NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Victoria Masse
420 Main Street, Sturbridge, MA 01566
860-209-4690
Victoria@northeastsitesolutions.com

May 13, 2021

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

RE: Notice of Exempt Modification
100 Sunset Ridge Road, East Hartford CT 06108
Latitude: 41.771800
Longitude: -72.590300
T-Mobile Site#: CT11737C_Anchor_NHP_ Revised with Tower Mods

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing 140-foot Lattice Tower located at 100 Sunset Ridge Road, East Hartford CT. T-Mobile currently maintains nine (9) antennas at the 120-foot level of the existing 140-foot tower. The tower and property are owned by the Town of East Hartford. T-Mobile now intends to add three (3) new 2500 MHz antenna, three (3) RRU, five (5) hybrid lines and new mounts. The new equipment will be installed at the 120-foot and level of the tower. T-Mobile also proposes shared tower reinforcement modifications as shown in the enclosed drawings and structural analysis.

Planned Modifications:
Remove: NONE

Remove and Replace: NONE

Install New:
(3) AIR6449 B41 – 2500 MHz 5G Antenna
(3) RRU 4415 B25
(5) Hybrid Lines

Existing to Remain:
(6) 1-5/8" Coax
(1) Hybrid line
(3) AIR21 B2A_B4P 1900/2100 MHz Antenna
(3) APXVAARR24-43-U-NA20 600/700/1900 MHz (5G Capable) Antenna
(3) AIR32DB B66Aa B2a 1900/2100 MHz Antenna
(3) TMA
(3) RRU 4449 B71+B12

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Ground work only-Install New:
(1) GENERAC RD 25 KW AC DIESEL GENERATOR – 240-gallon double walled self-contained tank with fuel sensor. Requires two (2) 12-minute run cycles by-weekly.
(1) 6160 Radio Cabinet
1) B160 Battery Cabinet

This facility was first approved by the Connecticut Siting Council. TS No. TS-T-Mobile-043-060621 – Approved in 2006 for the addition of Omnipoint telecommunication equipment to existing tower. 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 Marcia A. Leclerc, as Elected Official for the Town of East Hartford and Jeffrey Cormier, Town Planner 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).

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Sincerely,

Victoria Masse
Mobile: 860-209-4690
Fax: 413-521-0558
Office: 420 Main Street, Sturbridge MA 01566
Email: victoria@northeastsitesolutions.com

Attachments
cc: Mayor Marcia A. Leclerc - as elected official *(email only as mleclerc@easthartfordct.gov*)

Jeffrey Cormier - Town Planner (*email only as jcormier@easthartfordct.gov*)

Town of East Hartford - Tower and property owner-
Robert Pasek-Town Clerk *(email only as rpasek@easthartfordct.gov)*

Exhibit A

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

July 28, 2006

Karina Fournier
Zoning Department
T-Mobile
30 Cold Spring Road
Rocky Hill, CT 06067

RE: **TS-T-MOBILE-043-060621** - Omnipoint Communications, Inc. request for an order to approve tower sharing at a telecommunications facility located at 100 Sunset Ridge Drive, East Hartford, Connecticut.

Dear Ms. Fournier:

At a public meeting held July 27, 2006, the Connecticut Siting Council (Council) ruled that the shared use of this tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please be advised that the validity of this action shall expire one year from the date of this letter.

The proposed shared use is to be implemented as specified in your letter dated June 21, 2006, including the placement of all necessary equipment and shelters within the tower compound.

Thank you for your attention and cooperation.

Very truly yours,

Colin C. Tait

Colin C. Tait
Chairman

CCT/MP/laf

c: The Honorable Melody A. Currey, Mayor, Town of East Hartford
Michael J. Dayton, Town Planner, Town of East Hartford

Exhibit B

Town of East Hartford Property Summary Report

100 SUNSET RIDGE DR

MAP LOT:	57-134A	**CAMA PID:**	13740
LOCATION:	100 SUNSET RIDGE DR		
OWNER NAME:	TOWN OF EAST HARTFORD / VETERANS MEMORIAL CLUBHSE		

13740 03/24/2016

OWNER OF RECORD
TOWN OF EAST HARTFORD
VETERANS MEMORIAL CLUBHSE
740 MAIN STREET
EAST HARTFORD, CT 06108

LIVING AREA:	6169	**ZONING:**	R2	**ACREAGE:**	1.64

SALES HISTORY

OWNER	BOOK / PAGE	SALE DATE	SALE PRICE
TOWN OF EAST HARTFORD VETERANS MEMORIAL CLUBHSE	159/ 39	01-Jan-1900	$0.00

CURRENT PARCEL ASSESSMENT

TOTAL:	$836,930.00	**IMPROVEMENTS:**	$738,230.00	**LAND:**	$98,700.00

ASSESSING HISTORY

FISCAL YEAR	TOTAL VALUE	IMPROVEMENT VALUE	LAND VALUE
2017	$836,930.00	$738,230.00	$98,700.00
2016	$836,930.00	$738,230.00	$98,700.00
2015	$807,050.00	$708,350.00	$98,700.00
2014	$807,050.00	$708,350.00	$98,700.00
2013	$807,050.00	$708,350.00	$98,700.00

Town of East Hartford Property Summary Report

100 SUNSET RIDGE DR

MAP LOT:	57-134A	**CAMA PID:**	13740
LOCATION:	100 SUNSET RIDGE DR		
OWNER NAME:	TOWN OF EAST HARTFORD / VETERANS MEMORIAL CLUBHSE		

BUILDING # 1

YEAR BUILT	1930	**EXT WALL 1**	Stone/Masonry
STYLE	Cultural Facility	**INT WALLS 1**	Plaster
MODEL	Comm/Ind	**HEAT FUEL**	Other
STORIES	1.0	**HEAT TYPE**	Steam
OCCUPANCY	Exempt	**AC TYPE**	None
ROOF	Drmrs/Ex Gable	**BEDROOMS**	
ROOF COVER	Asphalt	**FULL BATHS**	15
FLOOR COVER 1	Hardwood	**HALF BATHS**	
% BSMT	null	**TOTAL ROOMS**	0
% FIN BSMT	null	**% REC RM**	null
% SEMI FIN	null	**% ATTIC FINISH**	null
BSMT GARAGE	null	**FIREPLACES**	null

13740 03/24/2016

EXTRA FEATURES

DESCRIPTION	CODE	UNITS
Fin Bsmt	FBM	1567 S.F.
Fireplace	FPL	1 UNITS


Sunset Ridge Dr
Sunset Ridge Dr
57-134A
1.64 ac
57-136
0.35 ac
94

Exhibit C

MODIFICATION TO AN EXISTING WIRELESS FACILITY

T-Mobile

T-MOBILE NORTHEAST LLC

PROJECT: ANCHOR AND NATIONAL HARDENING

SITE NUMBER: CT11737C

SITE NAME: CT737/E HARTFORD TOWN SST

SITE ADDRESS: 100 SUNSET RIDGE RD
EAST HARTFORD, CT 06108
(RF CONFIG: 67D5992DB_3XAIR+1OP)

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.

STRUCTURAL NOTE:

REFER TO STRUCTURAL REPORTS / DRAWINGS:
TOWER ANALYSIS, DATED 12/29/20 BY CENTERLINE COMMUNICATIONS.
TOWER UPGRADE, DATED 12/29/20 BY CENTERLINE COMMUNICATIONS.
MOUNT ANALYSIS, DATED 06/11/20 BY EFI GLOBAL INC.

CODE COMPLIANCE:

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

811 Know what's below. Call before you dig.

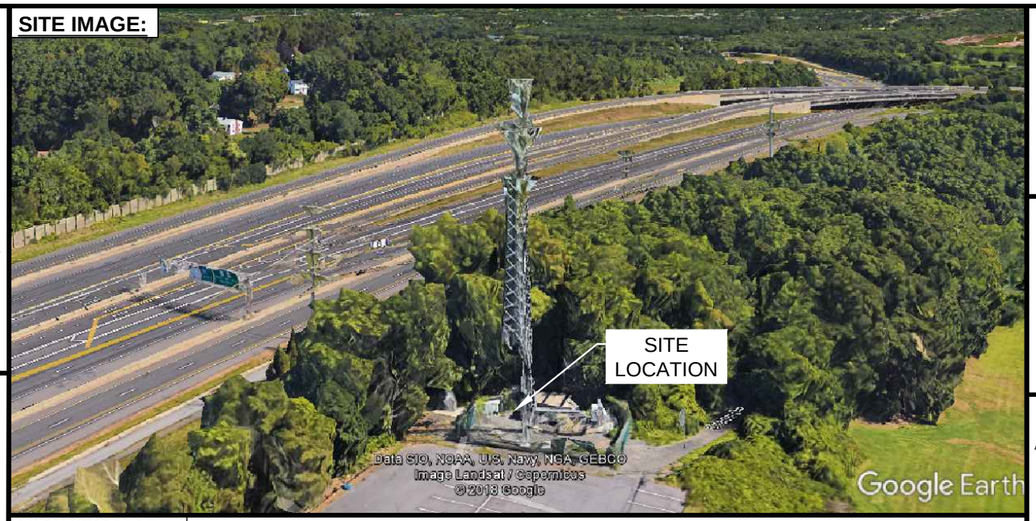
Connecticut - Call Before You Dig
811 or
1-800-922-4455

Advance Notice:
Minimum of 2 working days in advance, no more than 30 days in advance

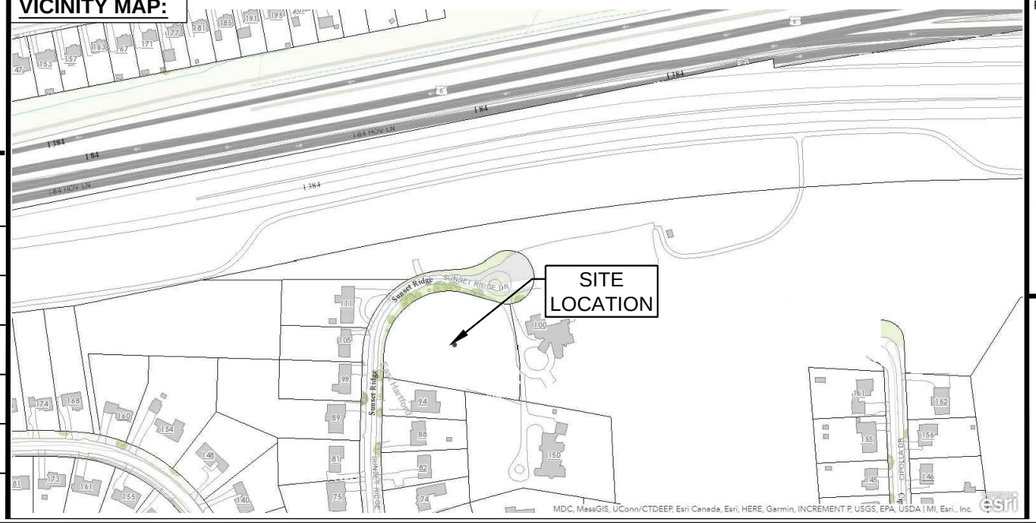
APPROVALS:

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

SITE IMAGE:



VICINITY MAP:



PROJECT SCOPE:

THE PROPOSED PROJECT SCOPE WILL CONSIST OF:
INSTALLING A NEW GENERAC RD 25 KW AC DIESEL GENERATOR.
UPGRADE EXISTING RBS 6131 CABINET INTERNALLY.
REPLACE (3) OF (9) EXISTING ANTENNAS.
ADD (3) NEW ANTENNAS FOR A TOTAL OF (12).
ADD (6) REMOTE RADIO UNITS TO SECTORS MOUNT.
ADD (1) 6160 AND (1) B160 CABINETS ON EXISTING CONCRETE PAD.
ADD (5) 6X12 HCS HYBRID. FOR FINAL CONFIGURATION OF (6) 6X12 HCS HYBRID AND (6) 1-5/8" COAX CABLES.

PROJECT INFORMATION:

ADDRESS:	100 SUNSET RIDGE RD EAST HARTFORD, CT 06108
STRUCTURE TYPE:	LATTICE TOWER
COORDINATES:	41.771800 N, -72.590300 W
ZONING DISTRICT:	R2
PARCEL ID:	13740

PROJECT TEAM:

APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860-692-7100
PROP. OWNER:	TOWN OF EAST HARTFORD VETERANS MEMORIAL CLUBHSE 740 MAIN STREET EAST HARTFORD, CT 06108
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
NORTHEAST SITE SOLUTIONS
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	12/07/18
0	SIGNED AND SEALED	12/10/18
1	REVISED GENERATOR	03/03/21
2	COMBINED NHP AND ANCHOR	03/03/21

SITE NUMBER: CT11737C
SITE NAME: CT737/E HARTFORD TOWN SST
SITE ADDRESS: 100 SUNSET RIDGE RD
EAST HARTFORD, CT 06108

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"ϕ 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. 2018 LIFE SAFETY CODE NFPA - 101.

APPLICANT:

T-MOBILE NORTHEAST LLC

35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER

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CONSULTANT:

FORESITE LLC
Architects . Engineers . Surveyors

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PROFESSIONAL SEAL

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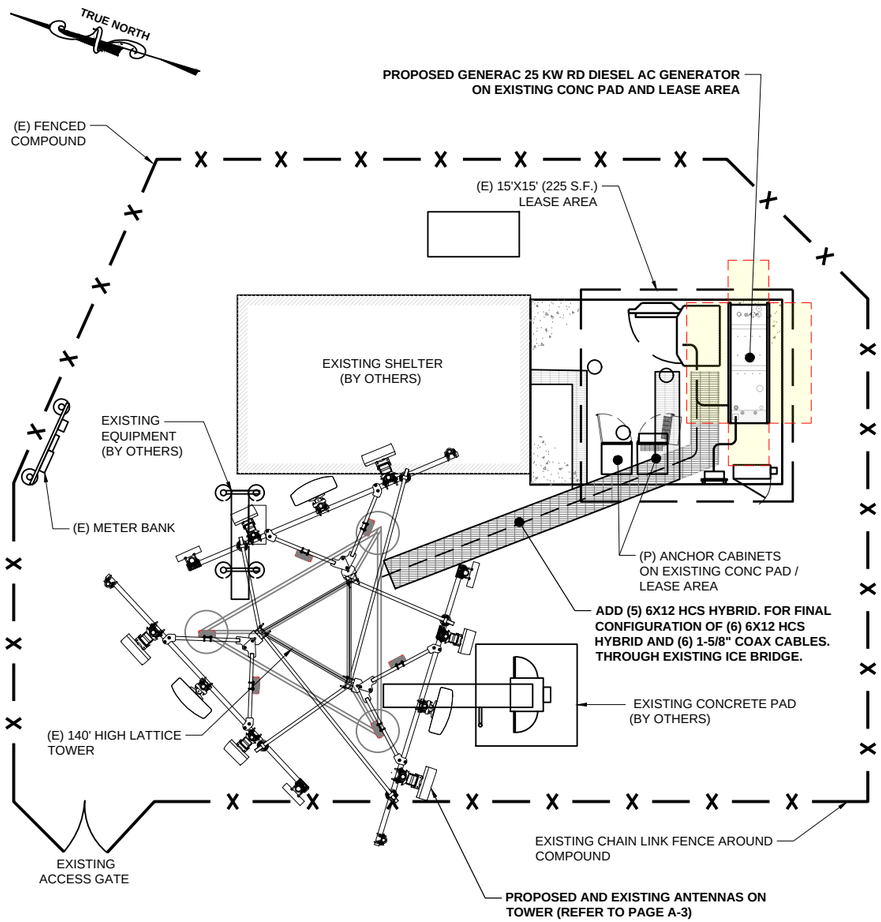
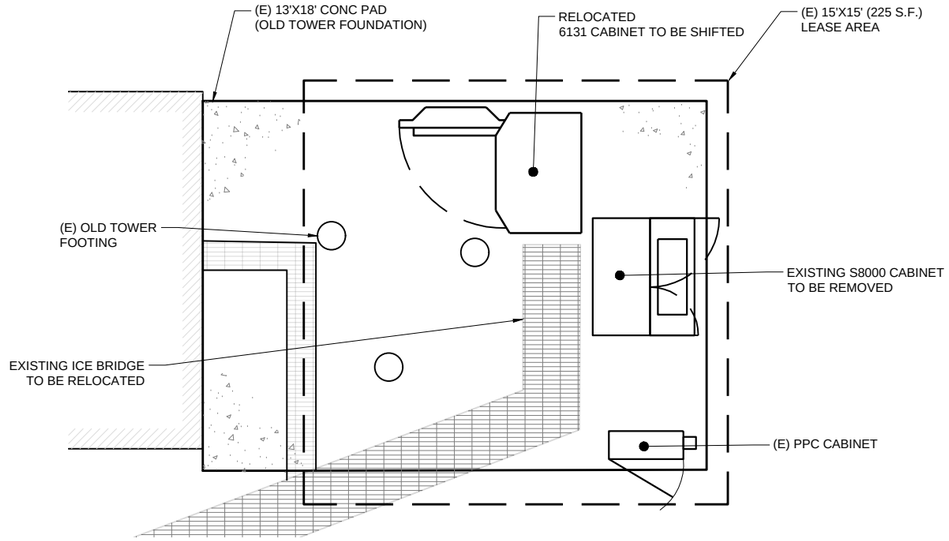
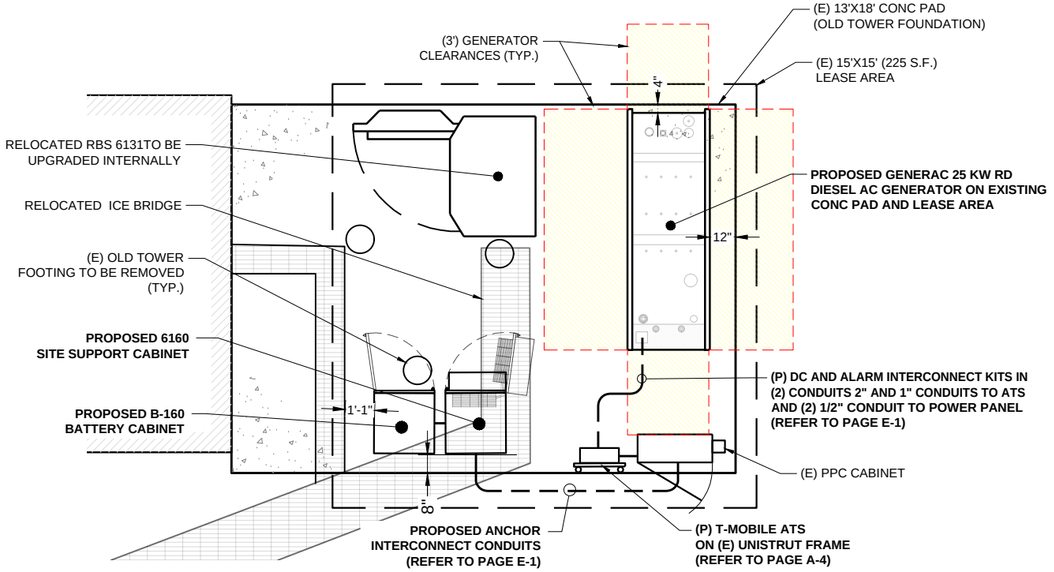
SHEET TITLE:
N-1: NOTES AND DISCLAIMERS



SITE PLAN
SCALE: 3/32" = 1'-0" — 1 / A-1



EXISTING LAYOUT
SCALE: 3/16" = 1'-0" — 2 / A-1



PROPOSED LAYOUT
SCALE: 3/16" = 1'-0" — 3 / A-1

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

PROJECT MANAGER
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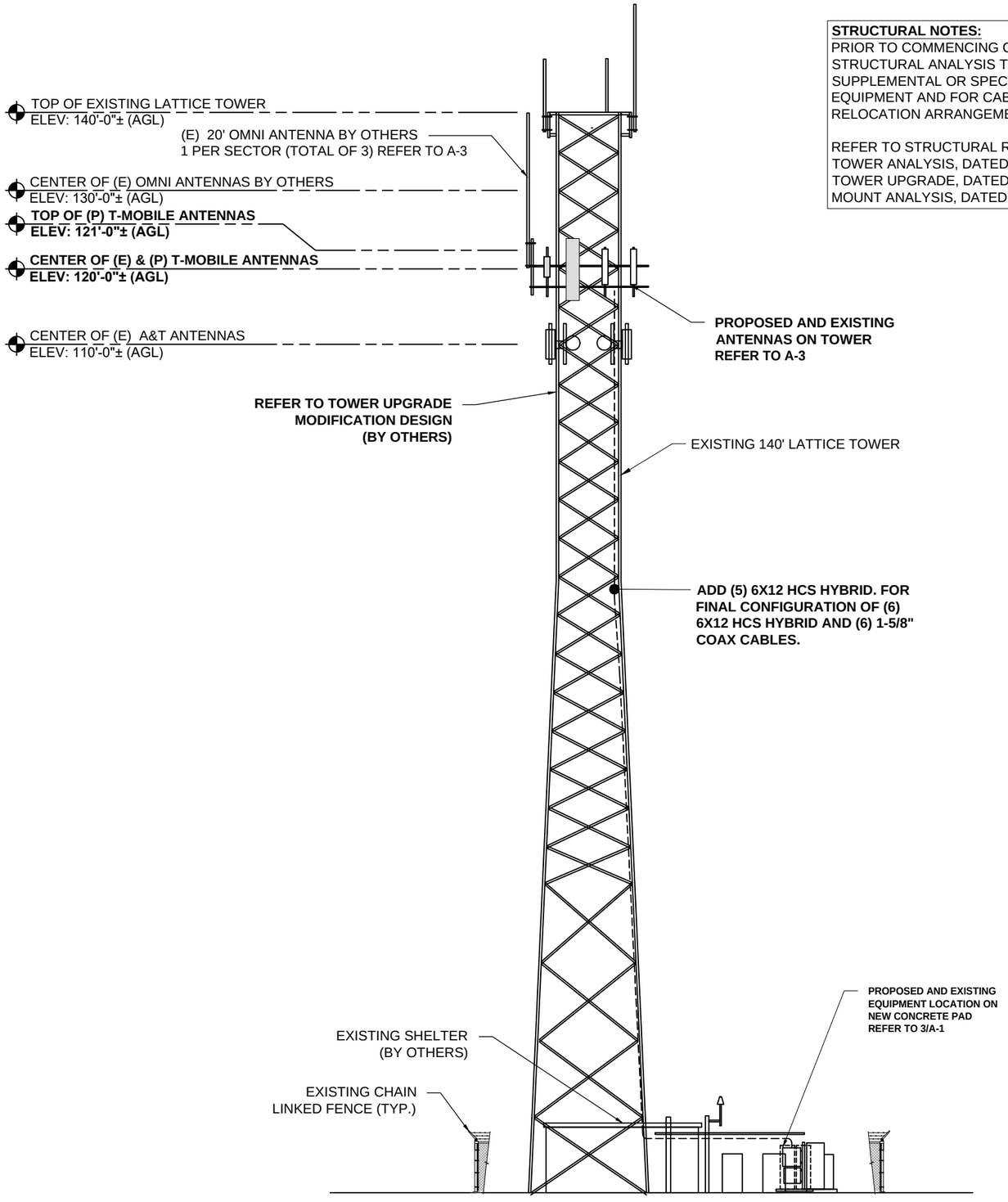
EAST HARTFORD, CT 06108

SHEET TITLE:
A-1: PLAN



ELEVATION

SCALE: 1/16" = 1'-0"

1
A-2

STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS 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 REPORTS / DRAWINGS:
TOWER ANALYSIS, DATED 12/29/20 BY CENTERLINE COMMUNICATIONS.
TOWER UPGRADE, DATED 12/29/20 BY CENTERLINE COMMUNICATIONS.
MOUNT ANALYSIS, DATED 06/11/20 BY EFI GLOBAL INC.

APPLICANT:
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PROJECT MANAGER
NORTHEAST SITE SOLUTIONS
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	12/07/18
0	SIGNED AND SEALED	12/10/18
1	REVISED GENERATOR	03/03/21
2	COMBINED NHP AND ANCHOR	03/03/21

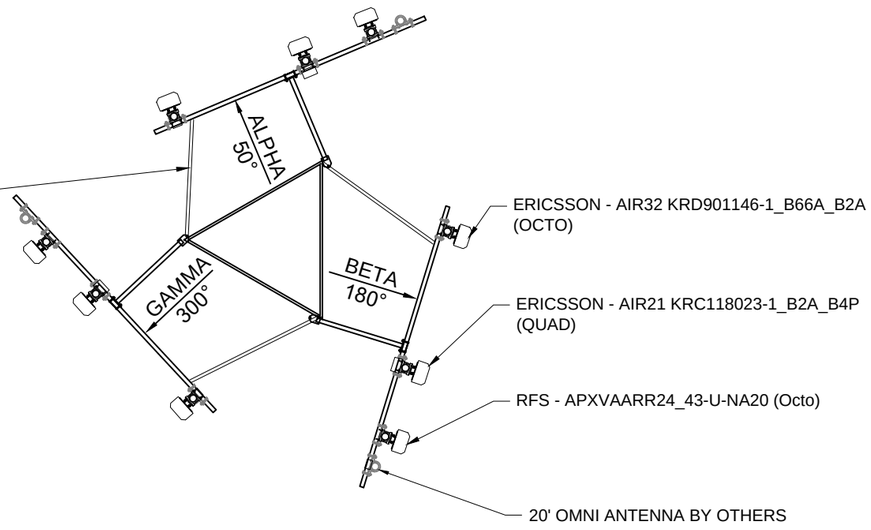
SITE NUMBER: CT11737C
SITE NAME: CT737/E HARTFORD TOWN SST
SITE ADDRESS: 100 SUNSET RIDGE RD
EAST HARTFORD, CT 06108

SHEET TITLE:
A-2: ELEVATION

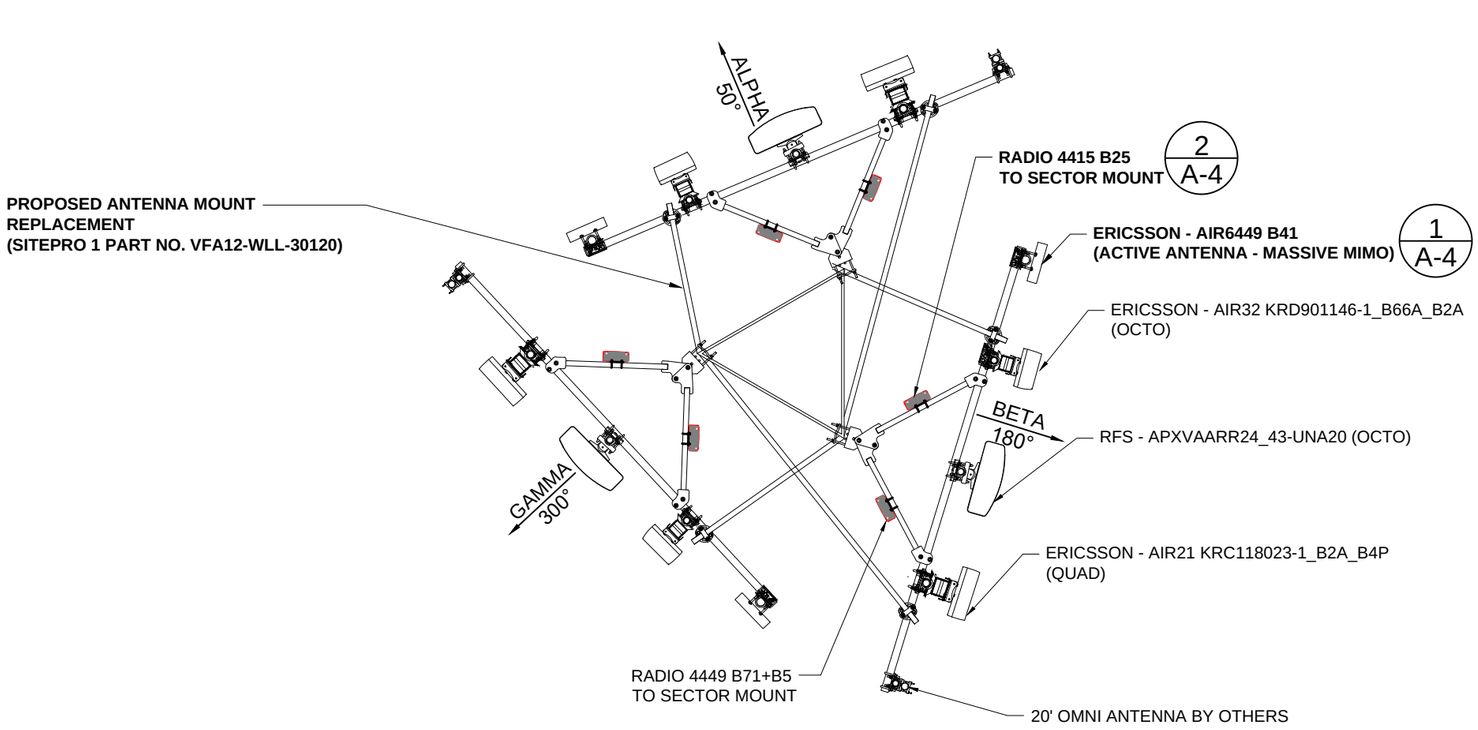
STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS TO DETERMINE IF THERE ARE ANY SUPPLEMENTAL OR SPECIAL REQUIREMENTS FOR TOWER TOP EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING OR RELOCATION ARRANGEMENTS.

REFER TO STRUCTURAL REPORTS / DRAWINGS:
TOWER ANALYSIS, DATED 12/29/20 BY CENTERLINE COMMUNICATIONS.
TOWER UPGRADE, DATED 12/29/20 BY CENTERLINE COMMUNICATIONS.
MOUNT ANALYSIS, DATED 06/11/20 BY EFI GLOBAL INC.

EXISTING ANTENNA PLAN



FINAL ANTENNA PLAN



ANTENNA PLAN
SCALE: NTS
1
A-3

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

PROJECT MANAGER
NORTHEAST SITE SOLUTIONS
420 MAIN STREET, BLDG 4
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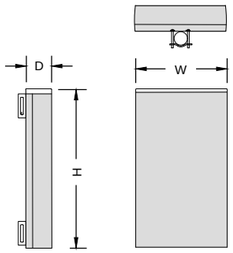
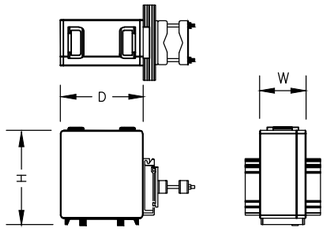
EAST HARTFORD, CT 06108

SHEET TITLE:
A-3: ANTENNA PLAN



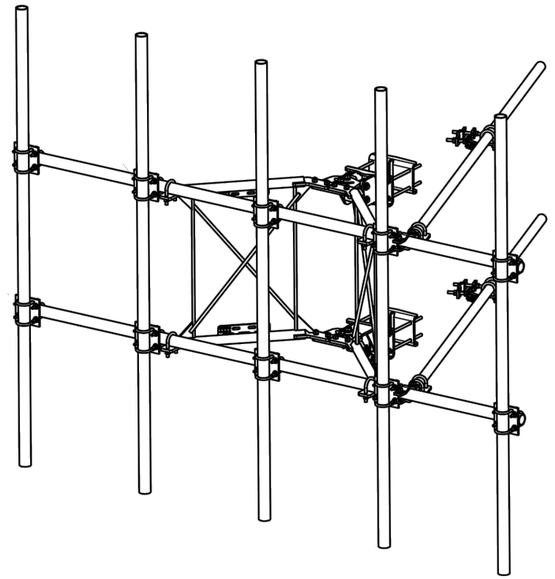
ERICSON ANTENNA SPECIFICATIONS	
MODEL #	AIR6449 B41
MANUF.	ERICSSON
HEIGHT	33.1"
WIDTH	20.5"
DEPTH	8.3"
WEIGHT	103 LB

ERICSSON ANTENNA 1 A-4
N.T.S



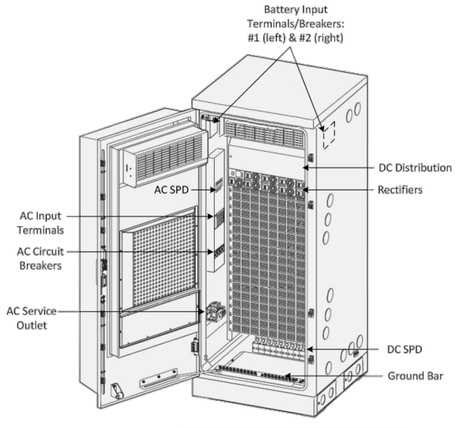
REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4415 B25
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	5.4"
WEIGHT	46.3 LB

REMOTE RADIO UNIT 2 A-4
N.T.S



PROPOSED ANTENNA MOUNT REPLACEMENT
(SITEPRO 1 PART NO. VFA12-WLL-30120)
12' 6" HEAVY DUTY V-FRAME ASSEMBLY
W/ 2 STIFF ARMS & MOUNT PIPES

SECTOR MOUNT 5 A-4
N.T.S.



SITE SUPPORT CABINET SPECIFICATIONS	
MODEL #	6160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	25.6"
DEPTH	33.5"
WEIGHT	605 lbs

SITE SUPPORT CABINET 3 A-4
N.T.S.

BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	1883 lbs

BATTERY CABINET 4 A-4
N.T.S.

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
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PROJECT MANAGER
NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
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617-212-3123

PROFESSIONAL SEAL

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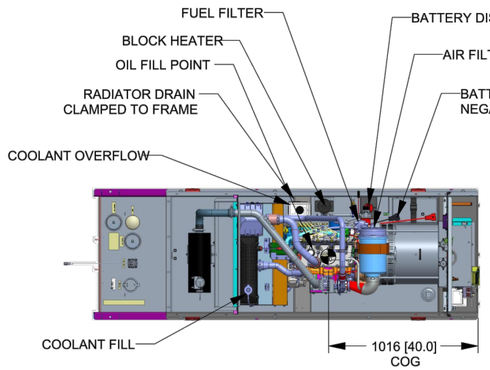
2	COMBINED NHP AND ANCHOR	03/03/21

SITE NUMBER: CT11737C
SITE NAME: CT737/E HARTFORD TOWN SST
SITE ADDRESS: 100 SUNSET RIDGE RD
EAST HARTFORD, CT 06108

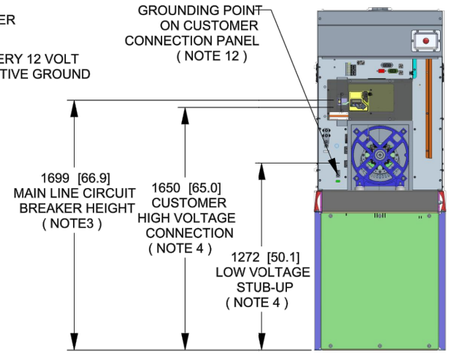
SHEET TITLE:
A-4: EQUIPMENT SPECIFICATIONS

GENERAC RD 25 KW AC DIESEL GENERATOR AND TANK

SH 1/2 | REV 2 | WINDCHILL VERSION 2.12



TOP VIEW
(SHOWN WITH ENCLOSURE REMOVED)

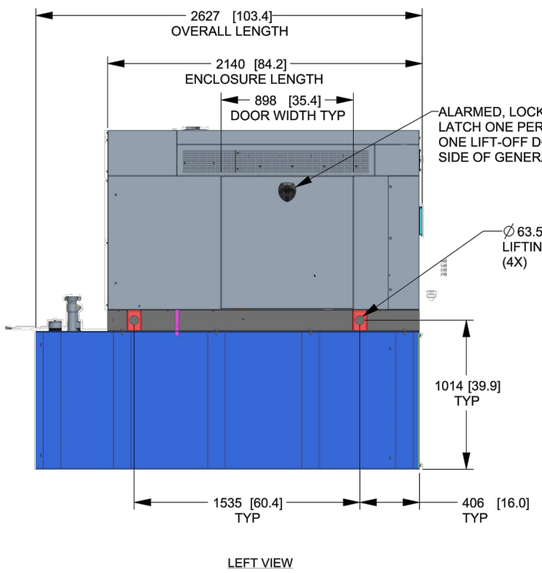


REAR VIEW
(SHOWN WITH REAR COVER PANEL REMOVED)

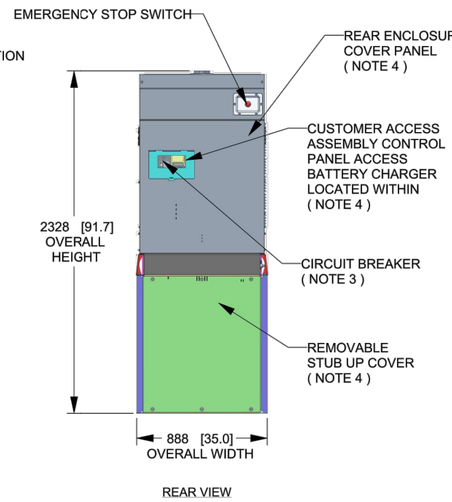
WEIGHT DATA WITH EMPTY BASETANK (SEE NOTE 6)	
GENERATOR AS SHOWN	1336 [2946]
WITH WOODEN SHIPPING SKID	1354 [2984]

WEIGHT: KG [LBS]
DIMENSIONS: MM [INCHES]

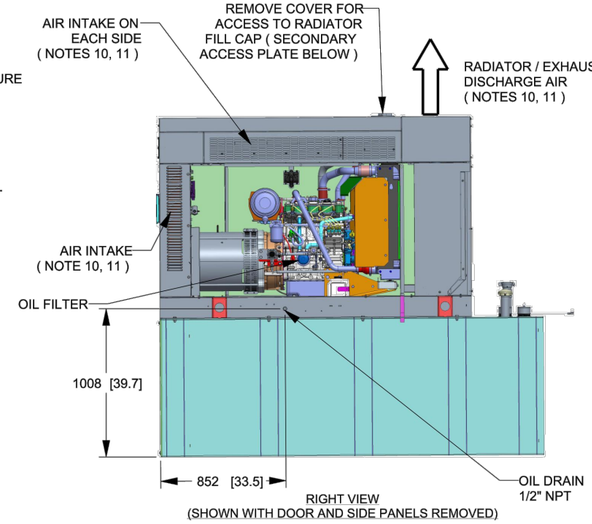
NOTES:
1. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 37 AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE, AND LOCAL CODES.
2. BATTERY (12 VOLT NEGATIVE GROUND SYSTEM).
3. CONTROL PANEL / CIRCUIT BREAKER INFORMATION:
 - MAIN LINE CIRCUIT BREAKER 125 AMPS
 - SEE SPECIFICATION SHEET OR OWNERS MANUAL
 - ACCESSIBLE THROUGH CUSTOMER ACCESS ASSEMBLY DOOR ON REAR OF GENERATOR.
 - CONTROL PANEL INCLUDES INTEGRATED BATTERY CHARGER
4. REMOVE THE REAR STUB-UP AND REAR ENCLOSURE COVER PANEL TO ACCESS THE STUB-UP AREAS AS FOLLOWS:
 - HIGH VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, AND BATTERY CHARGER 120 VOLT AC (0.5 AMP MAX) CONNECTION.
 - LOW VOLTAGE CONNECTION INCLUDING TRANSFER SWITCH CONTROL WIRES
5. ENGINE SERVICE CONNECTIONS
 OIL DRAIN: 1/2" NPT
 RADIATOR DRAIN : HOSE CLAMPED TO FRAME
6. CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.
7. BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION AND RECIRCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
8. REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
9. MOUNTING BOLTS OR STUDS TO MOUNTING SURFACE SHALL BE 5/8-11 GRADE 5 (USE STANDARD SAE TORQUE SPECS)
10. MUST ALLOW FREE FLOW OF INTAKE AIR, DISCHARGE AIR AND EXHAUST. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
11. GENERATOR MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND THAT DISCHARGE AIR FROM RADIATOR IS NOT RECIRCULATED. RECOMMENDED MINIMUM PERIMETER(3FT) AND VERTICAL OVER EXHAUST (5FT) CLEARANCE FOR SITE LOCATION.
12. GENERATOR MUST BE GROUNDED.



LEFT VIEW



REAR VIEW



RIGHT VIEW
(SHOWN WITH DOOR AND SIDE PANELS REMOVED)

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALLATION D2.2L
25KW Y06 PD

ISSUE DATE: 5/10/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000036728	2
SCALE 0.031	WT-KG SEE ABOVE	SHEET 1 of 2	

GENERATOR SPECIFICATIONS (1 / A-5)
N.T.S.

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

PROJECT MANAGER
NORTHEAST SITE SOLUTIONS
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

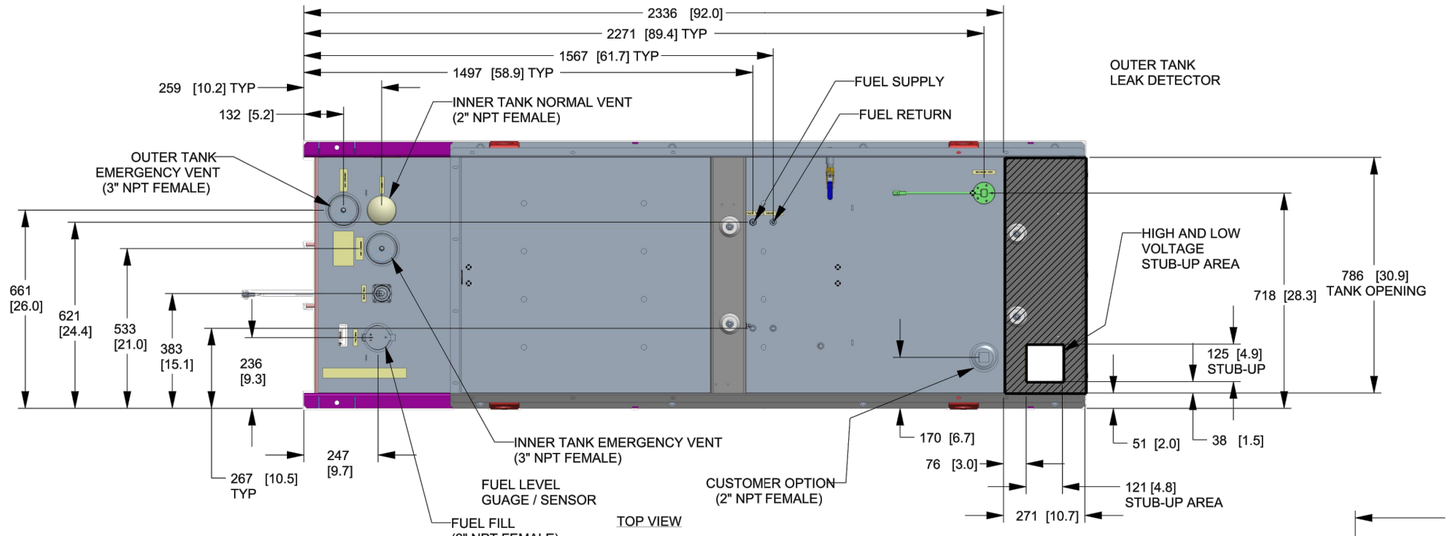
PROFESSIONAL SEAL
STATE OF CONNECTICUT
JOSEPH A. NAHAL
NO. ARI. 11162
LICENSED ARCHITECT

REV	DESCRIPTION	DATE
A	PRELIMINARY	12/07/18
0	SIGNED AND SEALED	12/10/18
1	REVISED GENERATOR	03/03/21
2	COMBINED NHP AND ANCHOR	03/03/21

SITE NUMBER: CT11737C
SITE NAME: CT737/E HARTFORD TOWN SST
SITE ADDRESS: 100 SUNSET RIDGE RD
EAST HARTFORD, CT 06108

SHEET TITLE:
A-5: GENERATOR SPECIFICATIONS

SH	REV	WINDCHILL VERSION
2/2	2	2.12

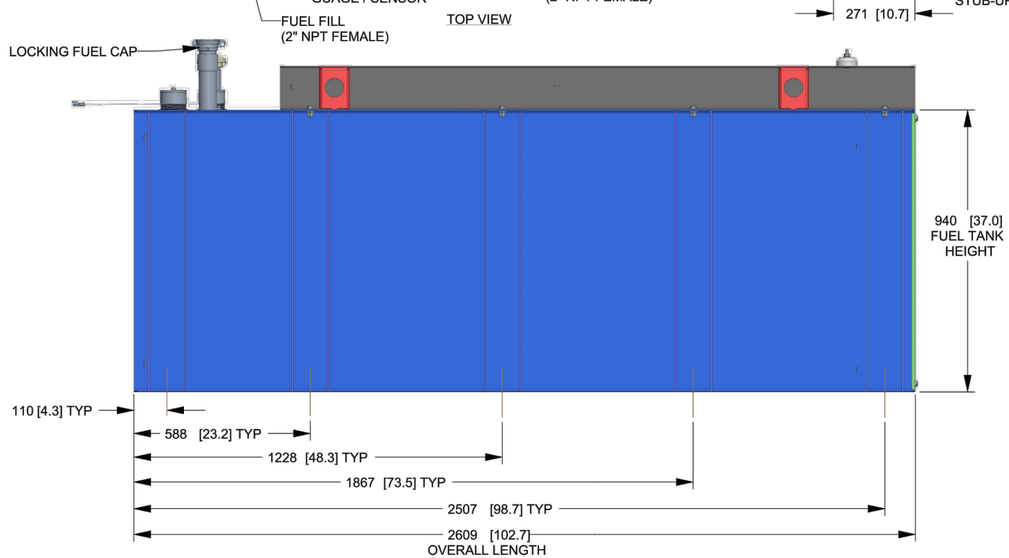


FUEL TANK	
TOTAL CAPACITY	908.5 (240)
USABLE CAPACITY	866.9 (229)

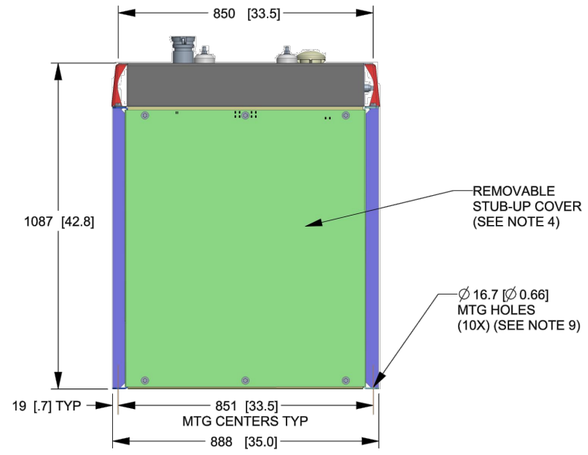
CAPACITY: LITER (GALLON)
DIMENSIONS: MM (INCH)

TANK IS LISTED TO UL142 AND ULC5601

NOTE:
STUB-UP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS CIRCUIT BREAKER, NEUTRAL AND CUSTOMER CONNECTION OPENING.



LEFT VIEW



REAR VIEW

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALLATION D2.2L
25KW Y06 PD

ISSUE DATE: 5/10/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000036728	2

SCALE	WT-KG	SHEET
0.063	SEE ABOVE	2 of 2

GENERATOR SPECIFICATIONS
N.T.S.

1
A-6

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

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

CONSULTANT:
FORESITE LLC
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462 WALNUT STREET
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617-212-3123

PROFESSIONAL SEAL
STATE OF CONNECTICUT
NO. ARI. 11162
LICENSED ARCHITECT

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SITE NUMBER: CT11737C
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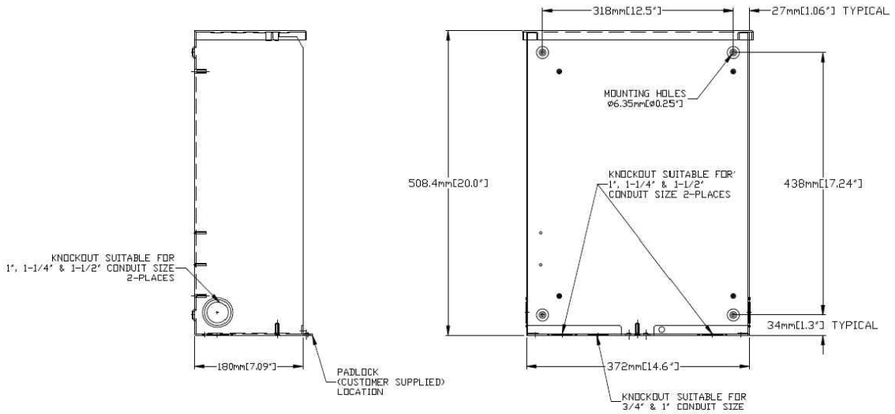
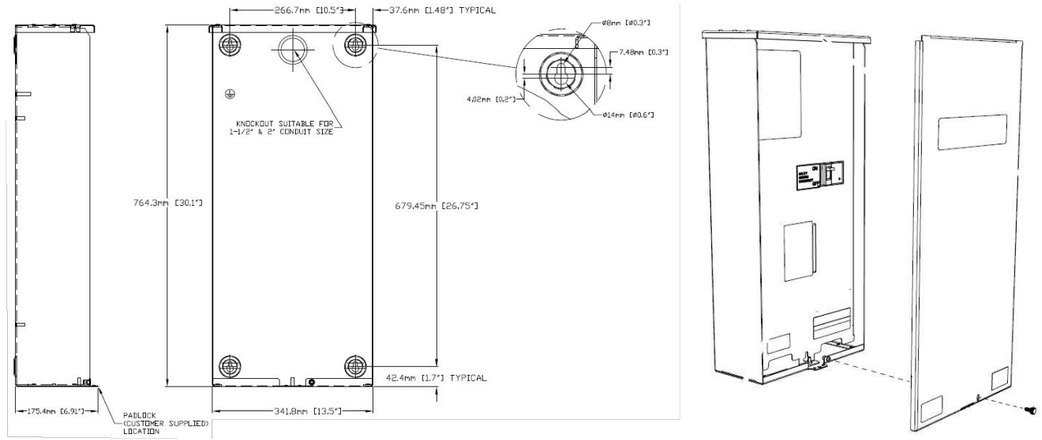
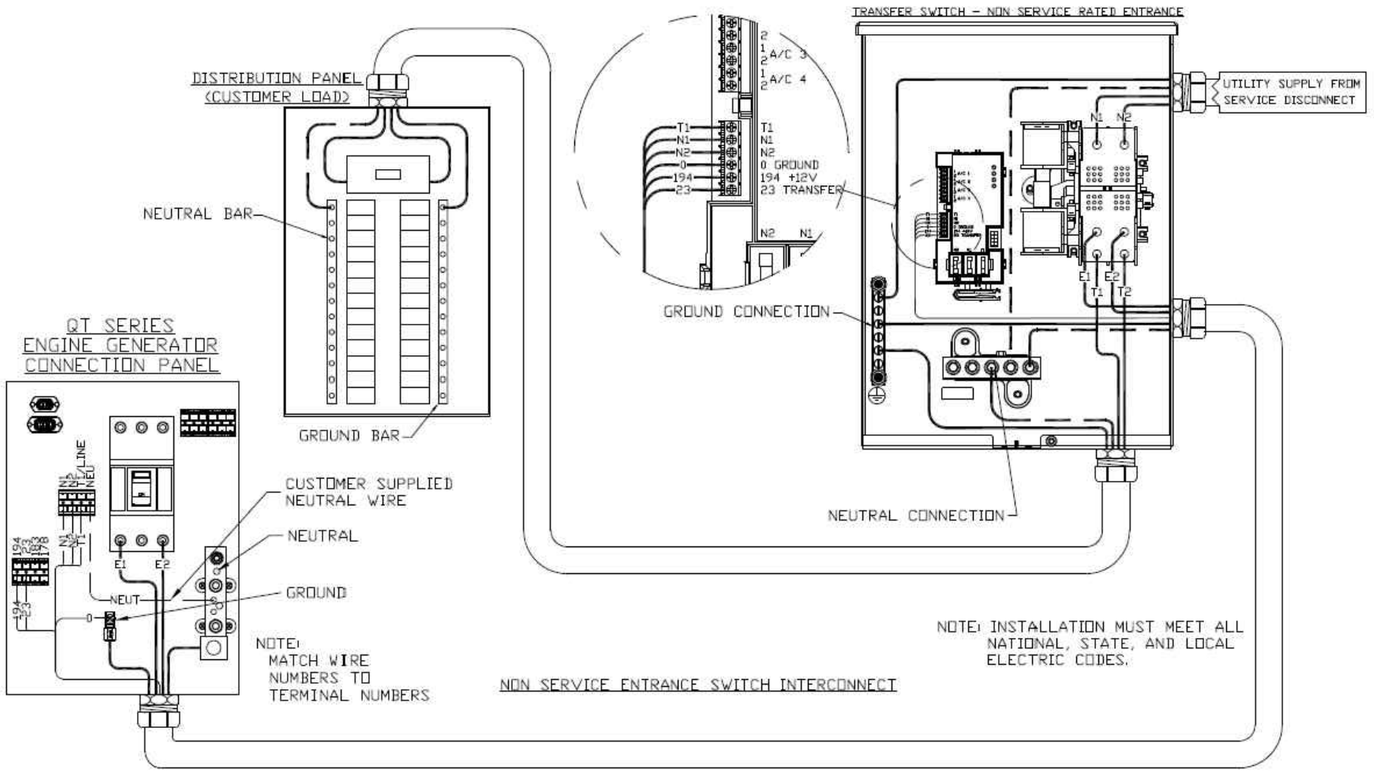
SITE ADDRESS: 100 SUNSET RIDGE RD
EAST HARTFORD, CT 06108

SHEET TITLE:
A-6: GENERATOR SPECIFICATIONS







AUTOMATIC TRANSFER SWITCH DETAILS

SCALE: N.T.S.

1
A-7

APPLICANT:

T··Mobile·

T-MOBILE NORTHEAST LLC

35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:

FORESITE LLC
Architects . Engineers . Surveyors

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SITE ADDRESS: 100 SUNSET RIDGE RD
EAST HARTFORD, CT 06108

SHEET TITLE:
A-7: AUTOMATIC TRANSFER SWITCH 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.

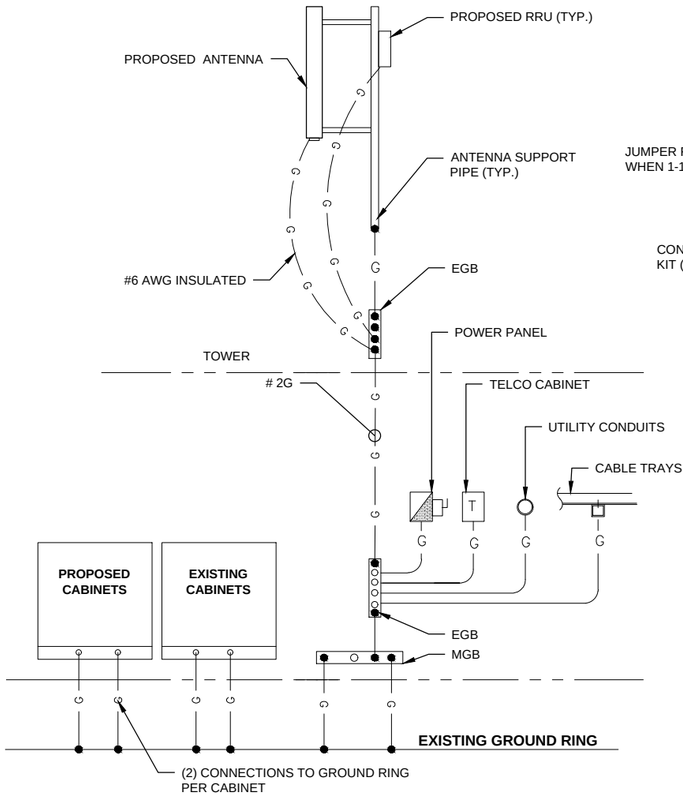
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.

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.

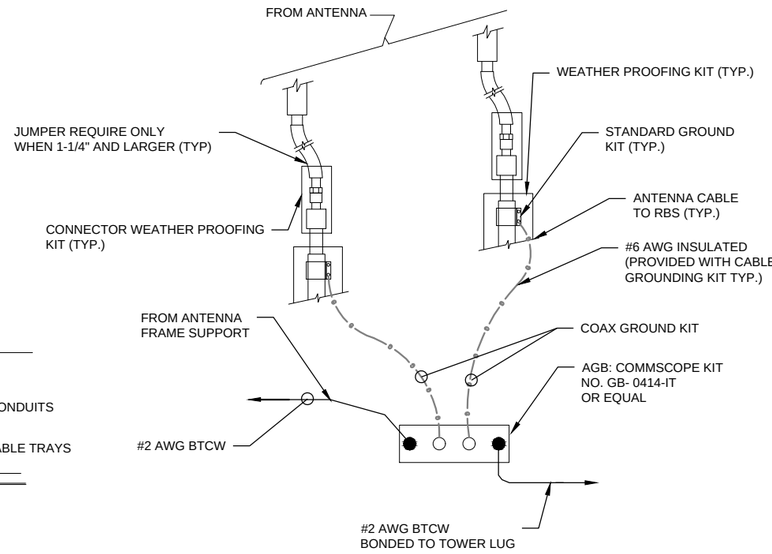
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.



GROUNDING RISER DIAGRAM

N.T.S.

1 / E–1

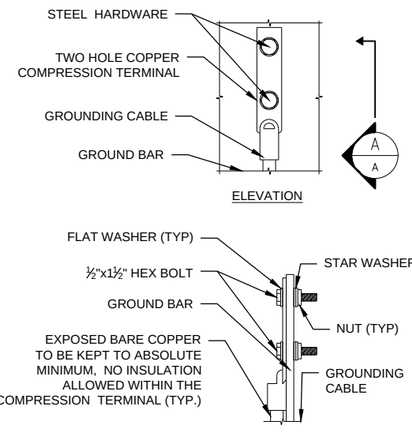


NOTES:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND
AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB

TOWER TOP CABLE GROUNDING DETAIL

N.T.S.

2 / E–1



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

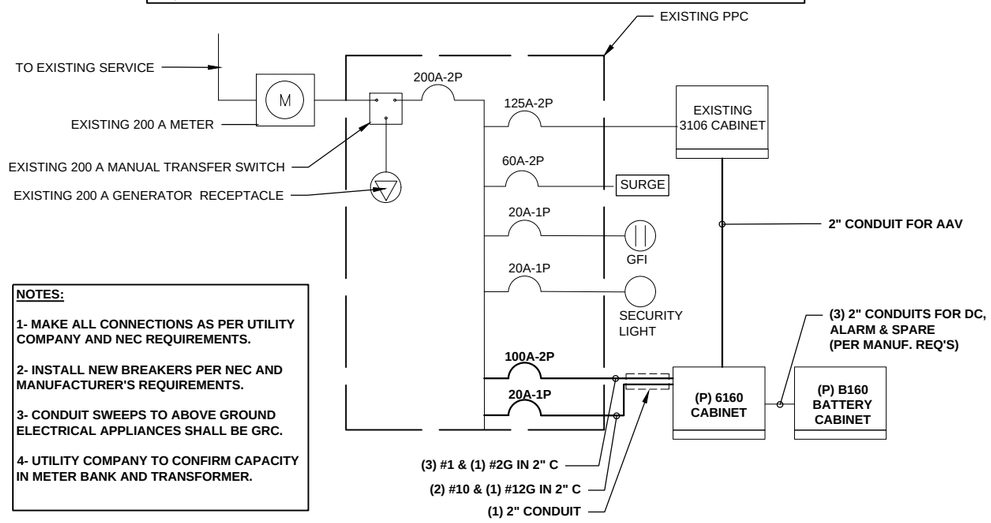
TYPICAL GROUND BAR CONNECTIONS DETAIL

N.T.S.

3 / E–1

SPECIAL CONTRACTOR'S NOTES:

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

2- INSTALL NEW BREAKERS PER NEC AND MANUFACTURER'S REQUIREMENTS.

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

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

TYPICAL ONE LINE DIAGRAM

N.T.S.

4 / E–1

APPLICANT:

T-Mobile

T-MOBILE NORTHEAST LLC

35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
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PROJECT MANAGER

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:

FORESITE LLC
Architects . Engineers . Surveyors

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PROFESSIONAL SEAL

STATE OF CONNECTICUT
THOMAS E. NAHED
NO. ARI. 11162
LICENSED ARCHITECT

REV	DESCRIPTION	DATE
A	PRELIMINARY	12/07/18
0	SIGNED AND SEALED	12/10/18
1	REVISED GENERATOR	03/03/21
2	COMBINED NHP AND ANCHOR	03/03/21

SITE NUMBER: CT11737C
SITE NAME: CT737/E HARTFORD TOWN SST
SITE ADDRESS: 100 SUNSET RIDGE RD
EAST HARTFORD, CT 06108

SHEET TITLE:

E-2: ELECTRICAL AND GROUNDING DETAILS

GENERAL ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES INCLUDING LATEST EDITIONS OF:
   - NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
   - UL - UNDERWRITERS LABORATORIES
   - NEC - 2017 NATIONAL ELECTRICAL CODE NEMA - NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION
   - OSHA - OCCUPATIONAL SAFETY AND HEALTH ACT
   - IBC - 2015 INTERNATIONAL BUILDING CODE

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. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NAME 3R ENCLOSURE.

9. GROUNDING SHALL COMPLY WITH NEC ART. 250.

10. GROUNDING COAX CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURES COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.

11. 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.

12. 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.

13. 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.

14. 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).

15. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.

16. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTION.

17. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.

18. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.

19. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

20. EXISTING UNDERGROUND UTILITY LOCATIONS ARE UNKNOWN. GENERAL CONTRACTOR SHALL HAND-EXCAVATE TO REQUIRED SUB-GRADE DEPTH, SUFFICIENT TEST HOLES OR AS DIRECTED / REQUIRED BY CONSTRUCTION MANAGER. ALL PROPOSED UNDERGROUND UTILITY TRENCHES SHALL BE HAND-EXCAVATE AS REQUIRED. GENERAL CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED SPECIAL TEMPORARY PROTECTION OF, PHYSICAL DAMAGE TO, OR REPAIR OF EXISTING UNDERGROUND CONDUIT INCLUDING RESTORATION OF SERVICE.

21. PROVIDE SLIP JOINS WHERE CONDUITS TRANSITION FROM UNDERGROUND TO ABOVE GROUND.

NOTES:

DIAGRAM AS SHOWN, IS A GENERIC ROUTING SCHEMATIC BASED ON AVAILABLE INFORMATION AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS. CONTRACTOR SHOULD INSTALL THE GENERATOR, EQUIPMENT AND CONNECTIONS BASED ON VERIFIED ELECTRICAL AUDITS AND PER MANUFACTURER'S INSTALLATION GUIDELINES AS WELL AS ALL APPLICABLE LOCAL AND NATIONAL CODES AND REQUIREMENTS.

GROUNDING NOTES:

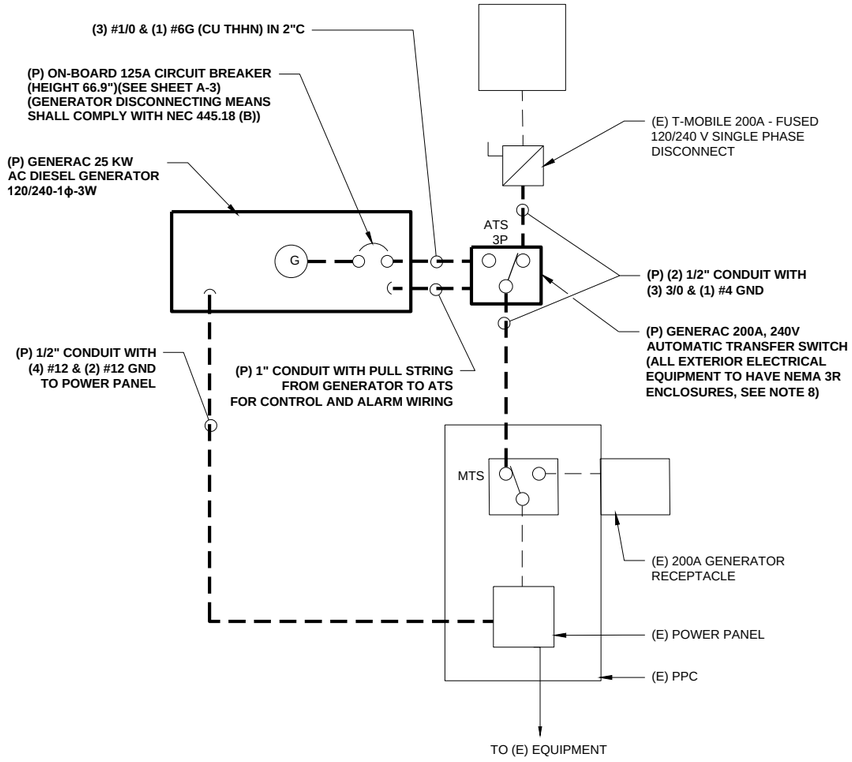
1. GROUNDING SHALL COMPLY WITH NEC ART. 250 AND MANUFACTURER'S RECOMMENDATIONS. TIE INTO THE EXISTING GROUNDING SYSTEM.

2. CONTRACTOR SHALL INSTALL GROUND RODS ON ALL UNDERGROUND GROUNDING RUNS LONGER THAN 10'. GROUND RODS WILL BE INSTALLED ON 20' CENTERS MAXIMUM.

3. ALL DOWN CONDUCTORS MUST GO DOWN PER NFPA 780.

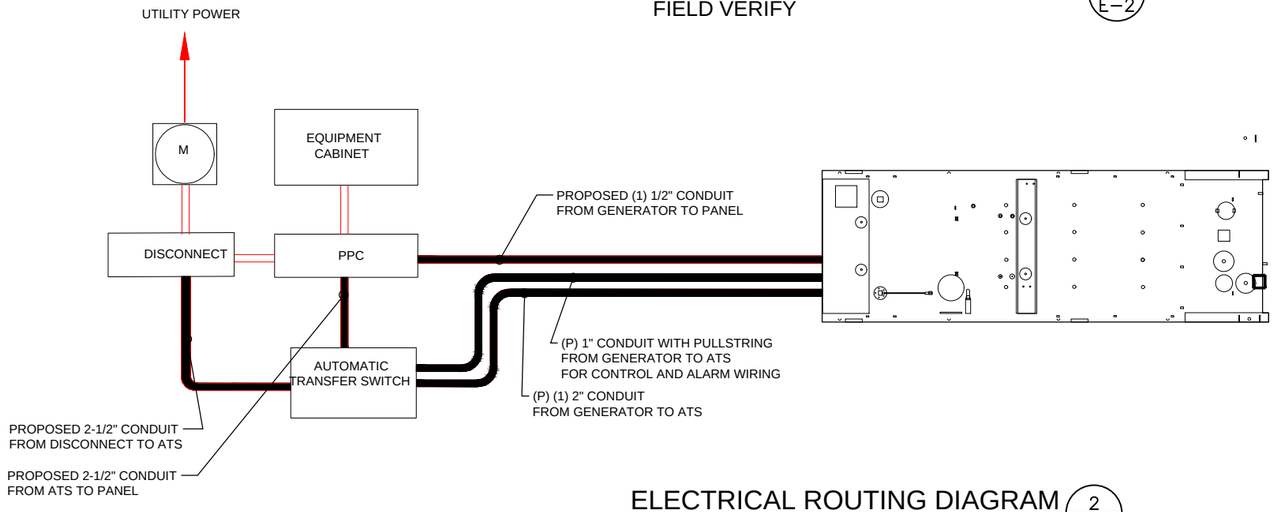
4. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.

5. CONTRACTOR MY USE EXISTING CONDUITS AND CONDUCTORS PROVIDED THEY ARE IN GOOD CONDITION AND ARE SUFFICIENTLY RATED.



TYP. ONE LINE DIAGRAM
FIELD VERIFY

1 / E-2



ELECTRICAL ROUTING DIAGRAM
SCALE: N.T.S

2 / E-2

APPLICANT:
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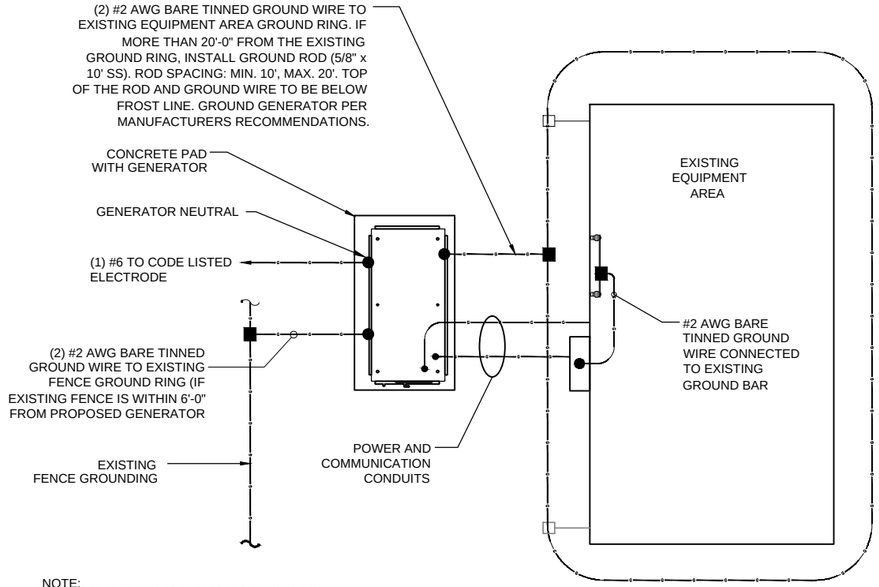
SITE NAME: CT737/E HARTFORD TOWN SST
SITE ADDRESS: 100 SUNSET RIDGE RD
EAST HARTFORD, CT 06108

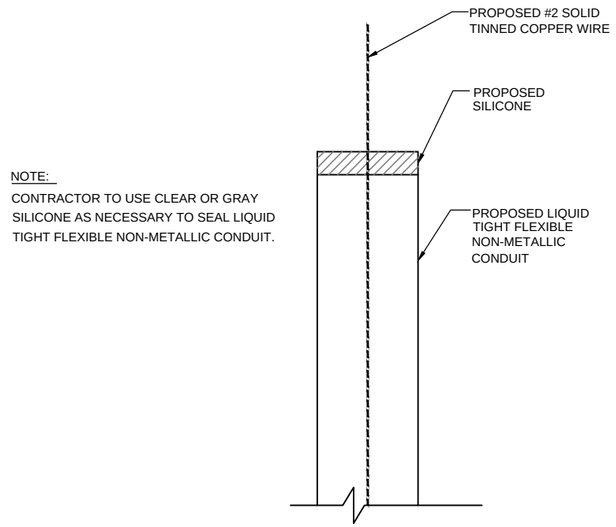
SHEET TITLE:
E-2: ELECTRICAL DETAILS



NOTE:
1- PROVIDE GENERATOR NEUTRAL GROUND AS A SEPARATELY- DERIVED SYSTEM PER NEC / NFPA 70 - 250.30A.
2- FOR ACTUAL ORIENTATION OF GENERATOR, PAD, FENCE, TOWER & UNDER GROUND POWER/TELCO SEE PAGE A-1.

NOTE:
VERIFY QTY., LENGTH, TYPE & CONFIGURATION OF GROUND RODS TO ENSURE SYSTEM PROVIDES GROUND RESISTANCE OF 5 OHMS OR LESS

GROUND PLAN 1 / G–1
NTS



NOTE:
CONTRACTOR TO USE CLEAR OR GRAY SILICONE AS NECESSARY TO SEAL LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT.

GROUND WIRE WEATHERPROOFING 3 / G–1
NTS

APPLICANT:

T-Mobile

T-MOBILE NORTHEAST LLC

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PROJECT MANAGER

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EAST HARTFORD, CT 06108

SHEET TITLE:

G-1: GENERATOR GROUNDING DETAILS

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA–222–G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD–FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT–DIPPED ZINC–COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE–X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT–DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC–COATING (HOT–DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON–CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT–DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI–HIT HY–270 AND OR HY–200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF–S–325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE–EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL–OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC–ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318–11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318–11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325–X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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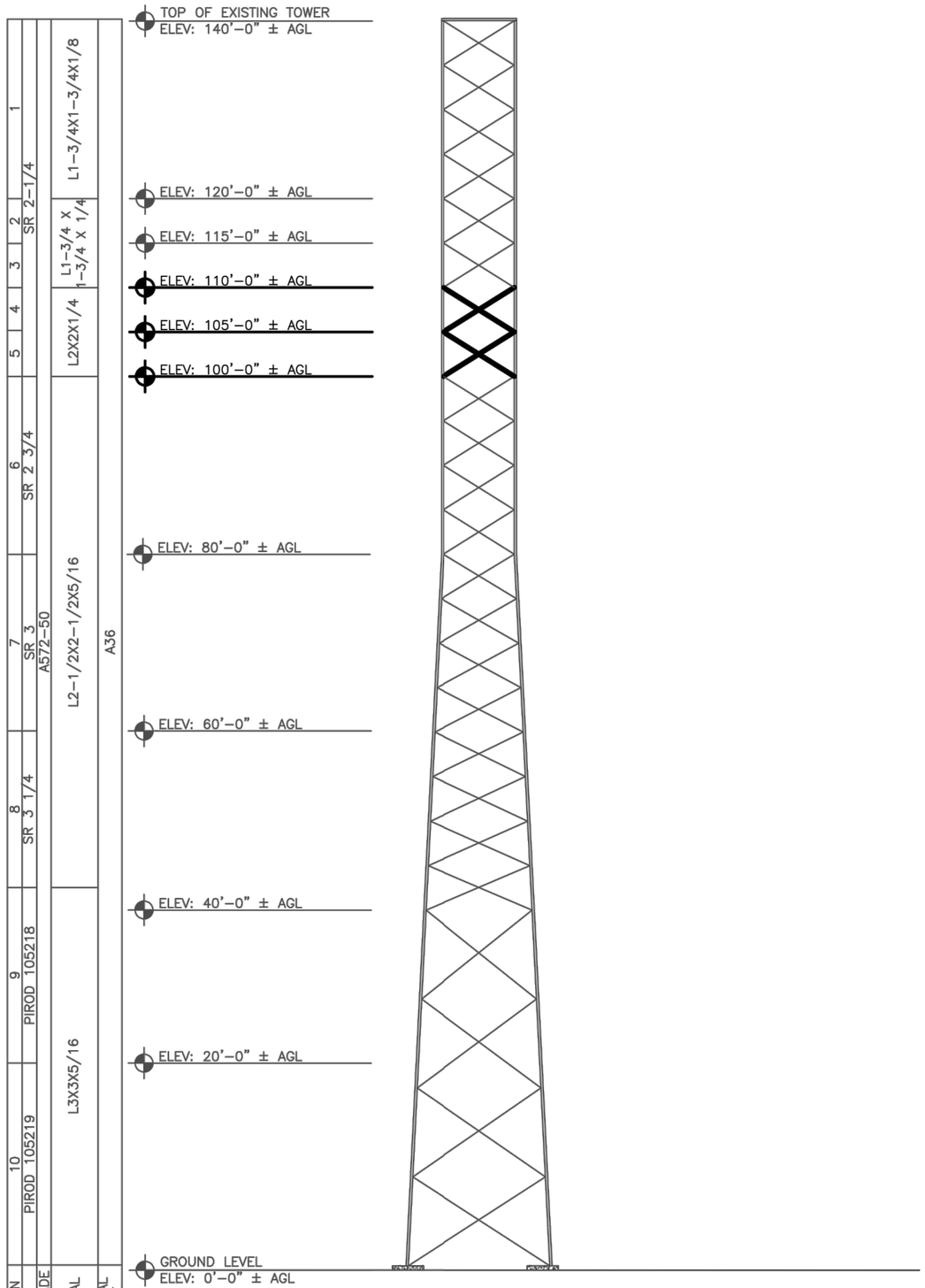
PHONE: 781.713.4725

REVISIONS		
2	01/14/21	CONSTRUCTION FINAL
1	04/10/20	ISSUED FOR CONSTRUCTION
0	02/21/20	ISSUED FOR REVIEW
NO.	DATE	DESCRIPTION

DESIGNED BY:	APPROVED BY:
AA	DC

STATE OF CONNECTICUT · DEREK J. CREASER · No. 28551 · LICENSED PROFESSIONAL ENGINEER

SITE NAME:	EAST HARTFORD SUNSET RIDGE
SITE NUMBER:	CT3438
SITE ADDRESS:	100 SUNSET RIDGE EAST HARTFORD, CT 06108
PROJECT TYPE:	LTE 5C, 6C, 7C, 4TX4RX, 5G NR & BWE
SHEET TITLE:	STRUCTURAL NOTES
DRAWING #:	SN–1
REVISION:	2



TOWER ELEVATION

MODIFICATION SCHEDULE

NO.	MODIFICATION DESCRIPTION	ELEVATION (FT.)	SHEET
1	REPLACE EXISTING SINGLE ANGLE DIAGONAL BRACING	100 – 110	S-1, S-2

STRUCTURAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL LENGTHS AND QUANTITIES PROVIDED PRIOR TO FABRICATION. LENGTHS AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY.
2. ANTENNAS AND OTHER APPURTENANCES MAY NEED TO BE TEMPORARILY REMOVED OR RELOCATED DURING THE INSTALLATION OF THE MODIFICATIONS.
3. STEEL ANGLES AND STITCH WASHERS ARE TO BE GRADE A36.
4. ALL HOLES SHALL BE DRILLED OR PUNCHED.

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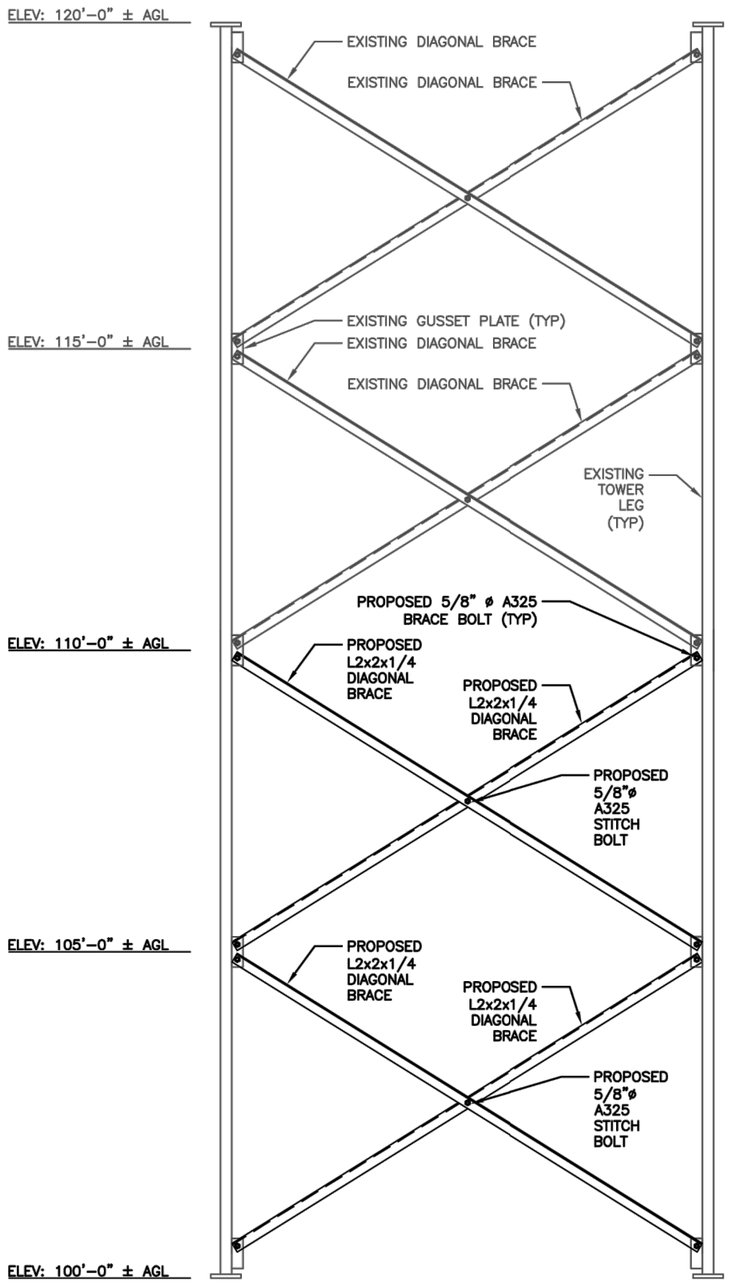
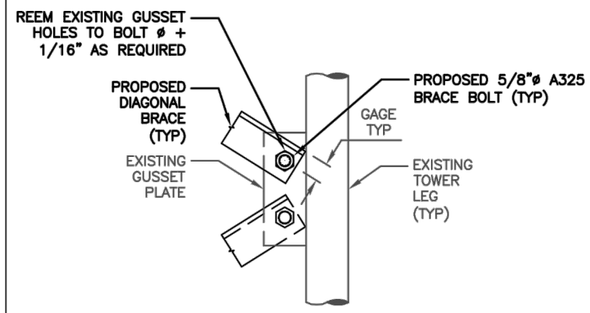
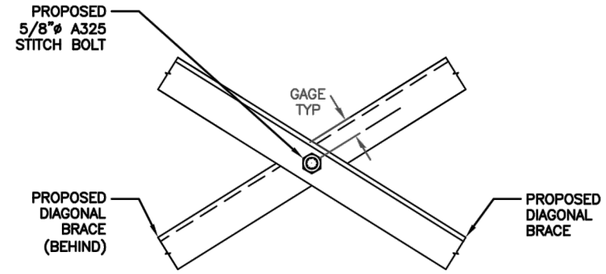
SHEET TITLE:	TOWER MODIFICATION ELEVATION
DRAWING #:	S-1
REVISION:	2



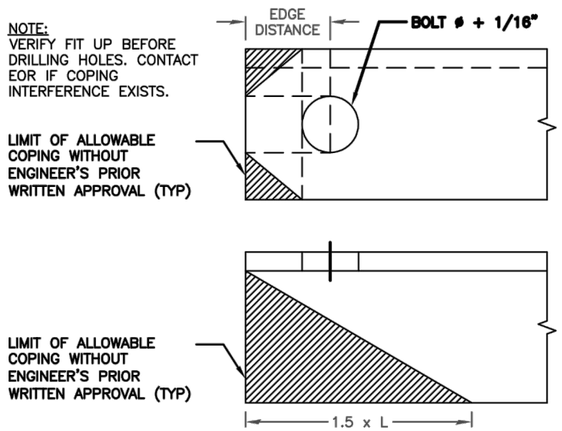
DIAGONAL REPLACEMENT
(TYPICAL BAY DETAIL)



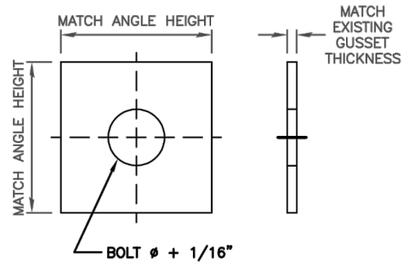
TYP. CONNECTION ALONG LEG



TYP. CONNECTION AT CENTER



BOLT HOLE PLACEMENT
AND COPING ALLOWANCES



STITCH WASHER

DIAGONAL BRACE SCHEDULE												
SECTION #	ELEVATION (FT.)	DIAGONAL BRACE				BRACE BOLTS (A325)				STITCH BOLTS (A325)		
		EXISTING	PROPOSED (ASTM A36)	CUT LENGTH	QTY	BOLT X LENGTH	EDGE DISTANCE (IN)	GAGE DISTANCE (IN)	QTY	BOLT X LENGTH	GAGE DISTANCE (IN)	QTY
6	100 – 110	L1–3/4 X 1–3/4 X 1/4	L2 X 2 X 1/4	9'–6"	12	5/8" DIA. X 1–3/4"	1–1/8	1–1/8	24	5/8" DIA. X 2"	1–1/8	6

at&t MOBILITY CORP.
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

CENTERLINE COMMUNICATIONS
750 WEST CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
2	01/14/21	CONSTRUCTION FINAL
1	04/10/20	ISSUED FOR CONSTRUCTION
0	02/21/20	ISSUED FOR REVIEW
NO.	DATE	DESCRIPTION

DESIGNED BY:	APPROVED BY:
AA	DC

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED
PROFESSIONAL ENGINEER

SITE NAME: EAST HARTFORD SUNSET RIDGE
SITE NUMBER: CT3438
SITE ADDRESS: 100 SUNSET RIDGE
EAST HARTFORD, CT 06108
PROJECT TYPE: LTE 5C, 6C, 7C, 4TX4RX, 5G NR & BWE
SHEET TITLE: TOWER MODIFICATION DETAILS
DRAWING #: S–2
REVISION: 2

Exhibit D

CENTERLINE COMMUNICATIONS
750 West Center Street, Suite 301
West Bridgewater, MA 02379
781.713.4725

Structural Analysis Report

Site Number: CT3438
Site Name: East Hartford Sunset Ridge
FA Number: 10578403
Address: 100 Sunset Ridge
East Hartford, CT 06108

Client:

at&t Mobility Corp.
500 Enterprise Drive
Rocky Hill, CT 06067

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

Date: 5/3/2021

Scope of Work:

Centerline Communications was authorized by AT&T and T-Mobile to perform an analysis of the existing 140 ft. self-support tower to determine its capacity to support the proposed and existing AT&T and T-Mobile equipment listed in this report.

Existing and Proposed Appurtenances:

Carrier	Mounting Level (ft)	Center Line Elevation (ft)	Number of Appurtenances	Antenna Manufacturer	Appurtenance Model	Feed Lines (in)
-	138.0	138.0	1	-	15’ Lightning Rod	(7) 7/8
			3	-	7’ Omni	
			3	-	3’ Side Arm Mount	
-	135.0	135.0	1	-	1’ Dish	
			1	-	3’ Side Arm Mount	
-	120.0	130.0	3	-	20’ Omni	
T-MOBILE	120.0	120.0	3	Ericsson	AIR6449 B41	(6) 1-5/8 (6) 6x12 HCS
			3	Ericsson	AIR32 KRD901146-1_B66A_B2A	
			3	Ericsson	AIR21 KRC118023-1_B2A_B4P	
			3	RFS	APXVAARR24_43-UNA20	
			3	-	Generic Twin Style AB - AWS	
			3	Ericsson	Radio 4449 B71+B85	
			3	Ericsson	Radio 4415 B25	
			3	Site Pro 1	Heavy Duty Sector Mount P/N VFA12-WLL-30120	
AT&T	110.0	110.0	3	Kathrein	800 10799	(4) DC **(5) DC (3) Fiber**
			3	**CCI**	**OPA65R-BU8DA**	
			3	**CCI**	**DMP65R-BU8DA**	
			3	Ericsson	RRUS-32	
			3	**Ericsson**	**RRUS-E2**	
			3	**Ericsson**	**RRUS 8843 B2/B66A**	
			3	**Ericsson**	**RRUS 4478 B14**	
			3	**Ericsson**	**RRUS 4449 B5/B12**	
			3	Ericsson	RRUS 4415 B25	
			3	**Raycap**	**DC9-48-60-24-8C-EV**	
			3	Sabre	12’ V-Boom	

-	100.0	100.0	3	-	NNVV-65B-R4	(3) 3" Conduit
			3	-	MAA-AAHC	
			3	-	RRH4x45-1900	
			6	-	RRH2x50-800	
			1	-	2' Dish	
			3	Site Pro 1	R5-216	
-	105.0	105.0	1	-	4' Dish	
-	95.0	95.0	2	-	1' Dish	

*Note: Proposed equipment shown in **bold**.*

Design Criteria:

Design Codes:

2018 Connecticut State Building Code
2015 International Building Code
ASCE 7-10
TIA-222-G Standards

Basic Wind Speed	105 mph
Wind Speed with Ice	50 mph
Ice Thickness	1.00 in.
Exposure Category	B
Topographic Category	1
Structure Class	III
Site Soil Class (Assumed)	D – Stiff Soil
Seismic Design Category	B

***Refer to calculations for additional design criteria.**

Conclusion:

Passing with Modifications
Section Capacity (Summary)

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	140 - 120	Leg	2 1/4	1	-5554.16	77870.40	7.1	Pass
T2	120 - 115	Leg	2 1/4	31	-14724.50	77870.40	18.9	Pass
T3	115 - 110	Leg	2 1/4	40	-19156.60	77870.40	24.6	Pass
T4	110 - 105	Leg	2 1/4	49	-30027.20	77870.40	38.6	Pass
T5	105 - 100	Leg	2 1/4	60	-43550.40	77870.40	55.9	Pass
T6	100 - 80	Leg	2 3/4	69	-109206.00	153147.00	71.3	Pass
T7	80 - 60	Leg	3	96	-156512.00	198902.00	78.7	Pass
T8	60 - 40	Leg	3 1/4	123	-194178.00	250223.00	77.6	Pass
T9	40 - 20	Leg	Pirod 105218	150	-222106.00	300681.00	73.9	Pass
T10	20 - 0	Leg	Pirod 105219	165	-253020.00	399868.00	63.3 65.4 (b)	Pass
T1	140 - 120	Diagonal	L1 3/4x1 3/4x1/8	11	-1521.30	4232.90	35.9	Pass
T2	120 - 115	Diagonal	L1 3/4x1 3/4x1/4	38	-3528.45	7945.36	44.4	Pass
T3	115 - 110	Diagonal	L1 3/4x1 3/4x1/4	48	-3985.14	7945.36	50.2	Pass
T4	110 - 105	Diagonal	L2x2x1/4	56	-6572.42	11254.40	58.4 65.9 (b)	Pass
T5	105 - 100	Diagonal	L2x2x1/4	66	-7291.56	11254.40	64.8 72.9 (b)	Pass
T6	100 - 80	Diagonal	L2 1/2x2 1/2x5/16	75	-10066.00	23771.20	42.3	Pass
T7	80 - 60	Diagonal	L2 1/2x2 1/2x5/16	107	-6753.48	20250.00	33.4	Pass
T8	60 - 40	Diagonal	L2 1/2x2 1/2x5/16	134	-7096.32	16013.10	44.3	Pass
T9	40 - 20	Diagonal	L3x3x5/16	155	-8597.07	16911.90	50.8	Pass
T10	20 - 0	Diagonal	L3x3x5/16	170	-10266.90	14387.30	71.4	Pass
T1	140 - 120	Top Girt	L3x3x3/8	6	-274.08	22853.70	1.2	Pass
							Summary	
						Leg (T7)	78.7	Pass
						Diagonal (T5)	72.9	Pass
						Top Girt (T1)	1.2	Pass
						Bolt Checks	72.9	Pass
						RATING =	**78.7**	**Pass**

Structure Rating (max from all components) =	**78.7%**

Foundation Capacity

	Previous Design Reactions*	Current Reaction (TIA-222-G)	% Capacity	Overall Result
Moment (Kip-ft)	5314.0	3467.257	64.7	**Pass**
Shear (Kips)	100.5	42.738	40.5	**Pass**
Axial (Kips)	473.0	43.943	32.3	**Pass**

*Per the previous Structural Analysis by EFI Global, dated July 15, 2020 referencing the Structural Analysis by Maser Consulting, dated April 20, 2018

Foundation Rating (max from all components) =	**64.7%**

Recommendations:

The results of the analysis concluded that the existing tower and its foundation have sufficient capacity to support the existing and proposed loading for the final loading configuration upon completion of the following modifications. Centerline Communications recommends the following:

- Replace the existing L1-3/4x1-3/4x1/4 diagonals from 100-110' with proposed L2x2x1/4 angles using 5/8" A325 bolts with 1-1/8" edge distance and 1-1/8" gage distance.

Reference Documents:

- AT&T RFDS 3546088, dated April 28, 2020
- Structural Analysis by EFI Global, dated July 15, 2020
- Structural Analysis by Advanced Engineering Group, dated May 4, 2017
- Construction Drawings by Advanced Engineering Group, dated May 4, 2017

Assumptions and Limitations:

- The tower and structures were built and maintained with the manufacturer's specifications.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in this report and the referenced drawings.
- Existing appurtenance information obtained from the previous Structural Analysis by EFI Global, dated July 15, 2020.
- All connections of the members are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise noted in this report.

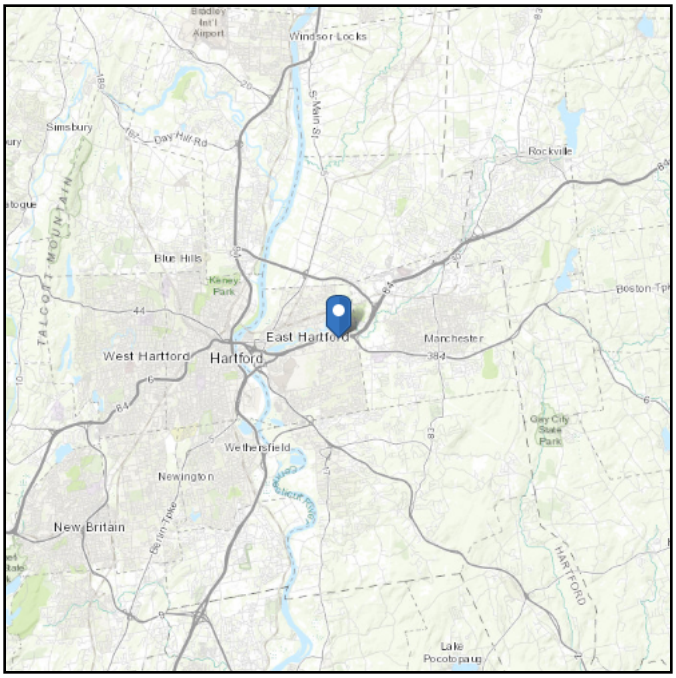
Design Calculations

ASCE 7 Hazards Report

Address:
100 Sunset Ridge Dr
East Hartford, Connecticut
06118

Standard: ASCE/SEI 7-10
Risk Category: III
Soil Class: D - Stiff Soil

Elevation: 191.52 ft (NAVD 88)
Latitude: 41.771605
Longitude: -72.592504



Wind

Results:

Wind Speed:	133 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	100 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1B and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Tue Dec 29 2020

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 3% probability of exceedance in 50 years (annual exceedance probability = 0.000588, MRI = 1,700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

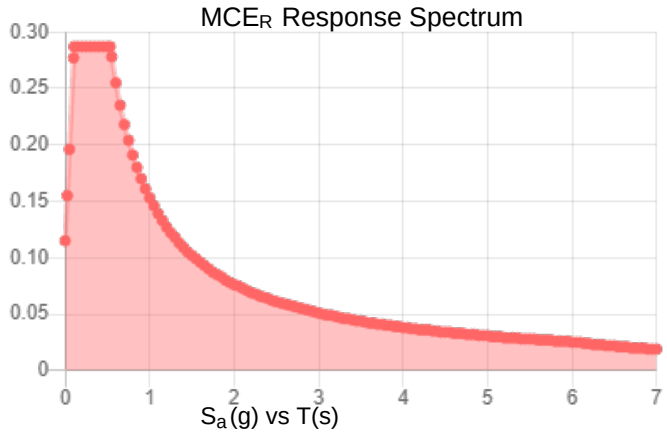
Seismic

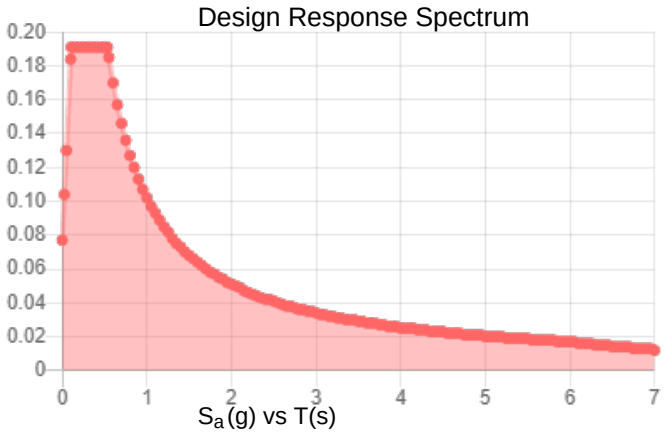
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.179	S_{DS} :	0.191
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.09
S_{MS} :	0.287	PGA_M :	0.144
S_{M1} :	0.153	F_{PGA} :	1.6
		I_e :	1.25

Seismic Design Category B





Data Accessed: Tue Dec 29 2020

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Dec 29 2020

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Snow

Results:

Ground Snow Load, p_g:	30 lb/ft^2
Elevation:	191.5 ft
Data Source:	ASCE/SEI 7-10, Fig. 7-1.
Date Accessed:	Tue Dec 29 2020

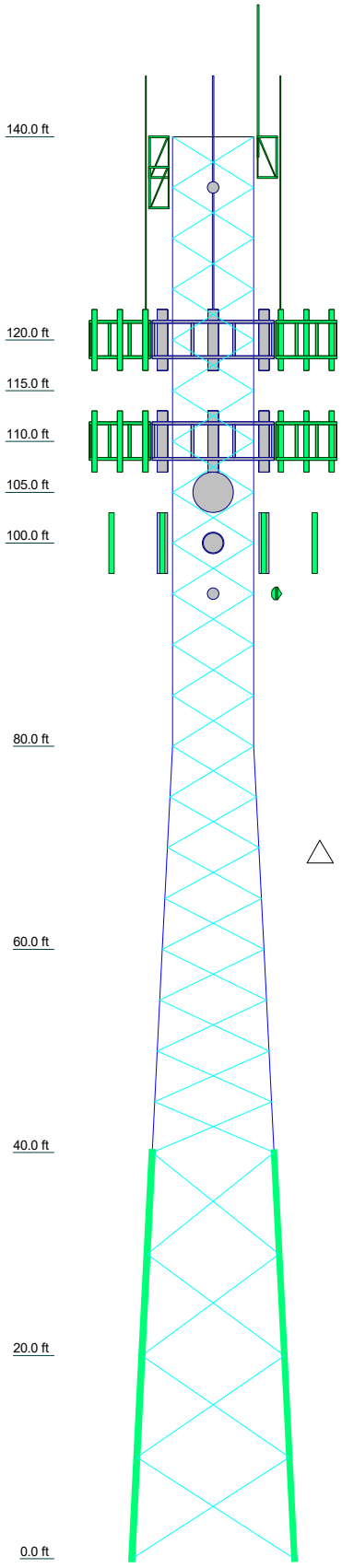
Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	Pirod 105219	Pirod 105218	SR 3 1/4	SR 3	SR 2 3/4	SR 2 1/4				
Leg Grade	A572-50									
Diagonals	L3x3x5/16			L2 1/2x2 1/2x5/16		L2x2x1/4	A	L1 3/4x1 3/4x1/8		
Diagonal Grade	A36									
Top Girts	N.A.							L3x3x3/8		
Face Width (ft)	16	14	12	10	8					
# Panels @ (ft)	4 @ 10			20 @ 5						
Weight (lb)	19224.4	4213.7	3519.4	3294.5	2807.4	2454.4	402.8	402.8	377.4	377.4	1374.8



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightening Rod 2"x15'	138	RRUS 4415 B25 (ATI)	110
Omni 2"x7'	138	RRUS 4415 B25 (ATI)	110
Omni 2"x7'	138	RRUS 4415 B25 (ATI)	110
Omni 2"x7'	138	RRUS 32 (ATI)	110
3' Side Mount Standoff	138	RRUS 32 (ATI)	110
3' Side Mount Standoff	138	RRUS 32 (ATI)	110
3' Side Mount Standoff	138	OPA65R-BU8DA w/ Mount Pipe (ATI)	110
3' Side Mount Standoff	135	OPA65R-BU8DA w/ Mount Pipe (ATI)	110
VHLP1	135	OPA65R-BU8DA w/ Mount Pipe (ATI)	110
Omni 3"x20'	120	DMP65R-BU8DA w/ Mount Pipe (ATI)	110
Omni 3"x20'	120	DMP65R-BU8DA w/ Mount Pipe (ATI)	110
AIR 6449 B41 W/ MOUNT PIPE (T-MOBILE)	120	DMP65R-BU8DA w/ Mount Pipe (ATI)	110
		RRUS E2 B92 (ATI)	110
AIR 6449 B41 W/ MOUNT PIPE (T-MOBILE)	120	RRUS E2 B92 (ATI)	110
		RRUS E2 B92 (ATI)	110
AIR 6449 B41 W/ MOUNT PIPE (T-MOBILE)	120	RRUS 8843 B2/B66A (ATI)	110
		RRUS 8843 B2/B66A (ATI)	110
AIR32 B2A/B66A W/ MOUNT PIPE (T-MOBILE)	120	RRUS 8843 B2/B66A (ATI)	110
AIR32 B2A/B66A W/ MOUNT PIPE (T-MOBILE)	120	RRUS 4478 B14 (ATI)	110
		RRUS 4478 B14 (ATI)	110
AIR32 B2A/B66A W/ MOUNT PIPE (T-MOBILE)	120	RRUS 4478 B14 (ATI)	110
AIR32 B2A/B66A (T-MOBILE)	120	RRUS 4449 B5/12 (ATI)	110
AIR32 B2A/B66A (T-MOBILE)	120	RRUS 4449 B5/12 (ATI)	110
AIR32 B2A/B66A (T-MOBILE)	120	RRUS 4449 B5/12 (ATI)	110
APXVAARR24_43-U-NA20 W/ MOUNT PIPE (T-MOBILE)	120	DC9-48-60-24-8C-EV (ATI)	110
		DC9-48-60-24-8C-EV (ATI)	110
		DC9-48-60-24-8C-EV (ATI)	110
APXVAARR24_43-U-NA20 W/ MOUNT PIPE (T-MOBILE)	120	SABRE 12' V-BOOM (ATI)	110
		SABRE 12' V-BOOM (ATI)	110
APXVAARR24_43-U-NA20 W/ MOUNT PIPE (T-MOBILE)	120	SABRE 12' V-BOOM (ATI)	110
GENERIC TWIN STYLE 1B - TWIN AWS (T-MOBILE)	120	HP4-102	105
		Nokia AAHC w/pipe	100
GENERIC TWIN STYLE 1B - TWIN AWS (T-MOBILE)	120	Nokia AAHC w/pipe	100
		Andrew-Commscope NNV-65B-R4 w/pipe	100
GENERIC TWIN STYLE 1B - TWIN AWS (T-MOBILE)	120	Andrew-Commscope NNV-65B-R4 w/pipe	100
RADIO 4449 B71+B85 (T-MOBILE)	120		
RADIO 4449 B71+B85 (T-MOBILE)	120	Andrew-Commscope NNV-65B-R4 w/pipe	100
RADIO 4449 B71+B85 (T-MOBILE)	120		
RADIO 4415 B25 (T-MOBILE)	120	RRH4x45-19	100
RADIO 4415 B25 (T-MOBILE)	120	RRH4x45-19	100
RADIO 4415 B25 (T-MOBILE)	120	RRH4x45-19	100
VFA12-WLL-30120 (T-MOBILE)	120	(2) FD-RRH-2x50-800	100
VFA12-WLL-30120 (T-MOBILE)	120	(2) FD-RRH-2x50-800	100
VFA12-WLL-30120 (T-MOBILE)	120	(2) FD-RRH-2x50-800	100
10'-P2.5x0.276 (T-MOBILE)	120	6'-P4x0.237	100
10'-P2.5x0.276 (T-MOBILE)	120	6'-P4x0.237	100
10'-P2.5x0.276 (T-MOBILE)	120	6'-P4x0.237	100
(2) 10.5'-P2x0.154 (T-MOBILE)	120	5'xP3x0.216 H	100
(2) 10.5'-P2x0.154 (T-MOBILE)	120	5'xP3x0.216 H	100
(2) 10.5'-P2x0.154 (T-MOBILE)	120	Nokia AAHC w/pipe	100
Omni 3"x20'	120	VHLP2-11	100
80010799 w/ Mount Pipe (ATI)	110	VHLP2-11	100
80010799 w/ Mount Pipe (ATI)	110	5'xP3x0.216 H	100
80010799 w/ Mount Pipe (ATI)	110	VHLP1	95
		VHLP1	95

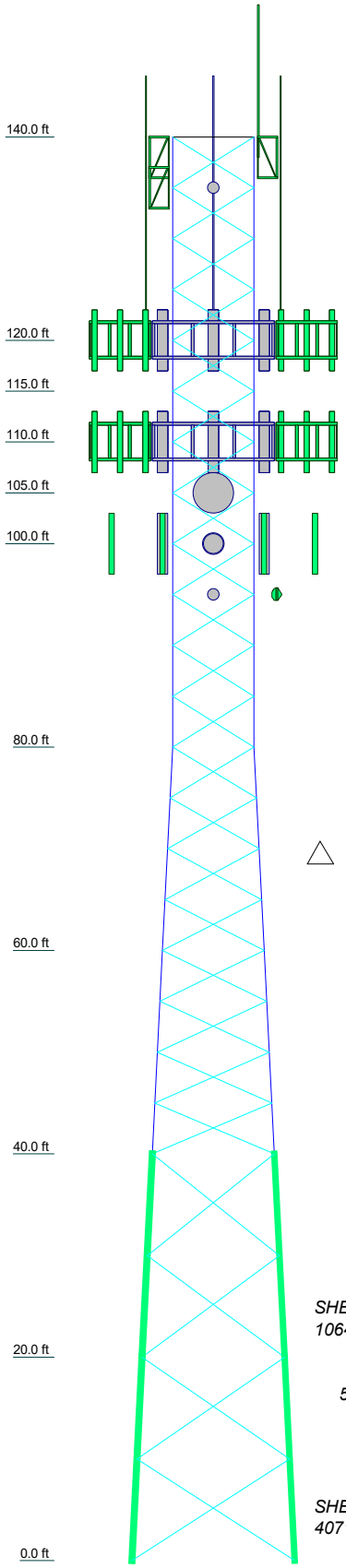
SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L1 3/4x1 3/4x1/4		

Centerline Communications
750 West Center Street, Suite 301
West Bridgewater, MA 02379
Phone: (781) 713-4725
FAX:

Job: ***CT3438***			
Project: ***140ft Self Support Tower***			
Client: AT&T	Drawn by: Joshua Gildert		App'd:
Code: TIA-222-G	Date: 12/29/20		Scale: NTS
Path:			Dwg No. E-1

Section		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	
Legs		SR 2 1/4					SR 2 3/4	SR 3	SR 3 1/4	Pirod 105218	Pirod 105219	
Leg Grade		A572-50										
Diagonals		L1 3/4x1 3/4x1/8		A		L2x2x1/4		L2 1/2x2 1/2x5/16		L3x3x5/16		
Diagonal Grade		A36										
Top Girts		L3x3x3/8						N.A.				
Face Width (ft)	8								10		12	14
# Panels @ (ft)	20 @ 5										4 @ 10	
Weight (lb) 19224.4	1374.8		377.4	377.4	402.8	402.8	2454.4	2807.4	3294.5	3519.4	4213.7	



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L1 3/4x1 3/4x1/4		

MATERIAL STRENGTH

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

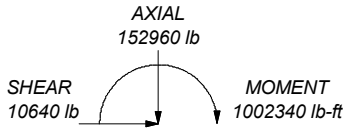
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 105 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 III.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 78.7%

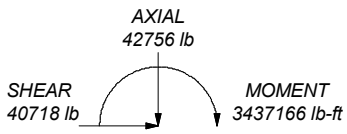
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 262304 lb
SHEAR: 27176 lb

UPLIFT: -227261 lb
SHEAR: 24094 lb



TORQUE 8334 lb-ft
50 mph WIND - 1.0000 in ICE



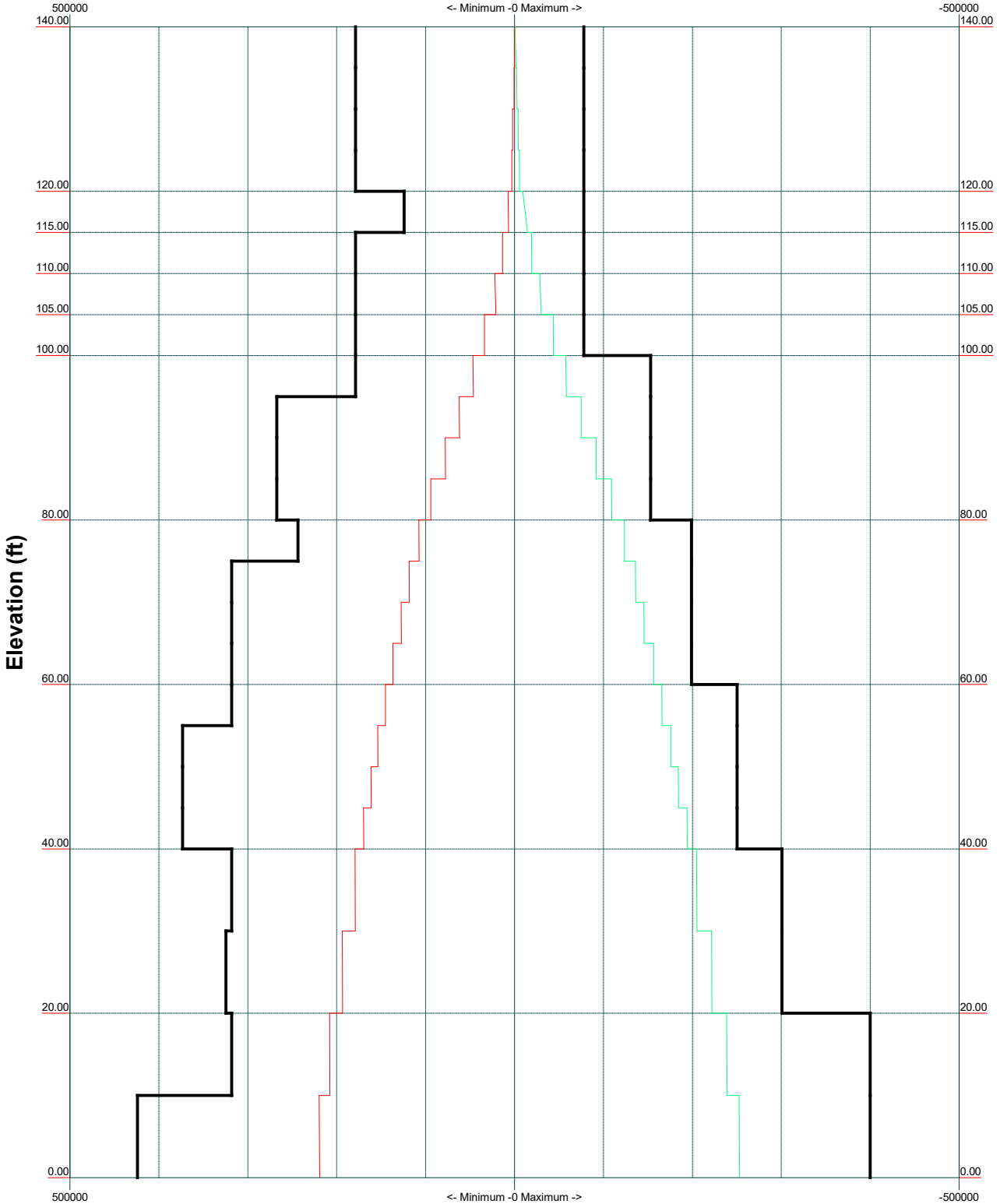
TORQUE 33001 lb-ft
REACTIONS - 105 mph WIND

Centerline Communications
750 West Center Street, Suite 301
West Bridgewater, MA 02379
Phone: (781) 713-4725
FAX:

Job: **CT3438**			
Project: ***140ft Self Support Tower***			
Client: AT&T	Drawn by: Joshua Gildert		App'd:
Code: TIA-222-G	Date: 12/29/20		Scale: NTS
Path:			Dwg No. E-1

TIA-222-G - 105 mph/50 mph 1.0000 in Ice Exposure B

Leg Capacity ——— **Leg Compression (lb)**



Centerline Communications
750 West Center Street, Suite 301
West Bridgewater, MA 02379
Phone: (781) 713-4725
FAX:

Job: ***CT3438***			
Project: ***140ft Self Support Tower***			
Client: AT&T	Drawn by: Joshua Gildert		App'd:
Code: TIA-222-G	Date: 12/29/20		Scale: NTS
Path:			Dwg No. E-3

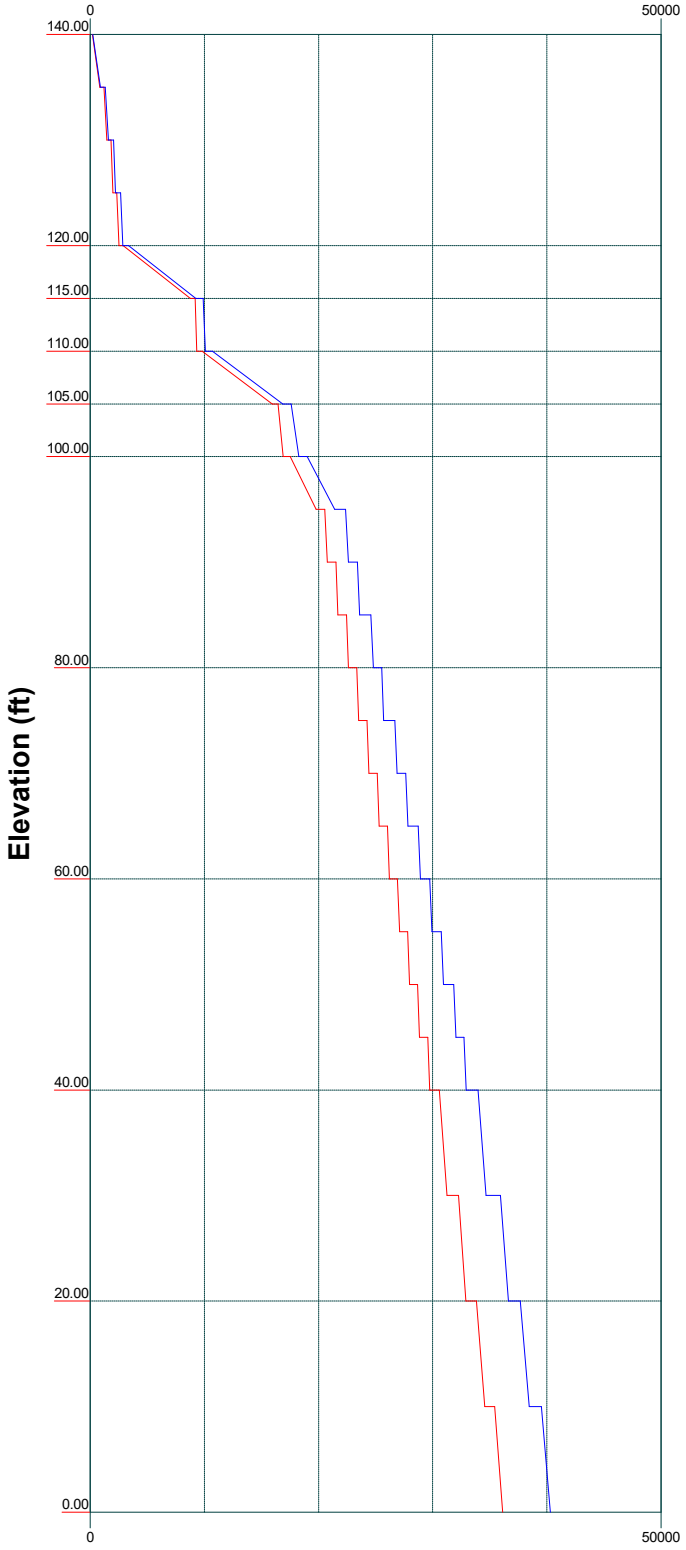
TIA-222-G - 105 mph/50 mph 1.0000 in Ice Exposure B

Vx Vz

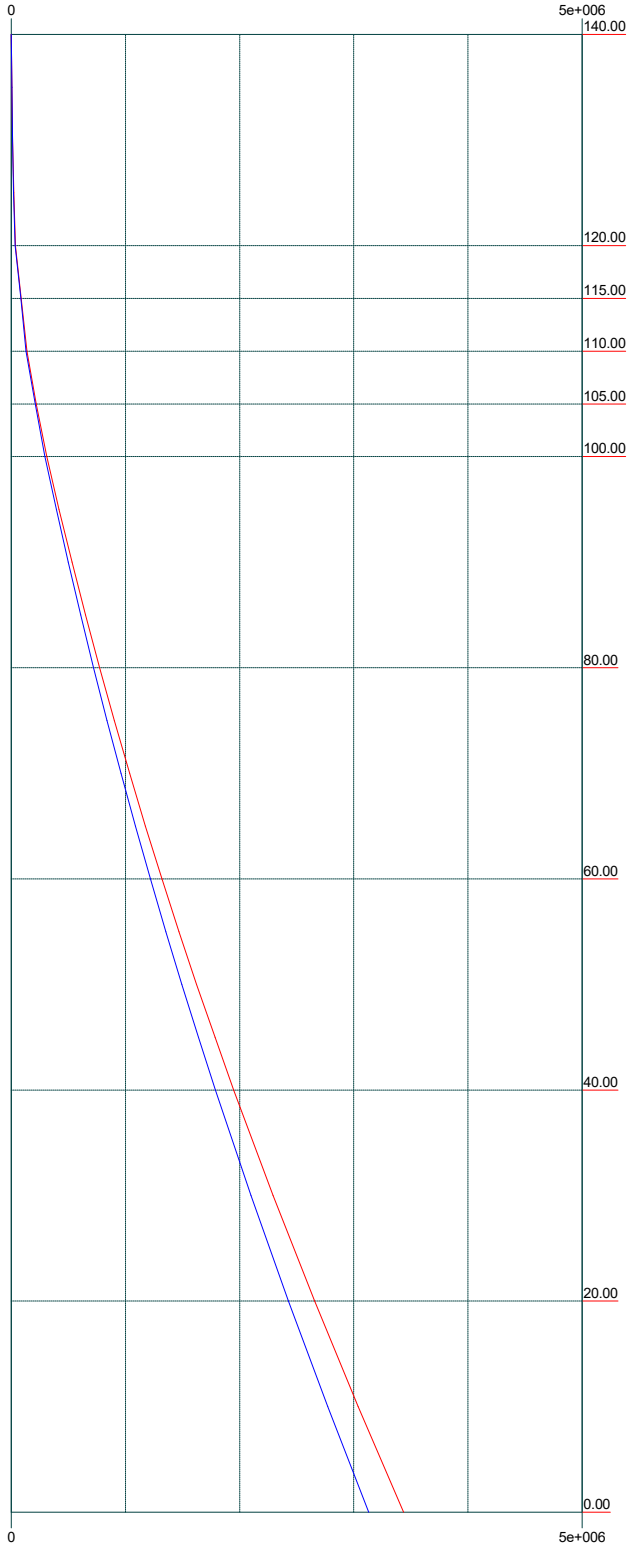
Maximum Values

Mx Mz

Global Mast Shear (lb)



Global Mast Moment (lb-ft)

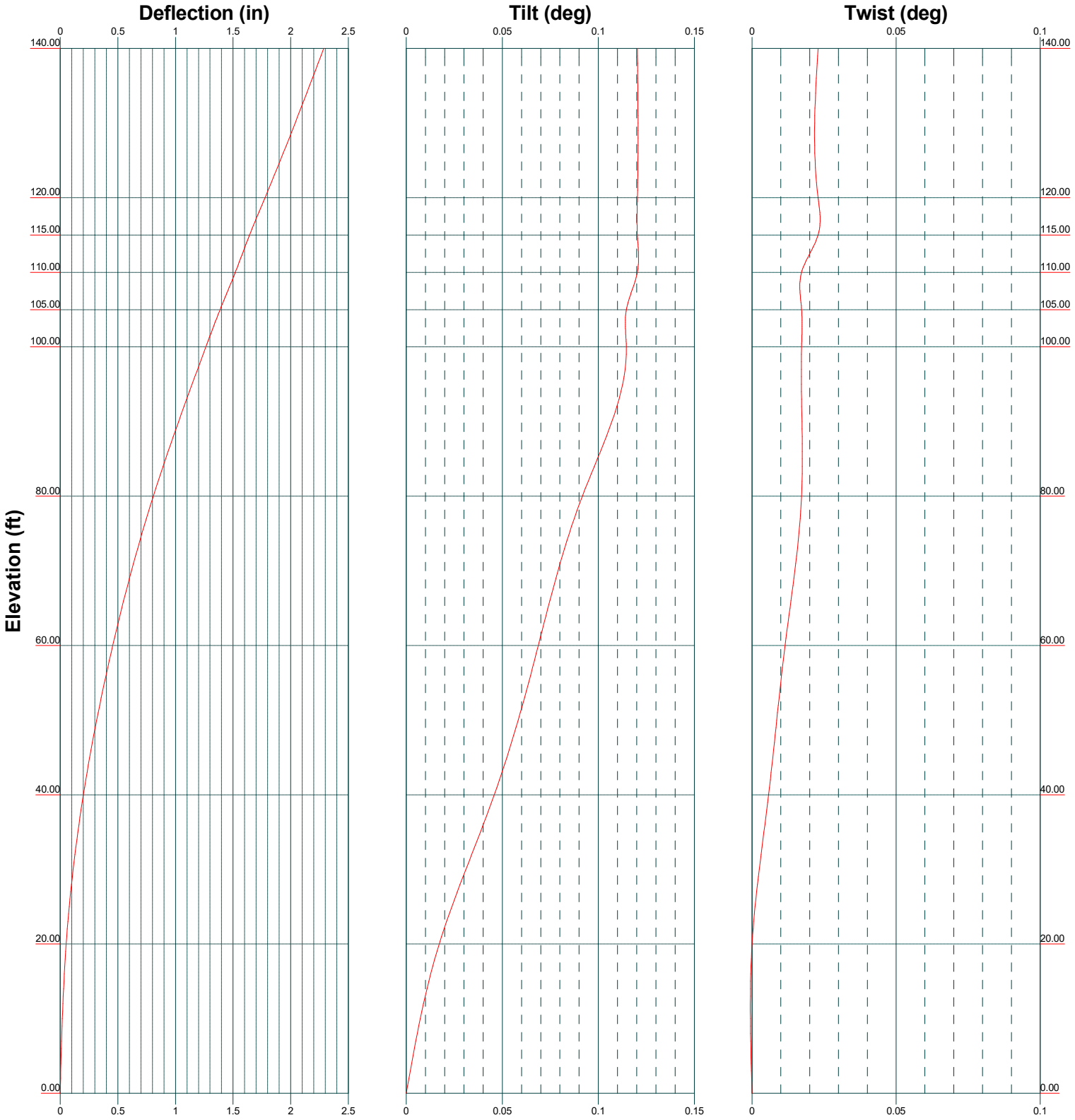


Centerline Communications
750 West Center Street, Suite 301
West Bridgewater, MA 02379
Phone: (781) 713-4725
FAX:

Job: ***CT3438***			
Project: ***140ft Self Support Tower***			
Client: AT&T	Drawn by: Joshua Gildert		App'd:
Code: TIA-222-G	Date: 12/29/20		Scale: NTS
Path:			Dwg No. E-4

TIA-222-G - Service - 60 mph

Maximum Values



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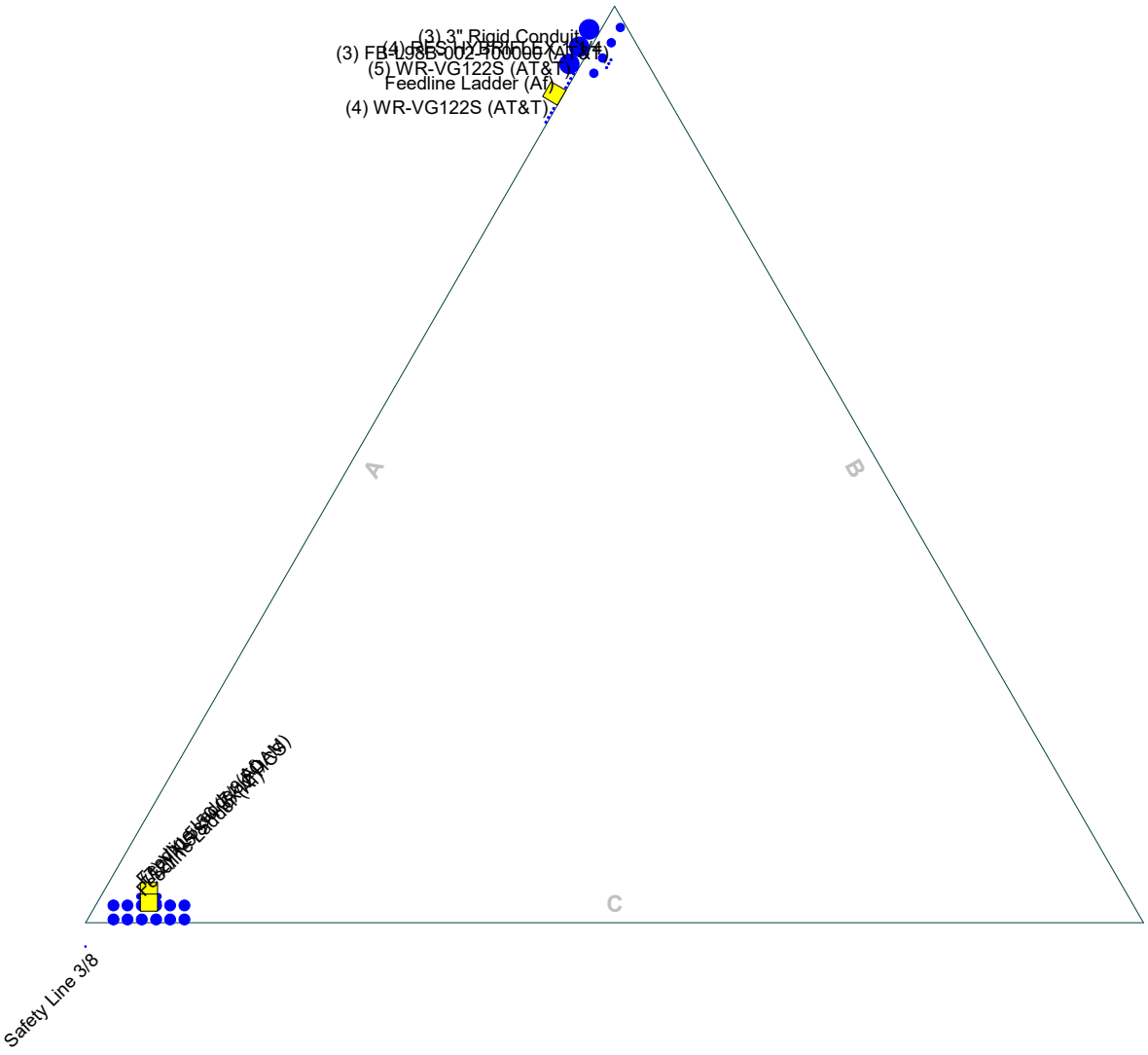
West Bridgewater, MA 02379
Phone: (781) 713-4725
FAX:

Job: ***CT3438***			
Project: ***140ft Self Support Tower***			
Client: AT&T	Drawn by: Joshua Gildert		App'd:
Code: TIA-222-G	Date: 12/29/20		Scale: NTS
Path:			Dwg No. E-5

Feed Line Plan

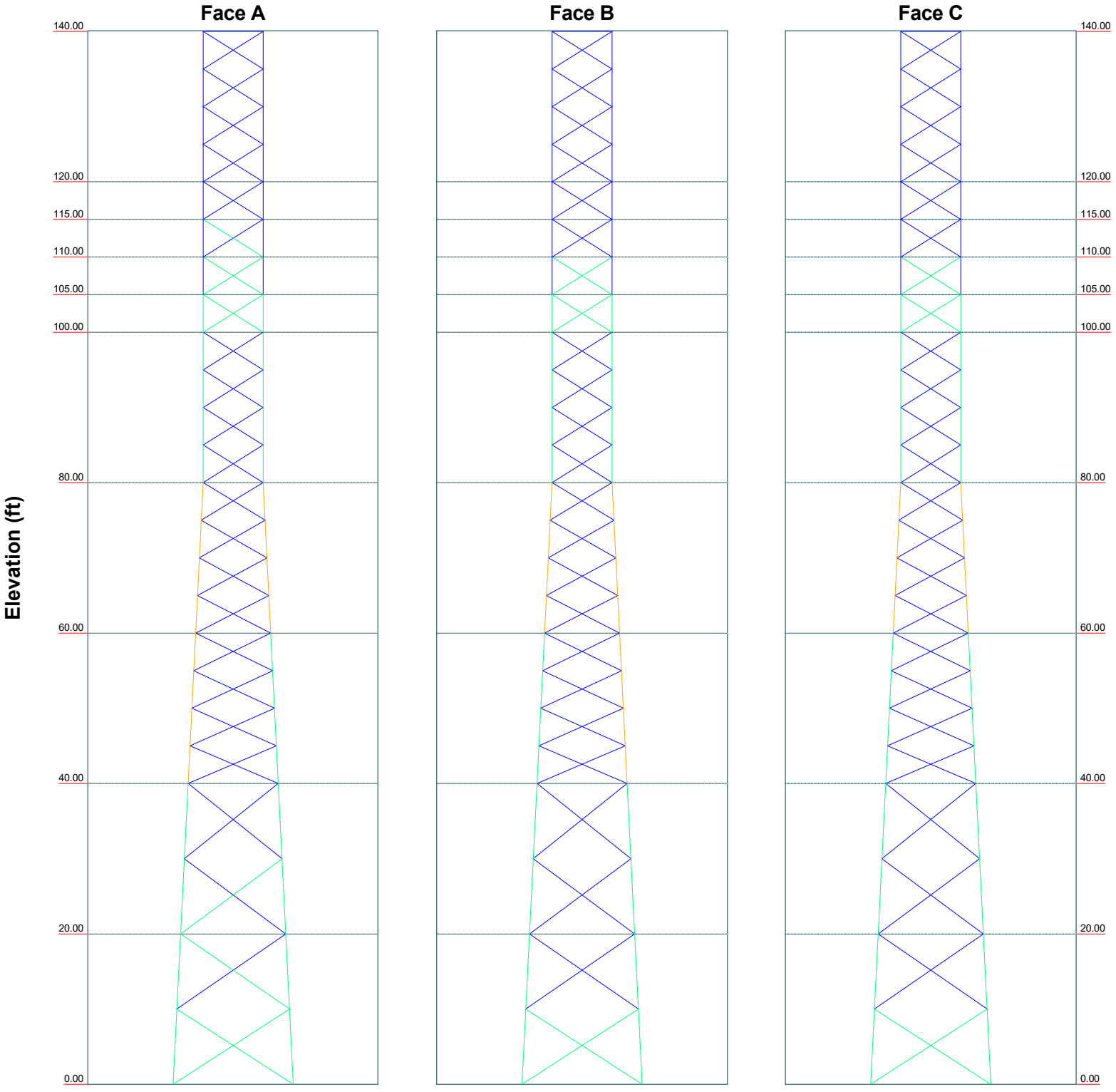
Round Flat App In Face App Out Face Truss-Leg



Centerline Communications 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: (781) 713-4725 FAX:	Job: ***CT3438***		
	Project: ***140ft Self Support Tower***		
	Client: AT&T	Drawn by: Joshua Gildert	App'd:
	Code: TIA-222-G	Date: 12/29/20	Scale: NTS
	Path:		Dwg No. E-7

Stress Distribution Chart
0' - 140'

> 100% | 90%-100% | 75%-90% | 50%-75% | < 50% Overstress



Centerline Communications
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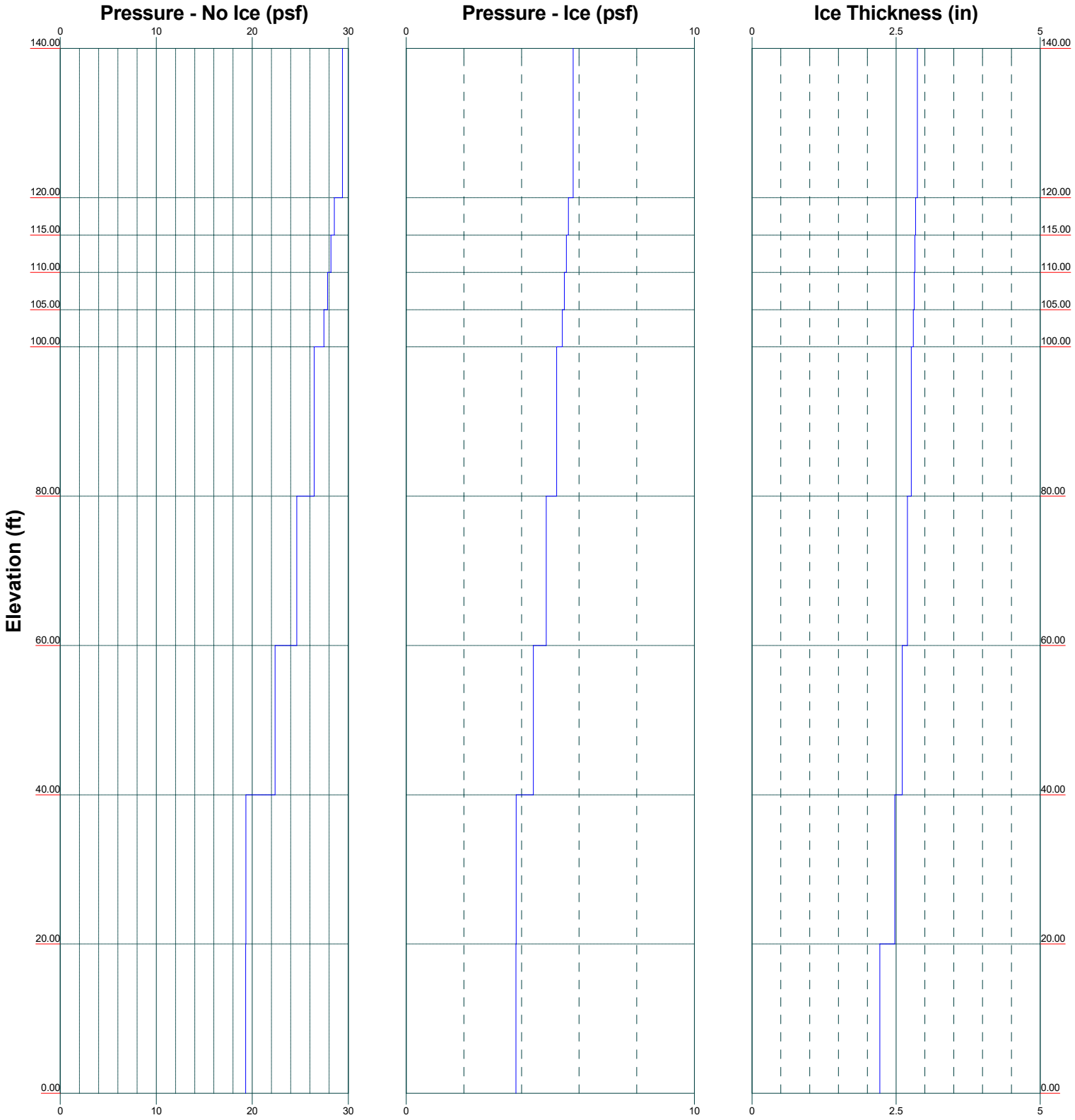
Phone: (781) 713-4725
FAX:

Job: ***CT3438***			
Project: ***140ft Self Support Tower***			
Client: AT&T	Drawn by: Joshua Gildert		App'd:
Code: TIA-222-G	Date: 12/29/20		Scale: NTS
Path:			Dwg No. E-8

Wind Pressures and Ice Thickness

TIA-222-G - 105 mph/50 mph 1.0000 in Ice Exposure B



Centerline Communications
750 West Center Street, Suite 301
West Bridgewater, MA 02379
Phone: (781) 713-4725
FAX:

Job: ***CT3438***		
Project: ***140ft Self Support Tower***		
Client: AT&T	Drawn by: Joshua Gildert	App'd:
Code: TIA-222-G	Date: 12/29/20	Scale: NTS
Path:		Dwg No. E-9

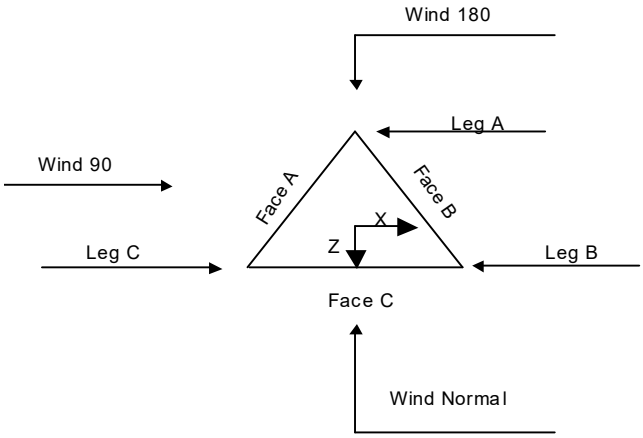
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 140.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 8.00 ft at the top and 16.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 105 mph.
Structure Class III.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
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	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	140.00-120.00			8.00	1	20.00
T2	120.00-115.00			8.00	1	5.00
T3	115.00-110.00			8.00	1	5.00
T4	110.00-105.00			8.00	1	5.00
T5	105.00-100.00			8.00	1	5.00
T6	100.00-80.00			8.00	1	20.00
T7	80.00-60.00			8.00	1	20.00
T8	60.00-40.00			10.00	1	20.00
T9	40.00-20.00			12.00	1	20.00
T10	20.00-0.00			14.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	140.00-120.00	5.00	X Brace	No	No	0.0000	0.0000
T2	120.00-115.00	5.00	X Brace	No	No	0.0000	0.0000
T3	115.00-110.00	5.00	X Brace	No	No	0.0000	0.0000
T4	110.00-105.00	5.00	X Brace	No	No	0.0000	0.0000
T5	105.00-100.00	5.00	X Brace	No	No	0.0000	0.0000

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
T6	100.00-80.00	5.00	X Brace	No	No	0.0000	0.0000
T7	80.00-60.00	5.00	X Brace	No	No	0.0000	0.0000
T8	60.00-40.00	5.00	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 140.00-120.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x1/8	A36 (36 ksi)
T2 120.00-115.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x1/4	A36 (36 ksi)
T3 115.00-110.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x1/4	A36 (36 ksi)
T4 110.00-105.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T5 105.00-100.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T6 100.00-80.00	Solid Round	2 3/4	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T7 80.00-60.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T8 60.00-40.00	Solid Round	3 1/4	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T9 40.00-20.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T10 20.00-0.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	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 140.00-120.00	Equal Angle	L3x3x3/8	A36 (36 ksi)	Solid Round		A36 (36 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

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 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T2 120.00-115.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T3 115.00-110.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T4 110.00-105.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T5 105.00-100.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T6 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T7 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T8 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T9 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T10 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
120.00-115.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
115.00-110.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
110.00-105.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
105.00-100.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
20.00-0.00				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Truss-Leg K Factors					
	Truss-Legs Used As Leg Members			Truss-Legs Used As Inner Members		
	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals	Z Brace Diagonals
T9 40.00-20.00	1	0.5	0.85	1	0.5	0.85
T10 20.00-0.00	1	0.5	0.85	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 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 120.00-115.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 115.00-110.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 110.00-105.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 105.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 140.00-120.00	Flange	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 120.00-115.00	Flange	0.6250 A325N	6	0.6250 A325N	0	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 115.00-110.00	Flange	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 110.00-105.00	Flange	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T5 105.00-100.00	Flange	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 100.00-80.00	Flange	0.7500 A325N	6	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 80.00-60.00	Flange	0.8750 A325N	6	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 60.00-40.00	Flange	1.0000 A325N	6	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 40.00-20.00	Flange	1.0000 A325N	6	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 20.00-0.00	Flange	1.0000 A325N	6	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
***													
3" Rigid Conduit	A	No	No	Ar (CaAa)	100.00 - 6.00	0.0000	0.45	3	3	0.0000	3.5000		3.00
VXL5-50 (7/8 FOAM)	C	No	No	Ar (CaAa)	140.00 - 6.00	-4.0000	0.44	7	4	0.0000	1.0800		0.29
RFS HYBRIFLEX 1 1/4	A	No	No	Ar (CaAa)	100.00 - 6.00	-2.0000	0.46	4	4	1.5400	1.5400		1.30
***													
1-5/8" + 6x12 HCS	C	No	No	Ar (CaAa)	120.00 - 6.00	-2.0000	0.44	12	6	0.5000	1.9800		0.82
***													
WR-VG122S (AT&T)	A	No	No	Ar (CaAa)	110.00 - 6.00	0.0000	0.38	4	4	0.4600	0.4600		0.14
WR-VG122S (AT&T)	A	No	No	Ar (CaAa)	110.00 - 6.00	0.0000	0.42	5	5	0.4600	0.4600		0.14
FB-L98B-002-100000 (AT&T)	A	No	No	Ar (CaAa)	110.00 - 6.00	-4.0000	0.45	3	3	0.3937	0.3937		0.06
***													
Feedline Ladder (Af)	C	No	No	Af (CaAa)	120.00 - 6.00	-4.0000	0.44	1	1	0.0000	3.0000		8.40
Feedline Ladder (Af)	A	No	No	Af (CaAa)	100.00 - 6.00	0.0000	0.4	1	1	0.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	No	Af (CaAa)	140.00 - 6.00	-2.0000	0.44	1	1	0.0000	3.0000		8.40
Safety Line 3/8	C	No	No	Ar (CaAa)	140.00 - 6.00	4.0000	0.5	1	1	0.3750	0.3750		0.22

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	140.00-120.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	25.870	0.000	213.00
T2	120.00-115.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	20.848	0.000	144.45
T3	115.00-110.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	20.848	0.000	144.45
T4	110.00-105.00	A	0.000	0.000	2.661	0.000	7.20
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	20.848	0.000	144.45
T5	105.00-100.00	A	0.000	0.000	2.661	0.000	7.20
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	20.848	0.000	144.45
T6	100.00-80.00	A	0.000	0.000	53.962	0.000	480.80
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.390	0.000	577.80
T7	80.00-60.00	A	0.000	0.000	53.962	0.000	480.80
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.390	0.000	577.80
T8	60.00-40.00	A	0.000	0.000	53.962	0.000	480.80
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.390	0.000	577.80
T9	40.00-20.00	A	0.000	0.000	53.962	0.000	480.80
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.390	0.000	577.80
T10	20.00-0.00	A	0.000	0.000	37.774	0.000	336.56
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	58.373	0.000	404.46

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	140.00-120.00	A	2.867	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	65.648	0.000	1416.61
T2	120.00-115.00	A	2.839	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	35.688	0.000	865.33
T3	115.00-110.00	A	2.826	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	35.609	0.000	861.29
T4	110.00-105.00	A	2.813	0.000	0.000	19.962	0.000	266.75
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	35.526	0.000	857.10
T5	105.00-100.00	A	2.800	0.000	0.000	19.892	0.000	264.85
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	35.440	0.000	852.73
T6	100.00-80.00	A	2.764	0.000	0.000	190.290	0.000	3493.82
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	140.830	0.000	3363.95
T7	80.00-60.00	A	2.695	0.000	0.000	187.668	0.000	3394.11
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	139.066	0.000	3275.82
T8	60.00-40.00	A	2.606	0.000	0.000	184.262	0.000	3266.62

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	136.772	0.000	3163.09
T9	40.00-20.00	A	2.476	0.000	0.000	179.311	0.000	3085.39
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	133.437	0.000	3002.79
T10	20.00-0.00	A	2.219	0.000	0.000	118.657	0.000	1918.52
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	88.775	0.000	1888.41

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	140.00-120.00	-7.8731	3.7980	-9.6972	5.4913
T2	120.00-115.00	-19.2078	7.9545	-18.0930	9.2212
T3	115.00-110.00	-19.2078	7.9545	-18.1194	9.2328
T4	110.00-105.00	-17.5050	2.4302	-15.6483	-1.2179
T5	105.00-100.00	-17.5050	2.4302	-15.6725	-1.2167
T6	100.00-80.00	-13.9139	-10.5502	-12.9995	-11.4075
T7	80.00-60.00	-14.9279	-11.2259	-14.4351	-12.6168
T8	60.00-40.00	-16.7909	-12.4894	-16.8438	-14.6515
T9	40.00-20.00	-18.4557	-13.2635	-16.7113	-14.3588
T10	20.00-0.00	-15.5928	-11.0442	-14.9714	-12.9682

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	3	VXL5-50 (7/8 FOAM)	120.00 - 140.00	0.6000	0.5447
T1	14	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.5447
T1	15	Safety Line 3/8	120.00 - 140.00	0.6000	0.5447
T2	3	VXL5-50 (7/8 FOAM)	115.00 - 120.00	0.6000	0.5810
T2	6	1-5/8" + 6x12 HCS	115.00 - 120.00	0.6000	0.5810
T2	12	Feedline Ladder (Af)	115.00 - 120.00	0.6000	0.5810
T2	14	Feedline Ladder (Af)	115.00 - 120.00	0.6000	0.5810
T2	15	Safety Line 3/8	115.00 - 120.00	0.6000	0.5810
T3	3	VXL5-50 (7/8 FOAM)	110.00 - 115.00	0.6000	0.5822
T3	6	1-5/8" + 6x12 HCS	110.00 - 115.00	0.6000	0.5822
T3	12	Feedline Ladder (Af)	110.00 - 115.00	0.6000	0.5822

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	14	Feedline Ladder (Af)	110.00 - 115.00	0.6000	0.5822
T3	15	Safety Line 3/8	110.00 - 115.00	0.6000	0.5822
T4	3	VXL5-50 (7/8 FOAM)	105.00 - 110.00	0.6000	0.5742
T4	6	1-5/8" + 6x12 HCS	105.00 - 110.00	0.6000	0.5742
T4	8	WR-VG122S	105.00 - 110.00	0.6000	0.5742
T4	9	WR-VG122S	105.00 - 110.00	0.6000	0.5742
T4	10	FB-L98B-002-100000	105.00 - 110.00	0.6000	0.5742
T4	12	Feedline Ladder (Af)	105.00 - 110.00	0.6000	0.5742
T4	14	Feedline Ladder (Af)	105.00 - 110.00	0.6000	0.5742
T4	15	Safety Line 3/8	105.00 - 110.00	0.6000	0.5742
T5	3	VXL5-50 (7/8 FOAM)	100.00 - 105.00	0.6000	0.5756
T5	6	1-5/8" + 6x12 HCS	100.00 - 105.00	0.6000	0.5756
T5	8	WR-VG122S	100.00 - 105.00	0.6000	0.5756
T5	9	WR-VG122S	100.00 - 105.00	0.6000	0.5756
T5	10	FB-L98B-002-100000	100.00 - 105.00	0.6000	0.5756
T5	12	Feedline Ladder (Af)	100.00 - 105.00	0.6000	0.5756
T5	14	Feedline Ladder (Af)	100.00 - 105.00	0.6000	0.5756
T5	15	Safety Line 3/8	100.00 - 105.00	0.6000	0.5756
T6	2	3" Rigid Conduit	80.00 - 100.00	0.6000	0.5547
T6	3	VXL5-50 (7/8 FOAM)	80.00 - 100.00	0.6000	0.5547
T6	4	RFS HYBRIFLEX 1 1/4	80.00 - 100.00	0.6000	0.5547
T6	6	1-5/8" + 6x12 HCS	80.00 - 100.00	0.6000	0.5547
T6	8	WR-VG122S	80.00 - 100.00	0.6000	0.5547
T6	9	WR-VG122S	80.00 - 100.00	0.6000	0.5547
T6	10	FB-L98B-002-100000	80.00 - 100.00	0.6000	0.5547
T6	12	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.5547
T6	13	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.5547
T6	14	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.5547
T6	15	Safety Line 3/8	80.00 - 100.00	0.6000	0.5547
T7	2	3" Rigid Conduit	60.00 - 80.00	0.6000	0.5798
T7	3	VXL5-50 (7/8 FOAM)	60.00 - 80.00	0.6000	0.5798
T7	4	RFS HYBRIFLEX 1 1/4	60.00 - 80.00	0.6000	0.5798
T7	6	1-5/8" + 6x12 HCS	60.00 - 80.00	0.6000	0.5798
T7	8	WR-VG122S	60.00 - 80.00	0.6000	0.5798
T7	9	WR-VG122S	60.00 - 80.00	0.6000	0.5798
T7	10	FB-L98B-002-100000	60.00 - 80.00	0.6000	0.5798
T7	12	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.5798
T7	13	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.5798
T7	14	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.5798
T7	15	Safety Line 3/8	60.00 - 80.00	0.6000	0.5798
T8	2	3" Rigid Conduit	40.00 - 60.00	0.6000	0.6000
T8	3	VXL5-50 (7/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	4	RFS HYBRIFLEX 1 1/4	40.00 - 60.00	0.6000	0.6000
T8	6	1-5/8" + 6x12 HCS	40.00 - 60.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	8	WR-VG122S	40.00 - 60.00	0.6000	0.6000
T8	9	WR-VG122S	40.00 - 60.00	0.6000	0.6000
T8	10	FB-L98B-002-100000	40.00 - 60.00	0.6000	0.6000
T8	12	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	13	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	14	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	15	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T9	2	3" Rigid Conduit	20.00 - 40.00	0.6000	0.5692
T9	3	VXL5-50 (7/8 FOAM)	20.00 - 40.00	0.6000	0.5692
T9	4	RFS HYBRIFLEX 1 1/4	20.00 - 40.00	0.6000	0.5692
T9	6	1-5/8" + 6x12 HCS	20.00 - 40.00	0.6000	0.5692
T9	8	WR-VG122S	20.00 - 40.00	0.6000	0.5692
T9	9	WR-VG122S	20.00 - 40.00	0.6000	0.5692
T9	10	FB-L98B-002-100000	20.00 - 40.00	0.6000	0.5692
T9	12	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.5692
T9	13	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.5692
T9	14	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.5692
T9	15	Safety Line 3/8	20.00 - 40.00	0.6000	0.5692
T10	2	3" Rigid Conduit	6.00 - 20.00	0.6000	0.6000
T10	3	VXL5-50 (7/8 FOAM)	6.00 - 20.00	0.6000	0.6000
T10	4	RFS HYBRIFLEX 1 1/4	6.00 - 20.00	0.6000	0.6000
T10	6	1-5/8" + 6x12 HCS	6.00 - 20.00	0.6000	0.6000
T10	8	WR-VG122S	6.00 - 20.00	0.6000	0.6000
T10	9	WR-VG122S	6.00 - 20.00	0.6000	0.6000
T10	10	FB-L98B-002-100000	6.00 - 20.00	0.6000	0.6000
T10	12	Feedline Ladder (Af)	6.00 - 20.00	0.6000	0.6000
T10	13	Feedline Ladder (Af)	6.00 - 20.00	0.6000	0.6000
T10	14	Feedline Ladder (Af)	6.00 - 20.00	0.6000	0.6000
T10	15	Safety Line 3/8	6.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Lightening Rod 2"x15'	B	From Leg	0.50	0.0000	138.00	No Ice	3.00	3.00	80.00
			0.00			1/2" Ice	4.53	4.53	103.14
			7.50			1" Ice	6.07	6.07	135.79
***									
Omni 2"x7'	A	From Leg	3.00	0.0000	138.00	No Ice	1.40	1.40	30.00
			0.00			1/2" Ice	2.13	2.13	40.00
			5.00			1" Ice	2.86	2.86	50.00
Omni 2"x7'	B	From Leg	3.00	0.0000	138.00	No Ice	1.40	1.40	30.00
			0.00			1/2" Ice	2.13	2.13	40.00
			5.00			1" Ice	2.86	2.86	50.00
Omni 2"x7'	C	From Leg	3.00	0.0000	138.00	No Ice	1.40	1.40	30.00
			0.00			1/2" Ice	2.13	2.13	40.00
			5.00			1" Ice	2.86	2.86	50.00
3' Side Mount Standoff	A	From Leg	1.50	0.0000	138.00	No Ice	1.50	1.50	40.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	100.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
3' Side Mount Standoff	B	From Leg	1.50	0.0000	138.00	No Ice	1.50	1.50	40.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	100.00
3' Side Mount Standoff	C	From Leg	1.50	0.0000	138.00	No Ice	1.50	1.50	40.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	100.00
***									
3' Side Mount Standoff	C	From Leg	1.50	0.0000	135.00	No Ice	1.50	1.50	40.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	100.00
***									
Omni 3"x20'	A	From Leg	3.00	0.0000	120.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	90.00
			10.00			1" Ice	10.06	10.06	140.00
Omni 3"x20'	B	From Leg	3.00	0.0000	120.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	90.00
			10.00			1" Ice	10.06	10.06	140.00
Omni 3"x20'	C	From Leg	3.00	0.0000	120.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	90.00
			10.00			1" Ice	10.06	10.06	140.00
***									
AIR 6449 B41 W/ MOUNT PIPE	A	From Leg	3.00	0.0000	120.00	No Ice	5.95	3.36	118.60
			0.00			1/2" Ice	6.33	3.83	168.39
(T-MOBILE)			0.00			1" Ice	6.72	4.32	223.69
AIR 6449 B41 W/ MOUNT PIPE	B	From Leg	3.00	0.0000	120.00	No Ice	5.95	3.36	118.60
			0.00			1/2" Ice	6.33	3.83	168.39
(T-MOBILE)			0.00			1" Ice	6.72	4.32	223.69
AIR 6449 B41 W/ MOUNT PIPE	C	From Leg	3.00	0.0000	120.00	No Ice	5.95	3.36	118.60
			0.00			1/2" Ice	6.33	3.83	168.39
(T-MOBILE)			0.00			1" Ice	6.72	4.32	223.69
AIR32 B2A/B66A W/ MOUNT PIPE	A	From Leg	3.00	0.0000	120.00	No Ice	6.58	5.90	150.45
			0.00			1/2" Ice	6.97	6.56	209.55
(T-MOBILE)			0.00			1" Ice	7.37	7.24	275.40
AIR32 B2A/B66A W/ MOUNT PIPE	B	From Leg	3.00	0.0000	120.00	No Ice	6.58	5.90	150.45
			0.00			1/2" Ice	6.97	6.56	209.55
(T-MOBILE)			0.00			1" Ice	7.37	7.24	275.40
AIR32 B2A/B66A W/ MOUNT PIPE	C	From Leg	3.00	0.0000	120.00	No Ice	6.58	5.90	150.45
			0.00			1/2" Ice	6.97	6.56	209.55
(T-MOBILE)			0.00			1" Ice	7.37	7.24	275.40
AIR32 B2A/B66A	A	From Leg	3.00	0.0000	120.00	No Ice	6.51	4.71	132.20
(T-MOBILE)			0.00			1/2" Ice	6.89	5.07	178.02
			0.00			1" Ice	7.27	5.43	229.11
AIR32 B2A/B66A	B	From Leg	3.00	0.0000	120.00	No Ice	6.51	4.71	132.20
(T-MOBILE)			0.00			1/2" Ice	6.89	5.07	178.02
			0.00			1" Ice	7.27	5.43	229.11
AIR32 B2A/B66A	C	From Leg	3.00	0.0000	120.00	No Ice	6.51	4.71	132.20
(T-MOBILE)			0.00			1/2" Ice	6.89	5.07	178.02
			0.00			1" Ice	7.27	5.43	229.11
APXVAARR24_43-U-NA20 W/ MOUNT PIPE	A	From Leg	3.00	0.0000	120.00	No Ice	20.24	10.79	157.20
			0.00			1/2" Ice	20.89	12.21	290.89
(T-MOBILE)			0.00			1" Ice	21.55	13.49	435.20
APXVAARR24_43-U-NA20 W/ MOUNT PIPE	B	From Leg	3.00	0.0000	120.00	No Ice	20.24	10.79	157.20
			0.00			1/2" Ice	20.89	12.21	290.89
(T-MOBILE)			0.00			1" Ice	21.55	13.49	435.20
APXVAARR24_43-U-NA20 W/ MOUNT PIPE	C	From Leg	3.00	0.0000	120.00	No Ice	20.24	10.79	157.20
			0.00			1/2" Ice	20.89	12.21	290.89
(T-MOBILE)			0.00			1" Ice	21.55	13.49	435.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
GENERIC TWIN STYLE 1B	A	From Leg	3.00	0.0000	120.00	No Ice	0.40	0.16	10.00
- TWIN AWS			0.00			1/2" Ice	0.49	0.22	10.00
(T-MOBILE)			0.00			1" Ice	0.57	0.28	20.00
GENERIC TWIN STYLE 1B	B	From Leg	3.00	0.0000	120.00	No Ice	0.40	0.16	10.00
- TWIN AWS			0.00			1/2" Ice	0.49	0.22	10.00
(T-MOBILE)			0.00			1" Ice	0.57	0.28	20.00
GENERIC TWIN STYLE 1B	C	From Leg	3.00	0.0000	120.00	No Ice	0.40	0.16	10.00
- TWIN AWS			0.00			1/2" Ice	0.49	0.22	10.00
(T-MOBILE)			0.00			1" Ice	0.57	0.28	20.00
RADIO 4449 B71+B85	A	From Leg	3.00	0.0000	120.00	No Ice	1.63	1.00	74.00
(T-MOBILE)			0.00			1/2" Ice	1.79	1.13	89.91
			0.00			1" Ice	1.95	1.27	108.43
RADIO 4449 B71+B85	B	From Leg	3.00	0.0000	120.00	No Ice	1.63	1.00	74.00
(T-MOBILE)			0.00			1/2" Ice	1.79	1.13	89.91
			0.00			1" Ice	1.95	1.27	108.43
RADIO 4449 B71+B85	C	From Leg	3.00	0.0000	120.00	No Ice	1.63	1.00	74.00
(T-MOBILE)			0.00			1/2" Ice	1.79	1.13	89.91
			0.00			1" Ice	1.95	1.27	108.43
RADIO 4415 B25	A	From Leg	3.00	0.0000	120.00	No Ice	1.84	0.82	46.00
(T-MOBILE)			0.00			1/2" Ice	2.01	0.94	60.07
			0.00			1" Ice	2.19	1.07	76.66
RADIO 4415 B25	B	From Leg	3.00	0.0000	120.00	No Ice	1.84	0.82	46.00
(T-MOBILE)			0.00			1/2" Ice	2.01	0.94	60.07
			0.00			1" Ice	2.19	1.07	76.66
RADIO 4415 B25	C	From Leg	3.00	0.0000	120.00	No Ice	1.84	0.82	46.00
(T-MOBILE)			0.00			1/2" Ice	2.01	0.94	60.07
			0.00			1" Ice	2.19	1.07	76.66
VFA12-WLL-30120	A	From Leg	0.00	0.0000	120.00	No Ice	13.20	9.20	660.00
(T-MOBILE)			0.00			1/2" Ice	19.50	14.60	800.00
			0.00			1" Ice	25.80	19.50	1010.00
VFA12-WLL-30120	B	From Leg	0.00	0.0000	120.00	No Ice	13.20	9.20	660.00
(T-MOBILE)			0.00			1/2" Ice	19.50	14.60	800.00
			0.00			1" Ice	25.80	19.50	1010.00
VFA12-WLL-30120	C	From Leg	0.00	0.0000	120.00	No Ice	13.20	9.20	660.00
(T-MOBILE)			0.00			1/2" Ice	19.50	14.60	800.00
			0.00			1" Ice	25.80	19.50	1010.00
10'-P2.5x0.276	A	From Leg	3.00	0.0000	120.00	No Ice	2.88	2.88	60.00
(T-MOBILE)			0.00			1/2" Ice	3.91	3.91	80.00
			0.00			1" Ice	4.96	4.96	110.00
10'-P2.5x0.276	B	From Leg	3.00	0.0000	120.00	No Ice	2.88	2.88	60.00
(T-MOBILE)			0.00			1/2" Ice	3.91	3.91	80.00
			0.00			1" Ice	4.96	4.96	110.00
10'-P2.5x0.276	C	From Leg	3.00	0.0000	120.00	No Ice	2.88	2.88	60.00
(T-MOBILE)			0.00			1/2" Ice	3.91	3.91	80.00
			0.00			1" Ice	4.96	4.96	110.00
(2) 10.5'-P2x0.154	A	From Leg	3.00	0.0000	120.00	No Ice	2.49	2.49	40.00
(T-MOBILE)			0.00			1/2" Ice	3.57	3.57	60.00
			0.00			1" Ice	4.67	4.67	80.00
(2) 10.5'-P2x0.154	B	From Leg	3.00	0.0000	120.00	No Ice	2.49	2.49	40.00
(T-MOBILE)			0.00			1/2" Ice	3.57	3.57	60.00
			0.00			1" Ice	4.67	4.67	80.00
(2) 10.5'-P2x0.154	C	From Leg	3.00	0.0000	120.00	No Ice	2.49	2.49	40.00
(T-MOBILE)			0.00			1/2" Ice	3.57	3.57	60.00
			0.00			1" Ice	4.67	4.67	80.00
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Nokia AAHC w/pipe	A	From Leg	4.00	0.0000	100.00	No Ice	4.39	2.73	120.00
			0.00			1/2" Ice	4.70	3.11	160.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	5.02	3.51	210.00
Nokia AAHC w/pipe	B	From Leg	4.00	0.0000	100.00	No Ice	4.39	2.73	120.00
			0.00			1/2" Ice	4.70	3.11	160.00
			0.00			1" Ice	5.02	3.51	210.00
Nokia AAHC w/pipe	C	From Leg	4.00	0.0000	100.00	No Ice	4.39	2.73	120.00
			0.00			1/2" Ice	4.70	3.11	160.00
			0.00			1" Ice	5.02	3.51	210.00
Andrew-Commscope	A	From Leg	4.00	0.0000	100.00	No Ice	12.56	7.76	130.00
NNV-65B-R4 w/pipe			0.00			1/2" Ice	13.14	8.80	230.00
			0.00			1" Ice	13.70	9.69	330.00
Andrew-Commscope	B	From Leg	4.00	0.0000	100.00	No Ice	12.56	7.76	130.00
NNV-65B-R4 w/pipe			0.00			1/2" Ice	13.14	8.80	230.00
			0.00			1" Ice	13.70	9.69	330.00
Andrew-Commscope	C	From Leg	4.00	0.0000	100.00	No Ice	12.56	7.76	130.00
NNV-65B-R4 w/pipe			0.00			1/2" Ice	13.14	8.80	230.00
			0.00			1" Ice	13.70	9.69	330.00
RRH4x45-19	A	From Leg	4.00	0.0000	100.00	No Ice	2.31	2.38	60.00
			0.00			1/2" Ice	2.52	2.58	80.00
			0.00			1" Ice	2.73	2.79	110.00
RRH4x45-19	B	From Leg	4.00	0.0000	100.00	No Ice	2.31	2.38	60.00
			0.00			1/2" Ice	2.52	2.58	80.00
			0.00			1" Ice	2.73	2.79	110.00
RRH4x45-19	C	From Leg	4.00	0.0000	100.00	No Ice	2.31	2.38	60.00
			0.00			1/2" Ice	2.52	2.58	80.00
			0.00			1" Ice	2.73	2.79	110.00
(2) FD-RRH-2x50-800	A	From Leg	4.00	0.0000	100.00	No Ice	1.36	3.01	50.00
			0.00			1/2" Ice	1.52	3.22	80.00
			0.00			1" Ice	1.68	3.45	100.00
(2) FD-RRH-2x50-800	B	From Leg	4.00	0.0000	100.00	No Ice	1.36	3.01	50.00
			0.00			1/2" Ice	1.52	3.22	80.00
			0.00			1" Ice	1.68	3.45	100.00
(2) FD-RRH-2x50-800	C	From Leg	4.00	0.0000	100.00	No Ice	1.36	3.01	50.00
			0.00			1/2" Ice	1.52	3.22	80.00
			0.00			1" Ice	1.68	3.45	100.00
6'-P4x0.237	A	From Leg	4.00	0.0000	100.00	No Ice	1.77	0.03	60.00
			0.00			1/2" Ice	2.62	0.04	80.00
			0.00			1" Ice	3.00	0.06	110.00
6'-P4x0.237	B	From Leg	4.00	0.0000	100.00	No Ice	1.77	0.03	60.00
			0.00			1/2" Ice	2.62	0.04	80.00
			0.00			1" Ice	3.00	0.06	110.00
6'-P4x0.237	C	From Leg	4.00	0.0000	100.00	No Ice	1.77	0.03	60.00
			0.00			1/2" Ice	2.62	0.04	80.00
			0.00			1" Ice	3.00	0.06	110.00
5'xP3x0.216 H	A	From Leg	4.00	0.0000	100.00	No Ice	1.86	0.03	40.00
			0.00			1/2" Ice	2.28	0.04	60.00
			0.00			1" Ice	2.71	0.06	70.00
5'xP3x0.216 H	B	From Leg	4.00	0.0000	100.00	No Ice	1.86	0.03	40.00
			0.00			1/2" Ice	2.28	0.04	60.00
			0.00			1" Ice	2.71	0.06	70.00
5'xP3x0.216 H	C	From Leg	4.00	0.0000	100.00	No Ice	1.86	0.03	40.00
			0.00			1/2" Ice	2.28	0.04	60.00
			0.00			1" Ice	2.71	0.06	70.00
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80010799 w/ Mount Pipe	A	From Leg	4.00	0.0000	110.00	No Ice	9.91	6.15	140.00
(AT&T)			0.00			1/2" Ice	10.67	6.87	240.00
			0.00			1" Ice	11.44	7.60	360.00
80010799 w/ Mount Pipe	B	From Leg	4.00	0.0000	110.00	No Ice	9.91	6.15	140.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(AT&T)			0.00				1/2" Ice	10.67	6.87	240.00
			0.00				1" Ice	11.44	7.60	360.00
80010799 w/ Mount Pipe	C	From Leg	4.00		0.0000	110.00	No Ice	9.91	6.15	140.00
(AT&T)			0.00				1/2" Ice	10.67	6.87	240.00
			0.00				1" Ice	11.44	7.60	360.00
RRUS 4415 B25	A	From Leg	4.00		0.0000	110.00	No Ice	1.64	0.68	40.00
(AT&T)			0.00				1/2" Ice	1.80	0.79	60.00
			0.00				1" Ice	1.97	0.91	70.00
RRUS 4415 B25	B	From Leg	4.00		0.0000	110.00	No Ice	1.64	0.68	40.00
(AT&T)			0.00				1/2" Ice	1.80	0.79	60.00
			0.00				1" Ice	1.97	0.91	70.00
RRUS 4415 B25	C	From Leg	4.00		0.0000	110.00	No Ice	1.64	0.68	40.00
(AT&T)			0.00				1/2" Ice	1.80	0.79	60.00
			0.00				1" Ice	1.97	0.91	70.00
RRUS 32	A	From Leg	4.00		0.0000	110.00	No Ice	2.86	1.78	60.00
(AT&T)			0.00				1/2" Ice	3.08	1.97	80.00
			0.00				1" Ice	3.32	2.17	100.00
RRUS 32	B	From Leg	4.00		0.0000	110.00	No Ice	2.86	1.78	60.00
(AT&T)			0.00				1/2" Ice	3.08	1.97	80.00
			0.00				1" Ice	3.32	2.17	100.00
RRUS 32	C	From Leg	4.00		0.0000	110.00	No Ice	2.86	1.78	60.00
(AT&T)			0.00				1/2" Ice	3.08	1.97	80.00
			0.00				1" Ice	3.32	2.17	100.00
OPA65R-BU8DA w/ Mount Pipe	A	From Leg	4.00		0.0000	110.00	No Ice	18.09	10.10	110.00
			0.00				1/2" Ice	18.72	11.52	230.00
(AT&T)			0.00				1" Ice	19.36	12.80	360.00
OPA65R-BU8DA w/ Mount Pipe	B	From Leg	4.00		0.0000	110.00	No Ice	18.09	10.10	110.00
			0.00				1/2" Ice	18.72	11.52	230.00
(AT&T)			0.00				1" Ice	19.36	12.80	360.00
OPA65R-BU8DA w/ Mount Pipe	C	From Leg	4.00		0.0000	110.00	No Ice	18.09	10.10	110.00
			0.00				1/2" Ice	18.72	11.52	230.00
(AT&T)			0.00				1" Ice	19.36	12.80	360.00
DMP65R-BU8DA w/ Mount Pipe	A	From Leg	4.00		0.0000	110.00	No Ice	17.87	10.02	120.00
			0.00				1/2" Ice	18.50	11.44	240.00
(AT&T)			0.00				1" Ice	19.14	12.72	370.00
DMP65R-BU8DA w/ Mount Pipe	B	From Leg	4.00		0.0000	110.00	No Ice	17.87	10.02	120.00
			0.00				1/2" Ice	18.50	11.44	240.00
(AT&T)			0.00				1" Ice	19.14	12.72	370.00
DMP65R-BU8DA w/ Mount Pipe	C	From Leg	4.00		0.0000	110.00	No Ice	17.87	10.02	120.00
			0.00				1/2" Ice	18.50	11.44	240.00
(AT&T)			0.00				1" Ice	19.14	12.72	370.00
RRUS E2 B92	A	From Leg	4.00		0.0000	110.00	No Ice	3.15	1.29	60.00
(AT&T)			0.00				1/2" Ice	3.36	1.44	80.00
			0.00				1" Ice	3.59	1.60	110.00
RRUS E2 B92	B	From Leg	4.00		0.0000	110.00	No Ice	3.15	1.29	60.00
(AT&T)			0.00				1/2" Ice	3.36	1.44	80.00
			0.00				1" Ice	3.59	1.60	110.00
RRUS E2 B92	C	From Leg	4.00		0.0000	110.00	No Ice	3.15	1.29	60.00
(AT&T)			0.00				1/2" Ice	3.36	1.44	80.00
			0.00				1" Ice	3.59	1.60	110.00
RRUS 8843 B2/B66A	A	From Leg	4.00		0.0000	110.00	No Ice	1.64	1.35	70.00
(AT&T)			0.00				1/2" Ice	1.80	1.50	90.00
			0.00				1" Ice	1.97	1.65	110.00
RRUS 8843 B2/B66A	B	From Leg	4.00		0.0000	110.00	No Ice	1.64	1.35	70.00
(AT&T)			0.00				1/2" Ice	1.80	1.50	90.00
			0.00				1" Ice	1.97	1.65	110.00
RRUS 8843 B2/B66A	C	From Leg	4.00		0.0000	110.00	No Ice	1.64	1.35	70.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(AT&T)			0.00			1/2" Ice	1.80	1.50	90.00
			0.00			1" Ice	1.97	1.65	110.00
RRUS 4478 B14	A	From Leg	4.00	0.0000	110.00	No Ice	1.84	1.06	60.00
(AT&T)			0.00			1/2" Ice	2.01	1.20	80.00
			0.00			1" Ice	2.19	1.34	90.00
RRUS 4478 B14	B	From Leg	4.00	0.0000	110.00	No Ice	1.84	1.06	60.00
(AT&T)			0.00			1/2" Ice	2.01	1.20	80.00
			0.00			1" Ice	2.19	1.34	90.00
RRUS 4478 B14	C	From Leg	4.00	0.0000	110.00	No Ice	1.84	1.06	60.00
(AT&T)			0.00			1/2" Ice	2.01	1.20	80.00
			0.00			1" Ice	2.19	1.34	90.00
RRUS 4449 B5/12	A	From Leg	4.00	0.0000	110.00	No Ice	1.97	1.41	70.00
(AT&T)			0.00			1/2" Ice	2.14	1.56	90.00
			0.00			1" Ice	2.33	1.73	110.00
RRUS 4449 B5/12	B	From Leg	4.00	0.0000	110.00	No Ice	1.97	1.41	70.00
(AT&T)			0.00			1/2" Ice	2.14	1.56	90.00
			0.00			1" Ice	2.33	1.73	110.00
RRUS 4449 B5/12	C	From Leg	4.00	0.0000	110.00	No Ice	1.97	1.41	70.00
(AT&T)			0.00			1/2" Ice	2.14	1.56	90.00
			0.00			1" Ice	2.33	1.73	110.00
DC9-48-60-24-8C-EV	A	From Leg	4.00	0.0000	110.00	No Ice	2.74	4.78	30.00
(AT&T)			0.00			1/2" Ice	2.96	5.06	60.00
			0.00			1" Ice	3.20	5.35	100.00
DC9-48-60-24-8C-EV	B	From Leg	4.00	0.0000	110.00	No Ice	2.74	4.78	30.00
(AT&T)			0.00			1/2" Ice	2.96	5.06	60.00
			0.00			1" Ice	3.20	5.35	100.00
DC9-48-60-24-8C-EV	C	From Leg	4.00	0.0000	110.00	No Ice	2.74	4.78	30.00
(AT&T)			0.00			1/2" Ice	2.96	5.06	60.00
			0.00			1" Ice	3.20	5.35	100.00
SABRE 12' V-BOOM	A	From Leg	0.00	0.0000	110.00	No Ice	15.40	14.00	560.00
(AT&T)			0.00			1/2" Ice	21.30	20.81	740.00
			0.00			1" Ice	27.20	27.62	920.00
SABRE 12' V-BOOM	B	From Leg	0.00	0.0000	110.00	No Ice	15.40	14.00	560.00
(AT&T)			0.00			1/2" Ice	21.30	20.81	740.00
			0.00			1" Ice	27.20	27.62	920.00
SABRE 12' V-BOOM	C	From Leg	0.00	0.0000	110.00	No Ice	15.40	14.00	560.00
(AT&T)			0.00			1/2" Ice	21.30	20.81	740.00
			0.00			1" Ice	27.20	27.62	920.00
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Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
VHLP1	A	Paraboloid w/Radome	From Leg	2.00	0.0000		135.00	1.25	No Ice	1.23	10.00
				0.00					1/2" Ice	1.40	30.00
				0.00					1" Ice	1.57	40.00
VHLP2-11	A	Paraboloid	From	4.00	0.0000		100.00	2.00	No Ice	3.14	50.00

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight lb
		w/Radome	Leg	0.00					1/2" Ice	3.41	70.00
				0.00					1" Ice	3.67	90.00
VHLP1	A	Paraboloid	From	2.00	0.0000		95.00	1.25	No Ice	1.23	10.00
		w/Radome	Leg	0.00					1/2" Ice	1.40	30.00
				0.00					1" Ice	1.57	40.00
VHLP1	B	Paraboloid	From	2.00	0.0000		95.00	1.25	No Ice	1.23	10.00
		w/Radome	Leg	0.00					1/2" Ice	1.40	30.00
				0.00					1" Ice	1.57	40.00
VHLP2-11	A	Paraboloid w/o	From	2.00	0.0000		100.00	2.17	No Ice	3.72	30.00
		Radome	Leg	0.00					1/2" Ice	4.01	50.00
				0.00					1" Ice	4.30	70.00
HP4-102	A	Paraboloid	From	3.00	0.0000		105.00	4.00	No Ice	12.57	80.00
		w/Shroud (HP)	Leg	0.00					1/2" Ice	13.10	100.00
				0.00					1" Ice	13.62	200.00

Truss-Leg Properties

Section Designation	Area in²	Area Ice in²	Self Weight lb	Ice Weight lb	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in²
Pirod 105218	2263.4687	7294.0816	754.52	2139.58	7.8593	25.3267	7.2158
Pirod 105219	2441.8688	7138.3308	944.27	1840.96	8.4787	24.7859	9.4248

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice

Comb. No.	Description
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	18	249047.28	21758.84	-13336.59
	Max. H_x	18	249047.28	21758.84	-13336.59
	Max. H_z	7	-210172.29	-18833.02	11647.85
	Min. Vert	7	-210172.29	-18833.02	11647.85
	Min. H_x	7	-210172.29	-18833.02	11647.85
	Min. H_z	18	249047.28	21758.84	-13336.59
Leg B	Max. Vert	10	251298.12	-22599.33	-13118.17
	Max. H_x	23	-216923.43	19760.07	11525.57
	Max. H_z	23	-216923.43	19760.07	11525.57
	Min. Vert	23	-216923.43	19760.07	11525.57
	Min. H_x	10	251298.12	-22599.33	-13118.17
	Min. H_z	10	251298.12	-22599.33	-13118.17
Leg A	Max. Vert	2	262303.81	-1201.83	27149.29
	Max. H_x	21	11182.57	1589.02	889.82
	Max. H_z	2	262303.81	-1201.83	27149.29
	Min. Vert	15	-227261.21	1183.75	-24065.33
	Min. H_x	8	14831.20	-1642.41	1194.68
	Min. H_z	15	-227261.21	1183.75	-24065.33

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft

Load Combination	*Vertical*	*Shear$_x$*	*Shear$_z$*	*Overturning Moment, M$_x$*	*Overturning Moment, M$_z$*	*Torque*
	lb	*lb*	*lb*	*lb-ft*	*lb-ft*	*lb-ft*
Dead Only	35630.38	0.01	0.00	-4541.36	16576.72	0.02
1.2 Dead+1.6 Wind 0 deg - No Ice	42756.46	-5.03	-40718.04	-3437104.55	20563.10	-32965.40
0.9 Dead+1.6 Wind 0 deg - No Ice	32067.34	-5.03	-40718.24	-3431324.82	15544.00	-32937.98
1.2 Dead+1.6 Wind 30 deg - No Ice	42756.46	18269.78	-31987.69	-2759718.27	-1549263.42	-23500.30
0.9 Dead+1.6 Wind 30 deg - No Ice	32067.34	18269.87	-31987.86	-2754760.50	-1552238.61	-23472.61
1.2 Dead+1.6 Wind 60 deg - No Ice	42756.46	30910.22	-18083.20	-1561804.14	-2632468.86	-18881.11
0.9 Dead+1.6 Wind 60 deg - No Ice	32067.34	30910.38	-18083.29	-1558404.59	-2634037.19	-18862.34
1.2 Dead+1.6 Wind 90 deg - No Ice	42756.46	36536.30	-24.19	-8023.53	-3089904.07	-18253.83
0.9 Dead+1.6 Wind 90 deg - No Ice	32067.34	36536.48	-24.20	-6645.70	-3090902.57	-18248.89
1.2 Dead+1.6 Wind 120 deg - No Ice	42756.46	33668.78	20020.63	1692190.91	-2815748.62	-2078.80
0.9 Dead+1.6 Wind 120 deg - No Ice	32067.34	33668.94	20020.73	1691380.40	-2817127.21	-2088.66
1.2 Dead+1.6 Wind 150 deg - No Ice	42756.46	19537.49	34450.93	2903949.26	-1623053.02	20378.63
0.9 Dead+1.6 Wind 150 deg - No Ice	32067.34	19537.58	34451.10	2901581.50	-1625965.91	20356.71
1.2 Dead+1.6 Wind 180 deg - No Ice	42756.46	-1.42	38868.29	3300039.03	20226.07	33000.99
0.9 Dead+1.6 Wind 180 deg - No Ice	32067.34	-1.43	38868.48	3297136.40	15205.66	32971.29
1.2 Dead+1.6 Wind 210 deg - No Ice	42756.46	-18278.56	32260.55	2777157.66	1590527.08	23234.69
0.9 Dead+1.6 Wind 210 deg - No Ice	32067.34	-18278.66	32260.71	2774902.73	1583466.06	23206.78
1.2 Dead+1.6 Wind 240 deg - No Ice	42756.46	-32676.05	19441.67	1658832.03	2798994.98	18313.69
0.9 Dead+1.6 Wind 240 deg - No Ice	32067.34	-32676.22	19441.77	1658048.16	2790381.07	18287.48
1.2 Dead+1.6 Wind 270 deg - No Ice	42755.97	-36548.48	-26.13	-8212.17	3131089.52	18221.14
0.9 Dead+1.6 Wind 270 deg - No Ice	32067.34	-36548.97	-26.38	-6837.46	3122044.94	18217.09
1.2 Dead+1.6 Wind 300 deg - No Ice	42756.46	-31922.92	-18666.24	-1595474.29	2731155.70	2618.14
0.9 Dead+1.6 Wind 300 deg - No Ice	32067.34	-31923.08	-18666.33	-1592046.67	2722632.07	2627.66
1.2 Dead+1.6 Wind 330 deg - No Ice	42756.46	-19545.38	-34182.87	-2886849.85	1663566.67	-20079.54
0.9 Dead+1.6 Wind 330 deg - No Ice	32067.34	-19545.48	-34183.04	-2881778.16	1656439.89	-20058.04
1.2 Dead+1.0 Ice+1.0 Temp	152960.18	0.44	0.12	-40098.03	97107.12	0.29
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	152960.18	-0.98	-10474.32	-948587.76	97306.12	-8328.51
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	152960.18	5005.04	-8720.41	-803723.27	-340473.57	-7665.29
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	152960.18	8594.52	-4997.04	-477538.81	-653925.88	-6265.01
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	152960.18	10200.03	-2.46	-40398.46	-785882.91	-5300.94
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	152960.18	9175.20	5387.57	423761.09	-689805.75	-1476.26
1.2 Dead+1.0 Wind 150	152960.18	5251.05	9189.14	752878.62	-354893.05	4715.96

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	152960.18	-0.26	10323.63	858658.27	97254.65	8334.07
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	152960.18	-5006.73	8764.08	728085.97	535133.99	7624.53
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	152960.18	-8752.10	5142.16	409461.06	859637.01	6183.51
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	152960.18	-10202.47	-2.90	-40413.41	980548.61	5294.97
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	152960.18	-9021.50	-5243.26	-491910.11	873332.41	1554.46
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	152960.18	-5252.58	-9146.42	-828599.11	549419.54	-4667.80
Dead+Wind 0 deg - Service	35630.38	-0.89	-7225.93	-613042.46	16737.79	-5848.27
Dead+Wind 30 deg - Service	35630.38	3242.22	-5676.62	-492906.94	-261603.09	-4170.26
Dead+Wind 60 deg - Service	35630.38	5485.43	-3209.10	-280505.04	-453668.32	-3348.74
Dead+Wind 90 deg - Service	35630.38	6483.84	-4.30	-4999.45	-534766.30	-3236.57
Dead+Wind 120 deg - Service	35630.38	5974.95	3552.91	296472.35	-486183.33	-369.97
Dead+Wind 150 deg - Service	35630.38	3467.18	6113.77	511322.41	-274695.43	3610.41
Dead+Wind 180 deg - Service	35630.38	-0.25	6897.69	581554.71	16675.60	5853.25
Dead+Wind 210 deg - Service	35630.38	-3243.76	5725.06	488834.89	295113.07	4122.96
Dead+Wind 240 deg - Service	35630.38	-5798.78	3450.17	290555.85	509404.97	3248.04
Dead+Wind 270 deg - Service	35630.38	-6486.05	-4.69	-5033.22	568273.70	3230.99
Dead+Wind 300 deg - Service	35630.38	-5665.14	-3312.57	-286482.66	497371.45	465.87
Dead+Wind 330 deg - Service	35630.38	-3468.58	-6066.19	-515468.75	308070.36	-3557.32

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	-0.00	-35630.38	0.00	-0.01	35630.38	-0.00	0.000%
2	-5.03	-42756.46	-40718.76	5.03	42756.46	40718.04	0.001%
3	-5.03	-32067.35	-40718.76	5.03	32067.34	40718.24	0.001%
4	18270.19	-42756.46	-31988.31	-18269.78	42756.46	31987.69	0.001%
5	18270.19	-32067.35	-31988.31	-18269.87	32067.34	31987.86	0.001%
6	30910.87	-42756.46	-18083.58	-30910.22	42756.46	18083.20	0.001%
7	30910.87	-32067.35	-18083.58	-30910.38	32067.34	18083.29	0.001%
8	36537.01	-42756.46	-24.25	-36536.30	42756.46	24.19	0.001%
9	36537.01	-32067.35	-24.25	-36536.48	32067.34	24.20	0.001%
10	33669.37	-42756.46	20020.99	-33668.78	42756.46	-20020.63	0.001%
11	33669.37	-32067.35	20020.99	-33668.94	32067.34	-20020.73	0.001%
12	19537.81	-42756.46	34451.62	-19537.49	42756.46	-34450.93	0.001%
13	19537.81	-32067.35	34451.62	-19537.58	32067.34	-34451.10	0.001%
14	-1.43	-42756.46	38869.10	1.42	42756.46	-38868.29	0.001%
15	-1.43	-32067.35	38869.10	1.43	32067.34	-38868.48	0.001%
16	-18278.88	-42756.46	32261.22	18278.56	42756.46	-32260.55	0.001%
17	-18278.88	-32067.35	32261.22	18278.66	32067.34	-32260.71	0.001%
18	-32676.65	-42756.46	19442.03	32676.05	42756.46	-19441.67	0.001%
19	-32676.65	-32067.35	19442.03	32676.22	32067.34	-19441.77	0.001%
20	-36549.50	-42756.46	-26.43	36548.48	42755.97	26.13	0.002%
21	-36549.50	-32067.35	-26.43	36548.97	32067.34	26.38	0.001%
22	-31923.59	-42756.46	-18666.63	31922.92	42756.46	18666.24	0.001%
23	-31923.59	-32067.35	-18666.63	31923.08	32067.34	18666.33	0.001%
24	-19545.81	-42756.46	-34183.50	19545.38	42756.46	34182.87	0.001%
25	-19545.81	-32067.35	-34183.50	19545.48	32067.34	34183.04	0.001%
26	-0.00	-152960.18	0.00	-0.44	152960.18	-0.12	0.000%
27	-1.00	-152960.18	-10474.52	0.98	152960.18	10474.32	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
28	5005.11	-152960.18	-8720.58	-5005.04	152960.18	8720.41	0.000%
29	8594.66	-152960.18	-4997.14	-8594.52	152960.18	4997.04	0.000%
30	10200.19	-152960.18	-2.47	-10200.03	152960.18	2.46	0.000%
31	9175.34	-152960.18	5387.66	-9175.20	152960.18	-5387.57	0.000%
32	5251.12	-152960.18	9189.30	-5251.05	152960.18	-9189.14	0.000%
33	-0.28	-152960.18	10323.82	0.26	152960.18	-10323.63	0.000%
34	-5006.85	-152960.18	8764.24	5006.73	152960.18	-8764.08	0.000%
35	-8752.29	-152960.18	5142.25	8752.10	152960.18	-5142.16	0.000%
36	-10202.68	-152960.18	-2.91	10202.47	152960.18	2.90	0.000%
37	-9021.69	-152960.18	-5243.36	9021.50	152960.18	5243.26	0.000%
38	-5252.70	-152960.18	-9146.59	5252.58	152960.18	9146.42	0.000%
39	-0.89	-35630.38	-7226.04	0.89	35630.38	7225.93	0.000%
40	3242.27	-35630.38	-5676.72	-3242.22	35630.38	5676.62	0.000%
41	5485.51	-35630.38	-3209.15	-5485.43	35630.38	3209.10	0.000%
42	6483.94	-35630.38	-4.30	-6483.84	35630.38	4.30	0.000%
43	5975.04	-35630.38	3552.97	-5974.95	35630.38	-3552.91	0.000%
44	3467.22	-35630.38	6113.86	-3467.18	35630.38	-6113.77	0.000%
45	-0.25	-35630.38	6897.80	0.25	35630.38	-6897.69	0.000%
46	-3243.81	-35630.38	5725.15	3243.76	35630.38	-5725.06	0.000%
47	-5798.87	-35630.38	3450.23	5798.78	35630.38	-3450.17	0.000%
48	-6486.16	-35630.38	-4.69	6486.05	35630.38	4.69	0.000%
49	-5665.23	-35630.38	-3312.62	5665.14	35630.38	3312.57	0.000%
50	-3468.64	-35630.38	-6066.28	3468.58	35630.38	6066.19	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	9	0.00000001	0.00008504
3	Yes	9	0.00000001	0.00006144
4	Yes	9	0.00000001	0.00009268
5	Yes	9	0.00000001	0.00006902
6	Yes	9	0.00000001	0.00009950
7	Yes	9	0.00000001	0.00007557
8	Yes	9	0.00000001	0.00009285
9	Yes	9	0.00000001	0.00006918
10	Yes	9	0.00000001	0.00008522
11	Yes	9	0.00000001	0.00006165
12	Yes	9	0.00000001	0.00009317
13	Yes	9	0.00000001	0.00006945
14	Yes	9	0.00000001	0.00009999
15	Yes	9	0.00000001	0.00007602
16	Yes	9	0.00000001	0.00009302
17	Yes	9	0.00000001	0.00006934
18	Yes	9	0.00000001	0.00008534
19	Yes	9	0.00000001	0.00006176
20	Yes	9	0.00000001	0.00009286
21	Yes	9	0.00000001	0.00006918
22	Yes	9	0.00000001	0.00009960
23	Yes	9	0.00000001	0.00007566
24	Yes	9	0.00000001	0.00009284
25	Yes	9	0.00000001	0.00006913
26	Yes	8	0.00000001	0.00013899
27	Yes	10	0.00000001	0.00006770
28	Yes	10	0.00000001	0.00006464

29	Yes	10	0.00000001	0.00006207
30	Yes	10	0.00000001	0.00006032
31	Yes	10	0.00000001	0.00006104
32	Yes	10	0.00000001	0.00006335
33	Yes	10	0.00000001	0.00006587
34	Yes	10	0.00000001	0.00006730
35	Yes	10	0.00000001	0.00006873
36	Yes	10	0.00000001	0.00007010
37	Yes	10	0.00000001	0.00007099
38	Yes	10	0.00000001	0.00006999
39	Yes	9	0.00000001	0.00007030
40	Yes	9	0.00000001	0.00007063
41	Yes	9	0.00000001	0.00007128
42	Yes	9	0.00000001	0.00007015
43	Yes	9	0.00000001	0.00006962
44	Yes	9	0.00000001	0.00007111
45	Yes	9	0.00000001	0.00007233
46	Yes	9	0.00000001	0.00007102
47	Yes	9	0.00000001	0.00007004
48	Yes	9	0.00000001	0.00007089
49	Yes	9	0.00000001	0.00007208
50	Yes	9	0.00000001	0.00007136

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
T1	140 - 120	2.287	39	0.1212	0.0216
T2	120 - 115	1.777	39	0.1205	0.0209
T3	115 - 110	1.643	39	0.1197	0.0205
T4	110 - 105	1.519	39	0.1183	0.0199
T5	105 - 100	1.387	39	0.1159	0.0192
T6	100 - 80	1.264	39	0.1123	0.0183
T7	80 - 60	0.808	39	0.0926	0.0148
T8	60 - 40	0.456	39	0.0679	0.0104
T9	40 - 20	0.201	39	0.0457	0.0059
T10	20 - 0	0.052	39	0.0197	0.0028

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	°	°	*ft*
138.00	Lightening Rod 2"x15'	39	2.237	0.1212	0.0215	203974
135.00	VHLP1	39	2.163	0.1212	0.0215	203974
120.00	Omni 3"x20'	39	1.777	0.1205	0.0209	255968
110.00	80010799 w/ Mount Pipe	39	1.519	0.1183	0.0199	37373
105.00	HP4-102	39	1.387	0.1159	0.0192	30658
100.00	VHLP2-11	39	1.264	0.1123	0.0183	80006
95.00	VHLP1	39	1.145	0.1081	0.0174	140072

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	140 - 120	12.847	2	0.6826	0.1218
T2	120 - 115	9.975	2	0.6784	0.1177
T3	115 - 110	9.223	2	0.6735	0.1157
T4	110 - 105	8.522	2	0.6649	0.1124
T5	105 - 100	7.780	2	0.6514	0.1084
T6	100 - 80	7.089	2	0.6306	0.1034
T7	80 - 60	4.533	2	0.5194	0.0836
T8	60 - 40	2.560	2	0.3804	0.0586
T9	40 - 20	1.129	2	0.2559	0.0333
T10	20 - 0	0.295	2	0.1103	0.0158

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.00	Lightening Rod 2"x15'	2	12.568	0.6827	0.1215	35395
135.00	VHLP1	2	12.149	0.6827	0.1210	35395
120.00	Omni 3"x20'	2	9.975	0.6784	0.1177	47372
110.00	80010799 w/ Mount Pipe	2	8.522	0.6649	0.1124	6430
105.00	HP4-102	2	7.780	0.6514	0.1084	5367
100.00	VHLP2-11	2	7.089	0.6306	0.1034	14391
95.00	VHLP1	2	6.420	0.6064	0.0984	23640

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T2	120	Leg	A325N	0.6250	6	1226.05	20708.70	0.059 ✔	1	Bolt Tension
T4	110	Diagonal	A325N	0.6250	1	6588.15	9993.75	0.659 ✔	1	Member Block Shear
T5	105	Diagonal	A325N	0.6250	1	7288.51	9993.75	0.729 ✔	1	Member Block Shear
T6	100	Leg	A325N	0.7500	6	7814.40	29820.60	0.262 ✔	1	Bolt Tension
T7	80	Leg	A325N	0.8750	6	17946.60	40589.10	0.442 ✔	1	Bolt Tension
T8	60	Leg	A325N	1.0000	6	24206.20	53014.40	0.457 ✔	1	Bolt Tension
T9	40	Leg	A325N	1.0000	6	29904.20	53014.40	0.564 ✔	1	Bolt Tension
T10	20	Leg	A325N	1.0000	6	34669.60	53014.40	0.654 ✔	1	Bolt Tension

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	140 - 120	2 1/4	20.00	5.00	106.7 K=1.00	3.9761	-5554.16	77870.40	0.071 [1] ✔
T2	120 - 115	2 1/4	5.00	5.00	106.7 K=1.00	3.9761	-14724.50	77870.40	0.189 [1] ✔
T3	115 - 110	2 1/4	5.00	5.00	106.7 K=1.00	3.9761	-19156.60	77870.40	0.246 [1] ✔
T4	110 - 105	2 1/4	5.00	5.00	106.7 K=1.00	3.9761	-30027.20	77870.40	0.386 [1] ✔
T5	105 - 100	2 1/4	5.00	5.00	106.7 K=1.00	3.9761	-43550.40	77870.40	0.559 [1] ✔
T6	100 - 80	2 3/4	20.00	5.00	87.3 K=1.00	5.9396	-109206.00	153147.00	0.713 [1] ✔
T7	80 - 60	3	20.03	5.01	80.1 K=1.00	7.0686	-156512.00	198902.00	0.787 [1] ✔
T8	60 - 40	3 1/4	20.03	5.01	74.0 K=1.00	8.2958	-194178.00	250223.00	0.776 [1] ✔
T9	40 - 20	Pirod 105218	20.03	10.02	32.4 K=1.00	7.2158	-222106.00	300681.00	0.739 [1] ✔
T10	20 - 0	Pirod 105219	20.03	10.02	28.4 K=1.00	9.4248	-253020.00	399868.00	0.633 [1] ✔

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n lb	A in^2	V_u lb	ϕV_n lb	Stress Ratio
T9	40 - 20	0.5	1.46	119.0	324713.00	0.1963	778.00	3377.71	0.230 ✔
T10	20 - 0	0.625	1.45	94.4	424115.00	0.3068	940.72	6957.62	0.135 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	140 - 120	L1 3/4x1 3/4x1/8	9.43	4.61	150.1 K=0.94	0.4219	-1521.30	4232.90	0.359 [1] ✔
T2	120 - 115	L1 3/4x1 3/4x1/4	9.43	4.61	152.0 K=0.94	0.8125	-3528.45	7945.36	0.444 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T3	115 - 110	L1 3/4x1 3/4x1/4	9.43	4.61	152.0 K=0.94	0.8125	-3985.14	7945.36	0.502 [1]
T4	110 - 105	L2x2x1/4	9.43	4.47	137.2 K=1.00	0.9380	-6572.42	11254.40	0.584 [1]
T5	105 - 100	L2x2x1/4	9.43	4.47	137.2 K=1.00	0.9380	-7291.56	11254.40	0.648 [1]
T6	100 - 80	L2 1/2x2 1/2x5/16	9.43	4.58	114.3 K=1.02	1.4600	-10066.00	23771.20	0.423 [1]
T7	80 - 60	L2 1/2x2 1/2x5/16	10.52	5.26	127.0 K=0.98	1.4600	-6753.48	20250.00	0.334 [1]
T8	60 - 40	L2 1/2x2 1/2x5/16	12.31	6.15	143.5 K=0.95	1.4600	-7096.32	16013.10	0.443 [1]
T9	40 - 20	L3x3x5/16	16.80	8.09	154.2 K=0.94	1.7800	-8597.07	16911.90	0.508 [1]
T10	20 - 0	L3x3x5/16	18.45	8.93	167.2 K=0.92	1.7800	-10266.90	14387.30	0.714 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	140 - 120	L3x3x3/8	8.00	7.81	144.4 K=0.90	2.1100	-274.08	22853.70	0.012 [1]

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	140 - 120	2 1/4	20.00	5.00	106.7	3.9761	3133.23	178924.00	0.018 [1]
T2	120 - 115	2 1/4	5.00	5.00	106.7	3.9761	7356.28	178924.00	0.041 [1]
T3	115 - 110	2 1/4	5.00	5.00	106.7	3.9761	13426.90	178924.00	0.075 [1]
T4	110 - 105	2 1/4	5.00	5.00	106.7	3.9761	22165.10	178924.00	0.124 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T5	105 - 100	2 1/4	5.00	5.00	106.7	3.9761	33924.20	178924.00	0.190 [1] ✔
T6	100 - 80	2 3/4	20.00	5.00	87.3	5.9396	94235.30	267281.00	0.353 [1] ✔
T7	80 - 60	3	20.03	5.01	80.1	7.0686	136859.00	318086.00	0.430 [1] ✔
T8	60 - 40	3 1/4	20.03	5.01	74.0	8.2958	169766.00	373310.00	0.455 [1] ✔
T9	40 - 20	Pirod 105218	20.03	10.02	32.4	7.2158	193740.00	324713.00	0.597 [1] ✔
T10	20 - 0	Pirod 105219	20.03	10.02	28.4	9.4248	219729.00	424115.00	0.518 [1] ✔

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n lb	A in^2	V_u lb	ϕV_n lb	Stress Ratio
T9	40 - 20	0.5	1.46	119.0	324713.00	0.1963	778.00	3377.71	0.230 ✔
T10	20 - 0	0.625	1.45	94.4	424115.00	0.3068	940.72	6957.62	0.135 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	140 - 120	L1 3/4x1 3/4x1/8	9.43	4.61	101.3	0.4219	1407.79	13668.80	0.103 [1] ✔
T2	120 - 115	L1 3/4x1 3/4x1/4	9.43	4.61	104.5	0.8125	3531.44	26325.00	0.134 [1] ✔
T3	115 - 110	L1 3/4x1 3/4x1/4	9.43	4.61	104.5	0.8125	3968.87	26325.00	0.151 [1] ✔
T4	110 - 105	L2x2x1/4	9.43	4.47	90.8	0.5629	6588.15	24485.10	0.269 [1] ✔
T5	105 - 100	L2x2x1/4	9.43	4.47	90.8	0.5629	7288.51	24485.10	0.298 [1] ✔
T6	100 - 80	L2 1/2x2 1/2x5/16	9.43	4.58	72.3	1.4600	9783.31	47304.00	0.207 [1] ✔
T7	80 - 60	L2 1/2x2 1/2x5/16	10.08	5.04	79.5	1.4600	6799.64	47304.00	0.144 [1] ✔
T8	60 - 40	L2 1/2x2 1/2x5/16	12.77	6.37	100.5	1.4600	6914.65	47304.00	0.146 [1] ✔
T9	40 - 20	L3x3x5/16	16.80	8.09	105.3	1.7800	7986.81	57672.00	0.138 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	L3x3x5/16	18.45	8.93	116.2	1.7800	9281.67	57672.00	0.161 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	140 - 120	L3x3x3/8	8.00	7.81	102.7	2.1100	221.80	68364.00	0.003 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	140 - 120	Leg	2 1/4	1	-5554.16	77870.40	7.1	Pass
T2	120 - 115	Leg	2 1/4	31	-14724.50	77870.40	18.9	Pass
T3	115 - 110	Leg	2 1/4	40	-19156.60	77870.40	24.6	Pass
T4	110 - 105	Leg	2 1/4	49	-30027.20	77870.40	38.6	Pass
T5	105 - 100	Leg	2 1/4	60	-43550.40	77870.40	55.9	Pass
T6	100 - 80	Leg	2 3/4	69	-109206.00	153147.00	71.3	Pass
T7	80 - 60	Leg	3	96	-156512.00	198902.00	78.7	Pass
T8	60 - 40	Leg	3 1/4	123	-194178.00	250223.00	77.6	Pass
T9	40 - 20	Leg	Pirod 105218	150	-222106.00	300681.00	73.9	Pass
T10	20 - 0	Leg	Pirod 105219	165	-253020.00	399868.00	63.3	Pass
							65.4 (b)	
T1	140 - 120	Diagonal	L1 3/4x1 3/4x1/8	11	-1521.30	4232.90	35.9	Pass
T2	120 - 115	Diagonal	L1 3/4x1 3/4x1/4	38	-3528.45	7945.36	44.4	Pass
T3	115 - 110	Diagonal	L1 3/4x1 3/4x1/4	48	-3985.14	7945.36	50.2	Pass
T4	110 - 105	Diagonal	L2x2x1/4	56	-6572.42	11254.40	58.4	Pass
							65.9 (b)	
T5	105 - 100	Diagonal	L2x2x1/4	66	-7291.56	11254.40	64.8	Pass
							72.9 (b)	
T6	100 - 80	Diagonal	L2 1/2x2 1/2x5/16	75	-10066.00	23771.20	42.3	Pass
T7	80 - 60	Diagonal	L2 1/2x2 1/2x5/16	107	-6753.48	20250.00	33.4	Pass
T8	60 - 40	Diagonal	L2 1/2x2 1/2x5/16	134	-7096.32	16013.10	44.3	Pass
T9	40 - 20	Diagonal	L3x3x5/16	155	-8597.07	16911.90	50.8	Pass
T10	20 - 0	Diagonal	L3x3x5/16	170	-10266.90	14387.30	71.4	Pass
T1	140 - 120	Top Girt	L3x3x3/8	6	-274.08	22853.70	1.2	Pass
							Summary	
							Leg (T7) 78.7	Pass
							Diagonal (T5) 72.9	Pass
							Top Girt (T1) 1.2	Pass
							Bolt Checks 72.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						RATING =	**78.7**	**Pass**

Exhibit E

Date: 6/11/2020

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

Subject:	**Mount Structural Analysis Report**	
T-Mobile Designation:	**Site Name:**	CT737/E Hartford Town SST
	Site Number:	CT11737C
EFI Designation:	**Project Number:**	049.00426 - 2075021
Site Data:	**100 Sunset Ridge Road, East Hartford, CT 06118** **Latitude 41° 46' 19.1", Longitude -72° 35' 25.5"**	

EFI Global, Inc. is pleased to submit this **"Mount Structural Analysis Report"** to determine the structural capacity of the antenna mounts 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 mounts to have:

Existing + Proposed Equipment	**Adequate Capacity (78.1%)**
Note: See Analysis Criteria for loading configuration	**after replacement**

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

We at *EFI Global, Inc.* 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,
EFI Global, Inc.
License No: PEC0001245

6/11/2020

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

EFI Global, Inc.
1117 Perimeter Center West, Suite E500, Atlanta, GA 30338 - 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	120’
Structure Type	Self-Support Tower
Exposure Category	C
Basic Wind Speed (3-Second Gust)	125 * √0.6 = 97 mph (Nominal)
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 AIR32 B66A B2A – Antennas
3	Ericsson AIR21 B2A B4P – Antennas
3	RFS APXVAARR24-43-U-NA20 – Antennas
3	Generic Twin Style 1B AWS – TMAs
3	Radio 4449 B71 + B85 – RRHs
3	20’ Omni (by others)

Table 1.2 – Proposed and Final Appurtenance Configuration

Qty	Model
3	Ericsson AIR6449 B41 – Antennas
3	Ericsson AIR32 B66A B2A – Antennas
3	Ericsson AIR21 B2A B4P – Antennas
3	RFS APXVAARR24-43-U-NA20 – Antennas
3	Generic Twin Style 1B AWS – TMAs*
3	Radio 4449 B71 + B85 – RRHs*
3	Radio 4415 B25 – RRHs*
3	20’ Omni (by others)
-	Valmont/Site Pro 1 Heavy Duty Sector Mounts (P/N: VFA12-WLL-30120)

***To be mounted behind antennas**

EFI Global, Inc.
1117 Perimeter Center West, Suite E500, Atlanta, GA 30338 - Tel: (770) 693-0835

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	05/20/2020
Construction Drawings	Northeast Site Solutions	07/23/2018
Structural Analysis Report	Destek Engineering	08/18/2018
Site Photos	-	05/03/2020

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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 500 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.
8) Member sizes per the available mount specifications 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.

EFI Global, Inc. (EFI), 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	46.4	Pass
Horizontal Standoff Pipe	45.2	Pass
Vertical Standoff Solid Rod	74.9	Pass
Diagonal Standoff Solid Rod	42.5	Pass
Antenna Mount Pipe	78.1	Pass
Connection Plates	58.9	Pass
Pipe Kicker	<20.0	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 **78.1%** of their structural capacity.

EFI Global, Inc. has assumed that Valmont/Site Pro 1 Heavy Duty Sector Mounts (P/N: VFA12-WLL-30120, Specs attached) 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.**
- **(5) 120" long 2.5 STD mount pipes are equally spaced along the face.**
- **The (2) tieback arms are attached directly to the adjacent mount's tower legs.**

APPENDIX

INPUT LOADS
ANALYSIS OUTPUT
MOUNT SPECS

EFI Global, Inc.
1117 Perimeter Center West, Suite E500, Atlanta, GA 30338 - Tel: (770) 693-0835

CLIENT: ForeSite LLC - T-Mobile

PROJECT: CT11737C

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

Tower Height	140.00	ft	Type of Mount: Sector
Basic Wind Speed, V	97	mph (=Ultimate Speed*Sqrt(0.6))	
Basic Wind Speed with Ice, V_i	50	mph	
Maintanence Load Factor, L_{FM}	0.0957	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	0.18	
S1	0.064	
Fa	1.6	
Fv	2.4	
R	3	Truss or Pole

CLIENT: ForeSite LLC - T-Mobile

PROJECT: CT11737C

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

Rad Center **120.00** 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	**120.00**	Ericsson AIR6449 B41	1	103.0	33.1	20.5	8.3	0.90	4.71	1.91	1.61	3.99	1.20	1.27	1.315	30.1	153.2	65.4	103	153	65	103	4	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					
																				77	**33**	**52**	**2**	**2**
Pos.2	**120.00**	Ericsson AIR32 B66A B2A	1	132.2	56.6	12.9	8.7	0.90	5.07	3.42	4.39	6.51	1.28	1.38	1.315	30.1	176.3	127.6	132.2	176	128	132	6	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					
																				89	**64**	**67**	**3**	**3**
Pos.3	**120.00**	Ericsson AIR21 B2A B4P	1	91.5	56.0	12.1	7.9	0.90	4.71	3.06	4.63	7.12	1.29	1.40	1.315	30.1	165.0	116.4	91.5	165	123	100	4	4
	120.00	Generic Twin Style 1B -AWS (ATMAP	1	8.4	10.1	N/A	2.8	0.90	-	0.20	-	3.61	-	1.25	1.315	30.1	0.0	6.6	8.4					
		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					
																				83	**62**	**50**	**2**	**2**
Pos.4	**120.00**	RFS APXVAARR24-43-U-NA20	1	153.3	95.9	24.0	8.7	0.90	15.98	5.79	4.00	11.02	1.27	1.53	1.315	30.1	548.2	240.7	153.3	548	302	271	11	10
	120.00	Radio 4449 B71+B85	1	73.2	17.9	N/A	10.6	0.90	-	1.32	-	1.68	-	1.20	1.315	30.1	0.0	43.0	73.21					
	120.00	Radio 4415 B25	1	44.0	15.0	N/A	5.4	0.90	-	0.56	-	2.78	-	1.21	1.315	30.1	0.0	18.4	44					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				275	**152**	**136**	**6**	**5**
Pos.5 (Fire department)	**120.00**	Andrew DB636-C	1	30.0	114.0	2.5	2.5	0.90	1.98	1.98	45.60	45.60	2.00	2.00	1.315	30.1	107.2	107.2	30	107	107	30	1	1
		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					
																				54	**54**	**15**	**1**	**1**

* 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 365

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)
	120.00	2.5 STD Pipe	12.00	2.88	0.00		1.20	1.315	27.1	7.8	-	-
	120.00	2 STD Pipe	12.00	2.38	0.00		1.20	1.315	27.1	6.4	-	-
	120.00	5/8" Solid Rod	12.00	0.63	0.00		1.20	1.315	27.1	1.7	-	-
	120.00	3/4" Solid Rod	12.00	0.75	0.00		1.20	1.315	27.1	2.0	-	-
	120.00	Angle Horizontal	0.00	0.00	0.00		-	-	-	-	-	-
	120.00	Angle Vertical	0.00	0.00	0.00		-	-	-	-	-	-
	120.00	Angle Diagonal	0.00	0.00	0.00		-	-	-	-	-	-
	120.00	Tube Standoff (4x4)	0.00	4.00	4.00		-	-	-	-	-	-
	120.00	Tube Horizontal	0.00	0.00	0.00		-	-	-	-	-	-
	120.00	5/8x3.5" Plate	12.00	0.63	3.50		2.00	1.315	27.1	2.8	-	-
	120.00	Double Angle	0.00	0.00	0.00		-	-	-	-	-	-
	120.00	Double Angle	0.00	0.00	0.00		-	-	-	-	-	-
	120.00	Channel (Weak Axis Bending)	0.00	0.00	0.00		-	-	-	-	-	-
	120.00	Channel (Strong Axis Bending)	0.00	0.00	0.00		-	-	-	-	-	-

* 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

CLIENT: ForeSite LLC - T-Mobile

PROJECT: CT11737C

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

ti (in) 2.275604 Kiz 1.1378021 reduction 0.2657

Antenna AND Mount With Ice

															Pounds							
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)	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	**120.00**	Ericsson AIR6449 B41	1	33.1	20.5	8.3	0.90	1.84	1.45	3.76	210.30	0.70	0.71	1.315	8.0	9.3	7.4	50.0	24.8	210	50	25	210
		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			
																					25	**13**	**106**
Pos.2	**120.00**	Ericsson AIR32 B66A B2A	1	56.6	12.9	8.7	0.90	2.34	2.21	4.51	252.42	0.72	0.75	1.315	8.0	12.2	11.9	59.0	45.8	252	59	46	252
		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			
																					30	**23**	**127**
Pos.3	**120.00**	Ericsson AIR21 B2A B4P	1	56.0	12.1	7.9	0.90	2.30	2.16	4.16	233.04	0.73	0.75	1.315	8.0	12.0	11.7	55.8	42.6	233	56	47	271
	120.00	Generic Twin Style 1B -AWS (ATMAP	1	10.1	8.7	2.8	0.90	-	0.55	0.68	38.28	0.70	0.70	1.315	8.0	0.0	2.8	0.0	4.5	38			
		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			
																					28	**24**	**136**
Pos.4	**120.00**	RFS APXVAARR24-43-U-NA20	1	95.9	24.0	8.7	0.90	3.93	3.45	10.41	582.70	0.70	0.70	1.315	8.0	19.8	17.4	165.5	81.3	583	165	107	774
	120.00	Radio 4449 B71+B85	1	17.9	13.2	10.6	0.90	-	1.05	2.05	114.72	0.70	0.70	1.315	8.0	0.0	5.3	0.0	16.7	115			
	120.00	Radio 4415 B25	1	15.0	13.2	5.4	0.90	-	0.79	1.38	77.05	0.70	0.70	1.315	8.0	0.0	4.0	0.0	8.8	77			
		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			
																					83	**54**	**388**
Pos.5 (Fire department)	**120.00**	Andrew DB636-C	1	114.0	2.5	2.5	0.90	3.83	3.83	3.00	167.93	1.02	1.02	1.315	8.0	28.0	28.0	56.5	56.5	168	57	57	168
		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			
																					29	**29**	**84**

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

** Ca will equal 1.2 for all ice load calculations

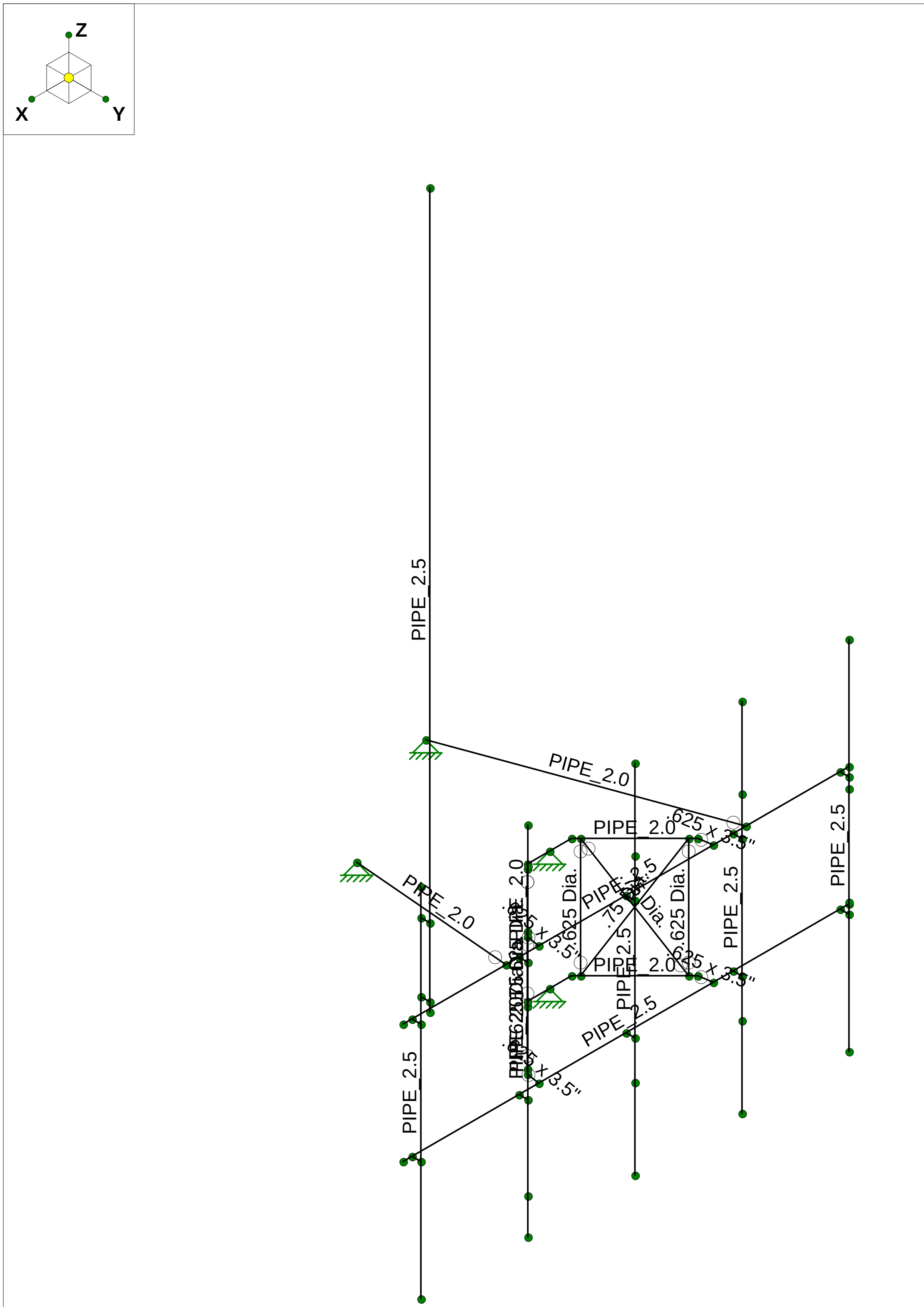
												PLF		
Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A_N (ft2)	Volume Ice (ft3)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q_z (psf)	Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	120.00	2.5 STD Pipe	12.00	2.88	0.00	0.61	0.26	14.33	1.20	1.315	7.2	5.3	7.4	14.3
	120.00	2 STD Pipe	12.00	2.38	0.00	0.60	0.23	12.94	1.20	1.315	7.2	5.2	6.9	12.9
	120.00	5/8" Solid Rod	12.00	0.63	0.00	0.54	0.14	8.06	1.20	1.315	7.2	4.7	5.1	8.1
	120.00	3/4" Solid Rod	12.00	0.75	0.00	0.55	0.15	8.41	1.20	1.315	7.2	4.7	5.3	8.4
	120.00	Angle Horizontal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	120.00	Angle Vertical	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	120.00	Angle Diagonal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	120.00	Tube Standoff (4x4)	0.00	4.00	4.00	-	-	-	-	-	-	-	-	-
	120.00	Tube Horizontal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	120.00	5/8x3.5" Plate	12.00	0.63	3.50	0.54	0.38	21.50	1.20	1.315	7.2	4.7	5.4	21.5
	120.00	Double Angle	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	120.00	Double Angle	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	120.00	Channel (Weak Axis Bending)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	120.00	Channel (Strong Axis Bending)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-

* 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

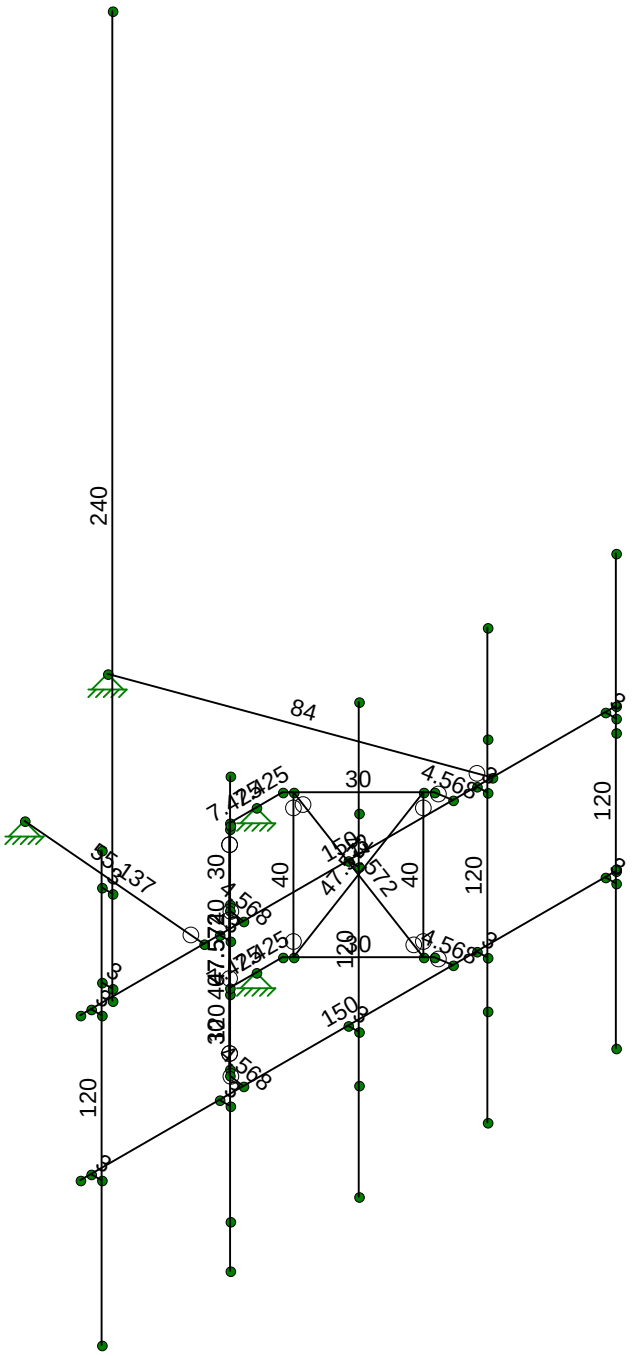
*** A_N is the area of ice built up on the LW plane

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



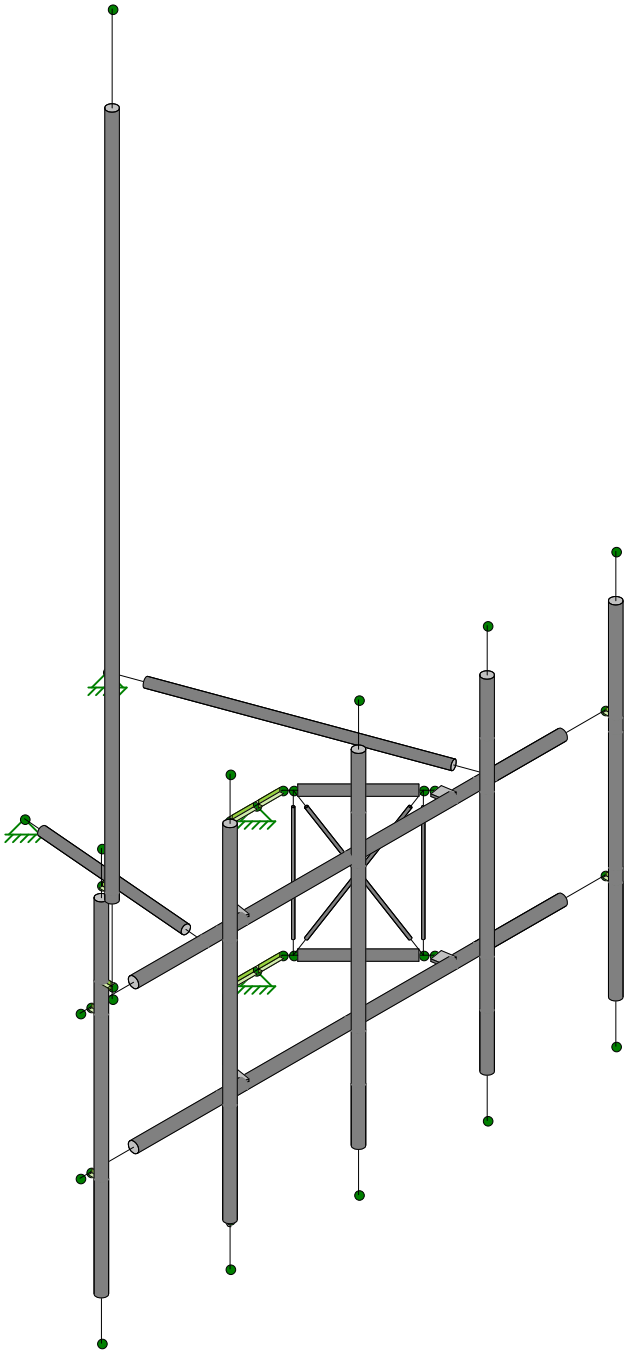
Envelope Only Solution

ForeSite LLC/T-Mobile	CT11737C	SK - 1
		June 9, 2020 at 8:30 AM
2075021		CT11737C - VFA12-WLL-30120.r3d



Member Length (in) Displayed
Envelope Only Solution

ForeSite LLC/T-Mobile	CT11737C	SK - 2
		June 9, 2020 at 8:31 AM
2075021		CT11737C - VFA12-WLL-30120.r3d



Envelope Only Solution

ForeSite LLC/T-Mobile	CT11737C	SK - 3
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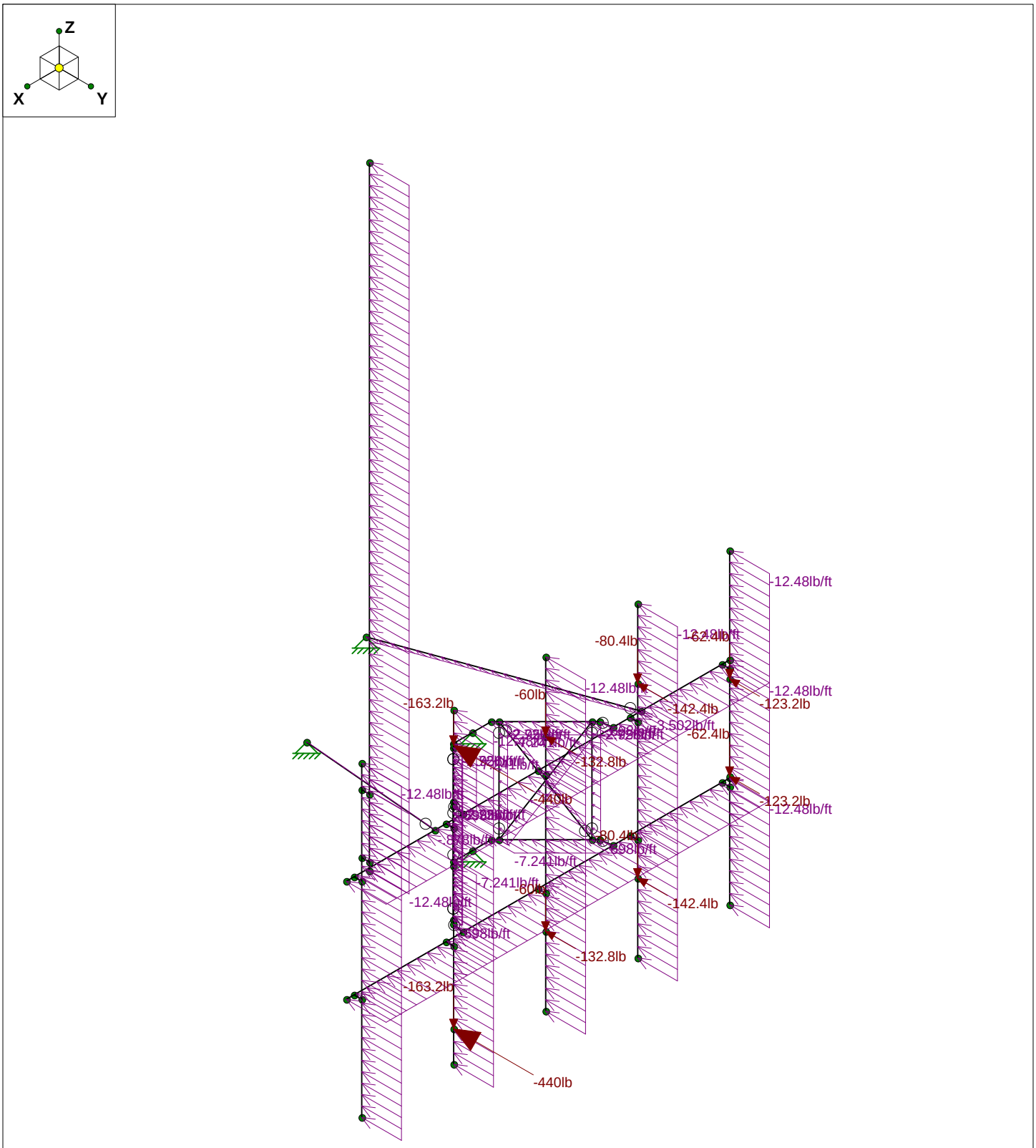

Loads: LC 1, DL + WL (NO ICE) 0 Degree
Envelope Only Solution

ForeSite LLC/T-Mobile	CT11737C	SK - 4
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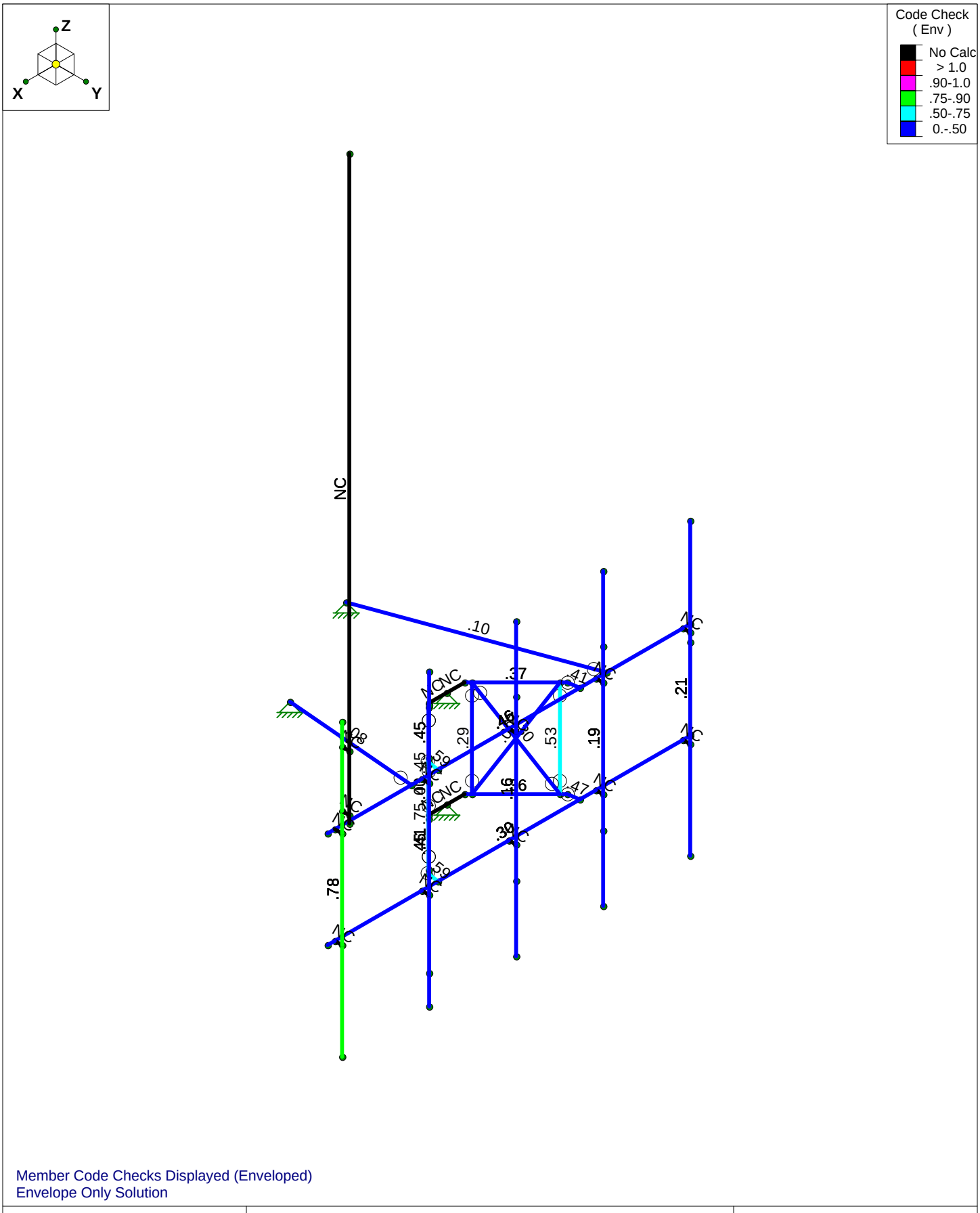

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

ForeSite LLC/T-Mobile	CT11737C	SK - 5
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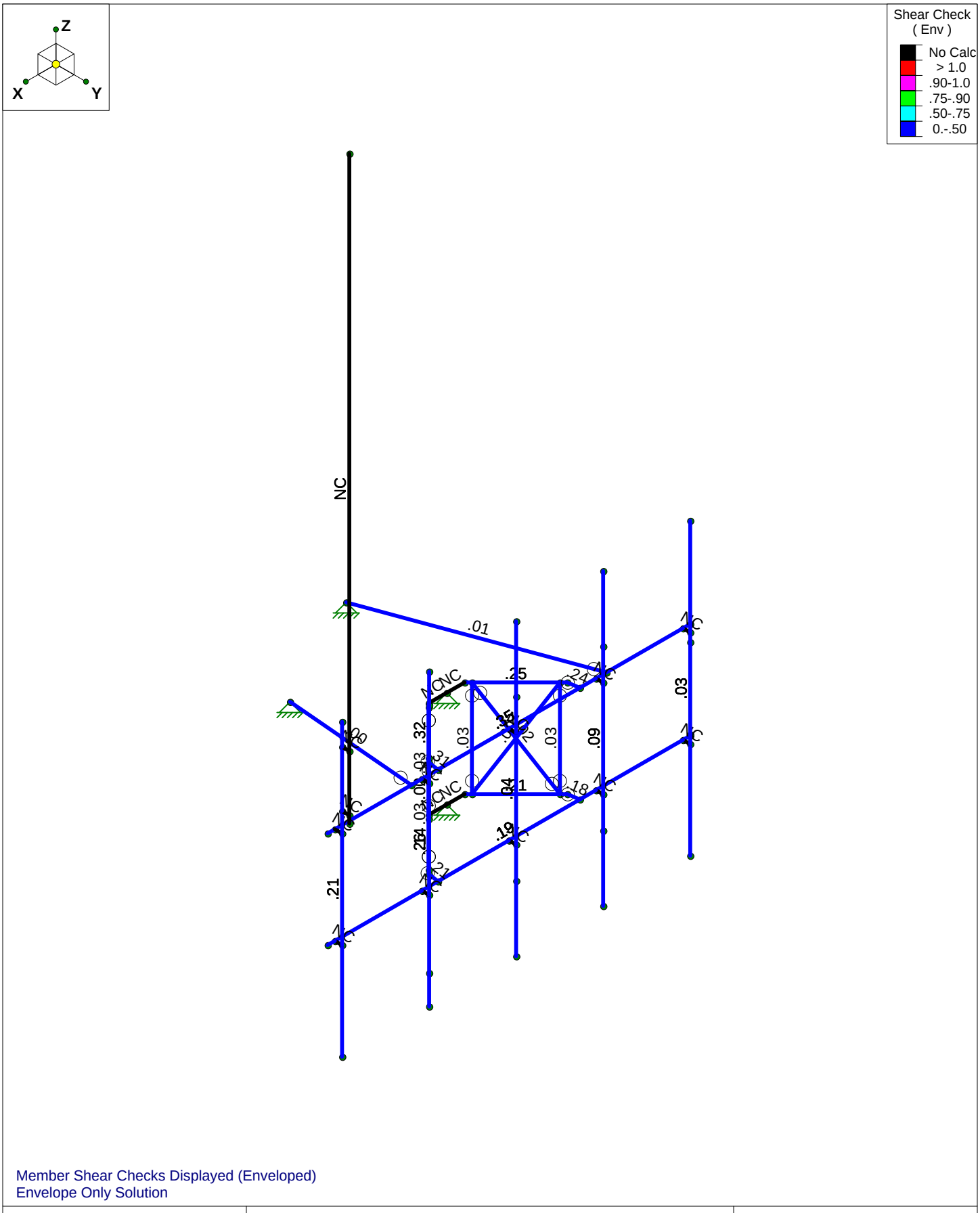

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

ForeSite LLC/T-Mobile	CT11737C	SK - 6
		June 9, 2020 at 8:32 AM
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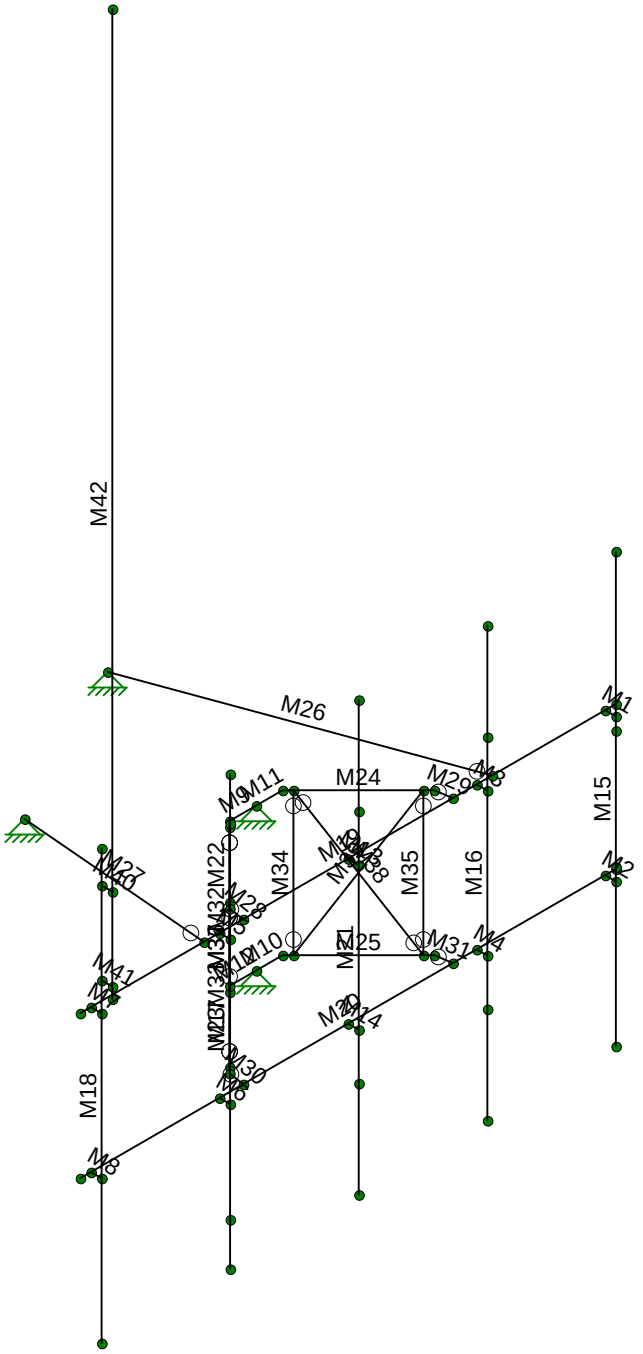

Envelope Only Solution

ForeSite LLC/T-Mobile	CT11737C	SK - 7
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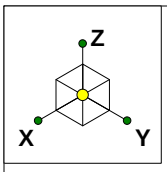
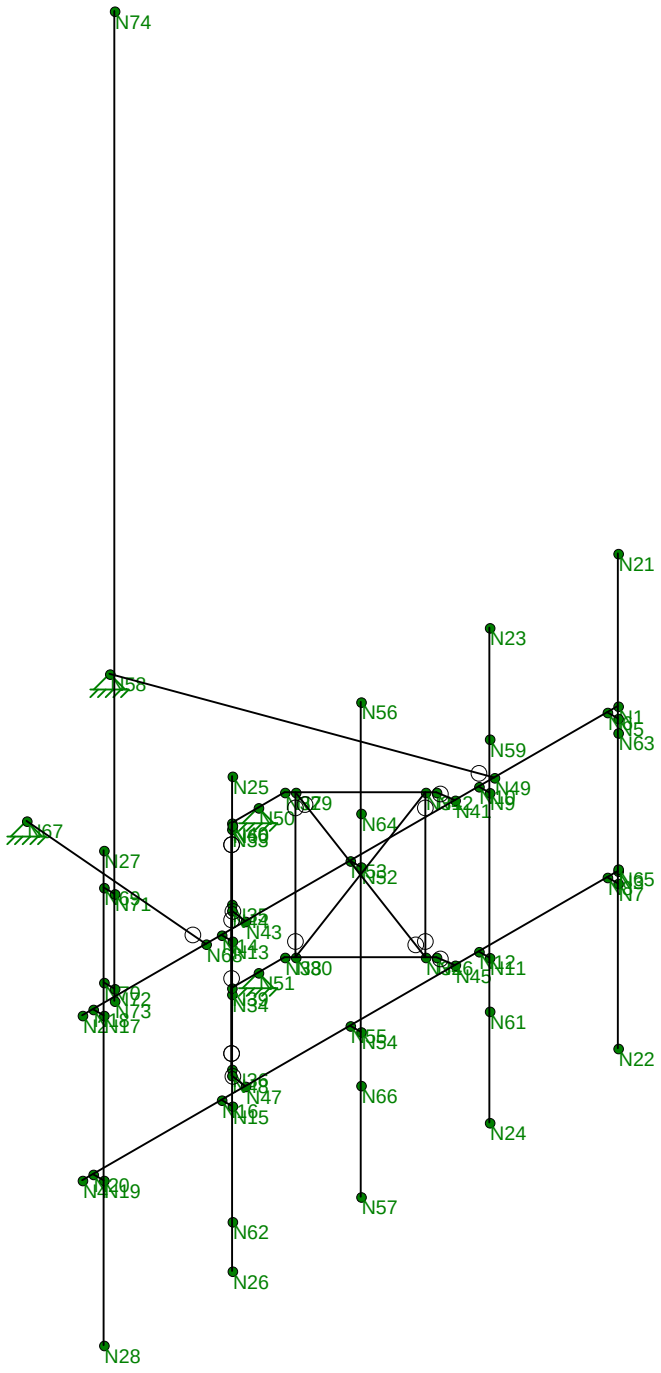




Envelope Only Solution

ForeSite LLC/T-Mobile	CT11737C	SK - 8
		June 9, 2020 at 8:33 AM
2075021		CT11737C - VFA12-WLL-30120.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Z
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): LRFD
Cold Formed Steel Code	AISI NAS-01: ASD
Wood Code	AF&PA NDS-05/08: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-05
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building AISC 14th(360-10): ASD

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-05
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.035
Ct Z	.035
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	8.5
R Z	8.5
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	Not Entered
Occupancy Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Project Grid Lines

	Label	Start X [in]	End X [in]	Start Y [in]	End Y [in]	Start Bubble	End Bubble
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

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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotat...	Section/Shape	Type	Design List	Material	Design...
1	M1	N5	N6			RIGID	None	None	LINK	Typical
2	M2	N7	N8			RIGID	None	None	LINK	Typical
3	M3	N9	N10			RIGID	None	None	LINK	Typical
4	M4	N11	N12			RIGID	None	None	LINK	Typical
5	M5	N13	N14			RIGID	None	None	LINK	Typical
6	M6	N15	N16			RIGID	None	None	LINK	Typical
7	M7	N17	N18			RIGID	None	None	LINK	Typical
8	M8	N19	N20			RIGID	None	None	LINK	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotat...	Section/Shape	Type	Design List	Material	Design...
9	M9	N40	N50			RIGID	None	None	LINK	Typical
10	M10	N38	N51			RIGID	None	None	LINK	Typical
11	M11	N50	N37			RIGID	None	None	LINK	Typical
12	M12	N51	N39			RIGID	None	None	LINK	Typical
13	M13	N52	N53			RIGID	None	None	LINK	Typical
14	M14	N54	N55			RIGID	None	None	LINK	Typical
15	M15	N21	N22			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
16	M16	N23	N24			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
17	M17	N25	N26			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
18	M18	N27	N28			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
19	M19	N1	N2			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
20	M20	N3	N4			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
21	M21	N56	N57			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
22	M22	N40	N44			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
23	M23	N39	N48			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
24	M24	N37	N42			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
25	M25	N38	N46			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
26	M26	N49	N58			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
27	M27	N68	N67			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
28	M28	N44	N43			.625 x 3.5"	None	None	A36 Gr.36	Typical
29	M29	N42	N41			.625 x 3.5"	None	None	A36 Gr.36	Typical
30	M30	N48	N47			.625 x 3.5"	None	None	A36 Gr.36	Typical
31	M31	N46	N45			.625 x 3.5"	None	None	A36 Gr.36	Typical
32	M32	N33	N34			.625 Dia.	Beam	BAR	A36 Gr.36	Typical
33	M33	N35	N36			.625 Dia.	Beam	BAR	A36 Gr.36	Typical
34	M34	N29	N30			.625 Dia.	Beam	BAR	A36 Gr.36	Typical
35	M35	N31	N32			.625 Dia.	Beam	BAR	A36 Gr.36	Typical
36	M36	N35	N34			.75 Dia.	Beam	BAR	A36 Gr.36	Typical
37	M37	N33	N36			.75 Dia.	Beam	BAR	A36 Gr.36	Typical
38	M38	N29	N32			.75 Dia.	Beam	BAR	A36 Gr.36	Typical
39	M39	N31	N30			.75 Dia.	Beam	BAR	A36 Gr.36	Typical
40	M40	N69	N71			RIGID	None	None	LINK	Typical
41	M41	N70	N72			RIGID	None	None	LINK	Typical
42	M42	N73	N74			PIPE_2.5	Beam	Wide Flange	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M1						Yes			None
2	M2						Yes			None
3	M3						Yes			None
4	M4						Yes			None
5	M5						Yes			None
6	M6						Yes			None
7	M7						Yes			None
8	M8						Yes			None
9	M9						Yes			None
10	M10						Yes			None
11	M11						Yes			None
12	M12						Yes			None
13	M13						Yes			None
14	M14						Yes			None
15	M15						Yes			None
16	M16						Yes			None
17	M17						Yes			None
18	M18						Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
19	M19						Yes			None
20	M20						Yes			None
21	M21						Yes			None
22	M22						Yes			None
23	M23						Yes			None
24	M24						Yes			None
25	M25						Yes			None
26	M26	BenPIN					Yes			None
27	M27	BenPIN					Yes			None
28	M28		BenPIN				Yes			None
29	M29		BenPIN				Yes			None
30	M30		BenPIN				Yes			None
31	M31		BenPIN				Yes			None
32	M32	BenPIN	BenPIN				Yes			None
33	M33	BenPIN	BenPIN				Yes			None
34	M34	BenPIN	BenPIN				Yes			None
35	M35	BenPIN	BenPIN				Yes			None
36	M36					Tension O...	Yes			None
37	M37	BenPIN	BenPIN				Yes			None
38	M38	BenPIN	BenPIN				Yes			None
39	M39					Tension O...	Yes			None
40	M40						Yes			None
41	M41						Yes			None
42	M42						Yes		Exclude	None

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	M15	PIPE_2.5	120									Lateral
2	M16	PIPE_2.5	120									Lateral
3	M17	PIPE_2.5	120									Lateral
4	M18	PIPE_2.5	120									Lateral
5	M19	PIPE_2.5	150									Lateral
6	M20	PIPE_2.5	150									Lateral
7	M21	PIPE_2.5	120									Lateral
8	M22	PIPE_2.0	30									Lateral
9	M23	PIPE_2.0	30									Lateral
10	M24	PIPE_2.0	30									Lateral
11	M25	PIPE_2.0	30									Lateral
12	M26	PIPE_2.0	84									Lateral
13	M27	PIPE_2.0	55.137									Lateral
14	M28	.625 x 3.5"	4.568									Lateral
15	M29	.625 x 3.5"	4.568									Lateral
16	M30	.625 x 3.5"	4.568									Lateral
17	M31	.625 x 3.5"	4.568									Lateral
18	M32	.625 Dia.	40	33.62	33.62				.7	.7		Lateral
19	M33	.625 Dia.	40	33.62	33.62				.7	.7		Lateral
20	M34	.625 Dia.	40	33.62	33.62				.7	.7		Lateral
21	M35	.625 Dia.	40	33.62	33.62				.7	.7		Lateral
22	M36	.75 Dia.	47.572									Lateral
23	M37	.75 Dia.	47.572						.7	.7		Lateral
24	M38	.75 Dia.	47.572						.7	.7		Lateral
25	M39	.75 Dia.	47.572									Lateral
26	M42	PIPE_2.5	240			Lbyy						Lateral

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diaphragm
1	N1	-75	0	40	0	
2	N2	75	0	40	0	
3	N3	-75	0	0	0	
4	N4	75	0	0	0	
5	N5	-72	3	40	0	
6	N6	-72	0	40	0	
7	N7	-72	3	0	0	
8	N8	-72	0	0	0	
9	N9	-36	3	40	0	
10	N10	-36	0	40	0	
11	N11	-36	3	0	0	
12	N12	-36	0	0	0	
13	N13	36	3	40	0	
14	N14	36	0	40	0	
15	N15	36	3	0	0	
16	N16	36	0	0	0	
17	N17	72	3	40	0	
18	N18	72	0	40	0	
19	N19	72	3	0	0	
20	N20	72	0	0	0	
21	N21	-72	3	80	0	
22	N22	-72	3	-40	0	
23	N23	-36	3	80	0	
24	N24	-36	3	-40	0	
25	N25	36	3	80	0	
26	N26	36	3	-40	0	
27	N27	72	3	80	0	
28	N28	72	3	-40	0	
29	N29	-8.927223	-24.223102	40	0	
30	N30	-8.927223	-24.223102	0	0	
31	N31	-27.135223	-6.015102	40	0	
32	N32	-27.135223	-6.015102	0	0	
33	N33	8.927223	-24.223102	40	0	
34	N34	8.927223	-24.223102	0	0	
35	N35	27.135223	-6.015102	40	0	
36	N36	27.135223	-6.015102	0	0	
37	N37	-7.424621	-25.725704	40	0	
38	N38	-7.424621	-25.725704	0	0	
39	N39	7.424621	-25.725704	0	0	
40	N40	7.424621	-25.725704	40	0	
41	N41	-29.35	0	40	0	
42	N42	-28.637825	-4.5125	40	0	
43	N43	29.35	0	40	0	
44	N44	28.637825	-4.5125	40	0	
45	N45	-29.35	0	-7.1e-15	0	
46	N46	-28.637825	-4.5125	0	0	
47	N47	29.35	0	7.1e-15	0	
48	N48	28.637825	-4.5125	0	0	
49	N49	-40.35	0	39.999996	0	
50	N50	0	-25.725704	40	0	
51	N51	0	-25.725704	0	0	
52	N52	0	3	40	0	
53	N53	0	0	40	0	
54	N54	0	3	0	0	
55	N55	0	0	0	0	
56	N56	0	3	80	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diaphragm
57	N57	0	3	-40	0	
58	N58	-11.620308	-78.93418	39.999996	0	
59	N59	-36	3	53	0	
60	N60	36	3	68	0	
61	N61	-36	3	-13	0	
62	N62	36	3	-28	0	
63	N63	-72	3	36.5	0	
64	N64	0	3	53	0	
65	N65	-72	3	3.5	0	
66	N66	0	3	-13	0	
67	N67	35.620308	-54.93418	39.999996	0	
68	N68	40.35	0	39.999996	0	
69	N69	72	3	71	0	
70	N70	72	3	48	0	
71	N71	72	6	71	0	
72	N72	72	6	48	0	
73	N73	72	6	45	0	
74	N74	72	6	285	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N50	Reaction	Reaction	Reaction			
2	N51	Reaction	Reaction	Reaction			
3	N58	Reaction	Reaction	Reaction			
4	N67	Reaction	Reaction	Reaction			

Basic Load Cases

	BLC Description	Category	X Gravi..	Y Gravi..	Z Gravity	Joint	Point	Distrib...	Area(M...	Surfac...
1	DEAD LOAD	None			-1	8				
2	DEAD LOAD ICE	None				8		26		
3	WIND LOAD (NO ICE) FRONT	None				8		26		
4	WIND LOAD (NO ICE) SIDE	None				8		26		
5	WIND LOAD (ICE) FRONT	None				8		26		
6	WIND LOAD (ICE) SIDE	None				8		26		
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 Loads and Enforced Displacements (BLC 1 : DEAD LOAD)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N63	L	Z	-52
2	N65	L	Z	-52
3	N59	L	Z	-67
4	N61	L	Z	-67
5	N64	L	Z	-50
6	N66	L	Z	-50
7	N60	L	Z	-136
8	N62	L	Z	-136

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/in, lb*s^2*in)]
1	N63	L	Z	-106
2	N65	L	Z	-106
3	N59	L	Z	-127
4	N61	L	Z	-127
5	N64	L	Z	-136
6	N66	L	Z	-136
7	N60	L	Z	-388
8	N62	L	Z	-388

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/in, lb*s^2*in)]
1	N63	L	Y	-77
2	N65	L	Y	-77
3	N59	L	Y	-89
4	N61	L	Y	-89
5	N64	L	Y	-83
6	N66	L	Y	-83
7	N60	L	Y	-275
8	N62	L	Y	-275

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/in, lb*s^2*in)]
1	N63	L	X	-33
2	N65	L	X	-33
3	N59	L	X	-64
4	N61	L	X	-64
5	N64	L	X	-62
6	N66	L	X	-62
7	N60	L	X	-152
8	N62	L	X	-152

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/in, lb*s^2*in)]
1	N63	L	Y	-25
2	N65	L	Y	-25
3	N59	L	Y	-30
4	N61	L	Y	-30
5	N64	L	Y	-28
6	N66	L	Y	-28
7	N60	L	Y	-83
8	N62	L	Y	-83

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/in, lb*s^2*in)]
1	N63	L	X	-13
2	N65	L	X	-13
3	N59	L	X	-23
4	N61	L	X	-23
5	N64	L	X	-24
6	N66	L	X	-24
7	N60	L	X	-54
8	N62	L	X	-54

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

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

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N3	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/in, lb*s^2*in)]
1	N4	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/in, lb*s^2*in)]
1	N22	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/in, lb*s^2*in)]
1	N24	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/in, lb*s^2*in)]
1	N57	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/in, lb*s^2*in)]
1	N26	L	Z	-500

Member Point Loads

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

Member Distributed Loads (BLC 2 : DEAD LOAD ICE)

	Member Label	Direction	Start Magnitude[lb/ft,F,ksf]	End Magnitude[lb/ft,F,k...	Start Location[in,%]	End Location[in,%]
1	M15	Z	-14.3	-14.3	0	0
2	M16	Z	-14.3	-14.3	0	0
3	M17	Z	-14.3	-14.3	0	0
4	M18	Z	-14.3	-14.3	0	0
5	M19	Z	-14.3	-14.3	0	0
6	M20	Z	-14.3	-14.3	0	0
7	M21	Z	-14.3	-14.3	0	0
8	M22	Z	-12.9	-12.9	0	0
9	M23	Z	-12.9	-12.9	0	0
10	M24	Z	-12.9	-12.9	0	0
11	M25	Z	-12.9	-12.9	0	0
12	M26	Z	-12.9	-12.9	0	0
13	M27	Z	-12.9	-12.9	0	0
14	M28	Z	-21.5	-21.5	0	0
15	M29	Z	-21.5	-21.5	0	0
16	M30	Z	-21.5	-21.5	0	0
17	M31	Z	-21.5	-21.5	0	0
18	M32	Z	-8.1	-8.1	0	0
19	M33	Z	-8.1	-8.1	0	0
20	M34	Z	-8.1	-8.1	0	0
21	M35	Z	-8.1	-8.1	0	0
22	M36	Z	-8.4	-8.4	0	0
23	M37	Z	-8.4	-8.4	0	0

Member Distributed Loads (BLC 2 : DEAD LOAD ICE) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,F,ksf]	End Magnitude[lb/ft,F,k...	Start Location[in,%]	End Location[in,%]
24	M38	Z	-8.4	-8.4	0	0
25	M39	Z	-8.4	-8.4	0	0
26	M42	Z	-14.3	-14.3	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,F,ksf]	End Magnitude[lb/ft,F,k...	Start Location[in,%]	End Location[in,%]
1	M15	PY	-7.8	-7.8	0	0
2	M16	PY	-7.8	-7.8	0	0
3	M17	PY	-7.8	-7.8	0	0
4	M18	PY	-7.8	-7.8	0	0
5	M19	PY	-7.8	-7.8	0	0
6	M20	PY	-7.8	-7.8	0	0
7	M21	PY	-7.8	-7.8	0	0
8	M22	PY	-6.4	-6.4	0	0
9	M23	PY	-6.4	-6.4	0	0
10	M24	PY	-6.4	-6.4	0	0
11	M25	PY	-6.4	-6.4	0	0
12	M26	PY	-6.4	-6.4	0	0
13	M27	PY	-6.4	-6.4	0	0
14	M28	PY	-2.8	-2.8	0	0
15	M29	PY	-2.8	-2.8	0	0
16	M30	PY	-2.8	-2.8	0	0
17	M31	PY	-2.8	-2.8	0	0
18	M32	PY	-1.7	-1.7	0	0
19	M33	PY	-1.7	-1.7	0	0
20	M34	PY	-1.7	-1.7	0	0
21	M35	PY	-1.7	-1.7	0	0
22	M36	PY	-2	-2	0	0
23	M37	PY	-2	-2	0	0
24	M38	PY	-2	-2	0	0
25	M39	PY	-2	-2	0	0
26	M42	PY	-7.8	-7.8	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,F,ksf]	End Magnitude[lb/ft,F,k...	Start Location[in,%]	End Location[in,%]
1	M15	PX	-7.8	-7.8	0	0
2	M16	PX	-7.8	-7.8	0	0
3	M17	PX	-7.8	-7.8	0	0
4	M18	PX	-7.8	-7.8	0	0
5	M19	PX	-7.8	-7.8	0	0
6	M20	PX	-7.8	-7.8	0	0
7	M21	PX	-7.8	-7.8	0	0
8	M22	PX	-6.4	-6.4	0	0
9	M23	PX	-6.4	-6.4	0	0
10	M24	PX	-6.4	-6.4	0	0
11	M25	PX	-6.4	-6.4	0	0
12	M26	PX	-6.4	-6.4	0	0
13	M27	PX	-6.4	-6.4	0	0
14	M28	PX	-2.8	-2.8	0	0
15	M29	PX	-2.8	-2.8	0	0
16	M30	PX	-2.8	-2.8	0	0
17	M31	PX	-2.8	-2.8	0	0
18	M32	PX	-1.7	-1.7	0	0
19	M33	PX	-1.7	-1.7	0	0
20	M34	PX	-1.7	-1.7	0	0
21	M35	PX	-1.7	-1.7	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft,F,ksf]	End Magnitude[lb/ft,F,k...	Start Location[in,%]	End Location[in,%]
22	M36	PX	-2	-2	0	0
23	M37	PX	-2	-2	0	0
24	M38	PX	-2	-2	0	0
25	M39	PX	-2	-2	0	0
26	M42	PX	-7.8	-7.8	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,F,ksf]	End Magnitude[lb/ft,F,k...	Start Location[in,%]	End Location[in,%]
1	M15	PY	-7.4	-7.4	0	0
2	M16	PY	-7.4	-7.4	0	0
3	M17	PY	-7.4	-7.4	0	0
4	M18	PY	-7.4	-7.4	0	0
5	M19	PY	-7.4	-7.4	0	0
6	M20	PY	-7.4	-7.4	0	0
7	M21	PY	-7.4	-7.4	0	0
8	M22	PY	-6.9	-6.9	0	0
9	M23	PY	-6.9	-6.9	0	0
10	M24	PY	-6.9	-6.9	0	0
11	M25	PY	-6.9	-6.9	0	0
12	M26	PY	-6.9	-6.9	0	0
13	M27	PY	-6.9	-6.9	0	0
14	M28	PY	-5.4	-5.4	0	0
15	M29	PY	-5.4	-5.4	0	0
16	M30	PY	-5.4	-5.4	0	0
17	M31	PY	-5.4	-5.4	0	0
18	M32	PY	-5.1	-5.1	0	0
19	M33	PY	-5.1	-5.1	0	0
20	M34	PY	-5.1	-5.1	0	0
21	M35	PY	-5.1	-5.1	0	0
22	M36	PY	-5.3	-5.3	0	0
23	M37	PY	-5.3	-5.3	0	0
24	M38	PY	-5.3	-5.3	0	0
25	M39	PY	-5.3	-5.3	0	0
26	M42	PY	-7.4	-7.4	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,F,ksf]	End Magnitude[lb/ft,F,k...	Start Location[in,%]	End Location[in,%]
1	M15	PX	-7.4	-7.4	0	0
2	M16	PX	-7.4	-7.4	0	0
3	M17	PX	-7.4	-7.4	0	0
4	M18	PX	-7.4	-7.4	0	0
5	M19	PX	-7.4	-7.4	0	0
6	M20	PX	-7.4	-7.4	0	0
7	M21	PX	-7.4	-7.4	0	0
8	M22	PX	-6.9	-6.9	0	0
9	M23	PX	-6.9	-6.9	0	0
10	M24	PX	-6.9	-6.9	0	0
11	M25	PX	-6.9	-6.9	0	0
12	M26	PX	-6.9	-6.9	0	0
13	M27	PX	-6.9	-6.9	0	0
14	M28	PX	-5.4	-5.4	0	0
15	M29	PX	-5.4	-5.4	0	0
16	M30	PX	-5.4	-5.4	0	0
17	M31	PX	-5.4	-5.4	0	0
18	M32	PX	-5.1	-5.1	0	0
19	M33	PX	-5.1	-5.1	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft,F,ksf]	End Magnitude[lb/ft,F,k...	Start Location[in,%]	End Location[in,%]
20	M34	PX	-5.1	-5.1	0	0
21	M35	PX	-5.1	-5.1	0	0
22	M36	PX	-5.3	-5.3	0	0
23	M37	PX	-5.3	-5.3	0	0
24	M38	PX	-5.3	-5.3	0	0
25	M39	PX	-5.3	-5.3	0	0
26	M42	PX	-7.4	-7.4	0	%100

Member Area Loads

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

Load Combinations

	Description	Solve	PD...	S...	B...	Fa...	B...	Fa...	B...	Factor	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	1.39	4	.8												
3	DL + WL (NO ICE) 60 Degree	Yes	Y		1	1.2			3	.8	4	1.39												
4	DL + WL (NO ICE) 90 Degree	Yes	Y		1	1.2					4	1.6												
5	DL + WL (NO ICE) 120 Degree	Yes	Y		1	1.2			3	-.8	4	1.39												
6	DL + WL (NO ICE) 150 Degree	Yes	Y		1	1.2			3	-1.39	4	.8												
7	DL + WL (NO ICE) 180 Degree	Yes	Y		1	1.2			3	-1.6														
8	DL + WL (NO ICE) 210 Degree	Yes	Y		1	1.2			3	-1.39	4	-.8												
9	DL + WL (NO ICE) 240 Degree	Yes	Y		1	1.2			3	-.8	4	-1....												
10	DL + WL (NO ICE) 270 Degree	Yes	Y		1	1.2					4	-1.6												
11	DL + WL (NO ICE) 300 Degree	Yes	Y		1	1.2			3	.8	4	-1....												
12	DL + WL (NO ICE) 330 Degree	Yes	Y		1	1.2			3	1.39	4	-.8												
13	DL + DL ICE + WL (ICE) 0 De...	Yes	Y		1	1.2	2	1	5	1														
14	DL + DL ICE + WL (ICE) 30 D...	Yes	Y		1	1.2	2	1	5	.87	6	.5												
15	DL + DL ICE + WL (ICE) 60 D...	Yes	Y		1	1.2	2	1	5	.5	6	.87												
16	DL + DL ICE + WL (ICE) 90 D...	Yes	Y		1	1.2	2	1			6	1												
17	DL + DL ICE + WL (ICE) 120 ...	Yes	Y		1	1.2	2	1	5	-.5	6	.87												
18	DL + DL ICE + WL (ICE) 150 ...	Yes	Y		1	1.2	2	1	5	-.87	6	.5												
19	DL + DL ICE + WL (ICE) 180 ...	Yes	Y		1	1.2	2	1	5	-1														
20	DL + DL ICE + WL (ICE) 210 ...	Yes	Y		1	1.2	2	1	5	-.87	6	-.5												
21	DL + DL ICE + WL (ICE) 240 ...	Yes	Y		1	1.2	2	1	5	-.5	6	-.87												
22	DL + DL ICE + WL (ICE) 270 ...	Yes	Y		1	1.2	2	1			6	-1												
23	DL + DL ICE + WL (ICE) 300 ...	Yes	Y		1	1.2	2	1	5	.5	6	-.87												
24	DL + DL ICE + WL (ICE) 330 ...	Yes	Y		1	1.2	2	1	5	.87	6	-.5												
25	DEAD LOAD + LIVE LOAD1	Yes	Y		1	1.2					7	1.5												
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 FR...	Yes	Y		1	1.2	10	1.5	3	.096														
29	DL + MAIN L2+30MPH WL FR...	Yes	Y		1	1.2	11	1.5	3	.096														
30	DL + MAIN L3+30MPH WL FR...	Yes	Y		1	1.2	12	1.5	3	.096														
31	DL + MAIN L4+30MPH WL FR...	Yes	Y		1	1.2	13	1.5	3	.096														
32	DL + MAIN L1+30MPH WL SI...	Yes	Y		1	1.2	10	1.5	4	.096														
33	DL + MAIN L2+30MPH WL SI...	Yes	Y		1	1.2	11	1.5	4	.096														
34	DL + MAIN L3+30MPH WL SI...	Yes	Y		1	1.2	12	1.5	4	.096														
35	DL + MAIN L4+30MPH WL SI...	Yes	Y		1	1.2	13	1.5	4	.096														
36	DL + MAIN L1+30MPH WL FR...	Yes	Y		1	1.2	10	1.5	3	-.096														
37	DL + MAIN L2+30MPH WL FR...	Yes	Y		1	1.2	11	1.5	3	-.096														
38	DL + MAIN L3+30MPH WL FR...	Yes	Y		1	1.2	12	1.5	3	-.096														
39	DL + MAIN L4+30MPH WL FR...	Yes	Y		1	1.2	13	1.5	3	-.096														
40	DL + MAIN L1+30MPH WL SI...	Yes	Y		1	1.2	10	1.5	4	-.096														

Load Combinations (Continued)

	Description	Solve	PD	S	B1	Fa1	B2	Fa2	B3	Factor	B4	Fa4	B5	Fa5	B6	Fa6	B7	Fa7	B8	Fa8	B9	Fa9	B10	Fa10
41	DL + MAIN L2+30MPH WL SI...	Yes	Y		1	1.2	11	1.5	4	-.096														
42	DL + MAIN L3+30MPH WL SI...	Yes	Y		1	1.2	12	1.5	4	-.096														
43	DL + MAIN L4+30MPH WL SI...	Yes	Y		1	1.2	13	1.5	4	-.096														

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	N50	max	2140.497	4	21.423	6	3948.182	14	0	1	0	1	0	1
2		min	-2456.404	10	-3689.199	24	1156.539	7	0	1	0	1	0	1
3	N51	max	859.924	26	3266.972	13	902.186	21	0	1	0	1	0	1
4		min	-1196.017	40	440.64	7	211.013	1	0	1	0	1	0	1
5	N58	max	573.102	8	1636.293	2	60.362	19	0	1	0	1	0	1
6		min	-576.497	2	-1636.521	8	13.521	3	0	1	0	1	0	1
7	N67	max	169.402	12	2094.317	12	41.71	18	0	1	0	1	0	1
8		min	-169.073	6	-2109.034	6	5.885	12	0	1	0	1	0	1
9	Totals:	max	2145.344	4	3047.443	1	4930.4	16						
10		min	-2145.346	10	-3047.441	7	1505.389	10						

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	.099	9	.187	8	.045	11	2.95e-03	8	1.349e-03	11	5.957e-03	1
2		min	-.092	3	-.18	2	-.334	32	-3.269e-03	2	-3.911e-03	32	-5.929e-03	7
3	N2	max	.101	9	.259	7	.103	5	2.109e-02	1	7.93e-03	10	7.445e-03	7
4		min	-.092	3	-.257	1	-.413	23	-2.18e-02	7	-6.77e-03	4	-7.518e-03	1
5	N3	max	.075	8	.343	8	.046	11	4.186e-03	7	1.223e-03	11	6.416e-03	1
6		min	-.079	2	-.346	2	-.334	32	-4.556e-03	1	-3.884e-03	32	-6.45e-03	7
7	N4	max	.073	8	.205	1	.066	32	3.809e-03	2	3.332e-03	24	1.447e-03	12
8		min	-.079	2	-.22	7	-.388	22	-4.352e-03	19	-1.657e-03	36	-1.511e-03	18
9	N5	max	.111	9	.17	8	.04	10	2.95e-03	8	1.349e-03	11	5.957e-03	1
10		min	-.103	3	-.163	2	-.32	32	-3.269e-03	2	-3.911e-03	32	-5.929e-03	7
11	N6	max	.099	9	.17	8	.041	11	2.95e-03	8	1.349e-03	11	5.957e-03	1
12		min	-.092	3	-.163	2	-.322	32	-3.269e-03	2	-3.911e-03	32	-5.929e-03	7
13	N7	max	.093	8	.325	8	.04	10	4.186e-03	7	1.223e-03	11	6.416e-03	1
14		min	-.098	2	-.327	2	-.321	32	-4.556e-03	1	-3.884e-03	32	-6.45e-03	7
15	N8	max	.075	8	.325	8	.043	11	4.186e-03	7	1.223e-03	11	6.416e-03	1
16		min	-.079	2	-.327	2	-.322	32	-4.556e-03	1	-3.884e-03	32	-6.45e-03	7
17	N9	max	.101	9	.038	9	.017	10	7.421e-04	36	1.305e-03	11	7.795e-04	2
18		min	-.093	3	-.036	3	-.124	32	-1.237e-03	13	-3.776e-03	32	-8.316e-04	8
19	N10	max	.099	9	.038	9	.016	10	7.421e-04	36	1.305e-03	11	7.795e-04	2
20		min	-.091	3	-.036	3	-.126	32	-1.237e-03	13	-3.776e-03	32	-8.316e-04	8
21	N11	max	.088	8	.121	8	.017	10	3.593e-03	7	9.375e-04	11	4.401e-03	2
22		min	-.093	2	-.122	2	-.124	32	-3.917e-03	1	-3.814e-03	32	-4.399e-03	8
23	N12	max	.074	8	.121	8	.015	10	3.593e-03	7	9.375e-04	11	4.401e-03	2
24		min	-.08	2	-.122	2	-.126	32	-3.917e-03	1	-3.814e-03	32	-4.399e-03	8
25	N13	max	.093	9	.021	3	.012	32	9.582e-03	1	3.701e-03	23	2.472e-03	8
26		min	-.084	3	-.021	9	-.183	22	-9.933e-03	7	-1.473e-03	32	-2.509e-03	2
27	N14	max	.1	9	.021	3	.015	32	9.582e-03	1	3.701e-03	23	2.472e-03	8
28		min	-.092	3	-.021	9	-.183	23	-9.933e-03	7	-1.473e-03	32	-2.509e-03	2
29	N15	max	.082	8	.105	2	.012	32	2.937e-03	7	3.955e-03	23	2.851e-03	1
30		min	-.087	2	-.111	8	-.183	22	-3.329e-03	1	-1.41e-03	32	-3.024e-03	7
31	N16	max	.073	8	.105	2	.015	32	2.937e-03	7	3.955e-03	23	2.851e-03	1
32		min	-.079	2	-.111	8	-.182	22	-3.329e-03	1	-1.41e-03	32	-3.024e-03	7
33	N17	max	.1	10	.236	7	.067	4	2.109e-02	1	7.93e-03	10	7.445e-03	7
34		min	-.092	4	-.234	1	-.383	22	-2.18e-02	7	-6.77e-03	4	-7.518e-03	1
35	N18	max	.101	9	.236	7	.083	5	2.109e-02	1	7.93e-03	10	7.445e-03	7

Envelope Joint Displacements (Continued)

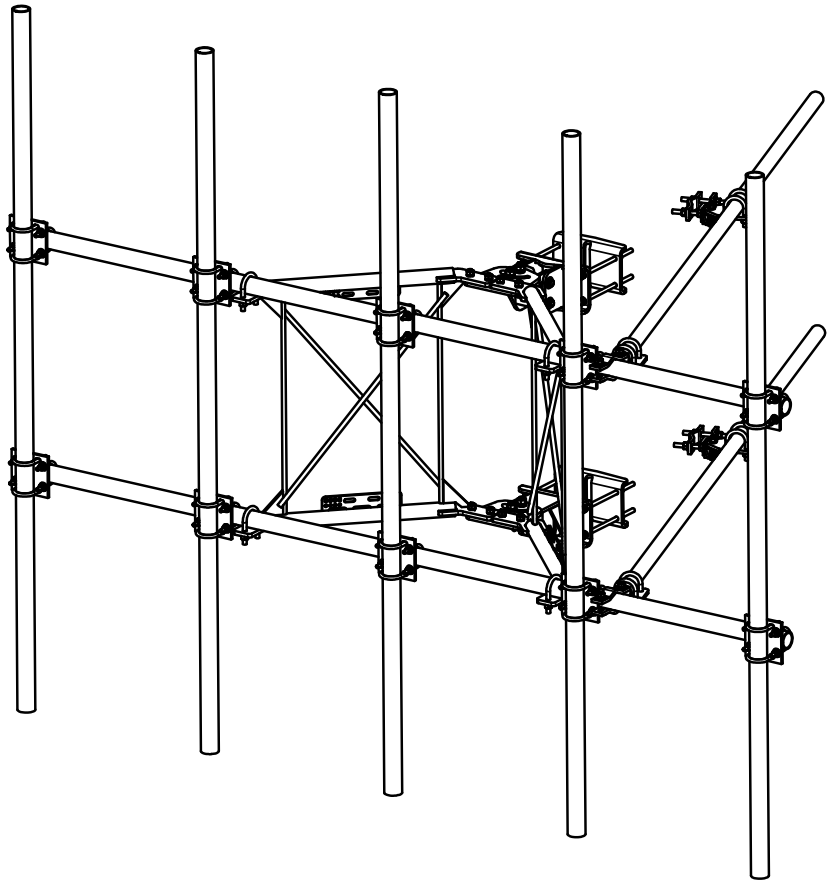
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
36		min	-.092	3	-.234	1	-.392	23	-2.18e-02	7	-6.77e-03	4	-7.518e-03	1
37	N19	max	.076	8	.201	1	.067	4	3.809e-03	2	3.332e-03	24	1.448e-03	12
38		min	-.081	2	-.216	7	-.382	22	-4.352e-03	19	-1.657e-03	36	-1.511e-03	18
39	N20	max	.073	8	.201	1	.064	4	3.809e-03	2	3.332e-03	24	1.448e-03	12
40		min	-.079	2	-.216	7	-.379	22	-4.352e-03	19	-1.657e-03	36	-1.511e-03	18
41	N21	max	.151	10	.061	8	.04	10	2.664e-03	8	1.636e-03	11	5.957e-03	1
42		min	-.196	32	-.041	2	-.32	32	-2.983e-03	2	-3.932e-03	32	-5.929e-03	7
43	N22	max	.208	36	.499	8	.04	10	4.514e-03	7	9.741e-04	26	6.416e-03	1
44		min	-.11	1	-.515	2	-.321	32	-4.885e-03	1	-3.795e-03	32	-6.45e-03	7
45	N23	max	.16	10	.046	23	.017	10	7.277e-04	40	1.816e-03	11	7.795e-04	2
46		min	-.191	32	-.039	32	-.124	32	-9.678e-04	13	-3.812e-03	32	-8.316e-04	8
47	N24	max	.207	36	.277	8	.017	10	4.279e-03	7	8.809e-04	26	4.401e-03	2
48		min	-.099	1	-.29	2	-.124	32	-4.603e-03	1	-3.796e-03	36	-4.399e-03	8
49	N25	max	.285	10	.557	7	.012	32	1.507e-02	1	5.557e-03	10	2.472e-03	8
50		min	-.224	4	-.544	1	-.183	22	-1.542e-02	7	-4.239e-03	4	-2.509e-03	2
51	N26	max	.11	36	.193	6	.012	32	8.38e-03	7	3.213e-03	23	2.851e-03	1
52		min	-.193	24	-.211	12	-.184	22	-8.771e-03	1	-1.44e-03	40	-3.024e-03	7
53	N27	max	.887	10	1.445	7	.067	4	3.127e-02	1	2.49e-02	10	7.447e-03	7
54		min	-.832	4	-1.408	1	-.383	22	-3.219e-02	7	-2.373e-02	4	-7.504e-03	1
55	N28	max	.122	36	.339	1	.067	4	3.521e-03	2	3.231e-03	24	1.448e-03	12
56		min	-.188	13	-.375	8	-.382	22	-4.153e-03	19	-1.657e-03	36	-1.511e-03	18
57	N29	max	.004	4	.031	4	.023	23	-1.282e-03	12	3.536e-03	23	2.812e-03	10
58		min	-.005	10	-.035	10	-.032	32	-4.289e-03	23	-2.747e-03	32	-2.485e-03	4
59	N30	max	.005	8	.032	8	.025	23	-2.462e-04	7	3.287e-03	23	3.163e-03	2
60		min	-.005	2	-.027	2	-.027	32	-1.797e-03	13	-2.515e-03	32	-3.604e-03	8
61	N31	max	.048	9	.017	9	.025	10	-1.332e-03	7	3.075e-03	22	7.067e-03	3
62		min	-.044	3	-.017	3	-.066	32	-7.272e-03	13	-1.333e-03	32	-7.65e-03	9
63	N32	max	.062	8	.088	8	.027	10	-2.137e-03	11	2.136e-03	22	2.913e-03	13
64		min	-.064	2	-.088	2	-.06	32	-7.09e-03	23	-1.736e-03	32	-3.404e-03	36
65	N33	max	.004	4	.035	10	.026	32	-9.297e-04	1	2.538e-03	23	2.944e-03	10
66		min	-.005	10	-.031	4	-.036	23	-4.202e-03	18	-3.188e-03	32	-2.58e-03	4
67	N34	max	.005	8	.027	2	.026	32	-3.731e-04	26	2.363e-03	23	2.998e-03	2
68		min	-.005	2	-.032	8	-.03	23	-1.623e-03	18	-2.947e-03	32	-3.502e-03	8
69	N35	max	.048	9	.018	2	.03	32	-1.283e-03	8	1.072e-03	11	7.033e-03	4
70		min	-.045	3	-.017	8	-.09	22	-6.534e-03	15	-2.113e-03	32	-7.732e-03	9
71	N36	max	.058	8	.081	2	.032	32	-7.511e-04	1	1.345e-03	22	3.141e-03	2
72		min	-.06	2	-.086	8	-.08	22	-7.553e-03	18	-1.621e-03	32	-3.367e-03	36
73	N37	max	0	9	.026	4	.025	23	-1.173e-03	1	3.348e-03	23	3.984e-03	10
74		min	0	15	-.03	10	-.024	32	-4.438e-03	19	-3.263e-03	32	-3.51e-03	4
75	N38	max	0	28	.027	8	.023	23	-3.434e-04	8	3.101e-03	23	3.03e-03	2
76		min	0	26	-.022	2	-.022	32	-1.692e-03	17	-3.011e-03	32	-3.635e-03	8
77	N39	max	0	36	.022	2	.022	32	-3.434e-04	8	3.101e-03	23	3.03e-03	2
78		min	0	21	-.027	8	-.023	23	-1.692e-03	17	-3.011e-03	32	-3.635e-03	8
79	N40	max	0	22	.03	10	.024	32	-1.173e-03	1	3.348e-03	23	3.984e-03	10
80		min	0	4	-.026	4	-.025	23	-4.438e-03	19	-3.263e-03	32	-3.51e-03	4
81	N41	max	.099	9	.035	9	.009	10	5.338e-04	40	1.189e-03	23	5.845e-04	4
82		min	-.091	3	-.033	3	-.102	32	-9.428e-04	13	-3.187e-03	32	-6.201e-04	10
83	N42	max	.061	9	.029	9	.024	10	-1.574e-03	7	2.671e-03	22	7.724e-03	3
84		min	-.056	3	-.028	3	-.073	32	-7.859e-03	13	-1.669e-03	32	-8.307e-03	9
85	N43	max	.1	9	.035	3	.006	32	8.277e-03	1	3.098e-03	23	1.443e-03	9
86		min	-.092	3	-.035	9	-.159	23	-8.633e-03	7	-1.365e-03	32	-1.467e-03	3
87	N44	max	.061	9	.029	3	.027	32	-1.267e-03	7	1.344e-03	11	7.71e-03	4
88		min	-.056	3	-.029	9	-.102	22	-7.492e-03	14	-1.962e-03	32	-8.475e-03	10
89	N45	max	.074	8	.093	8	.01	10	3.371e-03	7	1.092e-03	23	4.04e-03	2
90		min	-.08	2	-.094	2	-.102	32	-3.709e-03	1	-3.245e-03	32	-4.04e-03	8
91	N46	max	.065	8	.092	8	.026	10	-2.24e-03	12	1.78e-03	22	2.866e-03	13
92		min	-.068	2	-.092	2	-.068	32	-7.795e-03	20	-2.065e-03	32	-3.578e-03	40

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
93	N47	max	.074	8	.088	2	.007	32	2.838e-03	7	3.306e-03	22	2.9e-03	1
94		min	-.079	2	-.092	8	-.157	22	-3.234e-03	1	-1.311e-03	32	-3.049e-03	7
95	N48	max	.062	8	.085	2	.029	32	-9.422e-04	1	1.857e-03	22	3.192e-03	2
96		min	-.065	2	-.09	8	-.093	22	-8.541e-03	19	-1.498e-03	32	-3.489e-03	36
97	N49	max	.099	9	.041	9	.02	10	1.001e-03	8	1.031e-03	11	1.548e-03	1
98		min	-.092	3	-.038	3	-.145	32	-1.374e-03	13	-4.782e-03	32	-1.63e-03	7
99	N50	max	0	10	0	24	0	7	-1.173e-03	1	3.348e-03	23	3.984e-03	10
100		min	0	4	0	6	0	14	-4.438e-03	19	-3.263e-03	32	-3.51e-03	4
101	N51	max	0	40	0	7	0	1	-3.434e-04	8	3.101e-03	23	3.03e-03	2
102		min	0	26	0	13	0	21	-1.692e-03	17	-3.011e-03	32	-3.635e-03	8
103	N52	max	.106	9	.013	4	-.028	10	2.723e-03	1	2.025e-03	23	2.056e-03	3
104		min	-.098	3	-.011	10	-.101	17	-2.94e-03	7	-1.853e-03	32	-2.116e-03	9
105	N53	max	.099	9	.013	4	-.022	8	2.723e-03	1	2.025e-03	23	2.056e-03	3
106		min	-.091	3	-.011	10	-.1	14	-2.94e-03	7	-1.853e-03	32	-2.116e-03	9
107	N54	max	.083	8	.007	4	-.028	10	2.499e-03	7	1.808e-03	22	2.84e-03	2
108		min	-.088	2	-.012	24	-.101	17	-2.788e-03	1	-1.824e-03	32	-2.863e-03	8
109	N55	max	.074	8	.007	4	-.022	12	2.499e-03	7	1.808e-03	22	2.84e-03	2
110		min	-.079	2	-.012	24	-.101	18	-2.788e-03	1	-1.824e-03	32	-2.863e-03	8
111	N56	max	.181	10	.14	7	-.028	10	3.387e-03	1	2.269e-03	22	2.056e-03	3
112		min	-.154	4	-.13	1	-.101	17	-3.604e-03	7	-1.888e-03	32	-2.116e-03	9
113	N57	max	.127	36	.123	7	-.028	10	3.161e-03	7	1.579e-03	23	2.84e-03	2
114		min	-.119	13	-.137	1	-.101	17	-3.451e-03	1	-1.789e-03	32	-2.863e-03	8
115	N58	max	0	2	0	8	0	3	-3.221e-04	8	8.229e-04	11	2.412e-03	4
116		min	0	8	0	2	0	19	-3.014e-03	13	-5.227e-03	32	-2.506e-03	10
117	N59	max	.115	10	.032	9	.017	10	7.277e-04	40	1.728e-03	11	7.795e-04	2
118		min	-.113	4	-.027	3	-.124	32	-1.028e-03	13	-3.806e-03	32	-8.316e-04	8
119	N60	max	.218	10	.372	7	.012	32	1.506e-02	1	5.548e-03	10	2.472e-03	8
120		min	-.173	4	-.363	1	-.183	22	-1.541e-02	7	-4.23e-03	4	-2.509e-03	2
121	N61	max	.105	36	.17	8	.017	10	4.178e-03	7	8.81e-04	26	4.401e-03	2
122		min	-.093	2	-.175	2	-.124	32	-4.502e-03	1	-3.796e-03	36	-4.399e-03	8
123	N62	max	.094	36	.103	6	.012	32	8.371e-03	7	3.218e-03	23	2.851e-03	1
124		min	-.154	13	-.117	12	-.184	22	-8.763e-03	1	-1.439e-03	40	-3.024e-03	7
125	N63	max	.109	9	.181	8	.04	10	3.232e-03	8	1.513e-03	11	5.997e-03	1
126		min	-.101	3	-.175	2	-.32	32	-3.505e-03	2	-3.104e-03	32	-5.975e-03	7
127	N64	max	.125	10	.044	6	-.028	10	3.285e-03	1	2.208e-03	22	2.056e-03	3
128		min	-.111	4	-.039	12	-.101	17	-3.503e-03	7	-1.882e-03	32	-2.116e-03	9
129	N65	max	.092	8	.31	8	.04	10	4.193e-03	7	1.442e-03	11	6.376e-03	1
130		min	-.098	2	-.312	2	-.321	32	-4.513e-03	1	-3.084e-03	32	-6.405e-03	7
131	N66	max	.079	36	.038	7	-.028	10	3.06e-03	7	1.631e-03	23	2.84e-03	2
132		min	-.087	2	-.045	1	-.101	17	-3.349e-03	1	-1.795e-03	32	-2.863e-03	8
133	N67	max	0	6	0	6	0	12	1.006e-04	32	5.11e-03	24	2.031e-03	4
134		min	0	12	0	12	0	18	-3.917e-03	23	-1.668e-03	6	-2.178e-03	10
135	N68	max	.1	9	.01	4	.021	32	1.097e-02	1	4.419e-03	24	3.952e-03	8
136		min	-.092	3	-.011	10	-.201	23	-1.137e-02	7	-1.245e-03	32	-3.935e-03	2
137	N69	max	.663	10	1.155	7	.067	4	3.127e-02	1	2.49e-02	10	7.447e-03	7
138		min	-.619	4	-1.126	1	-.383	22	-3.218e-02	7	-2.373e-02	4	-7.504e-03	1
139	N70	max	.195	10	.442	7	.067	4	2.858e-02	1	1.548e-02	10	7.443e-03	7
140		min	-.177	4	-.434	1	-.383	22	-2.947e-02	7	-1.432e-02	4	-7.519e-03	1
141	N71	max	.667	10	1.155	7	.089	3	3.127e-02	1	2.49e-02	10	7.447e-03	7
142		min	-.622	4	-1.126	1	-.398	21	-3.218e-02	7	-2.373e-02	4	-7.504e-03	1
143	N72	max	.198	10	.442	7	.088	3	2.858e-02	1	1.548e-02	10	7.443e-03	7
144		min	-.18	4	-.434	1	-.397	21	-2.947e-02	7	-1.432e-02	4	-7.519e-03	1
145	N73	max	.151	10	.354	7	.088	3	2.858e-02	1	1.548e-02	10	7.443e-03	7
146		min	-.137	4	-.348	1	-.397	21	-2.947e-02	7	-1.432e-02	4	-7.519e-03	1
147	N74	max	14.47	10	16.56	7	.089	3	8.46e-02	1	7.797e-02	10	7.447e-03	7
148		min	-14.168	4	-16.329	1	-.399	21	-8.555e-02	7	-7.675e-02	4	-7.504e-03	1

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

	Memb...	Shape	Code Ch...	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt...	phi*Mn ...	phi*Mn...	Cb	Eqn
1	M15	PIPE_...	.207	80	40	.034	40		36	22373.407	50715	3.596	3.596	4.82	H1-1b
2	M16	PIPE_...	.193	80	28	.089	40		2	22373.407	50715	3.596	3.596	3.761	H1-1b
3	M17	PIPE_...	.414	40	7	.140	40		8	22373.407	50715	3.596	3.596	1.573	H1-1b
4	M18	PIPE_...	.781	40	8	.215	40		7	22373.407	50715	3.596	3.596	2.646	H1-1b
5	M19	PIPE_...	.464	114.063	6	.348	114....		7	14558.792	50715	3.596	3.596	1.962	H3-6
6	M20	PIPE_...	.301	146.875	21	.189	146....		7	14558.792	50715	3.596	3.596	2.906	H1-1b
7	M21	PIPE_...	.162	40	7	.038	40		7	22373.407	50715	3.596	3.596	1.939	H1-1b
8	M22	PIPE_...	.452	1.875	22	.324	0		24	29810.292	32130	1.872	1.872	1.208	H1-1b
9	M23	PIPE_...	.447	27.813	22	.262	28.1...		22	29810.292	32130	1.872	1.872	1.22	H1-1b
10	M24	PIPE_...	.375	0	10	.251	0		18	29810.292	32130	1.872	1.872	1.319	H1-1b
11	M25	PIPE_...	.358	27.813	18	.211	28.1...		18	29810.292	32130	1.872	1.872	1.47	H1-1b
12	M26	PIPE_...	.097	84	2	.007	84		16	17855.085	32130	1.872	1.872	1.136	H1-1...
13	M27	PIPE_...	.084	55.137	12	.004	55.1...		22	24944.673	32130	1.872	1.872	1.136	H1-1...
14	M28	.625 x...	.589	0	24	.306	0	y	24	68522.792	70875	.923	5.168	1.667	H1-1b
15	M29	.625 x...	.411	0	19	.238	0	y	19	68522.792	70875	.923	5.168	1.667	H1-1b
16	M30	.625 x...	.589	0	21	.212	4.568	y	22	68522.792	70875	.923	5.168	1.665	H1-1b
17	M31	.625 x...	.468	0	18	.181	4.568	y	19	68522.792	70875	.923	5.168	1.669	H1-1b
18	M32	.625 ...	.453	20.833	24	.027	0		9	3055.133	9940.19	.104	.104	1.136	H1-1a
19	M33	.625 ...	.749	20.833	24	.032	0		22	3055.133	9940.19	.104	.104	1.136	H1-1a
20	M34	.625 ...	.294	20.833	18	.027	0		9	3055.133	9940.19	.104	.104	1.136	H1-1a
21	M35	.625 ...	.532	20.833	18	.030	0		22	3055.133	9940.19	.104	.104	1.136	H1-1a
22	M36	.75 Dia.	.000	0	1	.000	0		1	1550.496	14313....	.179	.179	1	H1-1a
23	M37	.75 Dia.	.425	23.786	13	.022	0		3	3164.278	14313....	.179	.179	1.136	H1-1a
24	M38	.75 Dia.	.303	23.786	21	.021	47.5...		9	3164.278	14313....	.179	.179	1.136	H1-1a
25	M39	.75 Dia.	.000	0	1	.000	0		1	1550.496	14313....	.179	.179	1	H1-1a



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	1	X-HDCAMSS	ANGLE ADJUSTMENT WELDMENT FOR BCAM-HD		16.39	16.39
5	2	X-VFAPL4	VFA-HD PIVOT PLATE	12 in	15.88	31.77
6	2	X-LCBP4	BENT BACKING PLATE	13 in	19.00	38.01
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	10	SCX2	CROSSOVER PLATE	7 in	4.80	47.96
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.)		1.57	12.54
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	48	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	35.45
33	20	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	13.13
34	80	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.73
35	80	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.11
36	80	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	5.73
37	5	P30120	2-7/8" x 120" (2-1/2" SCH. 40) GALVANIZED PIPE	120 in	58.07	290.33
					TOTAL WT. #	1055.41

TOLERANCE NOTES

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SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	UPDATED BCAM VERSION 1 TO BCAM VERSION 2	SP1	CSL	7/2/2018

REVISION HISTORY

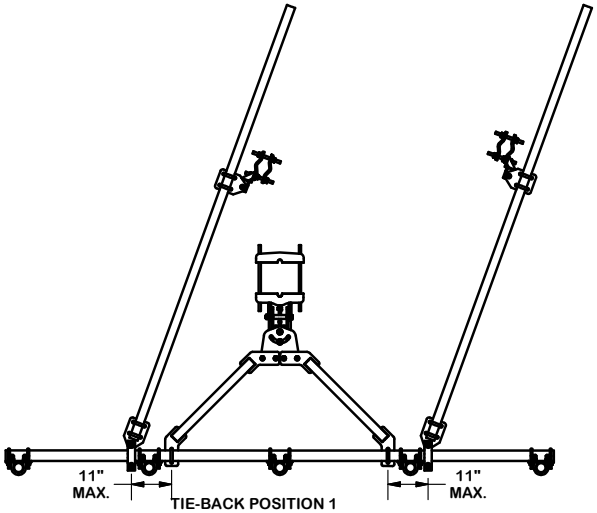
DESCRIPTION: 12' 6" HEAVY DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS & MOUNT PIPES

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL 1/25/2017		VFA12-WLL-30120

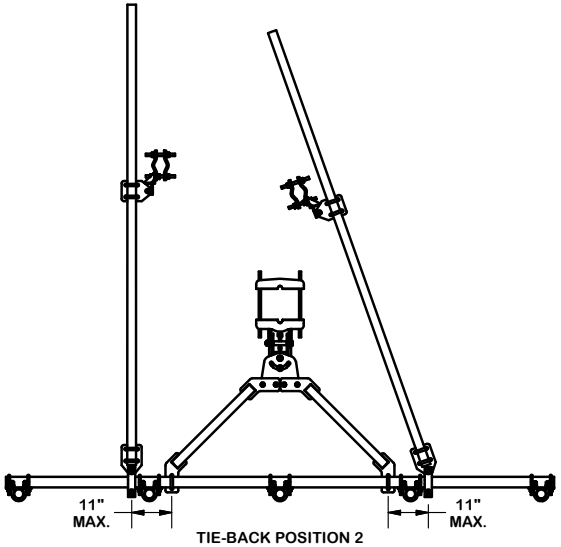
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER	BMC 5/3/2018	VFA12-WLL-30120

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

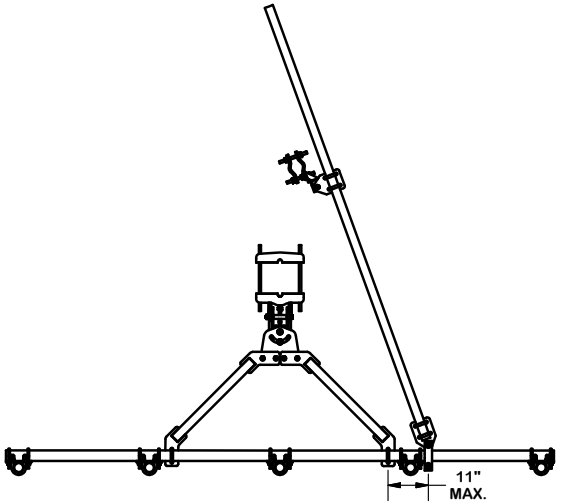
TIE-BACK POSITIONS



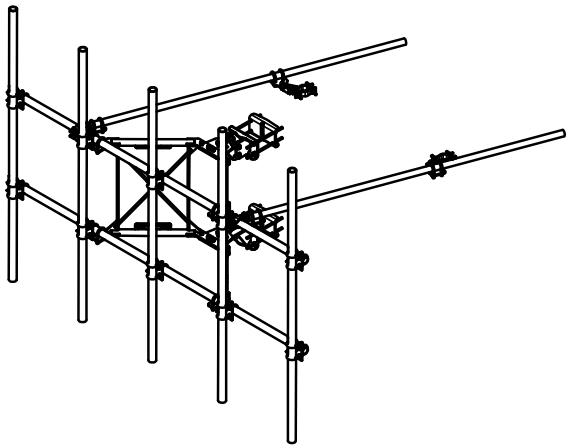
TIE-BACK POSITION 1
-20° / +20° TOP PARALLEL

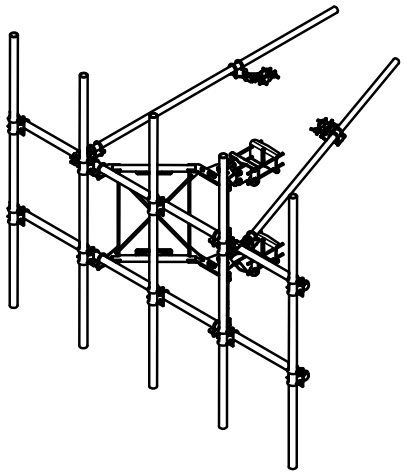


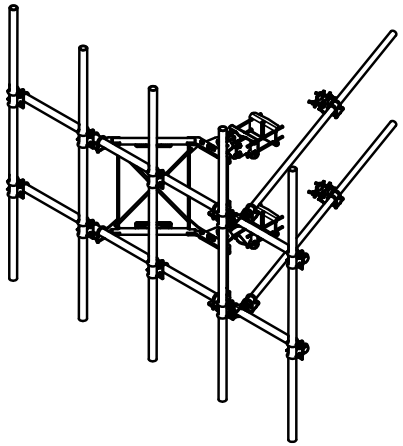
TIE-BACK POSITION 2
-20° / -20° TOP CROSS



TIE-BACK POSITION 3
-20° SAME SIDE STACKED







REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	UPDATED BCAM VERSION 1 TO BCAM VERSION 2	SP1	CSL	7/2/2018

REVISION HISTORY

TOLERANCE NOTES

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ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION: 12' 6" HEAVY DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS & MOUNT PIPES

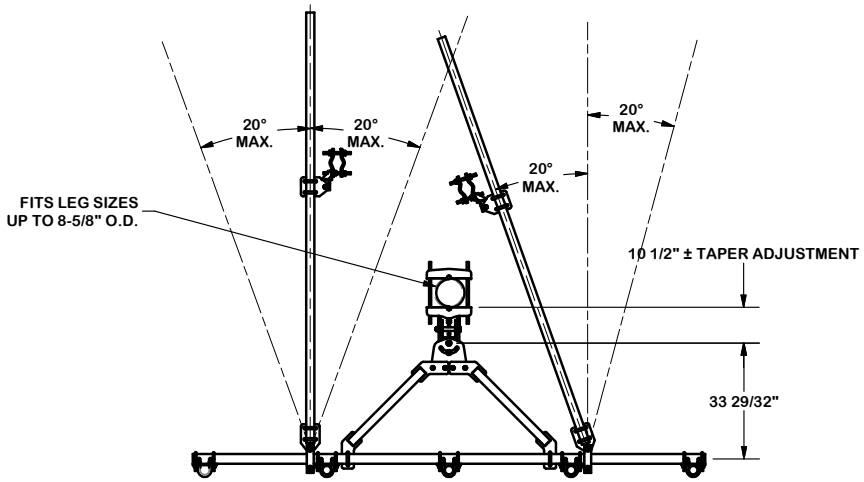
SITE PRO 1 — A valmont COMPANY

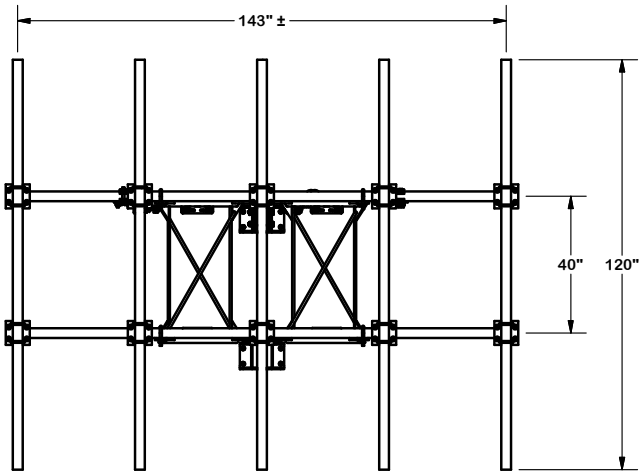
Engineering Support Team: 1-888-753-7446

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL 1/25/2017		VFA12-WLL-30120

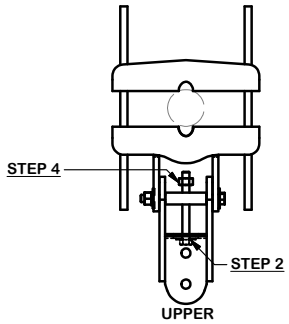
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER	BMC 5/3/2018	VFA12-WLL-30120

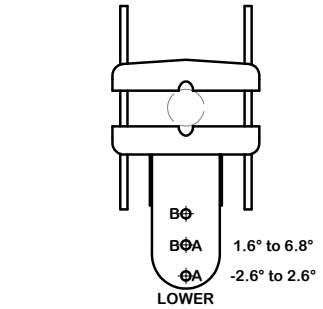


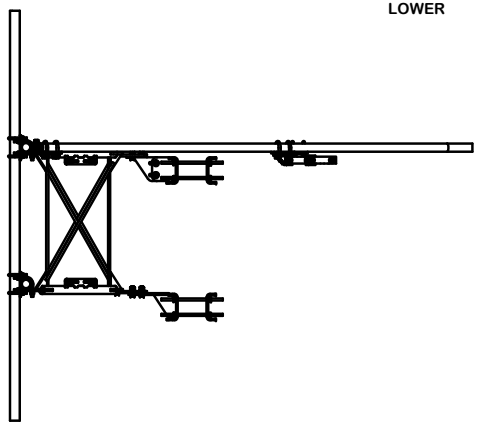


ANGLE CALIBRATING PROCEDURE:

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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BENDS ARE ± 1/2 DEGREE
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REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	UPDATED BCAM VERSION 1 TO BCAM VERSION 2	SP1	CSL	7/2/2018

REVISION HISTORY

DESCRIPTION: 12' 6" HEAVY DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS & MOUNT PIPES

SITE PRO 1 — A valmont COMPANY

Engineering Support Team: 1-888-753-7446

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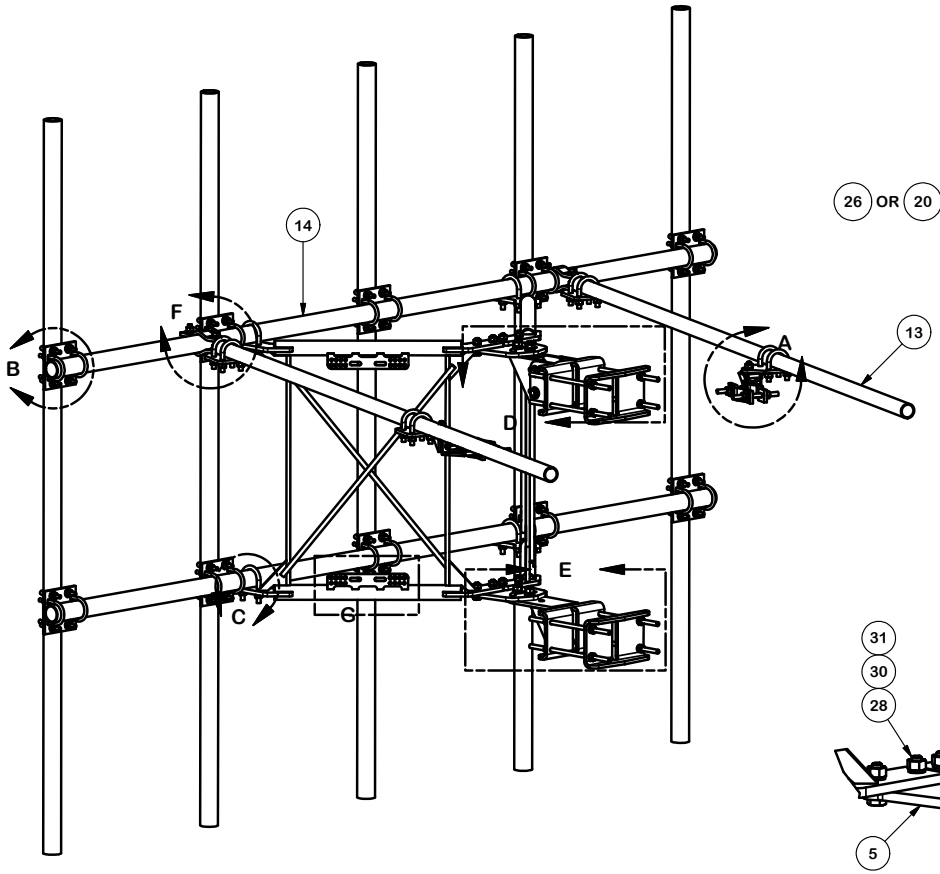
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL 1/25/2017		VFA12-WLL-30120

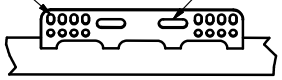
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER	BMC 5/3/2018	VFA12-WLL-30120



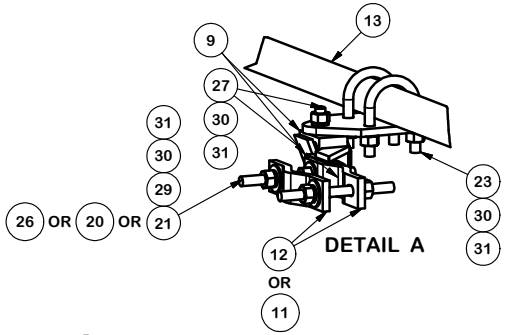
7/16" LUG HOLES

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

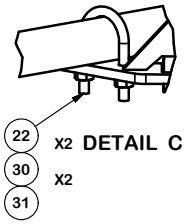
9/16" SLOTTED HOLE FOR EQUIPMENT PIPE U-BOLT



DETAIL G



DETAIL A



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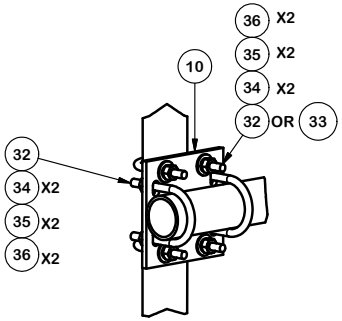

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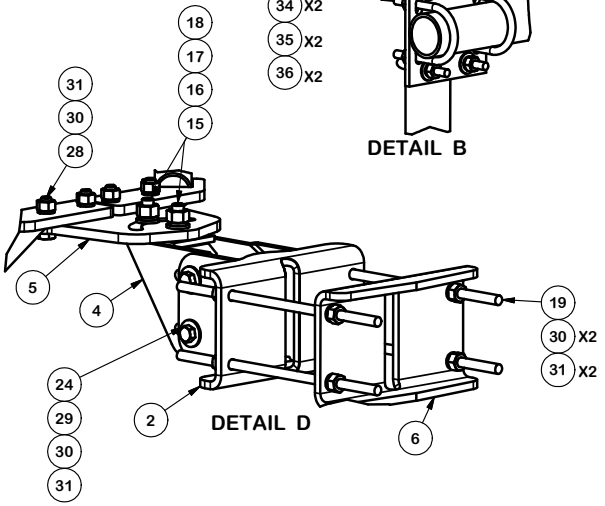
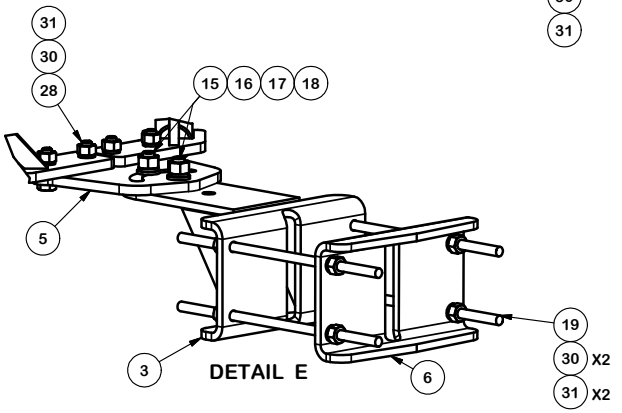
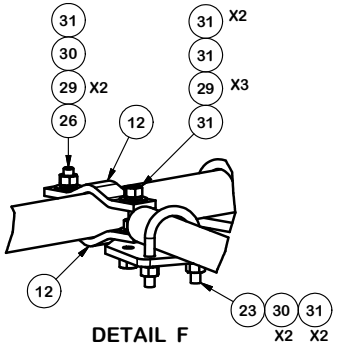


DETAIL D



DETAIL E



DETAIL F

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

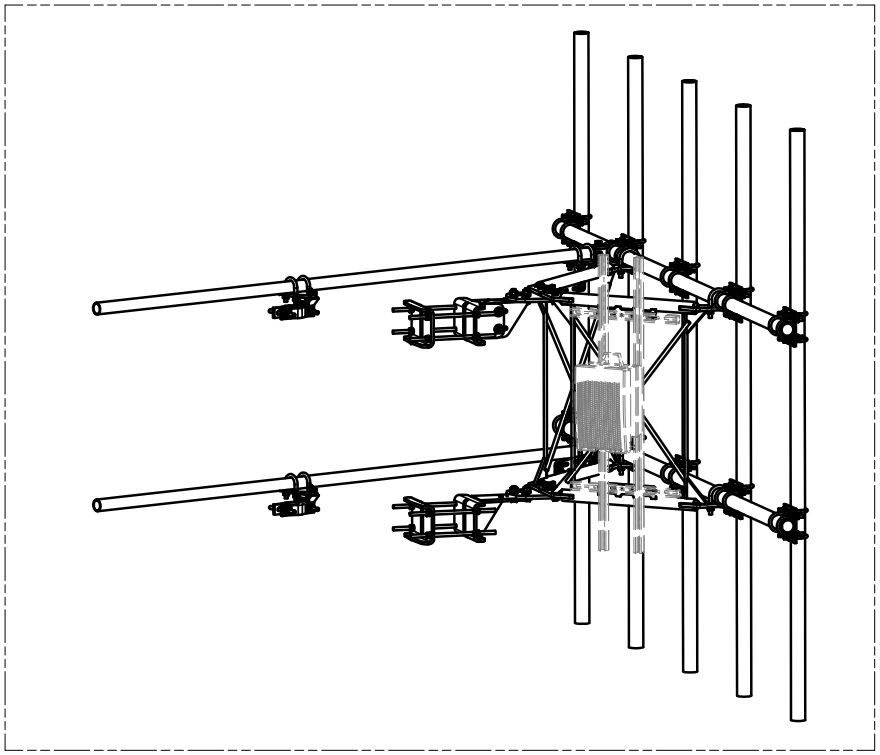
REVISION HISTORY				
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	UPDATED BCAM VERSION 1 TO BCAM VERSION 2	SP1	CSL	7/2/2018

DESCRIPTION: 12' 6" HEAVY DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS & MOUNT PIPES

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL 1/25/2017		VFA12-WLL-30120

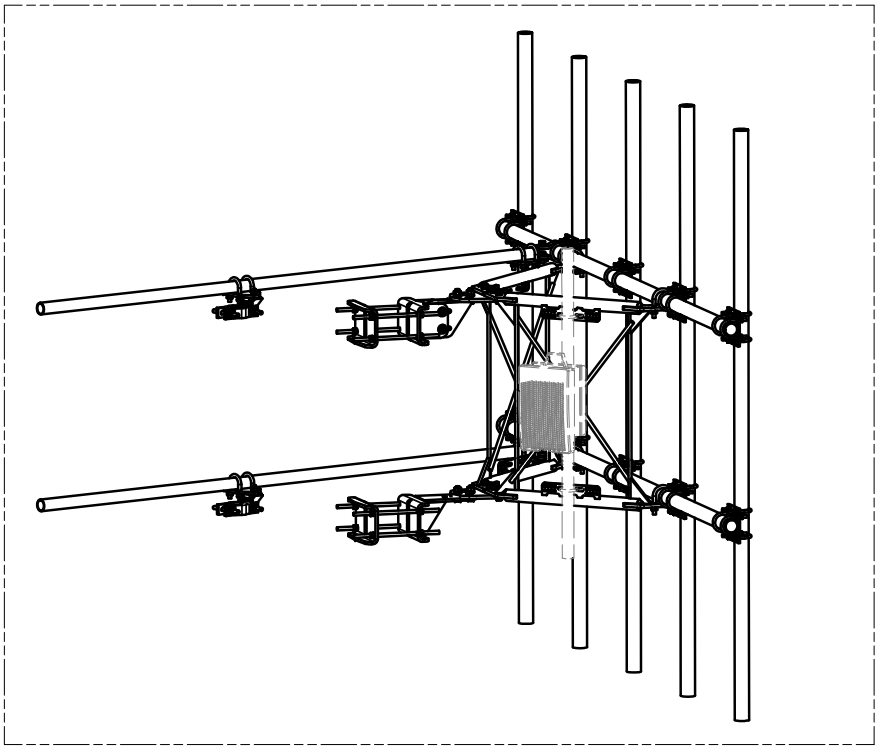
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER	BMC 5/3/2018	VFA12-WLL-30120

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



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

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	UPDATED BCAM VERSION 1 TO BCAM VERSION 2	SP1	CSL	7/2/2018

REVISION HISTORY

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
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LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION: 12' 6" HEAVY DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS & MOUNT PIPES

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.
SP1	CSL 1/25/2017		VFA12-WLL-30120

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER	BMC 5/3/2018	VFA12-WLL-30120

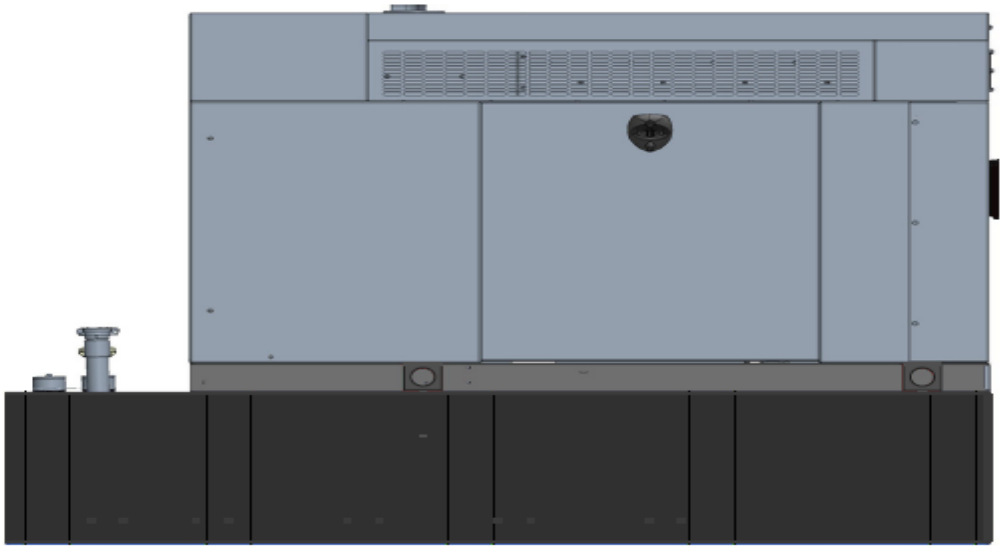
Exhibit F

T-Mobile

Engineering & Operations

Generac RD025 Design Document

Diesel, AC, 25kW External Fill Tank Model#7192-0 SKU#33651



The following are responsible for this project document:

Kevin Smith SR. Engineer (770) 256-3594

Project Design Spec Revision	1.0	Last Date:08/23/2018	5/14/2018
Final doc URL (~Dnnnnn):			
Location	Use the InfoRouter Search (Advanced) putting the Document ID (nnnnnn without the D) to find the location of the master document.		
Template URL:	http://docs.eng.t-mobile.com/InfoRouter/docs/~D423750 Slightly updated 1/2011		

Table of Contents

1 Introduction / Project Summary

1.1 Purpose of Project

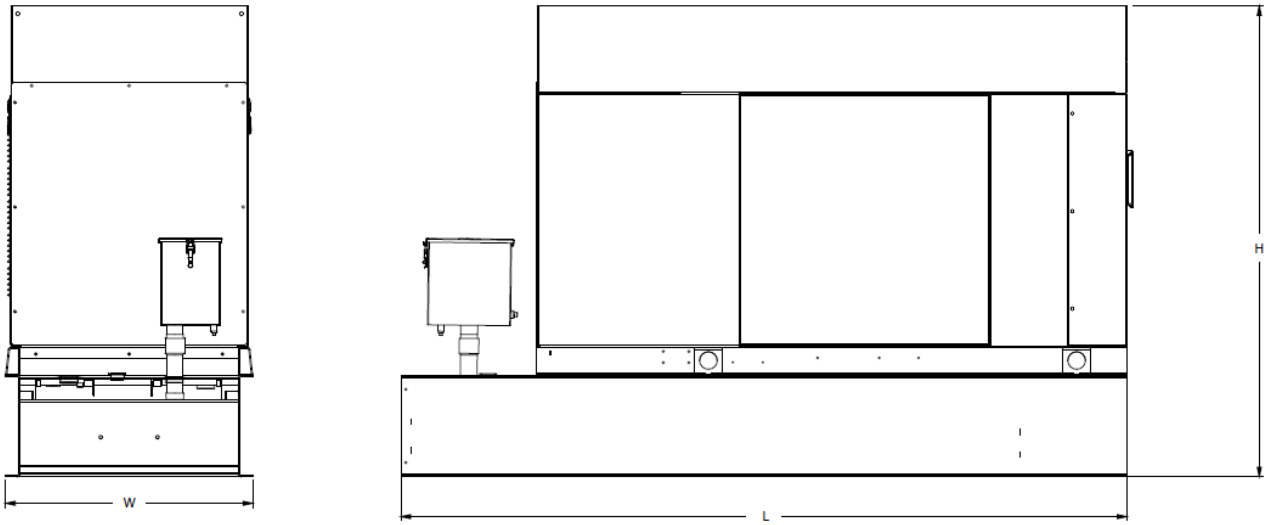
T-Mobile's nationwide cell site hardening plan is providing a refuellable backup power system capable of powering a site for a minimum of 48 hours before refueling is required. The purpose of this project is to give T-Mobile customers reliable service during power outages and provide a sufficient layer of coverage. This design document is for Generac's RD025 model#7192-0, which is a Diesel AC generator with a capacity of 25kW.

1.2 Feature Description

The Generac RD025 is a 25kW AC, diesel generator is one of the generators selected as part of the T-Mobile RFP in support of the nationwide cell site hardening plan. The RD025 has a Level 2 acoustic enclosure, 3 phase sensing, and +-0.25% digital voltage regulation. It is equipped with RS232, RS485 and canbus remote ports and Evolution control panel. It is also equipped with a automatic transfer switch, the RXSC200A3 (Automatic Transfer Switch) Controls the process of transferring commercial AC power and generator power. The RXSC200A3 is a 200Amp, switch that is programmed to perform engine test runs and also has adjustable engine run time capabilities. For RXSC200A3 Owners Manual and full feature descriptions LINK.

1.3 Dimensions

The dimensions of a level 2 Acoustic Enclosure L x W x H in inches 103.4 x 35 x 91.7. T-Mobile requires a 36-inch radius around the generator that will cover the 18" door swing on the generator.

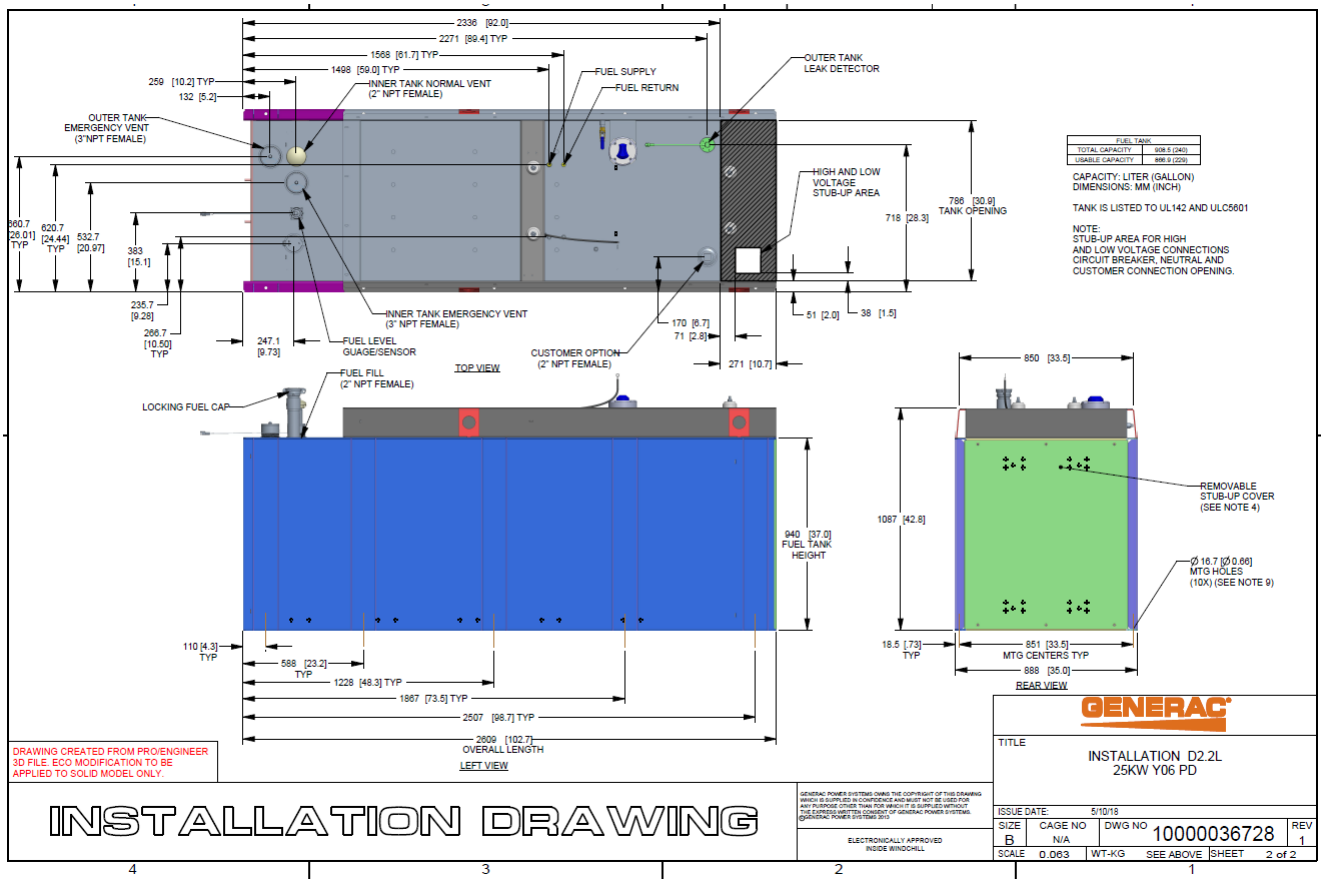


Weights and Dimensions

Unit Weight - lbs	Unit Weight with Skid - lbs	Dimensions (L x W x H) - in
2,123	2,161	103.4 x 35.0 x 73.8

2 Fuel Tanks

The RD025 has a 102.7" 240 Gallon Double-Wall UL142 Base tank to provide 98 hours of backup power at full load deployed on site. Below is the Install drawing for the 240-gallon tank for the RD025kW.



3 RXSC200A3 ATS/ Controller

3.1 Hardware

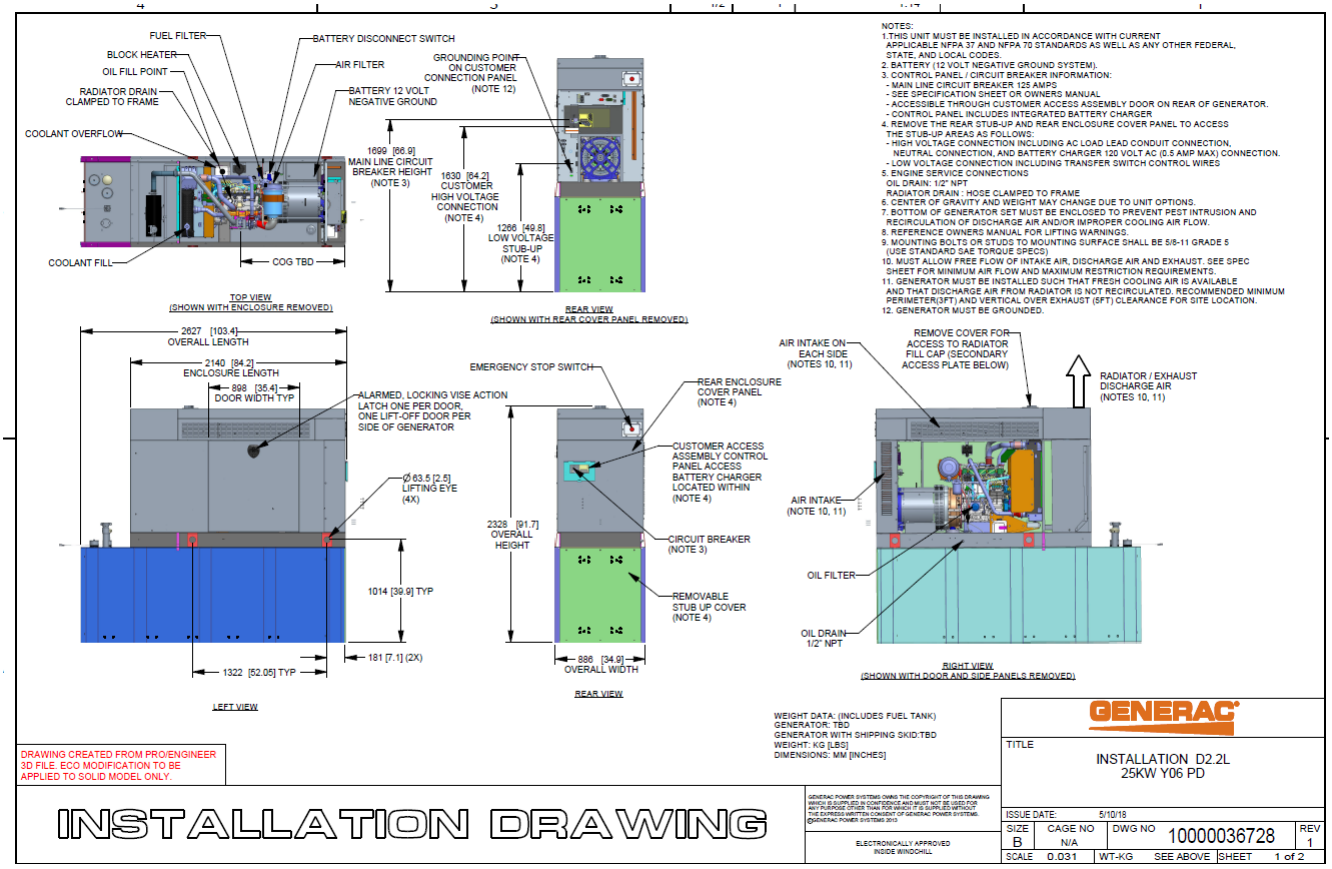
The RD025 will come with a RXSC200A3 and an Evollution controller. The sites considered for the RD025 should not have a DC power consumption above 20kW

RXSC200A3 Link

RXSC200A3 install drawing Link

Evollution controller spec sheet Link

RD025 installation drawings and supporting documentation Link

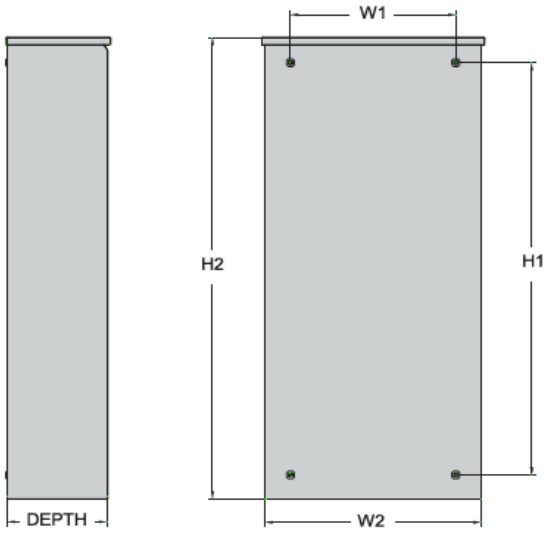


3.2 RXSC200A3 Automatic Transfer Switch

The RXSC200A3 (Automatic Transfer Switch) is equiped with the following functions. Utility voltage drop-out <65%. Timer to Generator start: 10 second factory set, adjustable between 2-1500 seconds. Engine Warm up delay: 5 seconds. Standby Voltage Sensor: 65% for 5 seconds. Utility Voltage Pickup >80%. Re-Transfer Time Delay: 15 seconds. Engine Cool-Down Timer: 60 seconds. Exerciser: 5 or 12 minute adjustable weekly/by-weekly/monthly.The transfer switch can also be operated manually without power applied

RXSC200A3 Dimensions

Model		RXSC200A3
Height (in./mm)	H1	17.24/437.9
	H2	20/508
Width (in./mm)	W1	12.5/317.5
	W2	14.6/370.8
Depth (in./mm)		7.09/180.1
Weight (lbs./kilos)		20/9.07



4 Architecture/Alarms

4.1 Interfaces and Alarming

The generator will be monitored by external alarms, conduit and cat five cables have to be installed from the Evolution Controllers Low Voltage Box located in the Generac generator to the appropriate cell site equipment. Nokia FSEB or FSEE and in Ericsson the SAU.

At a Nokia site, this connection is at the FSEB or an FSEE module. For the wiring diagram and instructions for the FSEB click the Link. (The FSEE is the Nokia module that will be replacing the FSEB. For details on the FSEE contact: HQNokiaCellsiteDesigns@T-Moblie.com)

Ericsson sites will connect to the SAU module via OVP Expansion Kit for 8 External Alarms. Product number: UTOVP-ALM8EXP. For the wiring diagram and instructions for this click the link.

The RXSC200A3 has auxiliary contacts that will facilitate the *ATS in Emergency position* alarm and will be a Normally Closed contact. Below is the wiring schematic for this contact and it can be found in the RXSC200A3 owners manual.

Auxiliary Contact

See ***Figure 3-4***. If desired, there is one normally-closed Auxiliary Contact (A) on the transfer switch to operate customer accessories, remote advisory lights, or remote annunciator devices. A suitable power source must be connected to the common terminal. If needed, an extra auxiliary contact can be added.

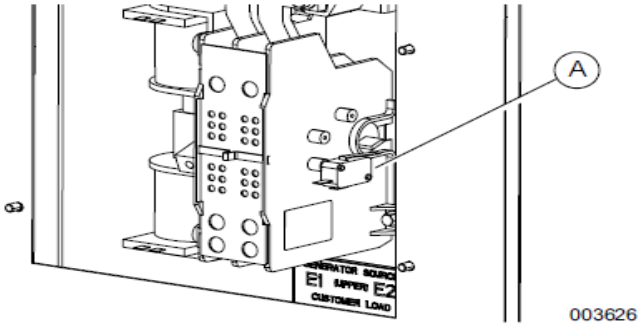


Figure 3-4. Auxiliary Contact

The auxiliary contact is normally closed when the transfer switch is in utility mode. The contacts will open when the transfer switch is in the standby power mode.

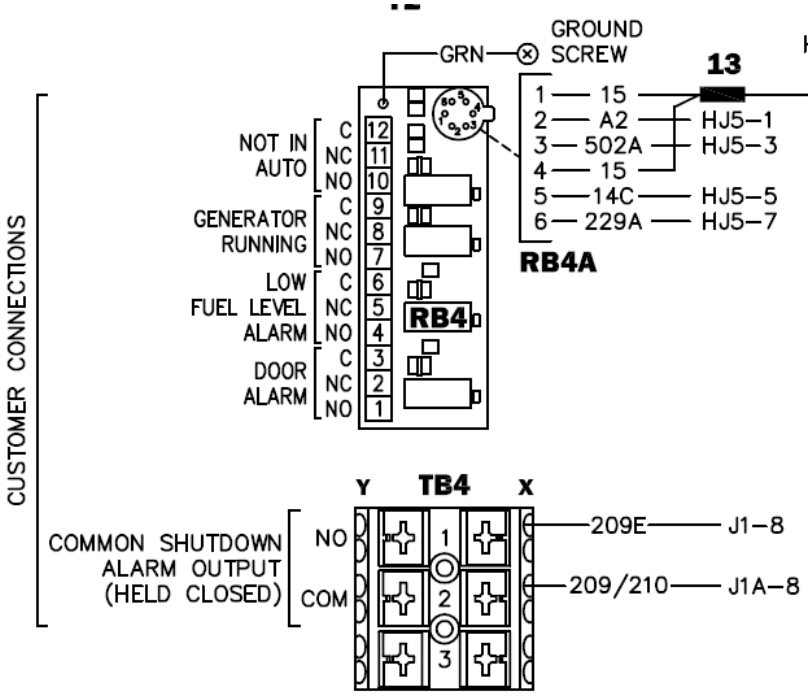
NOTE: Auxiliary Contact is rated 10 amps at 125 or 250 volts AC, and 0.6 amps at 125 volts DC.

⚠CAUTION

Equipment damage. Exceeding rated voltage and current will damage the auxiliary contacts. Verify that voltage and current are within specification before energizing this equipment. (000134a)

T-Mobile has four relays available from the Generac controller that are user-defined. T-Mobile can have four-alarm categories and a limitless number of subcategories. T- Mobile will utilize Normally Closed (NC) dry contacts for alarms in Low Voltage Connection box in the spare outputs section. Ericsson cabinets need to be equipped with the alarm expansion kit (UTOVP-ALM8EXP) to handle external alarms.

Customer Connections Inside the RD025



Ericsson UTOVP- ALM8EXP

UTOVP-ALM8EXP	OVP Expansion Kit for 8 External Alarms	Qty
Product no	**Denomination**	
UTOVP-ALM8EXP	OVP Expansion Kit for 8 External Alarms	1
NFD30234/08	OVERVOLTAGE ARRESTER/OVP-ALM 8	1
RPM777143/01200	CABLE WITH CONNECTOR/SIGNAL CABLE	2

Evolution Controller Customer Connections	Nokia FSEB Alarm Connections 13-24	T-Mobile Standard Alarms
NC#8-Gen Running	NC 4110 grd 4111 pin 13	Generator Running
NC#11-Not In Auto	NC 4110 grd 4111 pin 14	Generator Alarm Critical
NC#2-Door Alarm	NC 4110 grd 4111 pin 15	Generator Alarm NSI
NC#5-Low Fuel	NC 4110 grd 4111 pin 16	Low Fuel
RXSC200A3-Auxiliary Contacts	NC 4110 grd 4111 pin 17	ATS in Emergency Position

Evolution Controller Customer Connections	Ericsson Alarm 8expConnections	T-Mobile Standard Alarms
NC#8- Gen. Running	NC - A5	Generator Running
NC#11-Not In Auto	NC - A6	Generator Alarm Critical
NC#2-Door Alarm	NC - A7	Generator Alarm NSI
NC#5-Low Fuel	NC - A8	Low Fuel
RXSC200A3-Auxiliary Contacts	NC - A9	ATS in Emergency Position

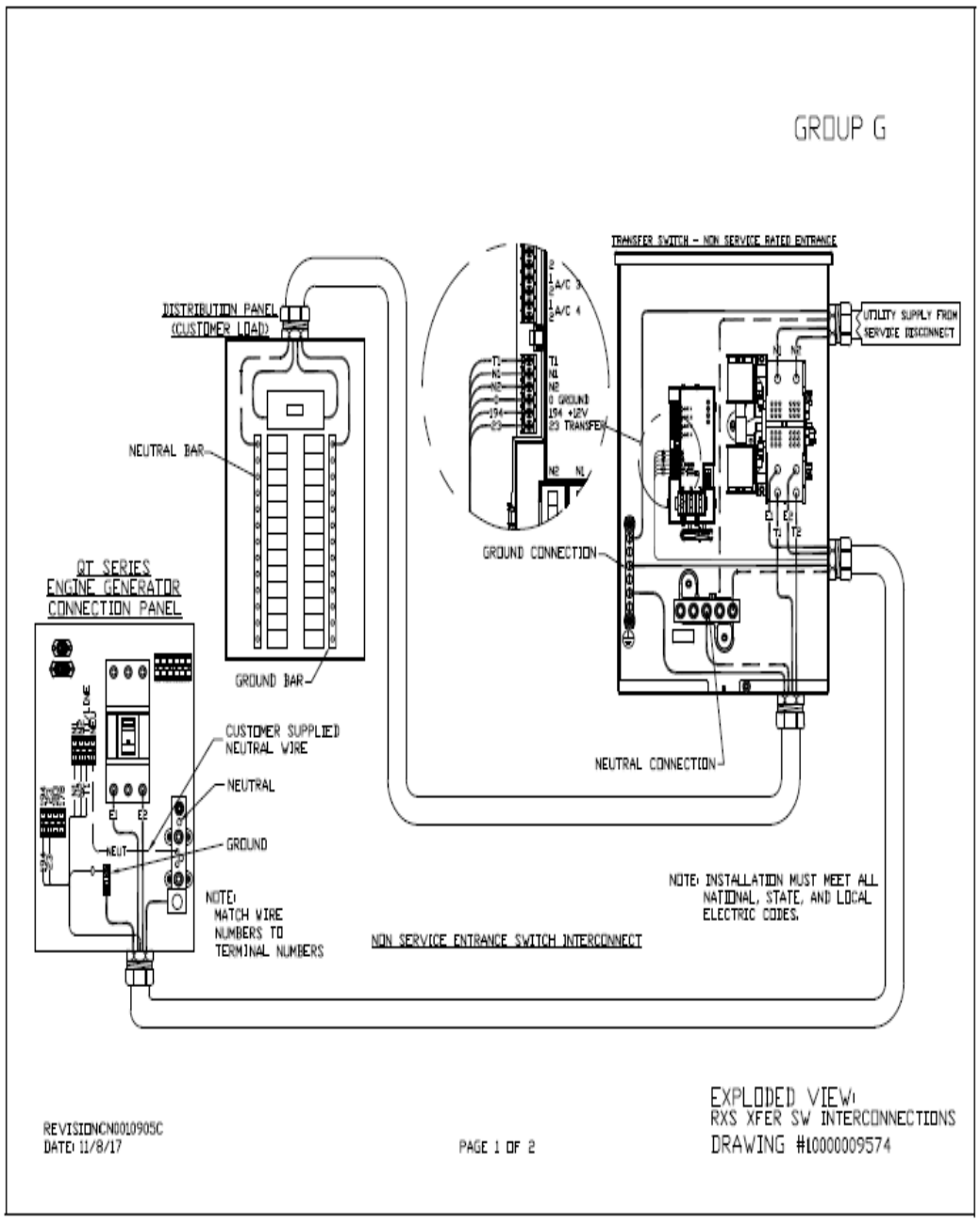
5 Regulatory Requirements

Level 2 Acoustic Enclosure provides a noise level of 67.5dBA. It is EPA certified and meets NFPA 99 and 110 requirements(NFPA National Fire Protection Association). The RD025 generator engines is a tier 4 engine and meets the EPA final standards.

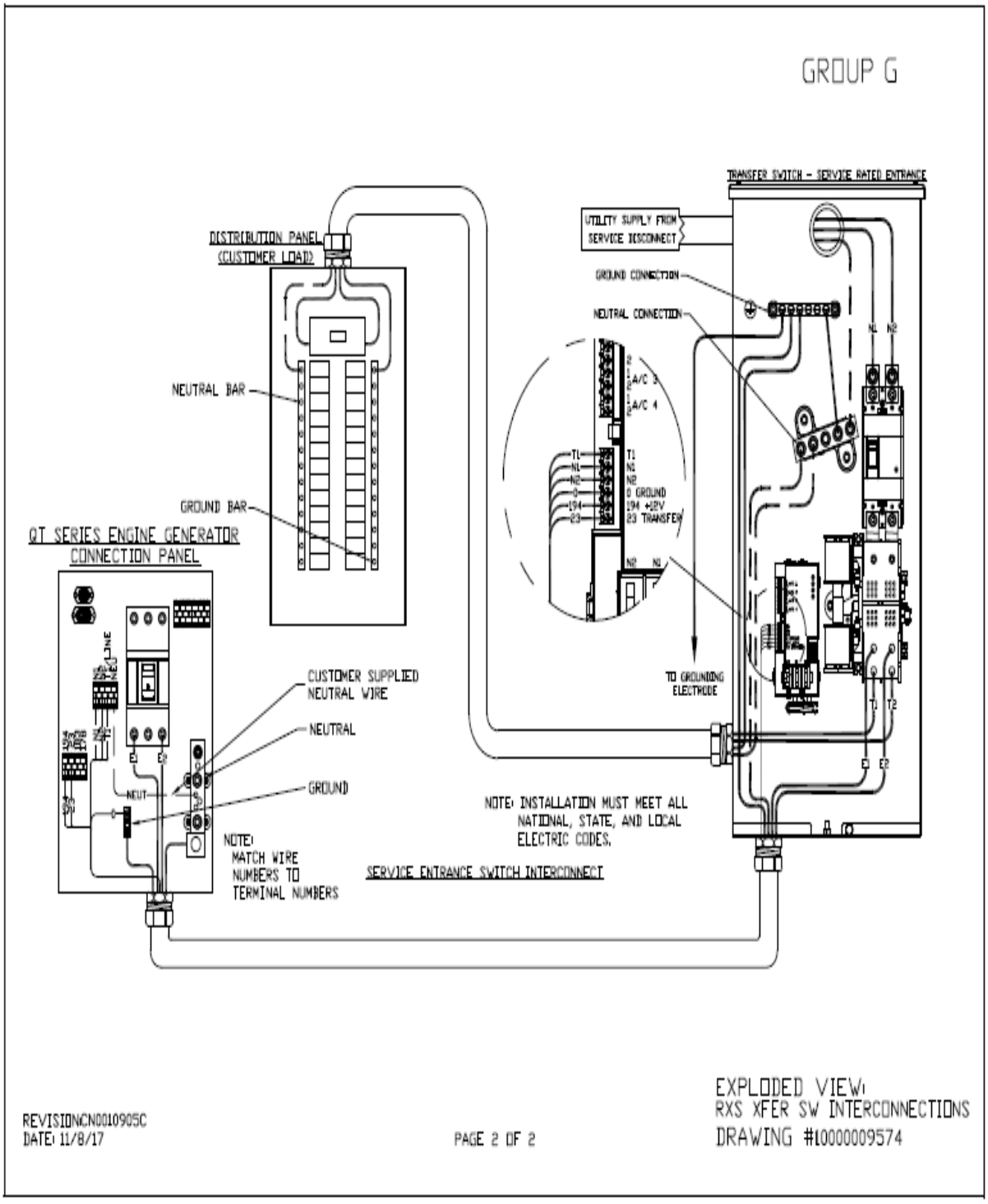
6 Configuration/Diagrams

The physical configuration of the Generator and the RXSC200A3 is, ATS before the PPC to ensure overcurrent protection when commercial power is restored. The RD025 and the RXSC200A3 has to be wired to Commercial AC power.

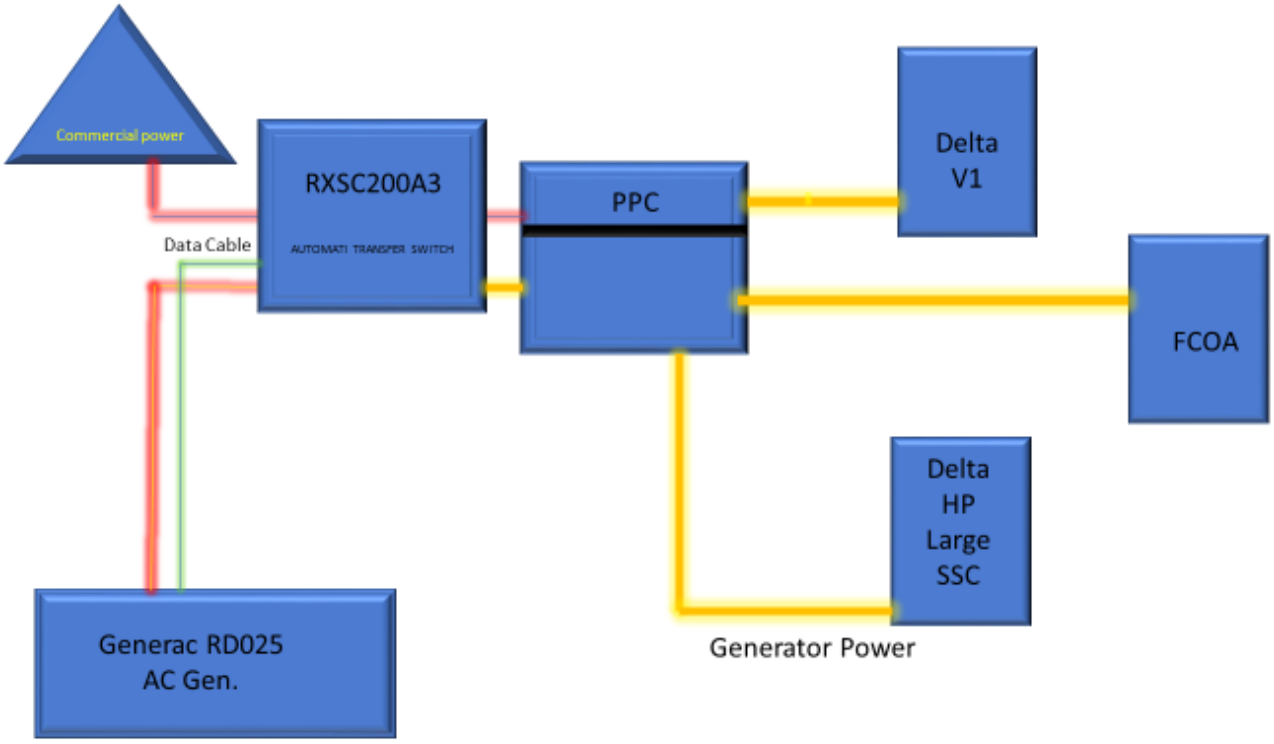
Commercial Power Connection Points On The RXSC200A3


GROUP G
TRANSFER SWITCH - NON SERVICE RATED ENTRANCE
DISTRIBUTION PANEL (CUSTOMER LOAD)
UTILITY SUPPLY FROM SERVICE DISCONNECT
NEUTRAL BAR
GROUND CONNECTION
QT SERIES ENGINE GENERATOR CONNECTION PANEL
GROUND BAR
CUSTOMER SUPPLIED NEUTRAL WIRE
NEUTRAL
GROUND
NEUTRAL CONNECTION
NOTE: MATCH WIRE NUMBERS TO TERMINAL NUMBERS
NON SERVICE ENTRANCE SWITCH INTERCONNECT
NOTE: INSTALLATION MUST MEET ALL NATIONAL, STATE, AND LOCAL ELECTRIC CODES.
EXPLODED VIEW:
RXS XFER SW INTERCONNECTIONS
DRAWING #10000009574
REVISIONCN0010905C
DATE: 11/8/17
PAGE 1 OF 2

No. 10000009574 (Part 2 of 2)—Liquid-Cooled Generator



Compound Diagram:



7 Maintenance

T-Mobile is recommending preventive maintenance to be performed every 250 hours of run-time or every 12 months, whichever comes first.

T-Mobile requires this minimum service checklist for the generator engine:

- Check engine mounts and support. Tighten fasteners.
- Check all the engine hoses and clamps for proper fit, and any signs of cracking and fatigue from wear.
- Inspect all belts for signs of cracking and fatigue from wear and adjust for proper tension.
- Inspect the exhaust system for leaks, burns and wet stacking. Drain exhaust line and tighten any clamps and flange bolts.
- Inspect silencer and plumbing for leaks, cracks or any other signs of wear.
- Inspect the system for fuel, oil and coolant leaks and signs of corrosion.
- Replace water separator.
- Replace water filter/ conditioner.
- Check Anti-Freeze (Spector-Analysis).
- Check coolant level and add, if needed.
- Inspect radiator mounting for signs or wear and cracking.
- Inspect/ clean air filter and change per manufacturer specifications.
- Inspect air intakes and outlets and tighten clamps and brackets, if applicable.
- Replace fuel filter.
- Inspect the carburetor fuel injection system, fuel injection pump and choke, if equipped. Adjust to manufacturers specifications.
- Change engine oil, oil filter and record the date on the filter casing.
- Check engine heater operation, if equipped.
- Check and adjust the battery charger operations, and charge rate within the manufacturer's recommended operating specifications.

- Inspect the battery housing, hardware connections, and cables for corrosion and wear.
- Check the battery electrolyte levels and specific gravity levels.
- Load test generator battery.
- Check, adjust and record generator output voltage, as necessary.
- Check and record the alternator charge rate.
- During inspection run the generator for 30 minutes under load. During this time, and after the engine is at full operational speed and has reached engine operating temperature; determine and record the condition of all inspection points: oil pressure, water/ coolant temperature, Fuel pressure, generator gauge, indicator operations, generator battery.
- Check the engine timing and adjust to manufacturers specifications, if necessary.
- Inspect, adjust and record governor and frequency, if necessary.
- Verify that the low fuel alarm is operational and configured correctly to trigger when the fuel tank reaches 50% of fuel tank capacity.

  Check fuel level and refuel the generator during the preventive/ corrective maintenance visit.

Exhibit G

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: CT11737C

CT737/E Hartford Town SST
100 Sunset Ridge Road
East Hartford, Connecticut 06108

June 17, 2020

EBI Project Number: 6220002581

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**23.96%**

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

June 17, 2020

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

Emissions Analysis for Site: CT11737C - CT737/E Hartford Town SST

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **100 Sunset Ridge Road** in **East Hartford, 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 100 Sunset Ridge Road in East Hartford, 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) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 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.

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

5) 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.

6) 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.

7) 2 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.

8) 2 LTE channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

9) 2 NR channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

10) 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.

11) 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.

12) The antennas used in this modeling are the Ericsson AIR6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-UNA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector A, the Ericsson AIR6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-UNA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s) in Sector B, the Ericsson AIR6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-UNA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB

for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

13) The antenna mounting height centerline of the proposed antennas is 120 feet above ground level (AGL).

14) 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.

15) 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 AIR6449	Make / Model:	Ericsson AIR6449	Make / Model:	Ericsson AIR6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	14.75 dBd / 14.45 dBd	Gain:	14.75 dBd / 14.45 dBd	Gain:	14.75 dBd / 14.45 dBd
Height (AGL):	120 feet	Height (AGL):	120 feet	Height (AGL):	120 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):	4,617.20	ERP (W):	4,617.20	ERP (W):	4,617.20
Antenna A1 MPE %:	**1.15%**	Antenna B1 MPE %:	**1.15%**	Antenna C1 MPE %:	**1.15%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	120 feet	Height (AGL):	120 feet	Height (AGL):	120 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):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A2 MPE %:	**2.18%**	Antenna B2 MPE %:	**2.18%**	Antenna C2 MPE %:	**2.18%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	120 feet	Height (AGL):	120 feet	Height (AGL):	120 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	6,169.82	ERP (W):	6,169.82	ERP (W):	6,169.82
Antenna A3 MPE %:	**1.54%**	Antenna B3 MPE %:	**1.54%**	Antenna C3 MPE %:	**1.54%**
Antenna #:	**4**	Antenna #:	**4**	Antenna #:	**4**
Make / Model:	RFS APXVAARR24_43-UNA20	Make / Model:	RFS APXVAARR24_43-UNA20	Make / Model:	RFS APXVAARR24_43-UNA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd
Height (AGL):	120 feet	Height (AGL):	120 feet	Height (AGL):	120 feet
Channel Count:	7	Channel Count:	7	Channel Count:	7
Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts
ERP (W):	8,466.41	ERP (W):	8,466.41	ERP (W):	8,466.41
Antenna A4 MPE %:	**3.52%**	Antenna B4 MPE %:	**3.52%**	Antenna C4 MPE %:	**3.52%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	8.39%
Sprint	6%
Clearwire	0.09%
AT&T	6.36%
Town	3.12%
Site Total MPE % :	23.96%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	8.39%
T-Mobile Sector B Total:	8.39%
T-Mobile Sector C Total:	8.39%
Site Total MPE % :	23.96%

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 2500 MHz LTE	2	1194.15	120.0	5.96	2500 MHz LTE	1000	0.60%
T-Mobile 2500 MHz NR	2	1114.45	120.0	5.56	2500 MHz NR	1000	0.56%
T-Mobile 1900 MHz LTE	2	2056.61	120.0	10.27	1900 MHz LTE	1000	1.03%
T-Mobile 2100 MHz LTE	2	2307.55	120.0	11.52	2100 MHz LTE	1000	1.15%
T-Mobile 1900 MHz GSM	4	1028.30	120.0	10.27	1900 MHz GSM	1000	1.03%
T-Mobile 2100 MHz UMTS	2	1028.30	120.0	5.13	2100 MHz UMTS	1000	0.51%
T-Mobile 600 MHz LTE	2	591.73	120.0	2.95	600 MHz LTE	400	0.74%
T-Mobile 600 MHz NR	1	1577.94	120.0	3.94	600 MHz NR	400	0.98%
T-Mobile 700 MHz LTE	2	648.82	120.0	3.24	700 MHz LTE	467	0.69%
T-Mobile 1900 MHz LTE	2	2203.69	120.0	11.00	1900 MHz LTE	1000	1.10%
						Total:	**8.39%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

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

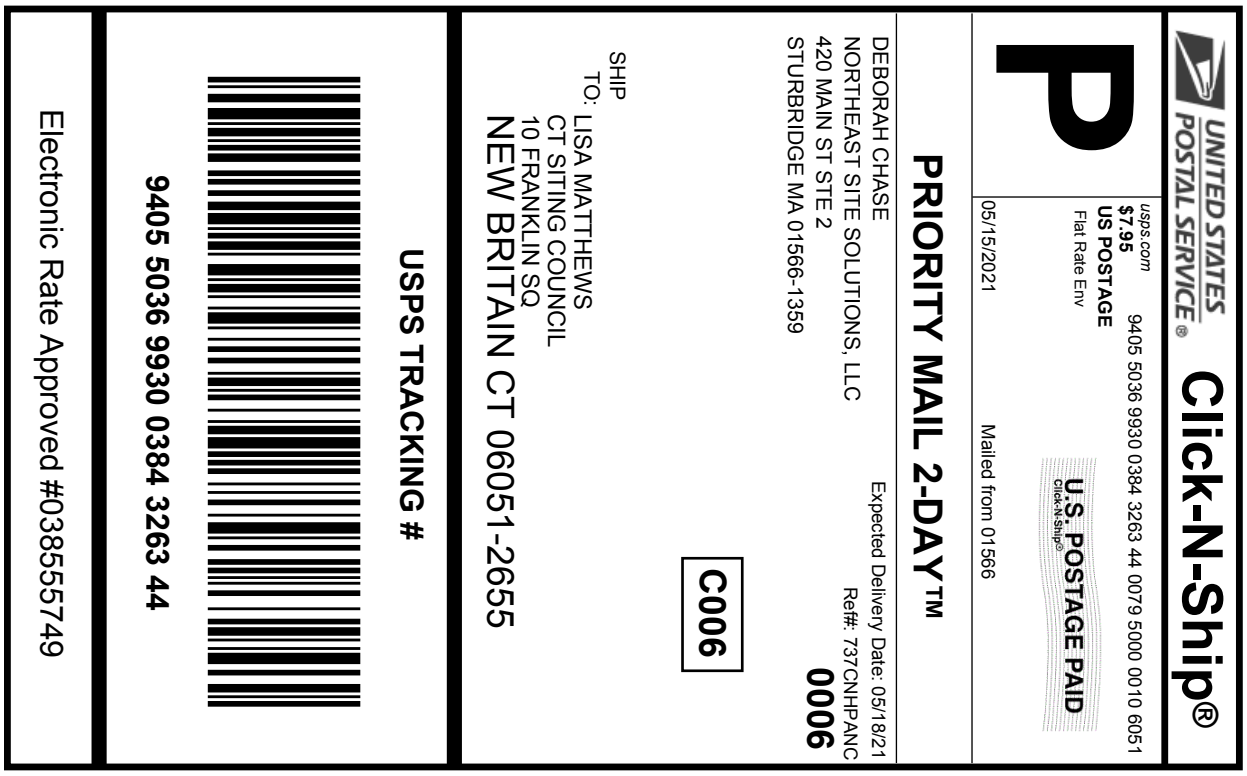
The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	8.39%
Sector B:	8.39%
Sector C:	8.39%
T-Mobile Maximum MPE % (Sector A):	8.39%
Site Total:	23.96%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **23.96%** 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 H



Cut on dotted line.

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2. **Place your label so it does not wrap around the edge of the package.**
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 0384 3263 44

Trans. #:	533487356
Print Date:	05/13/2021
Ship Date:	05/15/2021
Expected Delivery Date:	05/18/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

From: DEBORAH CHASE Ref#: 737CNHPANC
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: LISA MATTHEWS
CT SITING COUNCIL
10 FRANKLIN SQ
NEW BRITAIN CT 06051-2655

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Exhibit I

Deborah Chase

From: Deborah Chase
Sent: Thursday, May 13, 2021 4:35 PM
To: 'mleclerc@easthartfordct.gov'
Subject: 00 SUNSET RIDGE ROAD EAST HARTFORD CT 06108 T-MOBILE EM APPLICATION (CT11737C-ANCHOR_NHP)
Attachments: 100 SUNSET RIDGE EAST HARTFORD CT 06108 T-MOBILE EM APPLICATION (CT11737C Anchor_ NHP).pdf

Dear Mayor LeClerc,

Attached please find T-Mobile's exempt modification application that is being submitted to the

Connecticut Siting Council today, May 13 ,2021 for the above referenced address.

In light of the present circumstances with Covid-19, the Council has advised that electronic notification of this filing is acceptable.

If you could kindly confirm receipt.

Thank you very much

Deborah Chase
Senior Project Coordinator & Analyst
Mobile: 860-490-8839

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Deborah Chase

From: Deborah Chase
Sent: Thursday, May 13, 2021 4:33 PM
To: 'rpasek@easthartfordct.gov'
Subject: 100 SUNSET RIDGE ROAD EAST HARTFORD CT 06108 T-MOBILE EM APPLICATION (CT11737C-ANCHOR_NHP)
Attachments: 100 SUNSET RIDGE EAST HARTFORD CT 06108 T-MOBILE EM APPLICATION (CT11737C Anchor_ NHP).pdf

Dear Mr. Pasek,

Attached please find T-Mobile's exempt modification application that is being submitted to the

Connecticut Siting Council today, May 13 ,2021 for the above referenced address.

In light of the present circumstances with Covid-19, the Council has advised that electronic notification of this filing is acceptable.

If you could kindly confirm receipt.

Thank you very much

Deborah Chase
Senior Project Coordinator & Analyst
Mobile: 860-490-8839

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Deborah Chase

From: Deborah Chase
Sent: Thursday, May 13, 2021 4:38 PM
To: 'jcormier@easthartfordct.gov'
Subject: 100 SUNSET RIDGE ROAD EAST HARTFORD CT 06108 T-MOBILE EM APPLICATION (CT11737C-ANCHOR_NHP)
Attachments: 100 SUNSET RIDGE EAST HARTFORD CT 06108 T-MOBILE EM APPLICATION (CT11737C Anchor_ NHP).pdf

Dear Mr. Cormier,

Attached please find T-Mobile's exempt modification application that is being submitted to the

Connecticut Siting Council today, May 13 ,2021 for the above referenced address.

In light of the present circumstances with Covid-19, the Council has advised that electronic notification of this filing is acceptable.

If you could kindly confirm receipt.

Thank you very much

Deborah Chase
Senior Project Coordinator & Analyst
Mobile: 860-490-8839

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