1
5		3	max	0	6	0	43	0	43	0	43	0	43	0	43	0	43
6			min	0	12	0	1	0	1	0	1	0	1	0	1	0	1
7		4	max	0	6	0	43	0	43	0	43	0	43	0	43	0	43
8			min	0	12	0	1	0	1	0	1	0	1	0	1	0	1
9		5	max	0	6	0	43	0	43	0	43	0	43	0	43	0	43
10			min	0	12	0	1	0	1	0	1	0	1	0	1	0	1
11	M2	1	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
12			min	0	2	0	1	0	1	0	1	0	1	0	1	0	1
13		2	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
14			min	0	2	0	1	0	1	0	1	0	1	0	1	0	1
15		3	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
16			min	0	2	0	1	0	1	0	1	0	1	0	1	0	1
17		4	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
18			min	0	2	0	1	0	1	0	1	0	1	0	1	0	1
19		5	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
20			min	0	2	0	1	0	1	0	1	0	1	0	1	0	1
21	M3	1	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
22			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
23		2	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
24			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
25		3	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
26			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
27		4	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
28			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
29		5	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
30			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
31	M4	1	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
32			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
33		2	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
34			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
35		3	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
36			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
37		4	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
38			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
39		5	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
40			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
41	M5	1	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
42			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
43		2	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
44			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
45		3	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
46			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
47		4	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
48			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
49		5	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
50			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
51	M6	1	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
52			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
53		2	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
54			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
55		3	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
56			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
57		4	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
58			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
59		5	max	0	7	0	43	0	43	0	43	0	43	0	43	0	43
60			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
61	M7	1	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
62			min	0	2	0	1	0	1	0	1	0	1	0	1	0	1
63		2	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
64			min	0	2	0	1	0	1	0	1	0	1	0	1	0	1
65		3	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
66			min	0	2	0	1	0	1	0	1	0	1	0	1	0	1
67		4	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
68			min	0	2	0	1	0	1	0	1	0	1	0	1	0	1
69		5	max	0	8	0	43	0	43	0	43	0	43	0	43	0	43
70			min	0	2	0	1	0	1	0	1	0	1	0	1	0	1
71	M8	1	max	0	6	0	43	0	43	0	43	0	43	0	43	0	43
72			min	0	11	0	1	0	1	0	1	0	1	0	1	0	1
73		2	max	0	6	0	43	0	43	0	43	0	43	0	43	0	43
74			min	0	11	0	1	0	1	0	1	0	1	0	1	0	1
75		3	max	0	6	0	43	0	43	0	43	0	43	0	43	0	43
76			min	0	11	0	1	0	1	0	1	0	1	0	1	0	1
77		4	max	0	6	0	43	0	43	0	43	0	43	0	43	0	43
78			min	0	11	0	1	0	1	0	1	0	1	0	1	0	1
79		5	max	0	6	0	43	0	43	0	43	0	43	0	43	0	43
80			min	0	11	0	1	0	1	0	1	0	1	0	1	0	1
81	M9	1	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
82			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
83		2	max	.129	10	.615	4	.627	36	9.645	3	9.561	9	6.148	36	-.71	2
84			min	-.317	32	-.59	10	.129	2	-9.561	9	-9.645	3	.71	2	-6.148	36
85		3	max	.174	1	.437	9	.168	31	.992	7	1.173	1	1.129	43	.541	5
86			min	-.344	7	-.43	3	-.168	36	-1.173	1	-.992	7	-.541	5	-1.129	43
87		4	max	.176	3	.667	3	-.06	10	9.437	10	9.14	4	6.417	35	.208	11
88			min	-.344	21	-.704	9	-.652	35	-9.14	4	-9.437	10	-.208	11	-6.417	35
89		5	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
90			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
91	M10	1	max	0	43	0	43	.466	25	0	43	0	43	0	43	0	43
92			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
93		2	max	.311	40	.292	2	.609	28	7.44	2	7.797	8	6.415	28	-.966	6
94			min	.002	4	-.325	8	.126	8	-7.797	8	-7.44	2	.966	6	-6.415	28
95		3	max	.545	1	.338	9	.227	4	.856	1	.9	7	1.009	32	.508	11
96			min	-.379	7	-.343	3	-.229	10	-.9	7	-.856	1	-.508	11	-1.009	32
97		4	max	.323	35	.279	6	-.056	4	6.016	11	6.551	5	6.669	43	-.412	5
98			min	-.032	10	-.235	12	-.633	43	-6.551	5	-6.016	11	.412	5	-6.669	43
99		5	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
100			min	0	1	0	1	-.466	26	0	1	0	1	0	1	0	1
101	M11	1	max	.43	9	.067	17	2.132	22	0	43	0	43	0	43	0	43
102			min	-2.464	15	-.063	23	.364	35	0	1	0	1	0	1	0	1
103		2	max	1.241	9	.015	6	-.11	2	.585	17	.517	23	9.681	21	-1.627	35
104			min	-1.328	3	-.016	12	-.709	21	-.517	23	-.585	17	1.627	35	-9.681	21
105		3	max	1.233	9	.002	40	-.117	2	.627	17	.589	11	2.119	24	-.043	6
106			min	-1.32	3	-.002	35	-.741	21	-.589	11	-.627	17	.043	6	-2.119	24
107		4	max	1.226	9	.016	11	-.125	2	.558	17	.532	23	-.49	2	6.028	20
108			min	-1.312	3	-.017	5	-.774	21	-.532	23	-.558	17	-6.028	20	.49	2
109		5	max	1.206	9	.062	23	1.581	21	0	43	0	43	0	43	0	43
110			min	-1.29	3	-.066	17	.212	2	0	1	0	1	0	1	0	1
111	M12	1	max	.264	5	.065	21	-.485	28	0	43	0	43	0	43	0	43
112			min	-3.272	23	-.065	15	-2.8	17	0	1	0	1	0	1	0	1
113		2	max	1.137	5	.016	8	.958	18	.561	21	.541	15	-2.135	40	12.496	17
114			min	-1.274	11	-.016	2	.097	1	-.541	15	-.561	21	-12.496	17	2.135	40
115		3	max	1.129	5	.003	35	.991	18	.615	21	.59	15	.941	8	2.551	14
116			min	-1.266	11	-.002	40	.105	1	-.59	15	-.615	21	-2.551	14	-.941	8
117		4	max	1.122	5	.016	3	1.023	18	.558	21	.527	15	8.592	19	.788	1
118			min	-1.258	11	-.017	9	.112	1	-.527	15	-.558	21	-.788	1	-8.592	19
119		5	max	1.102	5	.061	15	.015	1	0	43	0	43	0	43	0	43
120			min	-1.241	10	-.066	21	-2.206	19	0	1	0	1	0	1	0	1
121	M13	1	max	2.518	20	.066	17	1.828	22	0	43	0	43	0	43	0	43
122			min	-.62	2	-.067	23	.303	35	0	1	0	1	0	1	0	1
123		2	max	2.486	20	.017	5	-.11	35	.549	17	.569	23	7.863	22	-1.345	35
124			min	-.6	2	-.017	11	-.67	23	-.569	23	-.549	17	1.345	35	-7.863	22
125		3	max	2.481	20	0	5	-.117	35	.6	5	.629	23	.747	19	.397	12
126			min	-.592	2	-.002	40	-.703	23	-.629	23	-.6	5	-.397	12	-.747	19
127		4	max	2.475	20	.015	11	-.125	35	.539	17	.579	23	-1.091	5	7.035	24
128			min	-.584	2	-.015	5	-.736	23	-.579	23	-.539	17	-7.035	24	1.091	5
129		5	max	1.125	8	.068	23	1.821	22	0	43	0	43	0	43	0	43
130			min	-1.033	2	-.064	17	.294	5	0	1	0	1	0	1	0	1
131	M14	1	max	3.331	18	.066	21	-.304	9	0	43	0	43	0	43	0	43
132			min	-.492	12	-.069	15	-2.408	16	0	1	0	1	0	1	0	1
133		2	max	3.298	18	.017	9	.938	14	.552	21	.576	15	-1.649	9	10.238	15
134			min	-.472	12	-.018	3	.018	8	-.576	15	-.552	21	-10.238	15	1.649	9
135		3	max	3.293	18	.002	8	.97	14	.614	9	.643	15	1.457	2	1.449	8
136			min	-.464	12	-.003	31	.026	8	-.643	15	-.614	9	-1.449	8	-1.457	2
137		4	max	3.288	18	.014	3	1.003	14	.546	8	.599	15	10.335	14	1.135	8
138			min	-.456	12	-.015	9	.033	8	-.599	15	-.546	8	-1.135	8	-10.335	14
139		5	max	1.265	6	.069	15	.147	8	0	43	0	43	0	43	0	43
140			min	-1.123	12	-.064	21	-2.568	15	0	1	0	1	0	1	0	1
141	M15	1	max	0	43	0	17	0	22	0	43	0	43	0	43	0	43
142			min	0	1	0	10	0	35	0	1	0	1	0	1	0	1
143		2	max	.028	24	.04	1	.04	4	.381	1	.38	7	.381	4	.38	10
144			min	.008	1	-.04	7	-.04	10	-.38	7	-.381	1	-.38	10	-.381	4
145		3	max	.017	15	.155	5	-.107	10	.738	1	.765	7	.029	8	.338	25
146			min	-.236	36	-.186	11	-.617	32	-.765	7	-.738	1	-.338	25	-.029	8
147		4	max	-.008	43	.04	7	.04	10	.38	1	.38	7	.381	4	.38	10
148			min	-.474	28	-.04	1	-.04	4	-.38	7	-.38	1	-.38	10	-.381	4
149		5	max	0	43	0	40	0	35	0	43	0	43	0	43	0	43

Envelope Member Section Stresses (Continued)

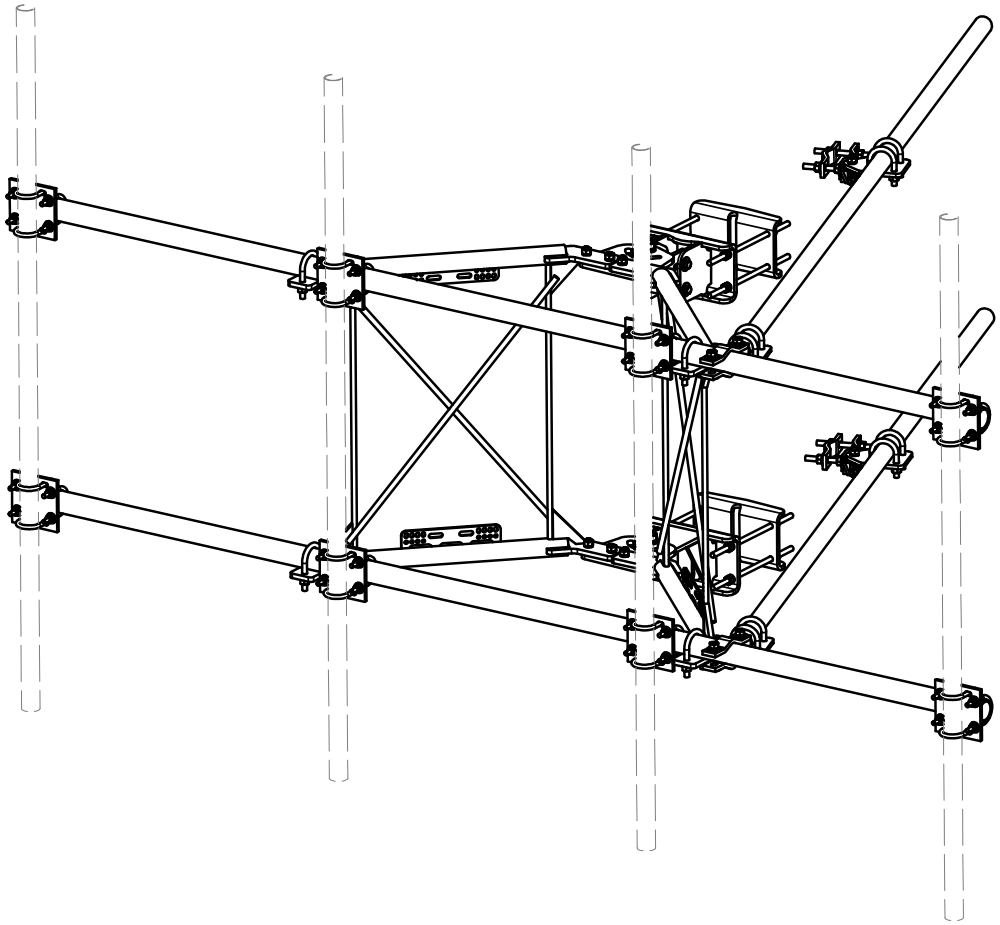
	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
150			min	-.466	28	0	17	-.003	40	0	1	0	1	0	1	0	1
151	M16	1	max	0	43	0	14	0	40	0	43	0	43	0	43	0	43
152			min	0	1	0	8	0	35	0	1	0	1	0	1	0	1
153		2	max	.195	24	.308	1	.215	4	1.882	1	1.882	7	1.358	4	1.357	10
154			min	.075	1	-.308	7	-.215	10	-1.882	7	-1.882	1	-1.357	10	-1.358	4
155		3	max	.059	2	.08	12	.112	10	3.208	1	3.292	7	.572	1	.492	7
156			min	-.207	37	-.137	6	-.26	35	-3.292	7	-3.208	1	-.492	7	-.572	1
157		4	max	-.075	43	.308	7	.214	10	1.878	1	1.877	7	1.357	4	1.357	10
158			min	-.541	29	-.308	1	-.215	4	-1.877	7	-1.878	1	-1.357	10	-1.357	4
159		5	max	0	43	0	12	0	3	0	43	0	43	0	43	0	43
160			min	-.466	29	0	37	0	41	0	1	0	1	0	1	0	1
161	M17	1	max	0	43	0	1	0	4	0	43	0	43	0	43	0	43
162			min	0	1	0	7	0	22	0	1	0	1	0	1	0	1
163		2	max	.38	24	.723	1	.412	4	11.833	1	11.833	7	6.616	4	6.618	10
164			min	.101	1	-.723	7	-.412	10	-11.833	7	-11.833	1	-6.618	10	-6.616	4
165		3	max	.243	2	.091	2	.28	22	8.28	1	8.38	7	1.548	5	1.64	11
166			min	-.215	8	-.191	20	-.115	3	-8.38	7	-8.28	1	-1.64	11	-1.548	5
167		4	max	-.101	43	.72	7	.411	10	11.777	1	11.776	7	6.597	4	6.599	10
168			min	-.566	30	-.72	1	-.411	4	-11.776	7	-11.777	1	-6.599	10	-6.597	4
169		5	max	0	43	0	30	0	34	0	43	0	43	0	43	0	43
170			min	-.466	30	0	38	0	10	0	1	0	1	0	1	0	1
171	M18	1	max	0	43	0	21	0	40	0	43	0	43	0	43	0	43
172			min	0	1	0	15	0	15	0	1	0	1	0	1	0	1
173		2	max	.185	24	.258	1	.218	4	1.427	1	1.426	7	1.236	4	1.237	10
174			min	.06	1	-.258	7	-.219	10	-1.426	7	-1.427	1	-1.237	10	-1.236	4
175		3	max	.059	10	.195	9	.635	43	3.691	1	3.716	7	.344	26	.132	9
176			min	-.239	35	-.236	3	.123	3	-3.716	7	-3.691	1	-.132	9	-.344	26
177		4	max	-.06	42	.258	7	.219	10	1.423	1	1.423	7	1.236	4	1.237	10
178			min	-.526	31	-.258	1	-.218	4	-1.423	7	-1.423	1	-1.237	10	-1.236	4
179		5	max	0	42	.001	31	.004	35	0	43	0	43	0	43	0	43
180			min	-.466	31	0	20	0	9	0	1	0	1	0	1	0	1
181	M19	1	max	.689	5	.074	4	.109	24	0	43	0	43	0	43	0	43
182			min	-.691	11	-.074	10	.025	1	0	1	0	1	0	1	0	1
183		2	max	.691	5	.037	4	.054	24	.982	4	.982	10	1.446	24	-.332	43
184			min	-.692	11	-.037	10	.012	1	-.982	10	-.982	4	.332	1	-1.446	13
185		3	max	.692	5	0	43	0	43	1.309	4	1.309	10	1.928	24	-.442	43
186			min	-.694	11	0	1	0	1	-1.309	10	-1.309	4	.442	1	-1.928	13
187		4	max	.693	5	.037	10	-.012	43	.982	4	.982	10	1.446	24	-.332	43
188			min	-.695	11	-.037	4	-.054	13	-.982	10	-.982	4	.332	1	-1.446	13
189		5	max	.695	5	.074	10	-.025	43	0	43	0	43	0	43	0	43
190			min	-.696	11	-.074	4	-.109	13	0	1	0	1	0	1	0	1
191	M20	1	max	.88	8	.074	10	-.025	43	0	43	0	43	0	43	0	43
192			min	-.881	2	-.074	4	-.109	13	0	1	0	1	0	1	0	1
193		2	max	.879	8	.037	10	-.012	43	.982	10	.982	4	-.332	43	1.446	24
194			min	-.88	2	-.037	4	-.054	13	-.982	4	-.982	10	-1.446	13	.332	1
195		3	max	.878	8	0	43	0	43	1.309	10	1.309	4	-.442	43	1.928	24
196			min	-.879	2	0	1	0	1	-1.309	4	-1.309	10	-1.928	13	.442	1
197		4	max	.877	8	.037	4	.054	24	.982	10	.982	4	-.332	43	1.446	24
198			min	-.877	2	-.037	10	.012	1	-.982	4	-.982	10	-1.446	13	.332	1
199		5	max	.875	8	.074	4	.109	24	0	43	0	43	0	43	0	43
200			min	-.876	3	-.074	10	.025	1	0	1	0	1	0	1	0	1
201	M21	1	max	5.273	15	.027	19	.065	22	6.742	13	.611	7	.213	4	6.604	22
202			min	.493	8	-.065	13	-.027	16	-.611	7	-6.742	13	-6.604	22	-.213	4
203		2	max	5.301	15	.007	7	.041	22	2.326	19	-.302	40	-.205	10	2.382	16
204			min	.497	8	-.042	13	-.005	4	.302	40	-2.326	19	-2.382	16	.205	10
205		3	max	5.328	15	-.003	40	.019	16	1.619	19	1.321	13	1.358	22	1.655	16
206			min	.5	8	-.019	16	.004	40	-1.321	13	-1.619	19	-1.655	16	-1.358	22

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
207		4	max	5.356	15	.007	1	.042	16	-.251	40	2.014	13	2.001	22	-.325	5
208			min	.504	8	-.042	19	-.008	10	-2.014	13	.251	40	.325	5	-2.001	22
209		5	max	5.384	15	.028	13	.066	16	.704	1	6.471	19	6.473	16	.744	10
210			min	.507	8	-.065	19	-.028	22	-6.471	19	-.704	1	-.744	10	-6.473	16
211	M22	1	max	5.487	19	.036	19	.062	22	4.72	13	1.153	19	.786	3	5.872	22
212			min	.186	1	-.056	13	-.03	16	-1.153	19	-4.72	13	-5.872	22	-.786	3
213		2	max	5.515	19	.013	19	.039	22	1.186	19	.12	40	.423	1	1.832	17
214			min	.189	1	-.033	13	-.007	16	-.12	40	-1.186	19	-1.832	17	-.423	1
215		3	max	5.543	19	0	40	.016	14	1.3	19	1.615	13	1.564	22	1.385	16
216			min	.193	1	-.011	17	.004	8	-1.615	13	-1.3	19	-1.385	16	-1.564	22
217		4	max	5.571	19	.013	13	.039	16	.071	40	1.451	14	2.002	23	.568	7
218			min	.196	1	-.034	19	-.008	22	-1.451	14	-.071	40	-.568	7	-2.002	23
219		5	max	5.599	19	.037	13	.062	16	1.206	1	5.146	19	6.146	16	1.138	9
220			min	.2	1	-.057	19	-.031	22	-5.146	19	-1.206	1	-1.138	9	-6.146	16
221	M23	1	max	3.881	22	.032	19	.031	22	5.829	13	.517	7	5.796	16	.359	10
222			min	.648	35	-.061	13	-.061	16	-.517	7	-5.829	13	-.359	10	-5.796	16
223		2	max	3.909	22	.008	19	.008	22	1.903	19	-.187	2	1.956	22	-.134	4
224			min	.651	35	-.038	13	-.037	16	.187	2	-1.903	19	.134	4	-1.956	22
225		3	max	3.937	22	-.002	35	-.003	35	1.598	19	1.378	13	1.615	22	1.395	16
226			min	.655	35	-.015	21	-.015	22	-1.378	13	-1.598	19	-1.395	16	-1.615	22
227		4	max	3.964	22	.009	13	.009	16	-.184	35	1.645	13	-.272	43	1.653	16
228			min	.658	35	-.038	19	-.038	22	-1.645	13	.184	35	-1.653	16	.272	43
229		5	max	3.992	22	.032	13	.032	16	.873	1	5.685	19	.882	4	5.742	22
230			min	.662	35	-.061	19	-.061	22	-5.685	19	-.873	1	-5.742	22	-.882	4
231	M24	1	max	4.04	21	.04	19	.034	22	3.859	13	1.89	19	5.148	16	.654	22
232			min	.586	2	-.052	13	-.058	16	-1.89	19	-3.859	13	-.654	22	-5.148	16
233		2	max	4.068	21	.017	19	.011	22	.85	19	.192	31	1.506	22	-.064	2
234			min	.589	2	-.028	13	-.035	16	-.192	31	-.85	19	.064	2	-1.506	22
235		3	max	4.096	21	.002	35	-.003	6	1.364	19	1.598	13	1.44	22	1.565	16
236			min	.592	2	-.007	41	-.013	28	-1.598	13	-1.364	19	-1.565	16	-1.44	22
237		4	max	4.124	21	.018	13	.011	16	.147	35	.988	24	-.015	7	1.584	16
238			min	.596	2	-.029	19	-.035	22	-.988	24	-.147	35	-1.584	16	.015	7
239		5	max	4.152	21	.041	13	.035	16	1.846	13	4.283	19	.819	5	5.366	22
240			min	.599	2	-.053	19	-.059	22	-4.283	19	-1.846	13	-5.366	22	-.819	5
241	M25	1	max	-1.706	40	.048	19	.022	11	3.126	14	1.557	8	1.018	5	3.521	22
242			min	-10.081	16	-.023	2	-.048	16	-1.557	8	-3.126	14	-3.521	22	-1.018	5
243		2	max	-1.703	40	.018	20	.017	22	2.021	19	.057	40	-.288	9	2.416	16
244			min	-10.066	16	-.015	14	-.015	16	-.057	40	-2.021	19	-2.416	16	.288	9
245		3	max	-1.699	40	0	40	.018	14	2.311	19	.409	1	.551	11	2.307	16
246			min	-10.052	16	-.013	17	-.001	8	-.409	1	-2.311	19	-2.307	16	-.551	11
247		4	max	-1.696	40	.007	1	.05	16	-.164	11	1.011	14	1.595	23	.618	7
248			min	-10.037	16	-.043	19	-.008	9	-1.011	14	.164	11	-.618	7	-1.595	23
249		5	max	-1.692	40	.017	1	.083	16	1.046	1	6.332	19	7.94	16	1.489	9
250			min	-10.023	16	-.073	19	-.016	10	-6.332	19	-1.046	1	-1.489	9	-7.94	16
251	M26	1	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
252			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
253		2	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
254			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
255		3	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
256			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
257		4	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
258			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
259		5	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
260			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
261	M27	1	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
262			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
263		2	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
264			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
265		3	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
266			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
267		4	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
268			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
269		5	max	0	43	0	43	0	43	0	43	0	43	0	43	0	43
270			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
271	M28	1	max	-1.261	35	.052	19	.053	22	2.229	24	2.173	18	2.81	16	1.589	22
272			min	-7.528	22	-.022	12	-.022	4	-2.173	18	-2.229	24	-1.589	22	-2.81	16
273		2	max	-1.257	35	.022	18	.02	22	1.596	19	.147	31	2.081	22	-.302	5
274			min	-7.514	22	-.012	12	-.013	16	-.147	31	-1.596	19	.302	5	-2.081	22
275		3	max	-1.254	35	0	35	-.002	6	2.241	19	.651	1	2.408	22	.452	4
276			min	-7.5	22	-.009	21	-.013	24	-.651	1	-2.241	19	-.452	4	-2.408	22
277		4	max	-1.25	35	.008	1	.007	4	-.098	7	.774	24	-.04	39	1.408	28
278			min	-7.485	22	-.039	19	-.046	22	-.774	24	.098	7	-1.408	28	.04	39
279		5	max	-1.246	35	.018	1	.016	4	1.036	1	5.692	19	.874	4	6.967	22
280			min	-7.471	22	-.069	19	-.079	22	-5.692	19	-1.036	1	-6.967	22	-.874	4



PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	1	X-HDCAMTBW	CLAMP WELDMENT FOR BCAM-HD		33.86	33.86
3	1	X-MHTPHD	MULTI-HOLE TAPER PLATE WELDMENT		36.24	36.24
4	2	X-VFAPL4	VFA-HD PIVOT PLATE	12 in	15.88	31.77
5	2	X-LCBP4	BENT BACKING PLATE	13 in	19.00	38.01
6	1	X-HDCAMSS	ANGLE ADJUSTMENT WELDMENT FOR BCAM-HD		16.39	16.39
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-HDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM-HD		2.58	2.58
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	8	SCX2	CROSSOVER PLATE	7 in	4.80	38.37
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
14	2	P30150	2-7/8" X 150" (2-1/2" SCH. 40) GALVANIZED PIPE	150 in	76.94	153.87
15	4	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	1.92
16	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
17	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
18	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
19	8	G58R-18	5/8" x 18" THREADED ROD (HDG.)	18 in	0.40	3.19
20	4	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	4.18
21	4	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	2.79
22	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
23	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
24	2	G5807	5/8" x 7" HDG HEX BOLT GR5 FULL THREAD	7 in	0.70	1.41
25	1	G5806	5/8" x 6" HDG HEX BOLT GR5 FULL THREAD	6 in	0.62	0.62
26	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
27	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
28	8	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
29	25	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.76
30	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
31	71	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.22
32	32	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	23.64
33	16	X-UB1212	1/2" X 2" X 3" X 1-1/4" U-BOLT (HDG.)		0.60	9.56
34	64	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.18
35	64	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.89
36	64	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.58
					TOTAL WT. #	738.06

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DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

SITE PRO 1
A valmont COMPANY

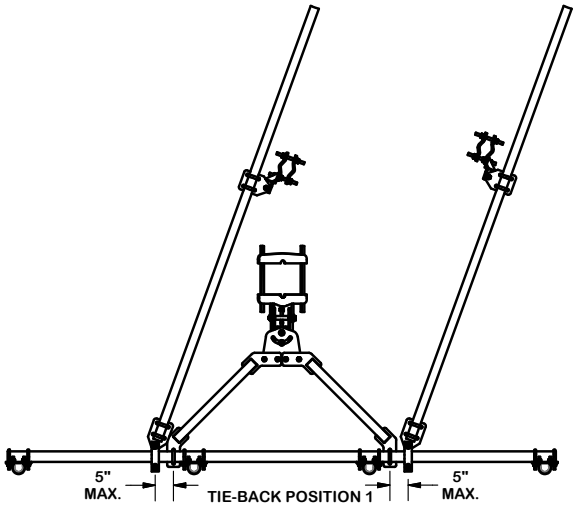
Engineering Support Team:
1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

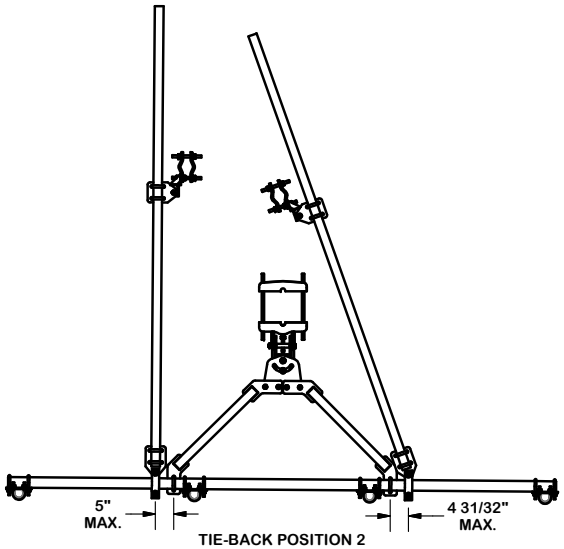
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 1/25/2017		VFA12-HD

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 12/13/2017	VFA12-HD

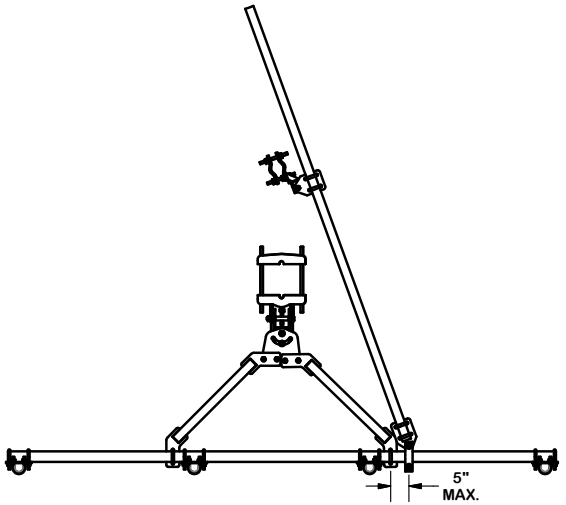
TIE-BACK POSITIONS



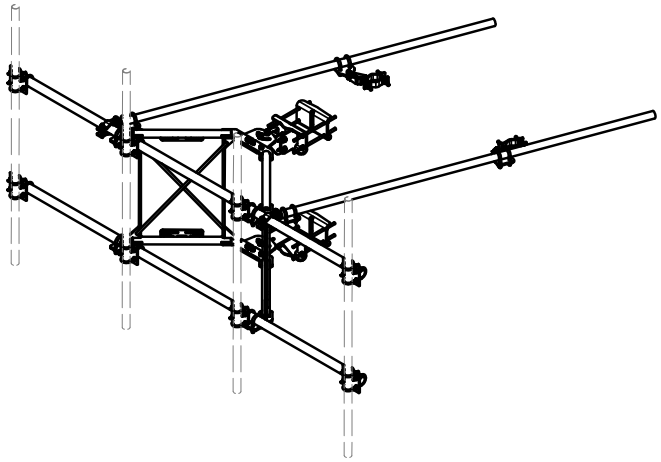
TIE-BACK POSITION 1
-20° / +20° TOP PARALLEL

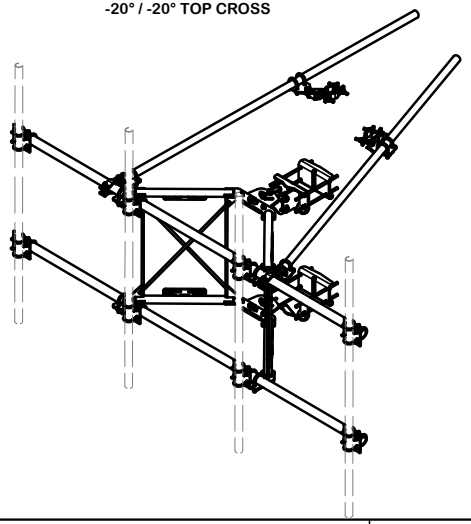


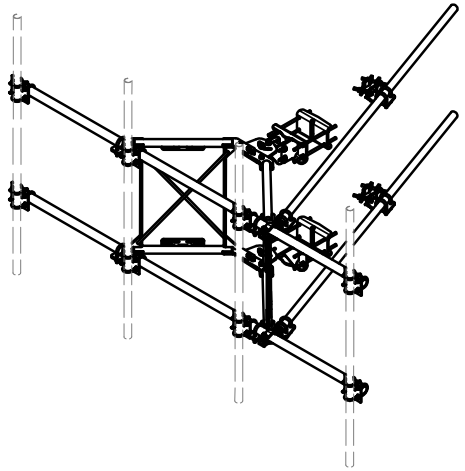
TIE-BACK POSITION 2
-20° / -20° TOP CROSS



TIE-BACK POSITION 3
-20° SAME SIDE STACKED







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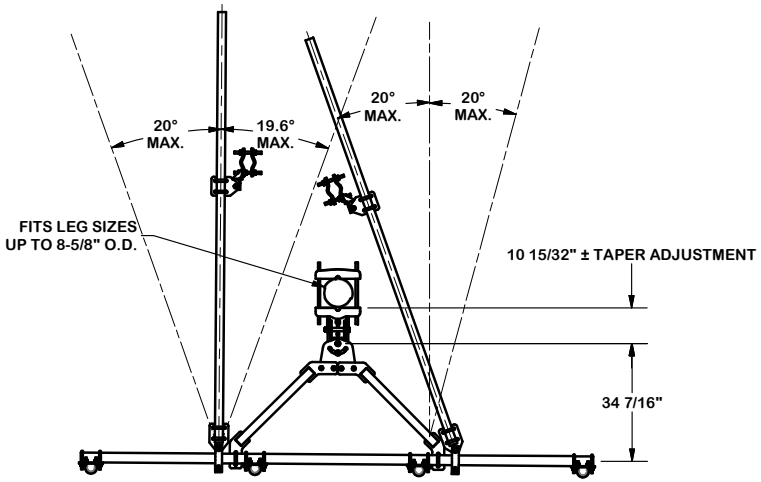
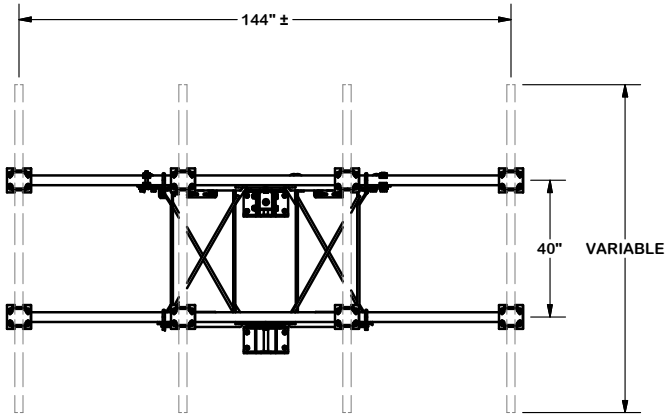
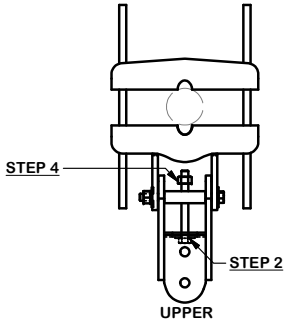
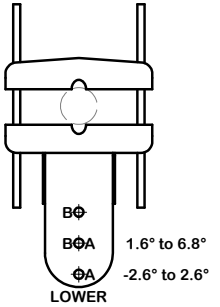


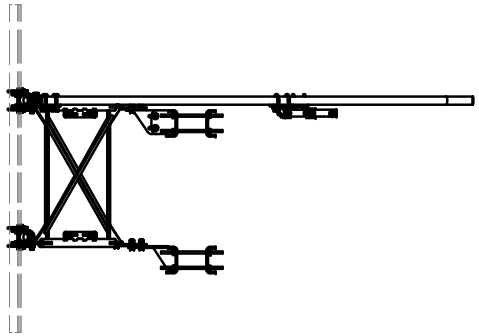


ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
   - HOLE A = -2.6° TO 2.6°
   - HOLE B = 1.6° TO 6.8°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 100 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.







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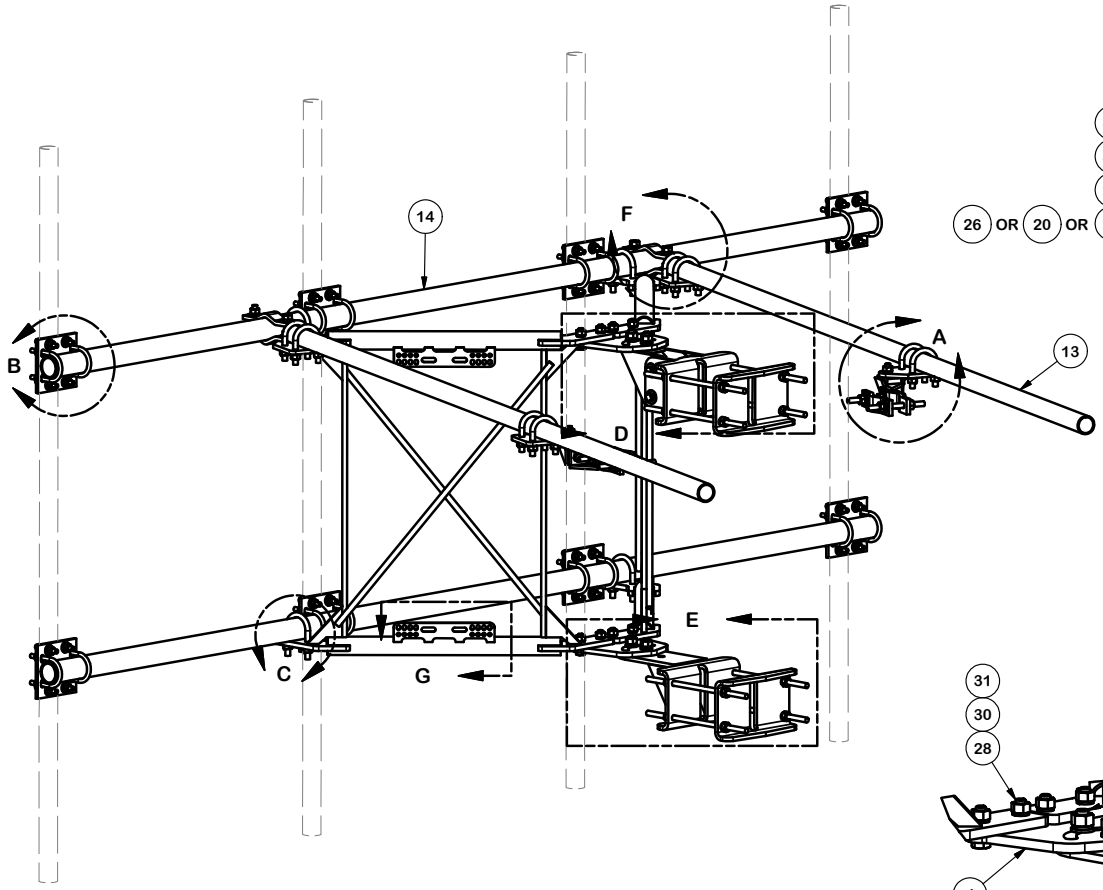
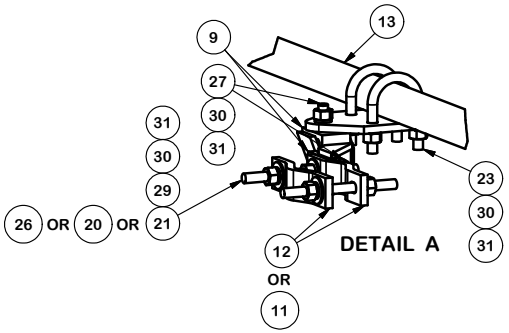
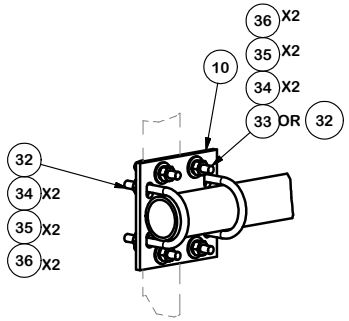
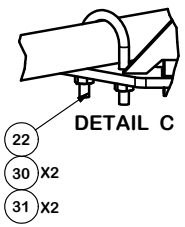
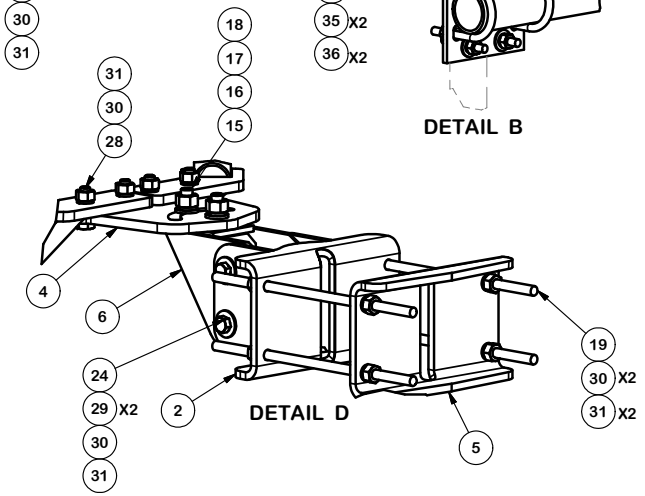
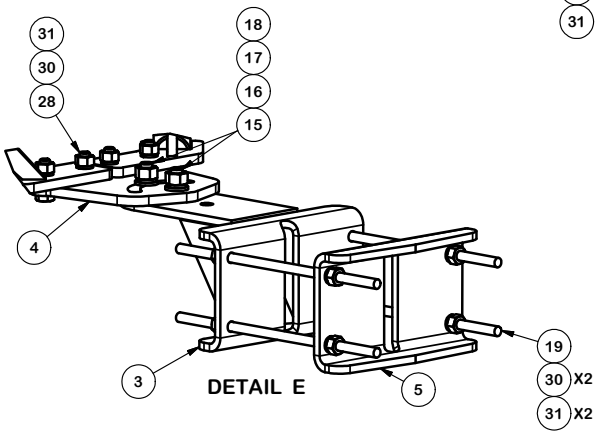


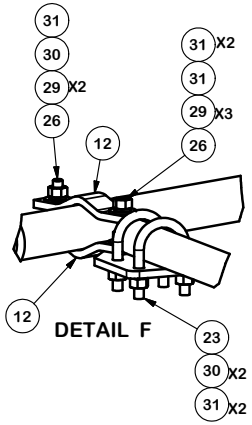








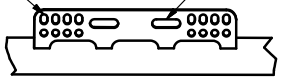




7/16" LUG HOLES

REVIEW CARRIER STANDARDS FOR PROPER SURFACE PREPARTION AND ASSEMBLY OF ELECTRICAL CONNECTIONS

9/16" SLOTTED HOLE FOR EQUIPMENT PIPE U-BOLT



DETAIL G

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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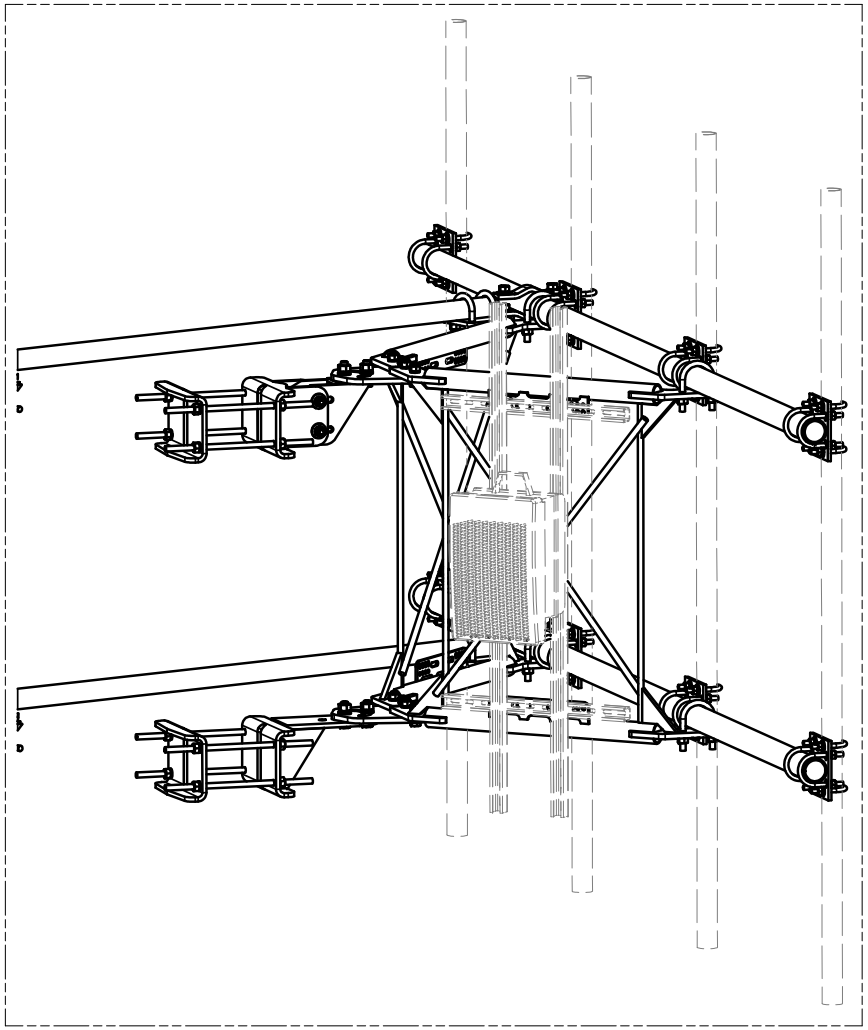
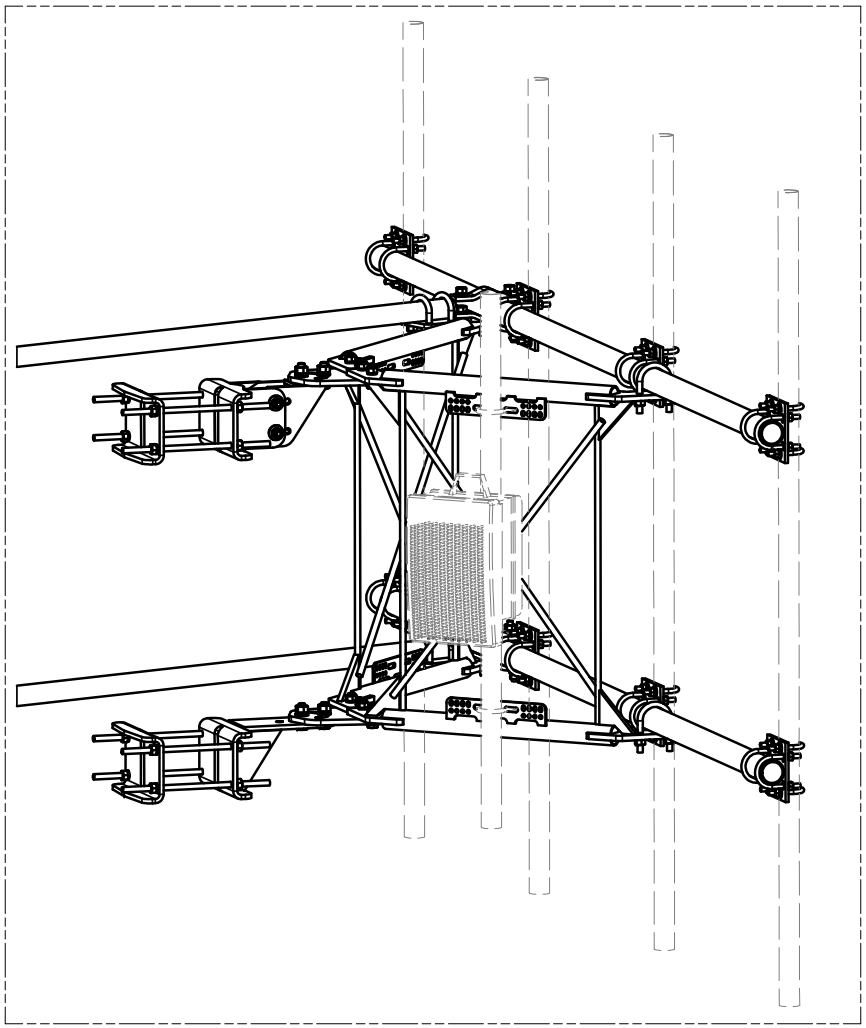


UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

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Exhibit F

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11303B

UConn
82 North Eagleville Road
Storrs, Connecticut 06268

May 16, 2019

EBI Project Number: 6219001541

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**10.55%**

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

May 16, 2019

T-Mobile
Attn: Jason Overby, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11303B - UConn

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **82 North Eagleville Road** in **Storrs, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 82 North Eagleville Road in Storrs, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 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.

2) 4 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

3) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 1 LTE channel (600 MHz Band) was considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 4 LTE channels (2500 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

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

8) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is 232 feet above ground level (AGL).

10) 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.

11) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR32	Make / Model:	Ericsson AIR32	Make / Model:	Ericsson AIR32
Frequency Bands:	2100 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	2100 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	2100 MHz / 1900 MHz / 1900 MHz
Gain:	15.85 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.85 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.85 dBd / 15.35 dBd / 15.35 dBd
Height (AGL):	232 feet	Height (AGL):	232 feet	Height (AGL):	232 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts
ERP (W):	10,533.98	ERP (W):	10,533.98	ERP (W):	10,533.98
Antenna A1 MPE %:	**0.70%**	Antenna B1 MPE %:	**0.70%**	Antenna C1 MPE %:	**0.70%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 700 MHz / 1900 MHz
Gain:	12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 13.35 dBd / 15.65 dBd
Height (AGL):	232 feet	Height (AGL):	232 feet	Height (AGL):	232 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	210 Watts	Total TX Power (W):	210 Watts	Total TX Power (W):	210 Watts
ERP (W):	6,296.75	ERP (W):	6,296.75	ERP (W):	6,296.75
Antenna A2 MPE %:	**0.58%**	Antenna B2 MPE %:	**0.58%**	Antenna C2 MPE %:	**0.58%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR3246 B66	Make / Model:	Ericsson AIR3246 B66	Make / Model:	Ericsson AIR3246 B66
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.85 dBd	Gain:	15.85 dBd	Gain:	15.85 dBd
Height (AGL):	232 feet	Height (AGL):	232 feet	Height (AGL):	232 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	9,230.20	ERP (W):	9,230.20	ERP (W):	9,230.20
Antenna A3 MPE %:	**0.62%**	Antenna B3 MPE %:	**0.62%**	Antenna C3 MPE %:	**0.62%**
Antenna #:	**4**	Antenna #:	**4**	Antenna #:	**4**
Make / Model:	Ericsson AIR6488 B41	Make / Model:	Ericsson AIR6488 B41	Make / Model:	Ericsson AIR6488 B41
Frequency Bands:	2500 MHz	Frequency Bands:	2500 MHz	Frequency Bands:	2500 MHz
Gain:	20.85 dBd	Gain:	20.85 dBd	Gain:	20.85 dBd

Height (AGL):	232 feet	Height (AGL):	232 feet	Height (AGL):	232 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	19,458.98	ERP (W):	19,458.98	ERP (W):	19,458.98
Antenna A4 MPE %:	**1.30%**	Antenna B4 MPE %:	**1.30%**	Antenna C4 MPE %:	**1.30%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	3.20%
Sprint	0.43%
CT Public Bdcastng	0.19%
UConn	0.33%
Site Total MPE %	10.55%

T-Mobile Sector A Total:	3.20%
T-Mobile Sector B Total:	3.20%
T-Mobile Sector C Total:	3.20%
Site Total:	10.55%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 2100 MHz UMTS	2	1153.78	232.0	1.54	2100 MHz UMTS	1000	0.15%
T-Mobile 1900 MHz LTE	2	2056.61	232.0	2.75	1900 MHz LTE	1000	0.27%
T-Mobile 1900 MHz GSM	4	1028.30	232.0	2.75	1900 MHz GSM	1000	0.27%
T-Mobile 600 MHz LTE	1	591.73	232.0	0.40	600 MHz LTE	400	0.10%
T-Mobile 700 MHz LTE	2	648.82	232.0	0.87	700 MHz LTE	467	0.19%
T-Mobile 1900 MHz LTE	2	2203.69	232.0	2.94	1900 MHz LTE	1000	0.29%
T-Mobile 2100 MHz LTE	4	2307.55	232.0	6.17	2100 MHz LTE	1000	0.62%
T-Mobile 2500 MHz LTE	4	4864.74	232.0	13.00	2500 MHz LTE	1000	1.30%
						Total:	**9.60%**

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	3.20%
Sector B:	3.20%
Sector C:	3.20%
T-Mobile Maximum MPE % (Sector A):	3.20%
Site Total:	10.55%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **10.55%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

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usps.com
$7.35
US POSTAGE
Flat Rate Env

06/07/2019 Mailed from 06002 062S0000000312

P

PRIORITY MAIL 1-DAY™

DEBORAH CHASE
T-MOBILE USA- NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

Expected Delivery Date: 06/08/19
Ref#: 303BANCZAP

0024

C002

SHIP TO: PAUL SHAPIRO
MAYOR- TOWN OF MANSFIELD
4 S EAGLEVILLE RD
TOWN COUNCIL OFFICE
STORRS CT 06268-2574

USPS TRACKING #

9405 5036 9930 0027 5570 43

Electronic Rate Approved #038555749

Cut on dotted line.

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3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0027 5570 43

Trans. #:	465680514
Print Date:	06/07/2019
Ship Date:	06/07/2019
Expected Delivery Date:	06/08/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

From: DEBORAH CHASE
T-MOBILE USA- NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

Ref#: 303BANCZAP

To: PAUL SHAPIRO
MAYOR- TOWN OF MANSFIELD
4 S EAGLEVILLE RD
TOWN COUNCIL OFFICE
STORRS CT 06268-2574

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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US POSTAGE
Flat Rate Env

P

06/07/2019 Mailed from 06002 062S0000000101

PRIORITY MAIL 1-DAY™

DEBORAH CHASE
T-MOBILE/NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

Expected Delivery Date: 06/08/19
Ref#: 303BANCZAP

0024

Carrier -- Leave if No Response

C002

SHIP TO: LINDA PAINTER
DIRECTOR-PLANNING & ZONING-TOWN OF
4 S EAGLEVILLE RD
TOWN PLANNING OFFICE
STORRS CT 06268-2574

USPS TRACKING #

9405 5036 9930 0027 5570 50

Electronic Rate Approved #038555749

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0027 5570 50

Trans. #:	465680514
Print Date:	06/07/2019
Ship Date:	06/07/2019
Expected Delivery Date:	06/08/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

From: DEBORAH CHASE
T-MOBILE/NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

Ref#: 303BANCZAP

To: LINDA PAINTER
DIRECTOR-PLANNING & ZONING-TOWN OF MANSFIELD
4 S EAGLEVILLE RD
TOWN PLANNING OFFICE
STORRS CT 06268-2574

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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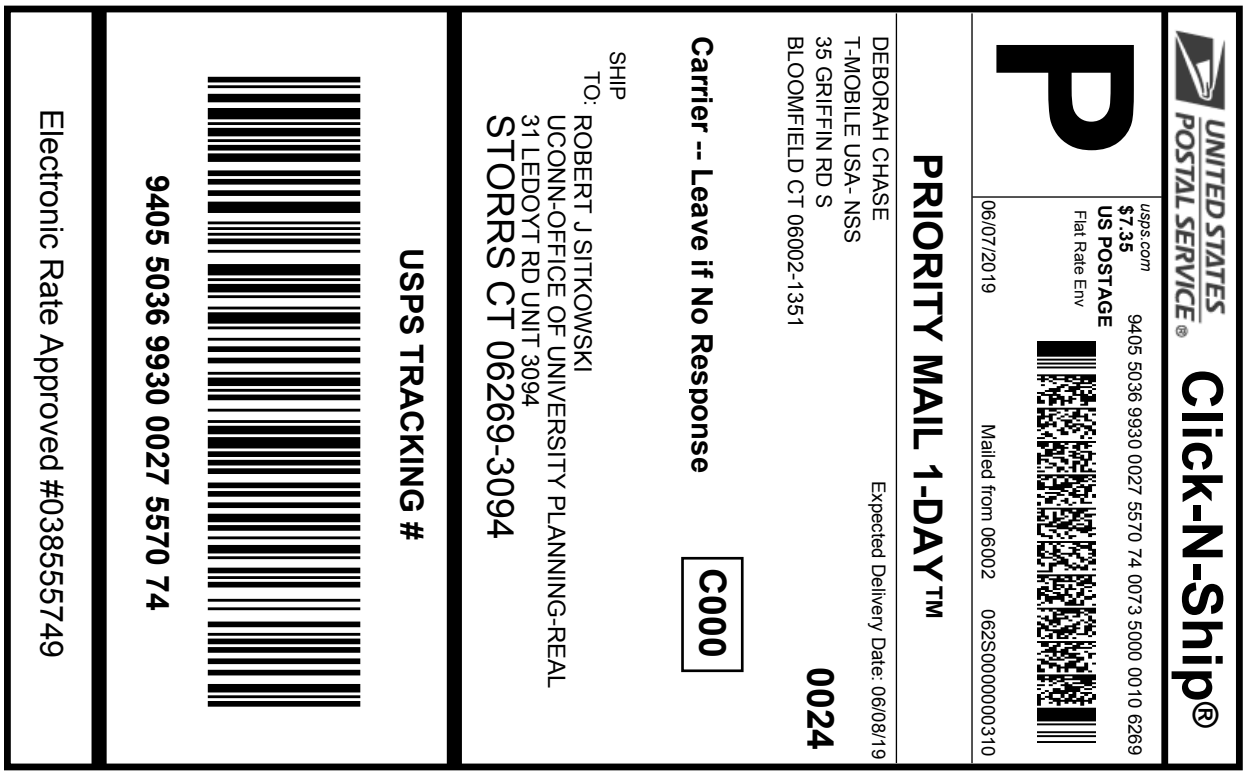

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0027 5570 74

Trans. #:	465680514
Print Date:	06/07/2019
Ship Date:	06/07/2019
Expected Delivery Date:	06/08/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

From: DEBORAH CHASE
T-MOBILE USA- NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

To: ROBERT J SITKOWSKI
UCONN-OFFICE OF UNIVERSITY PLANNING-REAL ESTATE
31 LEDOYT RD UNIT 3094
STORRS CT 06269-3094

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