

July 8, 2020

Via Electronic Mail

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

Re: Request of Cellco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of an Existing Tower at 465 Hills Street, East Hartford, Connecticut

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes (“C.G.S.”) §16-50aa, as amended, Cellco Partnership d/b/a Verizon Wireless (“Cellco”) hereby requests an order from the Siting Council (“Council”) to approve the shared use of an existing telecommunications tower on an 11.94-acre parcel at 465 Hills Street in East Hartford, Connecticut (the “Property”). The Property is owned by Heidi K. McNamara, Trustee for the Henty J. Krause Revocable Trust (the “Property Owner”). The tower is owned by MCM Acquisition 2017 LLC (“MCM”) a wholly owned subsidiary of SBA Communications. Cellco identifies this site as its “East Hartford 10 Facility”.

The existing 115.7-foot monopine “tree” tower was approved by the Siting Council on July 25, 2013 in Docket No. 436. A copy of the Council’s Decision and Order in Docket No. 436 is included in Attachment 1. AT&T maintains antennas at the 100-foot level on the tower. AT&T’s radio equipment is located in the northeasterly portion of the facility compound. The tower is also shared by the Town of East Hartford.

Cellco requests that the Council find that the proposed shared use of the MCM tower satisfies the criteria of C.G.S § 16-50aa and issue an order approving the proposed shared use. A copy of this filing is being sent to East Hartford Mayor, Marcia A. Leclerc; Jeffrey Cormier, East

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Hartford's Town Planner; the Property Owner; and MCM.

Background

Cellco is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. Cellco and MCM have agreed to the proposed shared use of the Hills Street tower pursuant to mutually acceptable terms and conditions. Likewise, MCM and Cellco have agreed to the proposed installation of equipment on the ground within an existing fenced compound area. MCM has authorized Cellco to apply for all necessary permits and approvals that may be required to share the existing tower. (*See* Owner's authorization letter included in [Attachment 2](#)).

Cellco proposes to install six (6) antennas and six (6) remote radio heads ("RRHs") on the tower at a height of 90 feet above ground level ("AGL"). Cellco will install equipment cabinets and a backup generator on the ground in the northwest corner of the fenced compound. Included in [Attachment 3](#) are Cellco's project plans showing the location of all proposed site improvements. [Attachment 4](#) contains specifications for Cellco's proposed antennas, RRHs and back-up generator.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." Cellco respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing MCM tower is structurally capable of supporting Cellco's antennas, RRHs, antenna mounting frame and related equipment. The proposed shared use of this tower is, therefore, technically feasible. A Structural Analysis Report dated April 6, 2020, prepared for this project confirms that the tower can support all of Cellco's proposed tower loading. A copy of the Structural Analysis Report is included in [Attachment 5](#). A Mount Structure Replacement Report dated May 27, 2020, was also prepared and confirms that the antenna mounts have sufficient capacity to support Cellco's proposed equipment. The Mount Structural Replacement Report is included in [Attachment 6](#).

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the shared use of an existing tower such as the MCM tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In

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addition, § 16-50x(a) directs the Council to “give such consideration to other state laws and municipal regulations as it shall deem appropriate” in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. **Environmental Feasibility.** The proposed shared use of the MCM tower would have minimal environmental effects, for the following reasons:

1. The proposed installation of six (6) antennas and six (6) remote radio heads on an antenna mounting frame at a height of 90 feet AGL on the existing 115.7-foot tower would have an insignificant incremental visual impact on the area around the existing tower. As mentioned above, Cellco’s equipment will be located within the existing fenced and paved compound area. Cellco’s shared use of this tower facility would therefore, not cause any significant change or alteration in the physical or environmental characteristics of the existing site.
2. Noise associated with Cellco’s proposed facility will comply with State and local noise standards. Noise associated with the existing shared backup generator is exempt from these same standards.
3. Operation of Cellco’s antennas at this site would not exceed the RF emissions standards adopted by the Federal Communications Commission (“FCC”). Included in Attachment 7 of this filing are Far Field Approximation tables for each of Cellco’s operating frequencies that demonstrates that the facility will operate well within the FCC’s safety standards.
4. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the MCM facility other than periodic maintenance visits to the cell site.

The proposed shared use of the MCM tower would, therefore, have a minimal environmental effect, and is environmentally feasible.

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D. Economic Feasibility. As previously mentioned, Cellco has entered into an agreement with MCM for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Cellco's antennas, antenna mounting frame, RRHs and all related equipment. Cellco is not aware of any public safety concerns relative to the proposed sharing of the existing MCM tower. In fact, the provision of new and improved wireless service through shared use of the existing tower is expected to enhance the safety and welfare of area residents and members of the general public traveling through the Town of East Hartford.

Conclusion

A Certificate of Mailing verifying that this filing was sent to the municipal officials and the Property owner is included in Attachment 8.

For the reasons discussed above, the proposed shared use of the existing MCM tower at the Property satisfies the criteria stated in C.G.S. § 16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Thank you for your consideration of this matter.

Very truly yours,



Kenneth C. Baldwin

Enclosures

Copy to:

Marcia A. Leclerc, Mayor
Jeffrey Cormier, Town Planner
Heidi K. McNamara, Trustee
Jason Silberstein, MCM Acquisition 2017 LLC

ATTACHMENT 1

<p>DOCKET NO. 436 – Message Center Management, Inc. and New Cingular Wireless PCS, LLC Application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at one of two sites: 465 Hills Street or 56 Hills Street, East Hartford, Connecticut.</p>	<p>} } } }</p>	<p>Connecticut Siting Council July 25, 2013</p>
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Decision and Order

Pursuant to Connecticut General Statutes §16-50p and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Message Center Management, Inc., hereinafter referred to as the Certificate Holder, for a telecommunications facility at Site A, located at 465 Hills Street, East Hartford, Connecticut. The Council denies certification of Site B, located at 56 Hills Street, East Hartford, Connecticut.

Unless otherwise approved by the Council, the facility shall be constructed, operated, and maintained substantially as specified in the Council’s record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a stealth tree monopole (i.e. monopine), no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of (AT&T) and other entities, both public and private, but such monopole shall not exceed a height of 110 feet above ground level. The height at the top of the “tree top” shall not exceed 117 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of East Hartford for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, emergency backup generator, and landscaping; and
 - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. The Eastern Box Turtle Protection Program shall be implemented to mitigate any possible impacts to Eastern Box Turtles in the event any are found in the vicinity of the site.
4. The tower shall be designed with a yield point to ensure that the setback radius remains within the subject property boundaries.

5. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
6. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
7. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
9. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of East Hartford. Any proposed modifications to this Decision and Order shall likewise be so served.
10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
11. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.
12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.
13. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

14. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.
15. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, emergency backup generator, and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.
16. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated February 20, 2013, and notice of issuance published in The Journal Inquirer.

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

ATTACHMENT 2



SBA Communications Corporation
8051 Congress Avenue
Boca Raton, FL 33487-1307

T + 561.995.7670
F + 561.995.7626

sbasite.com

LETTER OF AUTHORIZATION

SBA Site ID: CT22077-A, East Hartford (465 Hill St)

Property Located at: 465 Hills Street, East Hartford, CT, 06118

THE CITY/COUNTY OF: East Hartford / Hartford

APPLICATION FOR ZONING/USE/BUILDING PERMIT

This letter authorizes Verizon Wireless and its authorized agents to file for all necessary zoning, planning and building permits (local, state and federal) for the purposes of installing, operating and maintaining a telecommunications facility on the existing tower on the property referenced above on behalf of Heidi K. McNamar, Trustee of the Henry J. Krause Revocable Trust & the Elsie Krause Revocable Trust.

All approval conditions that may be granted to Verizon Wireless in connection with above referenced facility relating to this specific application are the sole responsibility of Verizon Wireless.

MCM Acquisition 2017, LLC

A handwritten signature in black ink, appearing to read 'Jason Silberstein', is written over a light blue horizontal line.

Jason Silberstein

Executive VP, Site Leasing

Date: 7/07/2020

ATTACHMENT 3



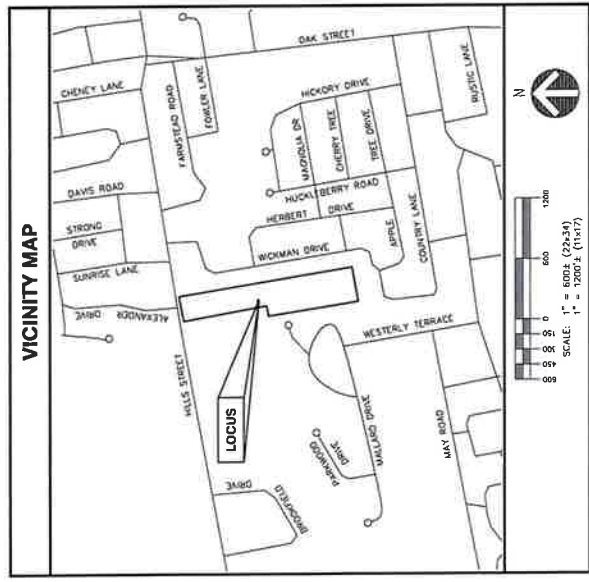
SITE NAME: EAST HARTFORD 10 CT
LOCATION CODE: 607552
ADDRESS: 465 HILLS STREET
EAST HARTFORD, CT 06118
CO-LOCATION ON AN EXISTING MONOPINE

CONSTRUCTION

DRAWING INDEX	
SHEET	REVISION
T-1	0
GN-1	0
A-1	0
A-2	0
D-1 TO D-4	0
E-1 TO E-2	0

GENERAL NOTES

- CONTRACTOR SHALL VERIFY ALL DIMS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER & OWNER REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
- ALL UNDERGROUND UTILITY INFORMATION WAS OBTAINED FROM SURFACE RECORDS AND FIELD SURVEY. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL BEFORE YOU DIG (811) OR (800) 922-4455 72-HOURS PRIOR TO ANY EXCAVATION. PROTERRA DID NOT PERFORM AN UNDERGROUND UTILITY SURVEY. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL BEFORE YOU DIG (811) OR (800) 922-4455 72-HOURS PRIOR TO ANY EXCAVATION. PROTERRA DID NOT PERFORM AN UNDERGROUND UTILITY SURVEY.
- THIS SHEET WAS ORIGINALLY PRINTED TO ANSI D (22.5"x34") WITH 1" MARGINS SET WITH 1/2" MARGINS. CONFIRM ALL SCALED DISTANCES WITH GRAPHICAL SCALES SHOWN HEREIN.
- ALL DIMENSIONS AND LOCATIONS SHOWN IN ACCORDANCE WITH THE LATEST VERIZON CONSTRUCTION GUIDELINES.
- NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
- BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE.
- ELECTRICAL CODE: NEC 2017 WITH CONNECTICUT AMENDMENTS.
- THESE CO-LOCATION PLANS ARE SUBJECT TO THE PASSING GLOBAL STRUCTURAL ANALYSIS PREPARED BY TOWER ENGINEERING SOLUTIONS.
- THE ANTEENNA/ANTENNA MOUNT SHALL BE INSTALLED IN ACCORDANCE WITH THE MOUNT STRUCTURAL ANALYSIS PREPARED BY PROTERRA DESIGN GROUP, LLC DATED 05/27/20.
- THE CONSTRUCTION SHOWN HEREIN MAY REQUIRE SPECIAL INSPECTIONS AND SHALL BE SUBJECT TO THE JURISDICTION AND/OR APPROPRIATE 3RD PARTIES AS MAY BE REQUIRED WITH THE AUTHORITIES HAVING JURISDICTION (AND) PRIOR TO CONSTRUCTION AND ENGAGE THE INSPECTOR AND/OR APPROPRIATE 3RD PARTIES AS MAY BE REQUIRED.



PROJECT INFORMATION	
SITE TYPE:	CO-LOCATION ON EXISTING MONOPINE
SCOPE OF WORK:	PREPARED BY EQUIPMENT MOUNTED ON AN EXISTING MONOPINE & GROUND LEVEL EQUIPMENT INSTALLED ON PROPOSED CONCRETE PADS WITHIN AN EXISTING FENCED COMPOUND.
SITE NAME:	EAST HARTFORD 10 CT
LOCATION CODE:	607552
SITE ADDRESS:	465 HILLS STREET EAST HARTFORD, CT 06118
COUNTY:	HARTFORD
ASSESSOR'S PARCEL ID#:	63-348
ZONING DISTRICT(S):	RESIDENCE 2 (R-2)
TOWER LATITUDE:	41° 44' 26.57" N (SURVEY 1A)
TOWER LONGITUDE:	72° 35' 02.77" W (SURVEY 1A)
DATUM:	NAD83/NAVD83
PROPERTY OWNER:	HENRY J. KRAUSE, REVOCABLE TRUST C/O HEDI K. MCNAMAR, TRUSTEE 32 JAKOBES LANDING WESTBROOK, CT 06498
TOWER OWNER:	SBA COMMUNICATIONS CORPORATION
TOWER ID:	CT22077-A
TOWER SITE NAME:	EAST HARTFORD (465 HILLS ST)
TOWER OWNER ADDRESS:	8051 CONGRESS AVENUE BOCA RATON, FL 33487
APPLICANT:	CELCO PARTNERSHIP 99 EAST RIVER DRIVE NINTH FLOOR EAST HARTFORD, CT 06108
SITE ENGINEER:	PROTERRA DESIGN GROUP, LLC 4 BAY ROAD, SUITE 200 EAST HARTFORD, CT 06118 (413) 320-4918

4 Bay Road
East Hartford, CT 06118
Ph: (413) 320-4918

VERIZON
 CELCO PARTNERSHIP
 99 EAST RIVER DRIVE
 EAST HARTFORD, CT 06118
 LOCATION CODE: 607552
 ADDRESS: 465 HILLS STREET
 EAST HARTFORD, CT 06118

DATE: 06/10/20
 DRAWN: SJZ/PN
 CHECK: JIM/TEJ
 SCALE: SEE PLAN
 JOB NO: D-03D
 SHEET TITLE:

TITLE SHEET

T-1

CONSULTANTS:

DATE	REVISIONS
06/10/20	ISSUED FOR REVIEW
06/10/20	FOR CONSTRUCTION

VERIZON
GUILD PARTNERSHIP
99 EAST RIVINGTON DRIVE
EAST HARTFORD, CT 06108

LOCATION CODE: 607552
ADDRESS: 465 HILLS STREET
EAST HARTFORD, CT 06108



DATE: 06/10/20
DRAWN: STZ/PN
CHECK: JMA/TEJ
SCALE: SEE PLAN
JOB NO.: 13-009
SHEET TITLE:

COMPILED
PLOT PLAN
A-1

REFERENCES

PRO TERRA DESIGN GROUP, LLC HAS NOT PERFORMED A BOUNDARY SURVEY OR EXISTING FACILITY SURVEY. THIS PLOT PLAN IS BASED ON THE RECORD DRAWINGS AND RECORD PLANS AND MAY CHANGE AS MORE ACCURATE SURVEY DATA MAY BECOME AVAILABLE. EXISTING FEATURES OF THE WIRELESS TELECOMMUNICATIONS FACILITY SHOWN HEREIN ARE BASED ON THE RECORD DRAWINGS AND RECORD PLANS. THIS PLOT PLAN IS FOR A SITE VISIT CONDUCTED ON 03-11-20, (LIMITED TO THE EXISTING WIRELESS FACILITY).

ZONING DISTRICTS - MAP ENTITLED "EAST HARTFORD ZONING MAP PREPARED FOR TOWN OF EAST HARTFORD, CT 06108" MAP 26 OF 30, DATED 11-26-08.

FEMA NATIONAL FLOOD HAZARD LAYER CONFIRMED WITH FLOOD INSURANCE RATE MAP 69035027E EFFECTIVE SEPTEMBER 26, 2008 PREPARED BY FEDERAL EMERGENCY MANAGEMENT AGENCY, WASHINGTON, DC. FLOOD HAZARD ZONING MAP NOT PRINTED. AREA OUTSIDE OF FLOOD BOUNDARIES AREA IN ZONE X.

GENERAL NOTES

1. THE TYPE, DIMENSIONS, MOUNTING HARDWARE, AND POSITIONS OF ALL PROJECT OWNER'S EQUIPMENT ARE SHOWN IN ILLUSTRATIVE FASHION. ACTUAL HARDWARE DETAILS AND FINAL LOCATIONS MAY DIFFER SLIGHTLY FROM WHAT IS SHOWN.
2. THE PROJECT OWNER'S PCS FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT LOCATION. THE FACILITY DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. THE DESIGN OF THE TOWER, FOUNDATION AND ANTENNA MOUNTING HARDWARE WILL MEET THE REQUIREMENTS OF THE LOCAL BUILDING CODES, STATE AND FEDERAL REGULATIONS, STRUCTURES AND STATE BUILDING CODES. REQUIREMENTS, DETAILED CONSTRUCTION DETAILS AND STRUCTURAL CALCULATIONS WILL BE PROVIDED BY AN ENGINEER. REVIEW AND APPROVAL BY THE LOCAL BUILDING CODE ENFORCEMENT OFFICIAL.
4. ONCE THE FACILITY BECOMES FULLY OPERATIONAL, NORMAL AND ROUTINE MAINTENANCE BY TOWER OWNERS AND CARRIER'S TECHNICIANS WILL BE PERFORMED. THE ESTIMATED MAINTENANCE TIME REQUIRED TO ACCESS THE FACILITY SHALL BE LESS THAN THE TYPICAL TRAFFIC GENERATED BY A SINGLE-FAMILY DWELLING.
5. THE PROPOSED INSTALLATION WILL BE CO-LOCATED ON AN EXISTING MONOPINE AND WITHIN THE EXISTING FENCED COMPOUND. IT HAS BEEN ASSUMED THAT THE TOWER AND COMPOUND WAS LAWFULLY APPROVED BY THE AUTHORITIES HAVING JURISDICTION.

ZONING SUMMARY

ZONING DISTRICT(S): RESIDENCE 2 (R-2)
ASSESSORS (S): 63-348
(P) USE: PERSONAL WIRELESS SERVICE FACILITY

PARCEL - AREA	DIMENSIONS	PROVIDED	CONSTRAINT
11.9 ACRES ±		15,000 SF	
(P) VERIZON LEASE AREA - FRONT YARD	240'	70' MIN.	
(P) VERIZON LEASE AREA - SIDE YARD	240'	40' MIN.	
(P) VERIZON LEASE AREA - REAR YARD	240'	10' MIN.	
(P) VERIZON LEASE AREA - REAR YARD	240'	40' MIN.	

SIDE YARD SHALL BE NOT LESS THAN 10' PER SIDE AND THE TWO SIDES SHALL TOTAL TO A MINIMUM OF 25'

(E) EXISTING
(P) PROPOSED
(F) FUTURE

LEASEE = VERIZON WIRELESS
LESSOR = SBA COMMUNICATIONS



COMPILED PLOT PLAN
SCALE: 1"=50' (1/4"=10')

DATE	REVISIONS
05/20/20	ISSUED FOR REVIEW
05/19/20	FOR CONSTRUCTION

Verizon
CELLO PARTNERSHIP
88 EAST RIVER DRIVE
EAST HARTFORD, CT 06108

Verizon
88 EAST RIVER DRIVE
EAST HARTFORD, CT 06108

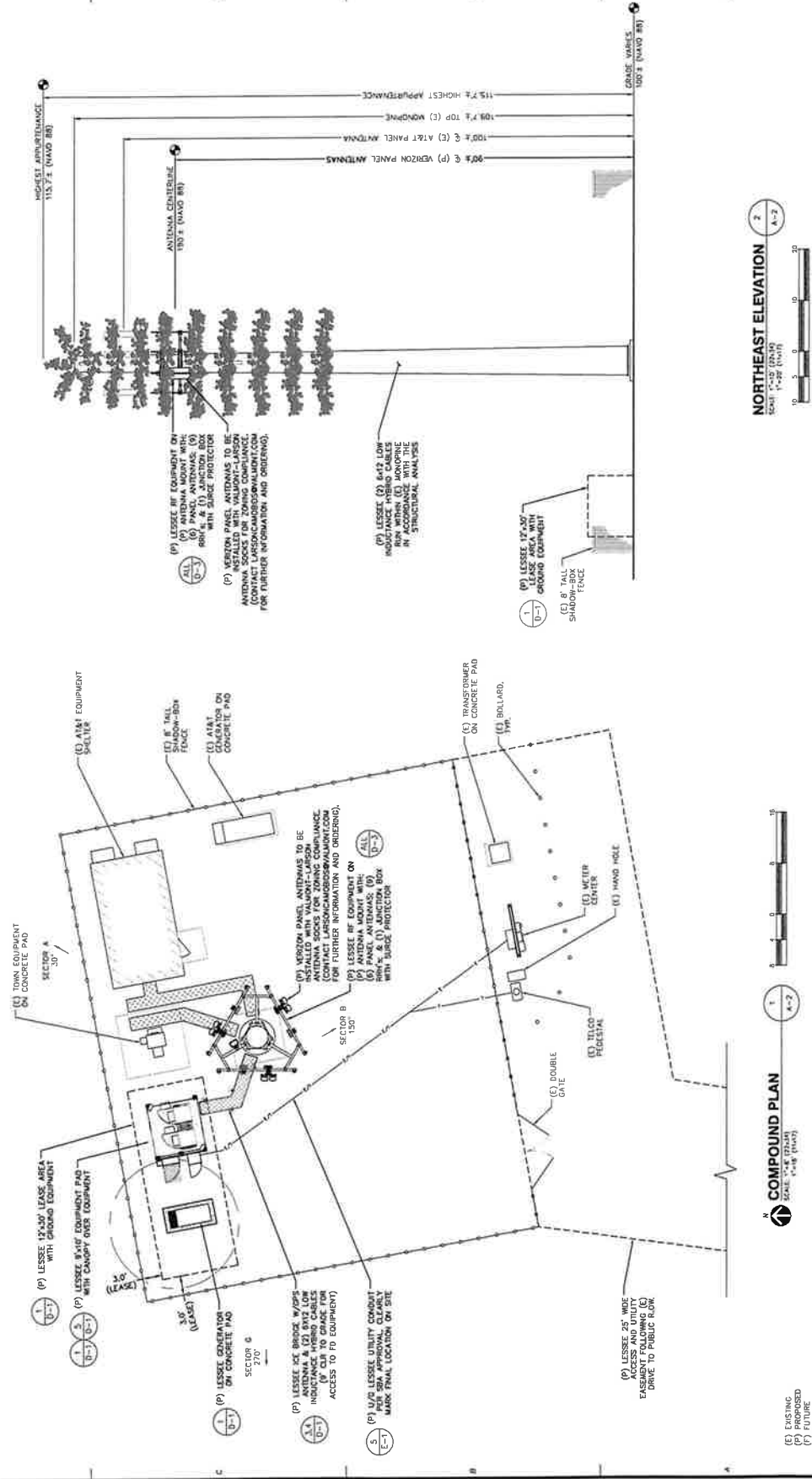
LOCATION CODE: 007652
ADDRESS: 466 HILLS STREET
EAST HARTFORD, CT 06108



DATE: 05/10/20
DRAWN: STZ/PN
CHECK: JMA/TEJ
SCALE: SEE PLAN
JOB NO.: 13-000
SHEET TITLE:

COMPOUND PLAN & ELEVATION
A-2

THESE CO-LOCATION PLANS ARE SUBJECT TO THE PASSING GLOBAL STRUCTURAL ANALYSIS PREPARED BY TOMER ENGINEERING SOLUTIONS DATED 04/06/20. THE PLANS SHALL BE RECALLED IN ACCORDANCE WITH THE PASSING GLOBAL ANALYSIS PREPARED BY PROTERRA DESIGN GROUP, LLC DATED 05/27/20.



(E) EXISTING
(P) PROPOSED
(F) FUTURE

CONSULTANTS:

NO.	DATE	REVISIONS
1	05/20/20	ISSUES FOR REVIEW
2	06/10/20	FOR CONSTRUCTION

VERIZON
CABLE PATENTERS
445 EAST AVENUE
EAST HARTFORD, CT 06108

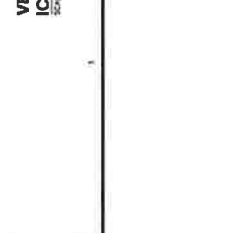
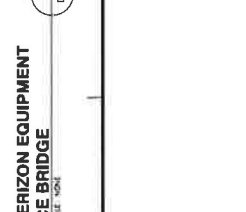
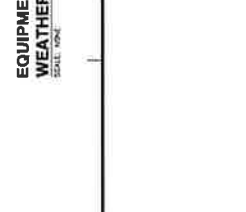
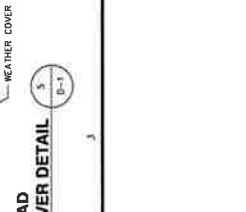
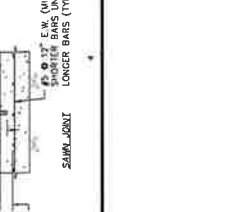
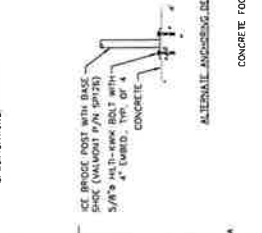
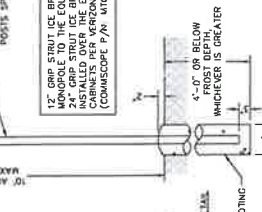
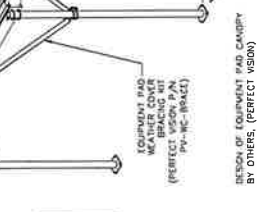
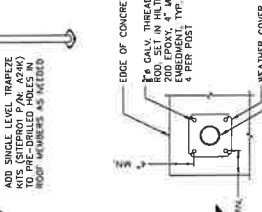
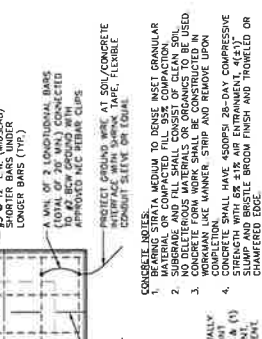
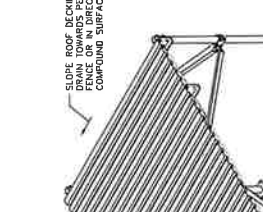
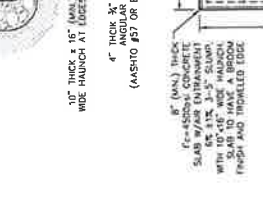
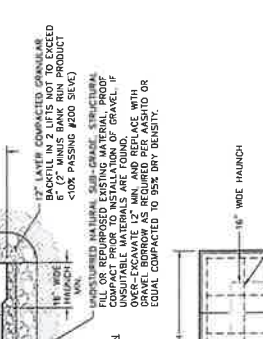
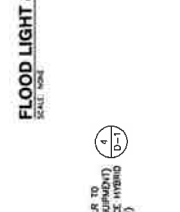
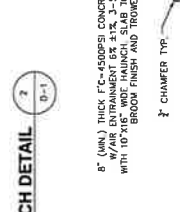
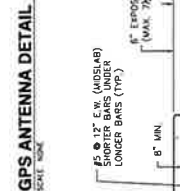
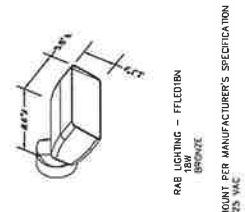
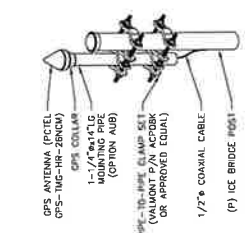
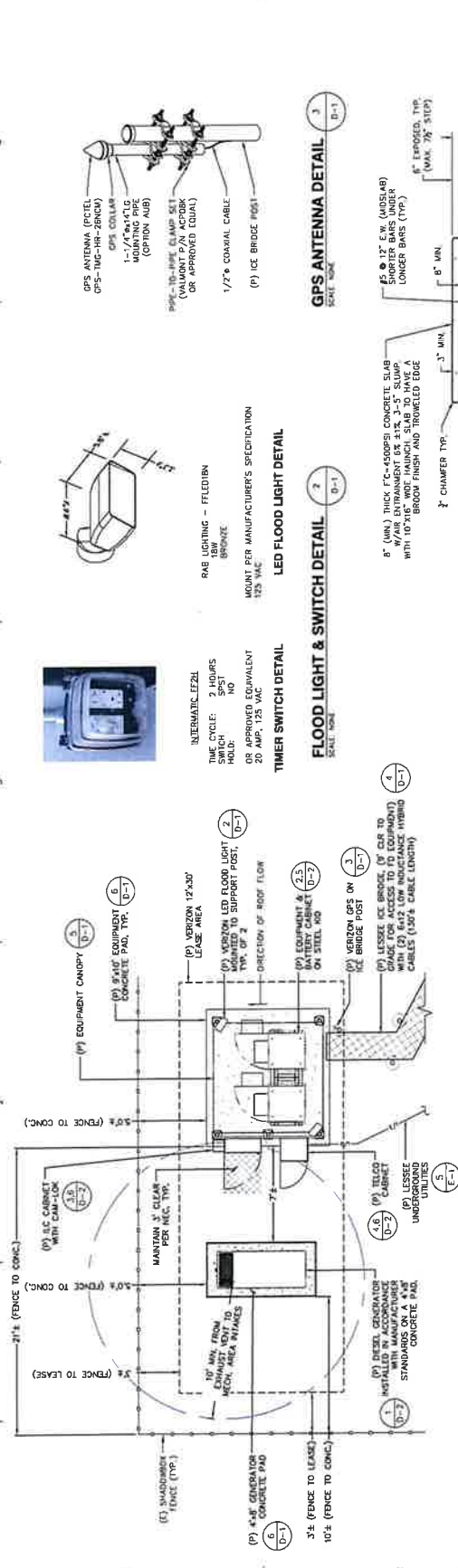
APPLICANTS:
VERIZON
445 EAST AVENUE
EAST HARTFORD, CT 06108

LOCATION CODE: 607652
ADDRESS: 465 HILLS STREET
EAST HARTFORD, CT 06108



DATE: 06/10/20
DRAWN: SJZ/PAN
CHECK: JMA/TEJ
JOB NO.: 13-030
SHEET TITLE:

DETAILS
D-1



CONSULTANTS:

NO.	DATE	REVISIONS
0	05/10/20	FOR CONSTRUCTION
1	05/10/20	FOR CONSTRUCTION

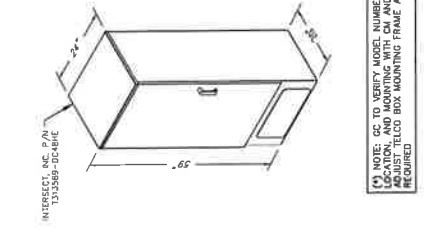
VERIZON
SILCO PARTNERSHIP
EAST HARTFORD, CT 06118
LOCATION CODE: 607852
ADDRESS: 466 HILLS STREET
EAST HARTFORD, CT 06118



DATE: 05/10/20
DRAWN: STZ/PW
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: U-030
SHEET TITLE:

DETAILS

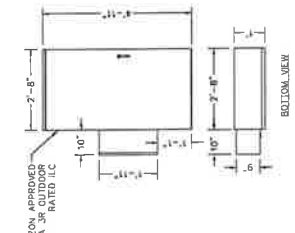
D-2



INTERSECT, INC. P/N
131589-DC48HC

(1) NOTE: GC TO VERIFY MODEL NUMBER, LOCATION, AND MOUNTING WITH O&A AND ADJUST TELCO BOX MOUNTING FRAME AS REQUIRED

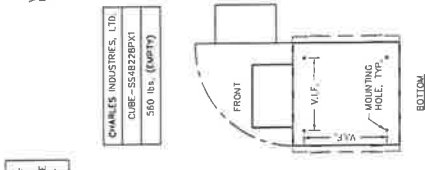
TELCO CABINET
SCALE: NONE



VERIZON APPROVED
NEMA 3R OUTDOOR
RATED ILC

(A) NOTE: GC TO VERIFY ILC MODEL NUMBER, LOCATION, AND MOUNTING WITH O&A AND ADJUST ILC MOUNTING FRAME AS REQUIRED

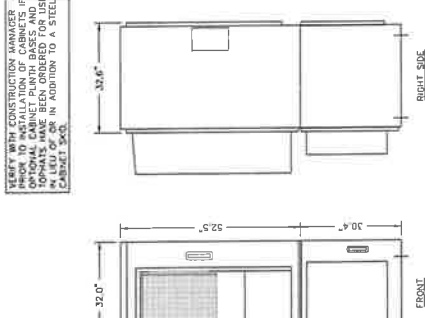
INTEGRATED LOAD CENTER (ILC) CABINET
SCALE: NONE



CHARLES INDUSTRIES, LTD.
CIBE-SS82828PXA
500 lbs. (EMPTY)

FRONT
MOUNTING HOLE, TYP.

EQUIPMENT & BATTERY CABINET DETAIL
SCALE: NONE

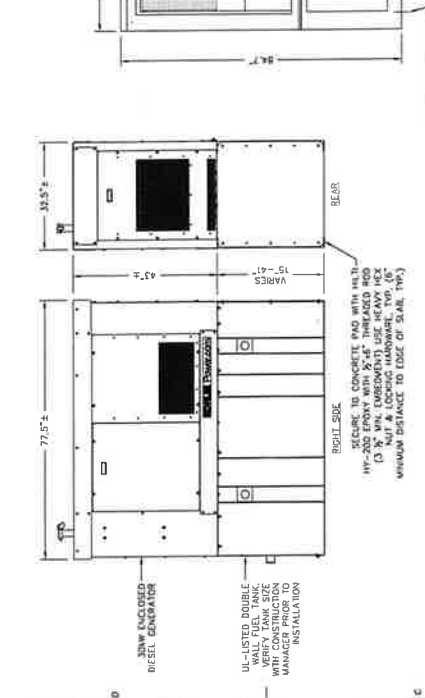


VERIFY WITH CONSTRUCTION MANAGER OF ANY SPECIAL REQUIREMENTS FOR CABINET SKID. IN ADDITION TO A STEEL CABINET SKID.

32.0"

RIGHT SIDE
BEAR

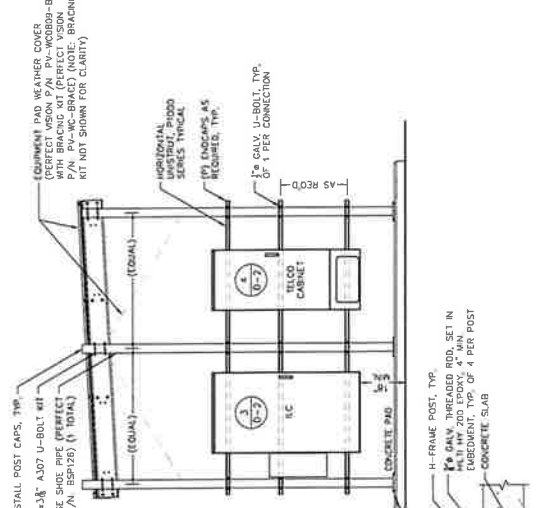
30KW AC GENERATOR WITH DIESEL BASE TANK
SCALE: NONE



30KW ENCLOSED DIESEL GENERATOR
UL-RATED DOUBLE WALL FUEL TANK. VERIFY TANK SIZE WITH CONSTRUCTION MANAGER PRIOR TO INSTALLATION

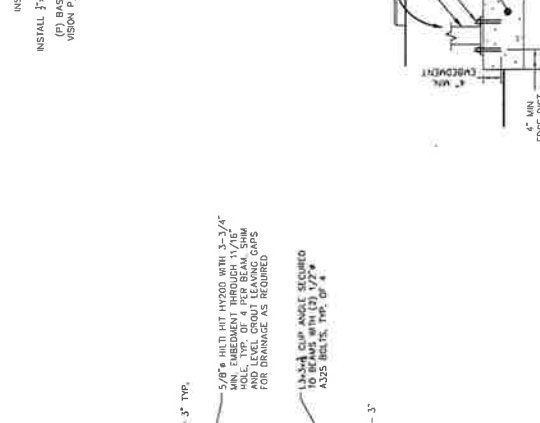
RIGHT SIDE
SECURE TO CONCRETE PAD WITH WELDED 1/2" X 3/8" ANCHORS WITH 5/8" THREADED ROD (3/8" MIN. TIGHTENING) USE HEAVY HEX WASHERS AND NUTS. MINIMUM DISTANCE TO EDGE OF SKID: 1 1/2"

CABINET SKID PLAN DETAIL
SCALE: NONE



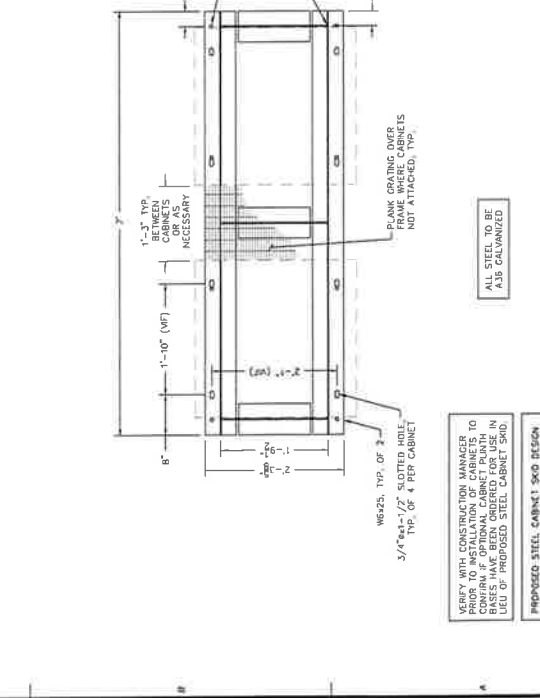
INSTALL POST CAPS, TYP.
(1) BASE SIDE DRIF PREFECT VISION P/N (SPR28) (4 TOTAL)
(2) BASE SIDE DRIF PREFECT VISION P/N (PVA-W0899-B) (4 TOTAL)
(3) BRACKETS (4 TOTAL)
(4) BRACKETS (4 TOTAL)
(5) BRACKETS (4 TOTAL)
(6) BRACKETS (4 TOTAL)
(7) BRACKETS (4 TOTAL)
(8) BRACKETS (4 TOTAL)
(9) BRACKETS (4 TOTAL)
(10) BRACKETS (4 TOTAL)
(11) BRACKETS (4 TOTAL)
(12) BRACKETS (4 TOTAL)
(13) BRACKETS (4 TOTAL)
(14) BRACKETS (4 TOTAL)
(15) BRACKETS (4 TOTAL)
(16) BRACKETS (4 TOTAL)
(17) BRACKETS (4 TOTAL)
(18) BRACKETS (4 TOTAL)
(19) BRACKETS (4 TOTAL)
(20) BRACKETS (4 TOTAL)

H-FRAME DETAIL
SCALE: NONE



INSTALL 1/2" X 3/8" A307 U-BOLT KIT (1) BASE SIDE DRIF PREFECT VISION P/N (SPR28) (4 TOTAL)
(2) BASE SIDE DRIF PREFECT VISION P/N (PVA-W0899-B) (4 TOTAL)
(3) BRACKETS (4 TOTAL)
(4) BRACKETS (4 TOTAL)
(5) BRACKETS (4 TOTAL)
(6) BRACKETS (4 TOTAL)
(7) BRACKETS (4 TOTAL)
(8) BRACKETS (4 TOTAL)
(9) BRACKETS (4 TOTAL)
(10) BRACKETS (4 TOTAL)
(11) BRACKETS (4 TOTAL)
(12) BRACKETS (4 TOTAL)
(13) BRACKETS (4 TOTAL)
(14) BRACKETS (4 TOTAL)
(15) BRACKETS (4 TOTAL)
(16) BRACKETS (4 TOTAL)
(17) BRACKETS (4 TOTAL)
(18) BRACKETS (4 TOTAL)
(19) BRACKETS (4 TOTAL)
(20) BRACKETS (4 TOTAL)

EQUIPMENT & BATTERY CABINET DETAIL
SCALE: NONE



5/8" H-HIT HIT HYDRO WITH 3/4" HOLE, TYP. OF 4 PER BEAM, SHIM AND LEVEL GROUT LEAVING GAPS FOR DRAINAGE AS REQUIRED
10" MIN. DIST. BETWEEN A325 BOLT, TYP. OF 4
3/4" X 1/2" X 1/2" SLOTTED HOLE FRAME WHERE CABINETS NOT ATTACHED, TYP.
W6x25, TYP. OF 2
3/4" X 1/2" X 1/2" SLOTTED HOLE FRAME WHERE CABINETS NOT ATTACHED, TYP.
ALL STEEL TO BE A36 CALVANIZED
PROPOSED STEEL CABINET SKID DESIGN BASED UPON SPECIFIC CABINET MODEL. VERIFY WITH CONSTRUCTION MANAGER TO CONFIRM IF OPTIONAL CABINET PLANT USED. UNPROCESSED STEEL CABINET SKID BOLT PATTERN PRIOR TO FABRICATION.

CABINET SKID PLAN DETAIL
SCALE: NONE

VERIFY WITH CONSTRUCTION MANAGER TO CONFIRM IF OPTIONAL CABINET PLANT USED. UNPROCESSED STEEL CABINET SKID BOLT PATTERN PRIOR TO FABRICATION.

CONSULTANTS:

NO.	DATE	REVISIONS
A	6/10/20	SCALE FOR REVIEW
B	6/17/20	FOR CONSTRUCTION

APPLICANT:
Verizon
850 VERIZON WIRELESS
EAST HARTFORD, CT 06118
ADDRESS: 466 HILLS STREET
EAST HARTFORD, CT 06118

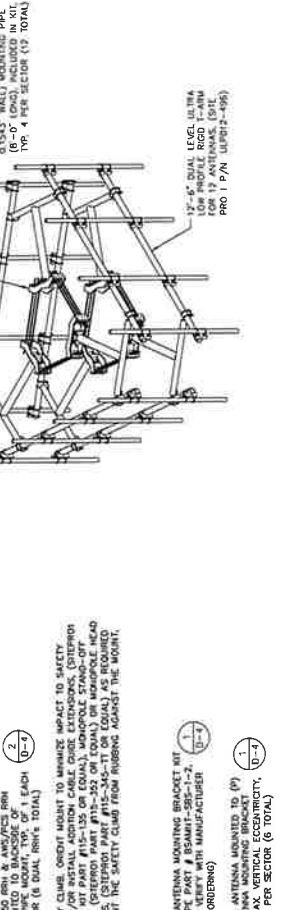
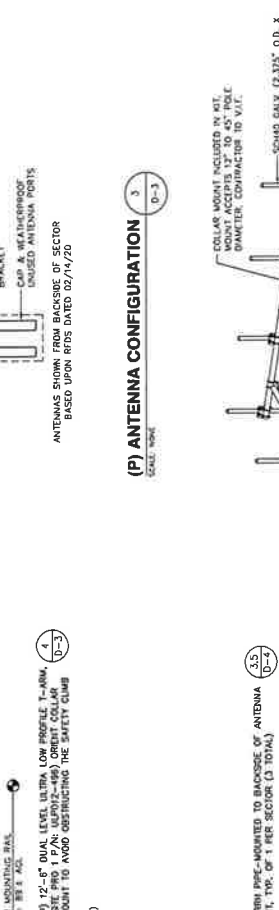


DATE: 06/10/20
DRAWN: STZ/PN
CHECK: JMW/TEJ
SCALE: SEE PLAN
SHEET NO.: 13-130
SHEET TITLE:

DETAILS
D-3

700/850/AWS/PCS/CBRS ANTENNA INFORMATION TABLE

SECTOR	PANEL ANTENNAS			FEEDER		EXPRESSWAY		REMOTE RADIO UNIT		FROM REMOTE RADIO UNIT			
	AZIMUTH	QTY.	MAKE & MODEL	MAX. CENTER (AGL)	DOWNHILL	HWSD CABLE	QUANTITY	LEANS IN/DOCS CABLE LENGTH	QTY.		MAKE & MODEL	COAX JUMPER	COAX JUMPER
ALPHA	30°	1	COMSCOPE NHI-638-R28	90'	6W/7T (100 & 850)	(1X12-PAIR)	1	15.2 (1X1-PAIR)	1	SARGAM S219/3	2	1/2"	15.2
BETA	150°	1	COMSCOPE NHI-638-R28	90'	6W/7T (100 & 850)	(1X12-PAIR)	1	15.2 (1X1-PAIR)	1	SARGAM S219/3	2	1/2"	15.2
GAMMA	270°	1	COMSCOPE NHI-638-R28	90'	6W/7T (100 & 850)	(1X12-PAIR)	1	15.2 (1X1-PAIR)	1	SARGAM S219/3	2	1/2"	15.2



CONFIRM THE LOCATION OF TOWER CABLE PORTS AND VERIFY NUMBER OF AVAILABLE PORTS.

THESE CO-LOCATION PLANS ARE SUBJECT TO THE PASSING GLOBAL STRUCTURAL ANALYSIS PREPARED BY TOWER ENGINEERING SOLUTIONS DATED 04/06/20. THE ANTENNA MOUNT SHALL BE INSTALLED IN ACCORDANCE WITH THE GLOBAL STRUCTURAL ANALYSIS PREPARED BY PROTERRA DESIGN GROUP, LLC DATED 05/27/20.

(1) MONOPINE
(2) 700/850 BRN & AWS/PCS RRH ARE MOUNTED TO BACKSIDE OF EACH PER SECTOR (6 DUAL RRH'S TOTAL)
(3) SAFETY CLIMB, ORIENT MOUNT TO MINIMIZE IMPACT TO SAFETY CLIMB AND/OR INSTALL ADDITIONAL CABLE GUIDE EXTENSION, (STEPDOWN ASSEMBLY, (STEPDOWN PART #115-302 OR EQUIVA), OR MONOPOLE HEAD EXTENSION, (STEPDOWN PART #115-345-TT OR EQUIVA), AS REQUIRED TO PREVENT THE SAFETY CLIMB FROM RUBBING AGAINST THE MOUNT.
(4) MONOPINE
(5) LARGE WHEATBRID BOY W/ULTRIX MOUNTED TO (6) 3\"/>

(1) MONOPINE
(2) 700/850 BRN & AWS/PCS RRH ARE MOUNTED TO BACKSIDE OF EACH PER SECTOR (6 DUAL RRH'S TOTAL)
(3) SAFETY CLIMB, ORIENT MOUNT TO MINIMIZE IMPACT TO SAFETY CLIMB AND/OR INSTALL ADDITIONAL CABLE GUIDE EXTENSION, (STEPDOWN ASSEMBLY, (STEPDOWN PART #115-302 OR EQUIVA), OR MONOPOLE HEAD EXTENSION, (STEPDOWN PART #115-345-TT OR EQUIVA), AS REQUIRED TO PREVENT THE SAFETY CLIMB FROM RUBBING AGAINST THE MOUNT.
(4) MONOPINE
(5) LARGE WHEATBRID BOY W/ULTRIX MOUNTED TO (6) 3\"/>

(1) MONOPINE
(2) 700/850 BRN & AWS/PCS RRH ARE MOUNTED TO BACKSIDE OF EACH PER SECTOR (6 DUAL RRH'S TOTAL)
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(4) MONOPINE
(5) LARGE WHEATBRID BOY W/ULTRIX MOUNTED TO (6) 3\"/>

(1) MONOPINE
(2) 700/850 BRN & AWS/PCS RRH ARE MOUNTED TO BACKSIDE OF EACH PER SECTOR (6 DUAL RRH'S TOTAL)
(3) SAFETY CLIMB, ORIENT MOUNT TO MINIMIZE IMPACT TO SAFETY CLIMB AND/OR INSTALL ADDITIONAL CABLE GUIDE EXTENSION, (STEPDOWN ASSEMBLY, (STEPDOWN PART #115-302 OR EQUIVA), OR MONOPOLE HEAD EXTENSION, (STEPDOWN PART #115-345-TT OR EQUIVA), AS REQUIRED TO PREVENT THE SAFETY CLIMB FROM RUBBING AGAINST THE MOUNT.
(4) MONOPINE
(5) LARGE WHEATBRID BOY W/ULTRIX MOUNTED TO (6) 3\"/>

CONSULTANTS:

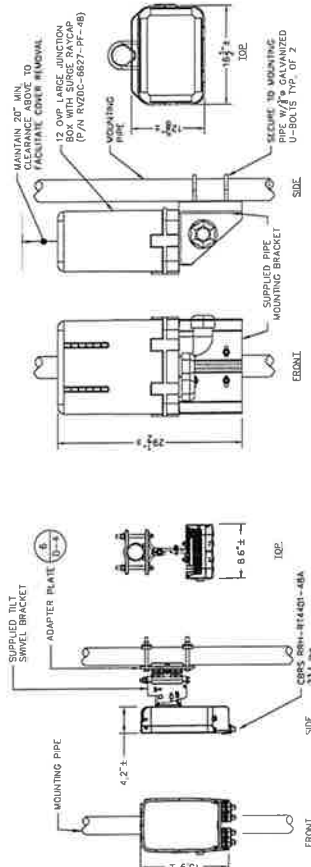
NO.	DATE	REVISIONS
1	05/20/20	ISSUES FOR REVIEW
2	06/10/20	FOR CONSULTING

VERIZON
CELLCO PARTNERSHIP
88 EAST RYAN DRIVE
EAST HARTFORD, CT 06108
LOCATION CODE: 607652
ADDRESS: 466 HILLS STREET
EAST HARTFORD, CT 06108

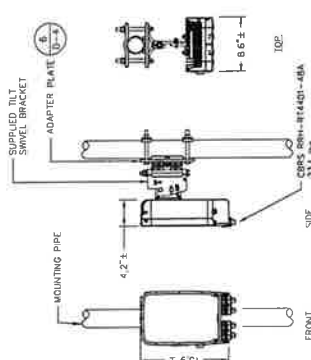


DATE: 06/10/20
DRAWN: STZ/PN
CHECK: JMM/EJ
SCALE: SEE PLAN
JOB NO.: 13-D30
SHEET TITLE:

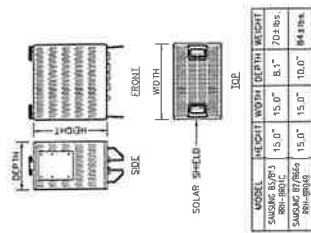
NOTE:
NO HOSE CLAMPS
OR WASHERS
LESS THAN 4" O.D.



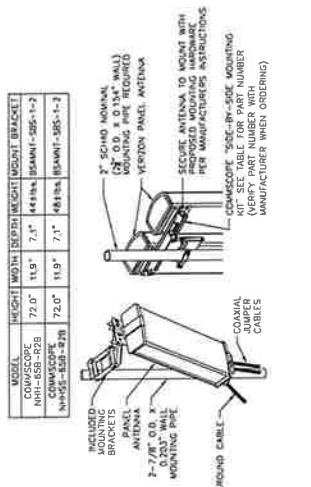
(P) LARGE JUNCTION BOX WITH SURGE PIPE MOUNTING DETAIL
SCALE: NONE



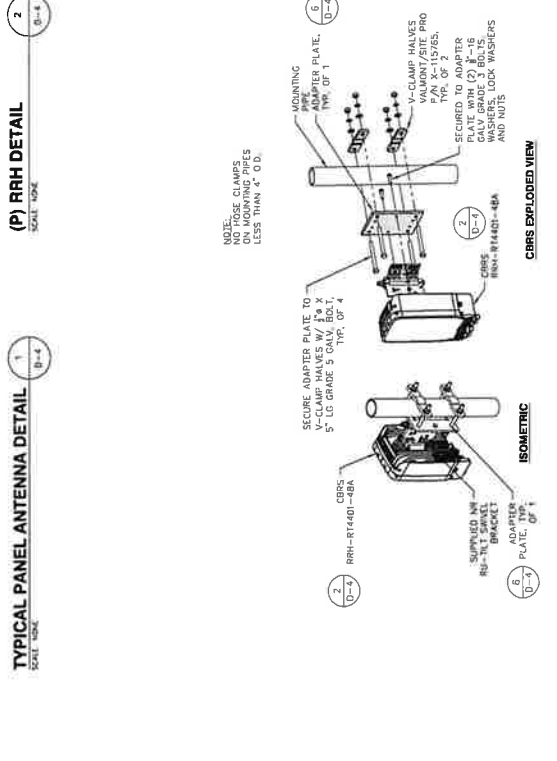
(P) CBRS RADIO
SCALE: NONE



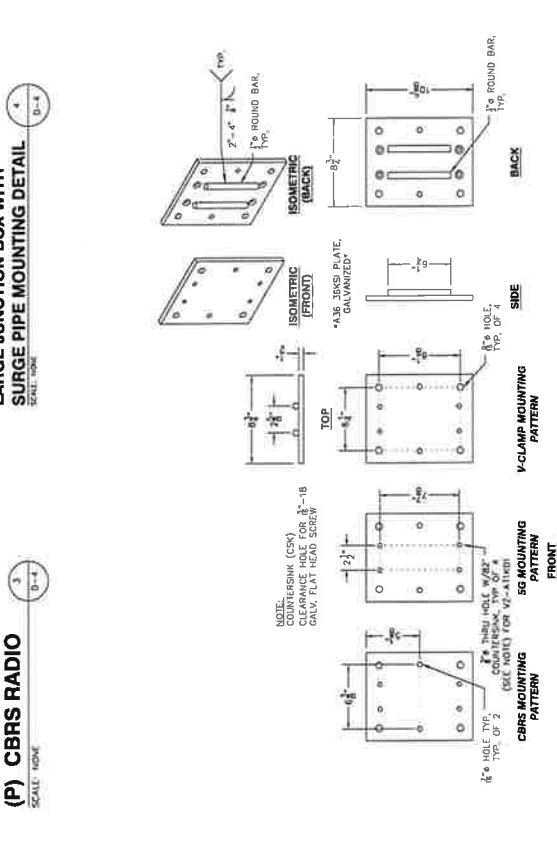
(P) RRH DETAIL
SCALE: NONE



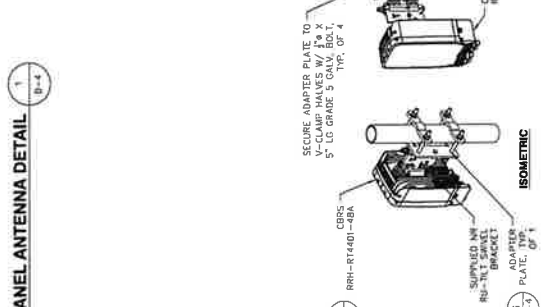
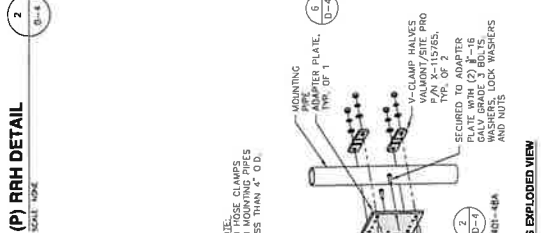
TYPICAL PANEL ANTENNA DETAIL
SCALE: NONE



(P) CBRS RRH PIPE MOUNTING DETAIL (NO CLIP-ON ANTENNA)
SCALE: NONE



(P) ADAPTER PLATE
SCALE: NONE



(P) SG MOUNTING PATTERN
SCALE: NONE

(P) V-CLAMP MOUNTING PATTERN
SCALE: NONE

ProTerra
DESIGN GROUP, LLC

4 Bay Road
Hartford, CT 06185
Tel: (860) 234-8888

CONSULTANTS

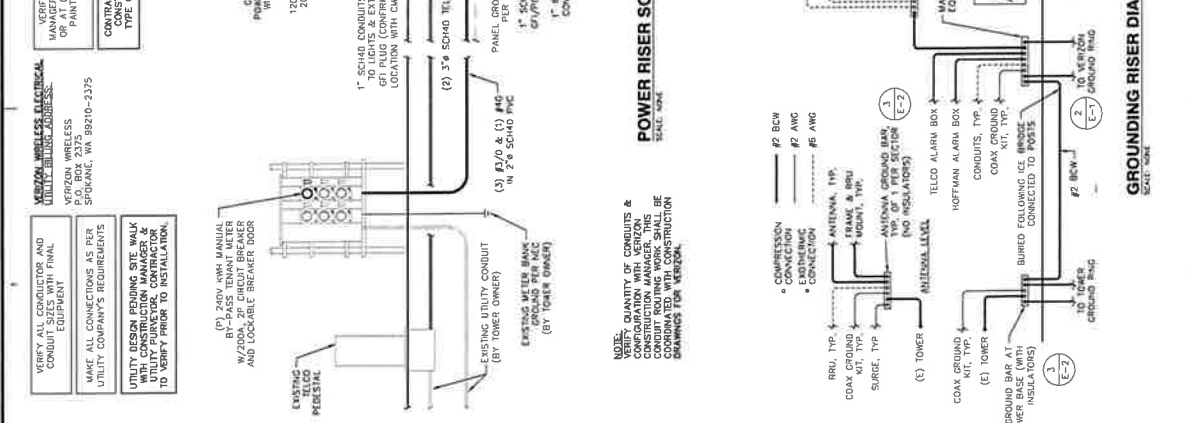
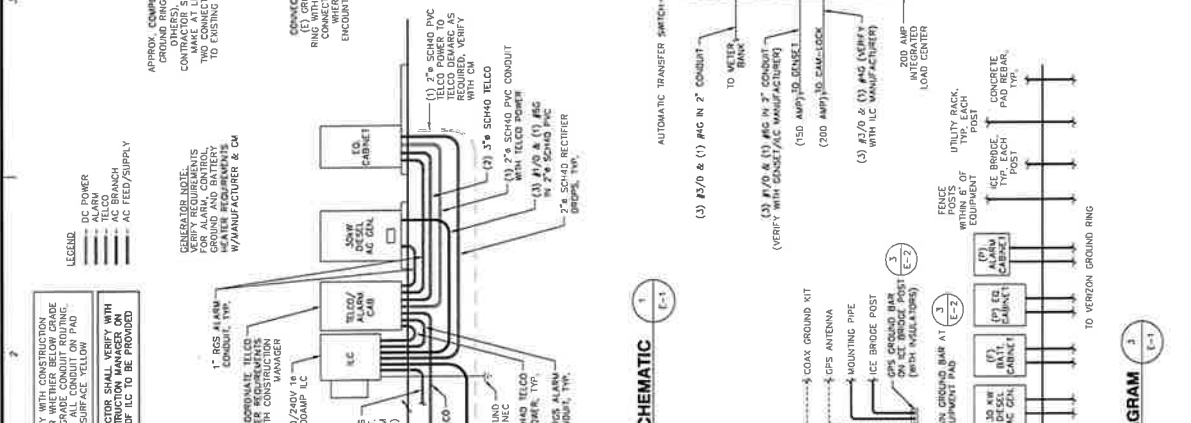
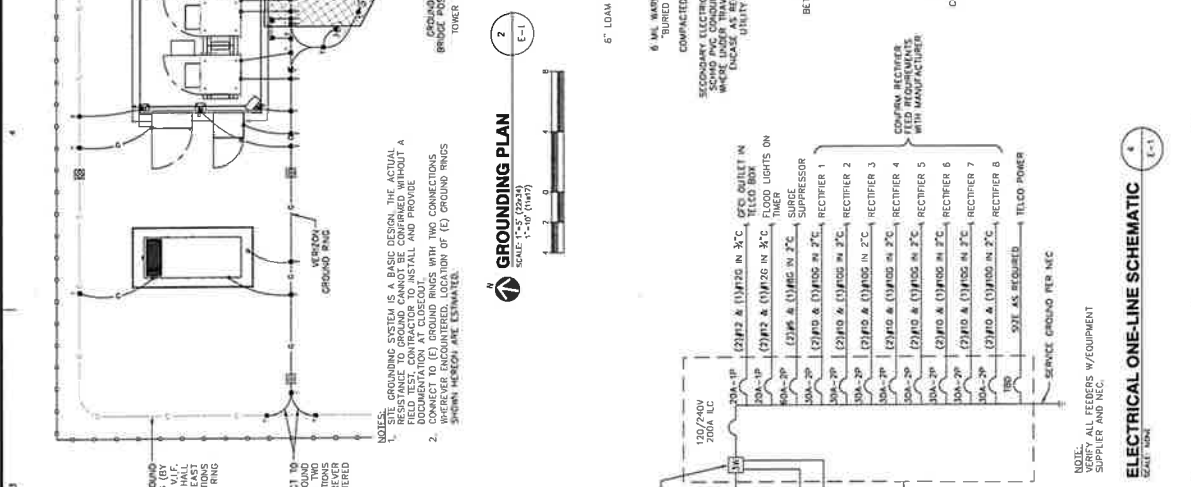
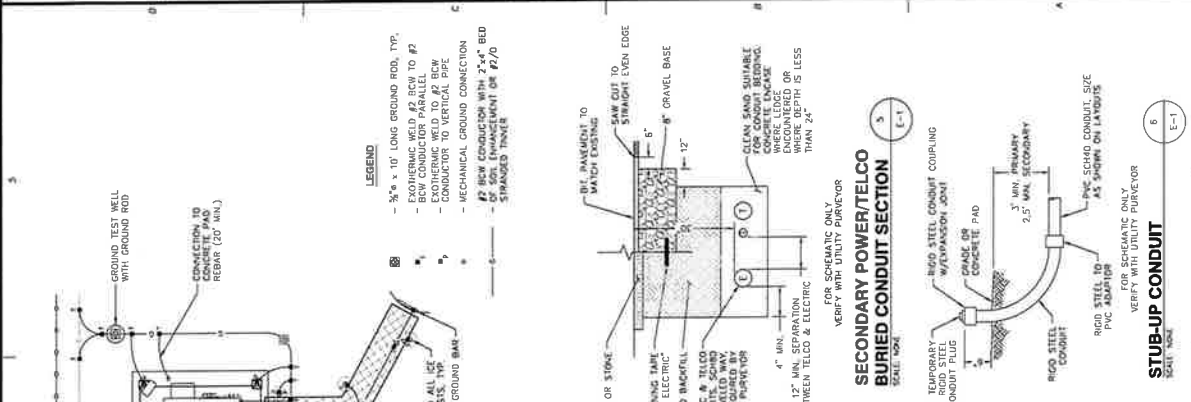
NO.	DATE	DESCRIPTION
1	05/20/20	ISSUED FOR PERMIT
2	08/10/20	ISSUED FOR CONSTRUCTION

Verizon
466 HILLS STREET
EAST HARTFORD, CT 06185
LOCATION CODE: 60782

60 EAST RIVER DRIVE
EAST HARTFORD, CT 06185



DATE: 08/10/20
DRAWN: STZ/PV
CHECK: JMM/EJ
SCALE: SEE PLAN
JOB NO. 13-001
SHEET NO. 1
SHEET TITLE: ELECTRICAL & GROUNDING DETAILS
E-1



LEGEND

- DC POWER
- TELCO
- AC BRANCH
- AC FEED/SUPPLY

GENERATOR/NOISE: VERIFY REQUIREMENTS WITH CONSTRUCTION MANAGER. GROUND AND BATTERY REQUIREMENTS W/ MANUFACTURER & OEM.

LEGEND

- 3/4" x 10' LONG GROUND ROD, TYP.
- EXOTHERMIC WELD #3 BCL TO #2 BCW CONDUCTOR PARALLEL.
- EXOTHERMIC WELD TO #2 BCW CONDUCTOR TO VERTICAL PIPE.
- MECHANICAL GROUND CONNECTION.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.

LEGEND

- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.

LEGEND

- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.

LEGEND

- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.

LEGEND

- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.

LEGEND

- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.

LEGEND

- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.

LEGEND

- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.

LEGEND

- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.
- #2 BCW CONDUCTOR WITH 2"x4" BED STRAPPED TOWER.

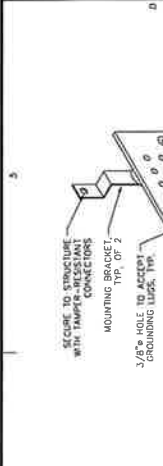
VERIFY ALL CONDUCTOR AND CONDUIT SIZES WITH FINAL CONSTRUCTION MANAGER.

VERIFY QUANTITY OF CONDUITS & CONDUIT ROUTING WORK SHALL BE PER CONSTRUCTION DRAWINGS FOR VERIZON.

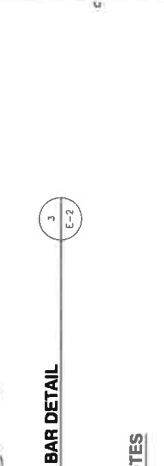
VERIFY QUANTITY OF CONDUITS & CONDUIT ROUTING WORK SHALL BE PER CONSTRUCTION DRAWINGS FOR VERIZON.

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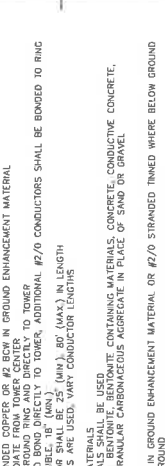
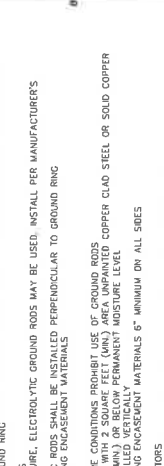
VERIFY QUANTITY OF CONDUITS & CONDUIT ROUTING WORK SHALL BE PER CONSTRUCTION DRAWINGS FOR VERIZON.



- CABLE GROUND KIT**
SCALE: NONE
- GROUND CABLES AT EACH END ON ANTENNA SIDE OF BUILDING PENETRATIONS, AND ON ANTENNA SIDE OF VERTICAL BENDS.
 - DO NOT INSTALL CABLE GROUND KIT UNDER A BEND.
 - GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED.
 - WEATHERPROOFING SHALL BE AS SUPPLIED WITH KIT, COLD SHRINK SHALL NOT BE USED.



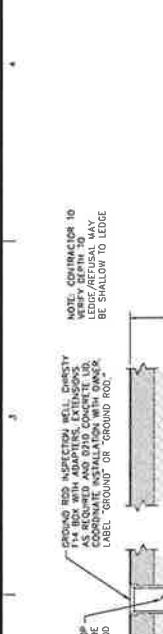
- SOIL ENHANCEMENT**
SCALE: NONE
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - REWRITING COMPOUND TO BE USED AT ALL LOCATIONS.
 - CARWELD DOWNLEADS FROM UPPER EGR, LOWER EGR, AND MGR.



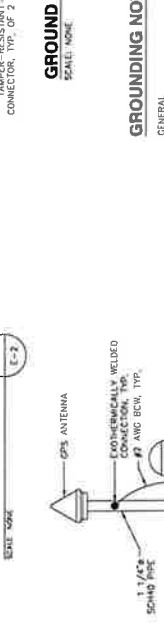
- GPS ANTENNA GROUNDING**
SCALE: NONE
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - REWRITING COMPOUND TO BE USED AT ALL LOCATIONS.
 - CARWELD DOWNLEADS FROM UPPER EGR, LOWER EGR, AND MGR.



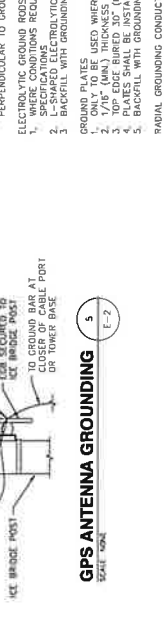
- GROUND ROD WELL**
SCALE: NONE
- GROUNDING SHALL COMPLY WITH ARTICLE (230) OF THE NATIONAL ELECTRIC CODE, EN/7A 222-G & MOTOROLA
 - ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
 - THE CONTRACTOR SHALL SECURE A COPY OF ANY SOIL RESISTIVITY AND/OR SIT RESISTANCE TO EARTH TESTING REPORT AND VERIFY THAT THE REPORT IS IN ACCORDANCE WITH TEST. SHALL BE PERFORMED TO ASSURE TO OHMS OR LESS IN ACCORDANCE WITH CARRIER SPECIFICATIONS.
 - GROUND RODS
 - RODS SHALL BE 5/8" DIAMETER 10' LONG COPPER CLAD STEEL OR SOLID COPPER
 - SHALL BE BURIED 30" (MIN) OR BELOW PERMANENT MOISTURE LEVEL PENETRATING BELOW FROST LINE
 - SEPARATION BETWEEN GROUND RODS IN SAME GROUNDING SYSTEM SHALL BE GREATER THAN SUM OF RESPECTIVE LENGTHS
 - RODS SHALL NOT BE SHORTENED BY CUTTING OR DESTROYED BY DRIVING MACHINERY
 - WHERE CONDITIONS REQUIRE, RODS MAY BE DRIVEN AT ANGLES UP TO 45 DEGREES OR HORIZONTAL ORIENTED PERPENDICULAR TO GROUND RING
 - ELECTROLYTIC GROUND RODS
 - WHERE CONDITIONS REQUIRE, ELECTROLYTIC GROUND RODS MAY BE USED. INSTALL PER MANUFACTURER'S SPECIFICATIONS
 - L-SHAPED ELECTROLYTIC RODS SHALL BE INSTALLED PERPENDICULAR TO GROUND RING
 - BACKFILL WITH GROUNDING ENCASEMENT MATERIALS
 - GROUND FLAYES
 - USED WHERE CONDITIONS PROHIBIT USE OF GROUND RODS
 - 1/8" (MIN) THICKNESS WITH 2 SQUARE FEET (MIN) AREA UNPAINTED COPPER CLAD STEEL OR SOLID COPPER
 - TOP EDGE BURIED 30" (MIN) OR BELOW PERMANENT MOISTURE LEVEL
 - BACKFILL WITH GROUNDING ENCASEMENT MATERIALS 6" MINIMUM ON ALL SIDES
 - RADIAL GROUNDING CONDUCTORS
 - #2/0 AWG TANGED STRANDED COPPER OR #2 BCU IN GROUND ENHANCEMENT MATERIAL
 - CONDUCTORS SHALL RADIATE FROM TOWER CENTER
 - WHERE NOT POSSIBLE TO BOND DIRECTLY TO TOWER, ADDITIONAL #2/0 CONDUCTORS SHALL BE BONDED TO RING
 - BURIED 30" WHERE POSSIBLE, 18" (MIN), 80" (MAX) IN LENGTH
 - WHERE MULTIPLE RADIALS ARE USED, VARY CONDUCTOR LENGTHS
 - GROUNDING ENCASEMENT MATERIALS
 - PRE-PACKAGED MATERIALS SHALL BE USED
 - WHERE NOT CONTAINING MATERIALS, CONCRETE, AGGREGATIVE CONCRETE, CEMENT WITH GRADED GRANULAR CARBONACEOUS AGGREGATE IN PLACE OF SAND OR GRAVEL
 - CONDUCTORS
 - #2/0 AWG TANGED STRANDED COPPER OR #2/0 STRANDED TANGED WHERE BELOW GROUND
 - OR PARTIALLY BELOW GROUND
 - SPICES SHALL BE EXTERNALLY WELDED
 - 90 DEGREE BENDING RADIUS FOR #2 OR SMALLER, 90 DEGREES (MIN) BEND, ALL BENDS TOWARDS GROUND
 - #2/0 AWG MIN. STRANDED FOR USE ON BRIDGING
 - CONNECTORS
 - GROUNDING CONNECTIONS SHALL BE EXOTHERMIC UNLESS OTHERWISE NOTED.
 - CONDUCTORS SHALL BE TANGED TO TOWER OR TO OTHER CONDUCTORS
 - BEFORE INSTALLING LUGS ON GROUND WRES. APPLY THOMAS & BETTS WRES-SHIELD OR EQUIV.
 - PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN FOLLOWING CONNECTION. APPLY APPROPRIATE CONDUCTIVE ANTI-OXIDIZING PAINT.
 - MECHANICAL CONNECTIONS SHALL BE CARWELD STYLE COMPRESSION FIT CRIMPED WITH HYDRAULIC CRIMPING TOOLS OR LEGAL AND SUP BELLS ARE ACCEPTABLE



- GROUND BAR DETAIL**
SCALE: NONE



- GROUNDING NOTES**
- GROUNDING SHALL COMPLY WITH ARTICLE (230) OF THE NATIONAL ELECTRIC CODE, EN/7A 222-G & MOTOROLA
 - ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
 - THE CONTRACTOR SHALL SECURE A COPY OF ANY SOIL RESISTIVITY AND/OR SIT RESISTANCE TO EARTH TESTING REPORT AND VERIFY THAT THE REPORT IS IN ACCORDANCE WITH TEST. SHALL BE PERFORMED TO ASSURE TO OHMS OR LESS IN ACCORDANCE WITH CARRIER SPECIFICATIONS.
 - GROUND RODS
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 - SHALL BE BURIED 30" (MIN) OR BELOW PERMANENT MOISTURE LEVEL PENETRATING BELOW FROST LINE
 - SEPARATION BETWEEN GROUND RODS IN SAME GROUNDING SYSTEM SHALL BE GREATER THAN SUM OF RESPECTIVE LENGTHS
 - RODS SHALL NOT BE SHORTENED BY CUTTING OR DESTROYED BY DRIVING MACHINERY
 - WHERE CONDITIONS REQUIRE, RODS MAY BE DRIVEN AT ANGLES UP TO 45 DEGREES OR HORIZONTAL ORIENTED PERPENDICULAR TO GROUND RING
 - ELECTROLYTIC GROUND RODS
 - WHERE CONDITIONS REQUIRE, ELECTROLYTIC GROUND RODS MAY BE USED. INSTALL PER MANUFACTURER'S SPECIFICATIONS
 - L-SHAPED ELECTROLYTIC RODS SHALL BE INSTALLED PERPENDICULAR TO GROUND RING
 - BACKFILL WITH GROUNDING ENCASEMENT MATERIALS
 - GROUND FLAYES
 - USED WHERE CONDITIONS PROHIBIT USE OF GROUND RODS
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 - RADIAL GROUNDING CONDUCTORS
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 - CONDUCTORS SHALL RADIATE FROM TOWER CENTER
 - WHERE NOT POSSIBLE TO BOND DIRECTLY TO TOWER, ADDITIONAL #2/0 CONDUCTORS SHALL BE BONDED TO RING
 - BURIED 30" WHERE POSSIBLE, 18" (MIN), 80" (MAX) IN LENGTH
 - WHERE MULTIPLE RADIALS ARE USED, VARY CONDUCTOR LENGTHS
 - GROUNDING ENCASEMENT MATERIALS
 - PRE-PACKAGED MATERIALS SHALL BE USED
 - WHERE NOT CONTAINING MATERIALS, CONCRETE, AGGREGATIVE CONCRETE, CEMENT WITH GRADED GRANULAR CARBONACEOUS AGGREGATE IN PLACE OF SAND OR GRAVEL
 - CONDUCTORS
 - #2/0 AWG TANGED STRANDED COPPER OR #2/0 STRANDED TANGED WHERE BELOW GROUND
 - OR PARTIALLY BELOW GROUND
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 - #2/0 AWG MIN. STRANDED FOR USE ON BRIDGING
 - CONNECTORS
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 - PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN FOLLOWING CONNECTION. APPLY APPROPRIATE CONDUCTIVE ANTI-OXIDIZING PAINT.
 - MECHANICAL CONNECTIONS SHALL BE CARWELD STYLE COMPRESSION FIT CRIMPED WITH HYDRAULIC CRIMPING TOOLS OR LEGAL AND SUP BELLS ARE ACCEPTABLE



- GROUND BAR CONNECTION**
SCALE: NONE
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - REWRITING COMPOUND TO BE USED AT ALL LOCATIONS.
 - CARWELD DOWNLEADS FROM UPPER EGR, LOWER EGR, AND MGR.



- GROUND BAR CONNECTION**
SCALE: NONE
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - REWRITING COMPOUND TO BE USED AT ALL LOCATIONS.
 - CARWELD DOWNLEADS FROM UPPER EGR, LOWER EGR, AND MGR.

ATTACHMENT 4

CommScope—Proprietary and Confidential. Preliminary specifications are for illustrative purposes only and will be updated prior to publication.



10-port sector antenna, 2x 698–896, 4x 1695–2200 and 4x 3100–4200 MHz, 65° HPBW, 2x RETs and 2x SBTs. Both high bands share the same electrical tilt.

- Perfect antenna to add 3.5GHz CBRS to macro sites
- 15dBi max CBRS gain to align with FCC max EIRP limitations
- Low band and mid band performance mirrors the performance of existing NHH hex port antennas
- Narrow beamwidth capacity antenna for higher level of densification and enhanced data throughput
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- One LB RET and one HB RET. Both high bands are controlled by one RET to ensure same tilt level for 4x Rx or 4x MIMO
- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	3100–3300	3300–3800	3800–4200
Gain, dBi	14.7	14.7	17.1	17.6	18.4	14.4	14.4	14.5
Beamwidth, Horizontal, degrees	66	61	72	67	64	58	65	60
Beamwidth, Vertical, degrees	12.4	11.1	5.6	5.2	5.0	11.3	10.0	9.0
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	5	5	5
USLS (First Lobe), dB	14	13	15	15	15	15	15	15
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	25	25	25
Isolation, Cross Polarization, dB	25	25	25	25	25	25	25	25
Isolation, Inter-band, dB	25	25	25	25	25	30	30	30
VSWR Return Loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-140	-140	-140
Input Power per Port at 50°C, maximum, watts	300	300	300	300	300	100	100	100
Polarization	±45°	±45°	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

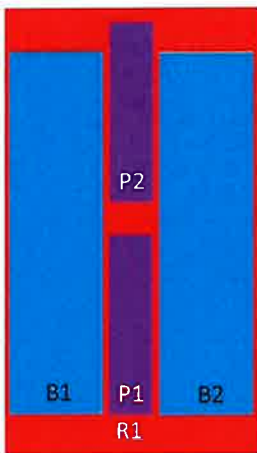
Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	3100–3300	3300–3800	3800–4200
Gain by all Beam Tilts, average, dBi	14.3	14.3	16.6	17.4	17.9	14.2	14.2	14.3
Gain by all Beam Tilts Tolerance, dB	±0.6	±1.1	±0.4	±0.4	±0.5	±0.4	±0.4	±0.4
Gain by Beam Tilt, average, dBi	0° 14.4 7° 14.4 14° 14.0	0° 14.4 7° 14.4 14° 13.9	0° 16.6 3° 16.6 7° 16.6	0° 17.4 3° 17.5 7° 17.4	0° 17.9 3° 18.0 7° 17.9			
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±7.2	±4.6	±6.5	±6.6	±6.6	±6.6
Beamwidth, Vertical Tolerance, degrees	±0.8	±0.7	±0.3	±0.2	±0.3	±0.4	±0.4	±0.4

NHHSS-65B-R2B

USLS, beampeak to 20° above beampeak, dB	13	14	14	14	14	14	14	14
Front-to-Back Total Power at 180° ± 30°, dB	23	22	24	26	25	25	25	25
CPR at Boresight, dB	22	21	18	20	20	20	20	20
CPR at Sector, dB	10	6	6	6	5	5	5	5

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs](#).

Array Layout



Left Bottom Right

Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-896	1-2	1	ANxxxxxxxxxxxxxxxxxx1
B1	1695-2200	3-4	2	ANxxxxxxxxxxxxxxxxxx2
B2	1695-2200	5-6		
P1	3100-4200	7-8	n/a	n/a
P2	3100-4200	9-10	n/a	n/a

(Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band	1695 – 2200 MHz 3100 – 4200 MHz 698 – 896 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN

Mechanical Specifications

RF Connector Quantity, total	10
RF Connector Quantity, low band	2
RF Connector Quantity, high band	8
RF Connector Interface	4.3-10 Female
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket

NHHSS-65B-R2B

Radiator Material	Aluminum Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	278.0 N @ 150 km/h 63.6 lbf @ 150 km/h
Wind Loading, lateral	230.0 N @ 150 km/h 51.7 lbf @ 150 km/h
Wind Loading, maximum	120.7 lbf @ 150 km/h
Effective Projected Area (EPA), frontal	0.26 m ² 2.80 ft ²
Effective Projected Area (EPA), lateral	0.22 m ² 2.37 ft ²
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Length	1828.0 mm 72.0 in
Width	301.0 mm 11.9 in
Depth	181.0 mm 7.1 in
Net Weight, without mounting kit	21.8 kg 48.1 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 Port 3
Internal RET	High band (1) Low band (1)
Power Consumption, idle state, maximum	1 W
Power Consumption, normal conditions, maximum	10 W
Protocol	3GPP/AISG 2.0 (Single RET)
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male

Packed Dimensions

Length	1952.0 mm 76.9 in
Width	409.0 mm 16.1 in
Depth	299.0 mm 11.8 in
Shipping Weight	34.3 kg 75.6 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
China RoHS SJ/T 11364-2014	Above Maximum Concentration Value (MCV)



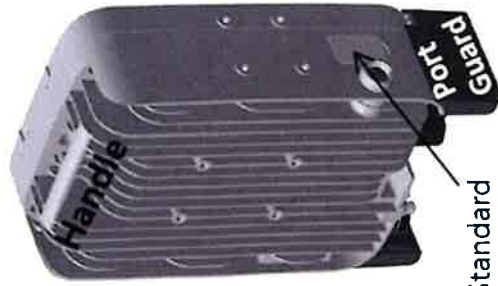
Included Products

BSAMNT-3 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance

[CBRS RRH] Spec.



Standard Label



Current Size: 216 x 307 x 105.5 mm (6.99L)
 (8.5 x 12.1 x 4.1 inch., excluding Port Guard)

Design is subject to minor change

Item	Specification
Band	Band 48 (3.5 GHz)
Frequency	3550~3700 MHz
IBW	150 MHz
OBW	80 MHz
# of Carriers	5/10/15/20 MHz x 4 carriers
RF Chain	4TX / 4RX
RF Output Power & EIRP	4 path x 5 W (Total: 20 W = 43 dBm) (EIRP: 47 dBm / 10 MHz)
RX Sensitivity	Typical : -101.5 dBm @ 1 Rx (3GPP 36.104, Wide Area)
Modulation	256-QAM support (1024-QAM with 1~2dB power back-off) -48 VDC (-38 to -57 VDC, 1 SKU), with clip-on AC-DC converter (Option)
Input Power	About 160 Watt @ 100% RF load, typical conditions
Power Consumption	Under 7L (w/o Antenna), Under 9.6L (with antenna)
Volume	Under 8.0 kg (18.64 lb) (w/o Antenna), Under 10.5 Kg (with ant.)
Weight	-40°C (-40°F) ~ 55°C (131°F) (W/o solar load)
Operating Temperature	Natural convection
Cooling	3GPP 36.104 Category A [B48] : FCC 47 CFR 96.41 e)
Unwanted Emission	20km, 2 ports (9.8Gbps x 2), SFP, single mode, duplex or Bi-Di
Optic Interface	Not supported
CPRI Cascade	4
# of Antenna Port	4
External Alarm (UDA)	AISG 2.2
RET	Not supported
TMA & built-in Bias-T 1//F and PIM cancellation	Not supported
Mounting Options	Pole, wall, tower, back to back, side by side (for external ant), 3 RRH with Clip-on Antenna on the pole
Antenna Type	Integrated (Clip-on) antenna (Option), External antenna (Option)
NB-IoT	Not Supported (HW Resource reserved for 1 Guard Band NB-IoT per LTE carrier)
Spectrum Analyzer	TX/RX Support
External Alarm (UDA)	4
5G NR	Support with S/W upgrade
XPRAN	Support with S/W upgrade

SAMSUNG

Dual-Band Radio Unit 700/850MHz (B13/B5)

RFV01U-D2A

Samsung's RFV01U-D2A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.



The RFV01U-D2A RU targets dual-band support across Band 13 (700MHz) and Band 5 (850MHz), making it an ideal product for broad coverage footprints across multiple common low-end, long-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation

Key Technical Specifications

Duplex Type: FDD

Operating Frequencies:

B13: DL(746-756MHz)/UL(777-787MHz)

B5: DL(869-894MHz)/UL(824-849MHz)

Instantaneous Bandwidth: 10MHz(B13) + 25MHz(B5)

RF Chain: 4T4R/2T4R/2T2R

Output Power: Total 320W

DU-RU Interface: CPRI (10Gbps)

Dimensions: 380 x 380 x 207mm (29.9L)

Weight: 31.9kg

Input Power: -48V DC

Operating Temp.: -40 - 55°(w/o solar load)

Cooling: Natural convection

SAMSUNG

Dual-Band Radio Unit AWS/PCS (B66/B2)

RFV01U-D1A

Samsung's RFV01U-D1A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.



The RFV01U-D1A RU targets dual-band support across Band 66 (AWS) and Band 2 (PCS), making it an ideal product for broad coverage footprints across multiple common mid-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation
- Built-in Broadcast Auxiliary Services (BAS) filter ensures compliant AWS operation without impacting footprint

Key Technical Specifications

Duplex Type: FDD

Operating Frequencies:

B66: DL(2,110-2,180MHz)/UL(1,710-1,780MHz)

B2: DL(1,930-1,990MHz)/UL(1,850-1,910MHz)

Instantaneous Bandwidth:

70MHz(B66) + 60MHz(B2)

RF Chain: 4T4R/2T4R/2T2R

Output Power: Total 320W

DU-RU Interface: CPRI (10Gbps)

Dimensions: 380 x 380 x 255mm (36.8L)

Weight: 38.3kg

Input Power: -48V DC

Operating Temp.: -40 - 55°(w/o solar load)

Cooling: Natural convection

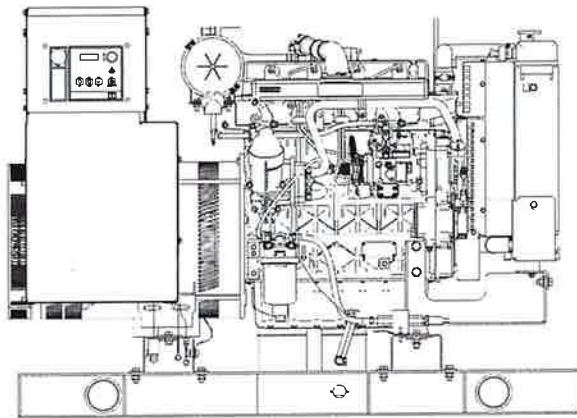


Tier 4i EPA-Certified for Stationary Emergency Applications

Standard Features

Ratings Range

		60 Hz
Standby:	kW	23-31
	kVA	23-39
Prime:	kW	21-28
	kVA	21-35



- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- **The 60 Hz generator set offers a UL 2200 listing.**
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- The generator set engine is certified to meet the Environmental Protection Agency (EPA) emergency stationary emissions requirements.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
 - Kohler's wound field excitation system with its unique PowerBoost™ design delivers great voltage response and short-circuit capability.
 - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
 - Kohler designed controllers for guaranteed system integration and remote communication. See Controllers on page 3.
 - The low coolant level shutdown prevents overheating (standard on radiator models only).
 - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.

Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
4D5.6	120/208	3	60	29/36	101	26/33	90
	127/220	3	60	29/36	95	26/33	85
	120/240	3	60	29/36	87	26/33	78
	120/240	1	60	23/23	96	21/21	88
	139/240	3	60	29/36	87	26/33	78
	220/380	3	60	27/34	51	25/31	47
	277/480	3	60	29/36	44	26/33	39
	347/600	3	60	29/36	35	26/33	31
4D8.3	120/208	3	60	31/39	108	28/35	97
	127/220	3	60	31/39	102	28/35	92
	120/240	3	60	31/39	93	28/35	84
	120/240	1	60	29/29	121	26/26	108
	139/240	3	60	31/39	93	28/35	84
	220/380	3	60	31/39	59	28/35	53
	277/480	3	60	31/39	47	28/35	42
	347/600	3	60	31/39	37	28/35	34
4E5.6	120/240	1	60	29/29	121	26/26	108
4E8.3	120/240	1	60	31/31	129	27/27	113

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. *Standby Ratings:* Standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. *Prime Power Ratings:* At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain the technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Wound Field
Leads: quantity, type	12, Reconnectable 4, 110-120/220-240
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

Specifications	Alternator	
Peak motor starting kVA:	(35% dip for voltages below)	
480 V	4D5.6 (12 lead)	75
480 V	4D8.3 (12 lead)	120
240 V	4E5.6 (4 lead)	44
240 V	4E8.3 (4 lead)	74

Application Data

Engine

Engine Specifications	
Manufacturer	Kohler Diesel
Engine model	KDI2504TM
Engine type	4-Cycle, Turbocharged
Cylinder arrangement	4 Inline
Displacement, L (cu. in.)	2.5 (158)
Bore and stroke, mm (in.)	88 x 102 (3.46 x 4.02)
Compression ratio	18:1
Piston speed, m/min. (ft./min.)	367 (1206)
Main bearings: quantity, type	5, Sleeve
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	36.4 (48.8)
Cylinder head material	Cast Iron
Crankshaft material	Cast Iron
Valve material:	
Intake	Stainless Steel
Exhaust	Stainless Steel
Governor: type, make/model	Stanadyne/Mechanical (or Electronic *)
	Droop, 5% (or Isochronous *)
Frequency regulation, no-load to full-load	±0.5%
Frequency regulation, steady state	Fixed
Frequency	Dry
Air cleaner type, all models	Dry
* Requires available electronic governor option	

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m ³ /min. (cfm)	7.8 (275)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	543 (1009)
Maximum allowable back pressure, kPa (in. Hg)	8 (2.4)
Exhaust outlet size at engine hookup, mm (in.)	76.5 (3.0)

Engine Electrical

Engine Electrical System		
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	12	
Ampere rating	50	
Starter motor rated voltage (DC)	12	
Battery, recommended cold cranking amps (CCA):		
Quantity, CCA rating	One, 650	
Battery voltage (DC)	12	

Fuel

Fuel System		
Fuel supply line, min. ID, mm (in.)	8.0 (0.31)	
Fuel return line, min. ID, mm (in.)	6.0 (0.25)	
Max. lift, engine-driven fuel pump, m (ft.)	3.0 (10.0)	
Max. fuel flow, Lph (gph)	46 (12.2)	
Max. return line restriction, kPa (in. Hg)	20 (5.9)	
Fuel filter		
Prefilter	74 Microns	
Primary/Water Separator	5 Microns @ 98% Efficiency	
Recommended fuel	#2 Ultra Low Sulfur Diesel	

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.)	10.7 (11.3)
Oil pan capacity with filter, L (qt.)	11 (11.6)
Oil filter: quantity, type	1, Cartridge
Oil cooler	—

Application Data

Cooling

Radiator System

Ambient temperature, °C (°F) *	50 (122)
Engine jacket water capacity, L (gal.)	4.4 (1.6)
Radiator system capacity, including engine, L (gal.)	11.4 (3)
Engine jacket water flow, Lpm (gpm)	59.0 (15.6)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	27.0 (1536)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	406 (16.0)
Fan, kWm (HP)	0.6 (0.8)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

* Enclosure reduces ambient temperature capability by 5°C (9°F).

Operation Requirements

Air Requirements

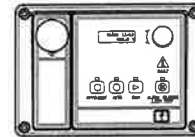
Radiator-cooled cooling air, m ³ /min. (scfm) †	53.8 (1900)
Combustion air, m ³ /min. (cfm)	2.7 (96.9)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	10.3 (587)
Alternator, kW (Btu/min.)	6.7 (381)
Max. air intake restriction, kPa (in. Hg)	3.0 (0.89)

† Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption

Diesel, Lph (gph) at % load	Standby Rating	
100%	9.8	(2.6)
75%	7.9	(2.1)
50%	5.7	(1.5)
25%	3.4	(0.9)
Diesel, Lph (gph) at % load	Prime Rating	
100%	9.1	(2.4)
75%	7.2	(1.9)
50%	5.3	(1.4)
25%	3.0	(0.8)

Controller



Decision-Maker[®] 3000 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus[®] protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-100 for additional controller features and accessories.

Modbus[®] is a registered trademark of Schneider Electric.

Additional Standard Features

- Air Cleaner, Heavy Duty
- Alternator Protection
- Battery Rack and Cables
- Closed Crankcase Ventilation
- Oil Drain and Coolant Drain with Hose Barb
- Oil Drain Extension (with enclosure models only)
- Operation and Installation Literature
- Stainless Steel Fasteners on Enclosure (with enclosure models only)
- Rodent Guards
- Stainless Steel Fasteners on Enclosures

Available Options

Approvals and Listings

- CSA Approval
- UL2200 Listing

Enclosed Unit

- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)
- Stainless Steel Latches and Hinges

Open Unit

- Exhaust Silencer, Critical (kit: PA-352663)
- Flexible Exhaust Connector, Stainless Steel

Fuel System

- Flexible Fuel Lines
- Fuel Pressure Gauge
- Subbase Fuel Tanks

Controller

- Common Failure Relay
- Input/Output Module
- Manual Speed Adjust (requires Electronic Governor)
- Remote Annunciator Panel
- Remote Emergency Stop
- Run Relay

Cooling System

- Block Heater (700 W, 110-120 V)
Recommended for ambient temperatures below 0°C (32°F).
- Radiator Duct Flange

Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Electronic Governor
- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)

Miscellaneous

- Air Cleaner Restriction Indicator
- Engine Fluids Added
- Rated Power Factor Testing

Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

Warranty

- 2-Year Basic Limited
- 5-Year Basic Limited
- 5-Year Comprehensive Limited

Other Options

- _____
- _____
- _____
- _____
- _____

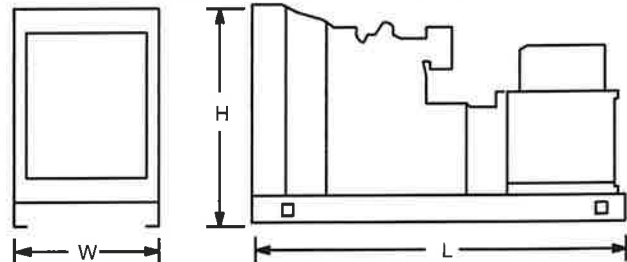
Dimensions and Weights

Overall Size, L x W x H, mm (in.):

Open Unit Skid: 1400 x 813 x 1024 (55.1 x 32.0 x 40.3)

Enclosure Skid: 1938 x 813 x 1174 (76.5 x 32.0 x 47.0)

Weight (radiator model), wet, kg (lb.): 512 (1130)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

DISTRIBUTED BY:

ATTACHMENT 5



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 109 ft Larson Camouflage Monopine

Customer Name: SBA Communications Corp

Customer Site Number: CT22077-A

Customer Site Name: East Hartford (465 Hill St)

Carrier Name: Verizon (App#: 131856-1)

Carrier Site ID / Name: 616554820 / EAST HARTFORD 10 CT - A

Site Location: 465 Hills Street

East Hartford, Connecticut

HARTFORD County

Latitude: 41.740700

Longitude: -72.584100

Exp.01/31/2021



Analysis Result:

Max Structural Usage: 38.9% [Pass]

Max Foundation Usage: 58.0% [Pass]

04/06/2020

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Tawfeeq Alajaj

Introduction

The purpose of this report is to summarize the analysis results on the 109 ft Larson Camouflage Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Vector Engineers, #U1223-277-131. dated 04/04/2014. Larso. #641200. dated 04/08/2014.
Foundation Drawing	Vector Engineers, #U1223-277-131. dated 04/04/2014. Larso. #641200. dated 04/08/2014.
Geotechnical Report	Terracon, #J2135182. dated 08/16/2013.
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 125.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 97.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_s = 0.18, S_1 = 0.064$

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	109.0	1	RFS - BA6312-1 - Whip	Pipe	(2) 7/8"	East Hartford Fire D
2		1	CommScope - HPD2-4.7 - Dish			
3	100.0	12	CCI - HPA-65R-BUU-H8 - Panel	(3) T-Arms	(2) 3/8" Fiber (3) 3/8" RET (8) DC Fiber	AT&T
4		6	RRUS-32			
5		6	RRUS-E2			
6		6	RRUS-A2			
7		9	RRUS-11			
8		6	RRUS-12			
9		5	Raycap DC2-48-60-18-8F			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
10	90.0	3	CommScope - NHH-65B-R2B - Panel	Sitepro ULPD12 at 88'	(2) 1 5/8" Hybrid	Verizon
11		3	CommScope - NHHSS-65B-R2B - Panel			
12		3	Samsung B2/B66A RRH-BR049 (RFV01U-D1A)			
13		3	Samsung B5/B13 RRH-BR04C (RFV01U-D2A)			
14	87.0	3	Samsung CBRS RRH - RT4401- 48A			
15		1	Raycap RVZDC-6627-PF-48			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	38.9%	36.1%	31.6%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	6146.0	64.6
Analysis Reactions	4101.4	49.5
Factored Reactions*	8297.1	87.2
% of Design Reactions	49.4%	56.8%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2997 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-G Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 38.95% at 62.3ft

Structure: CT22077-A-SBA
Site Name: East Hartford (465 Hill St)
Height: 109.00 (ft)
Base Elev: 1.000 (ft)

Code: EIA/TIA-222-G
Exposure: C
Gh: 1.1

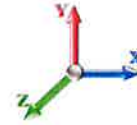
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Page: 1



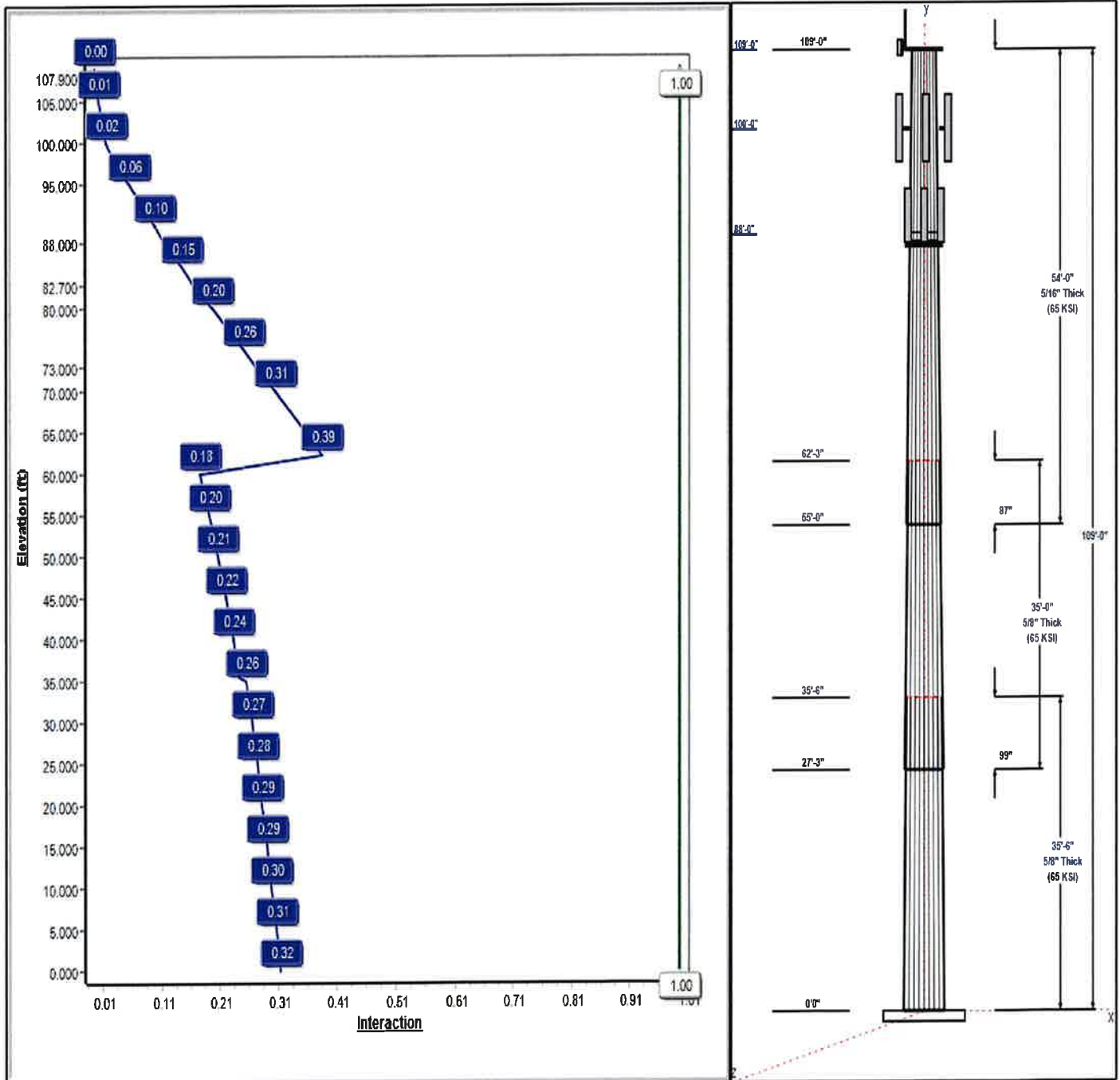
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 97 mph Wind



Iterations: 15

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Structure: CT22077-A-SBA

Type: Tapered
Site Name: East Hartford (465 Hill St)
Height: 109.00 (ft)
Base Elev: 1.00 (ft)

Base Shape: 18 Sided
Taper: 0.30000

4/6/2020

Page: 2



Shaft Properties							
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	35.50	56.68	67.33	0.625		0.30000	65
2	35.00	49.90	60.40	0.625	Slip	0.30000	65
3	54.00	36.50	52.70	0.313	Slip	0.30000	65

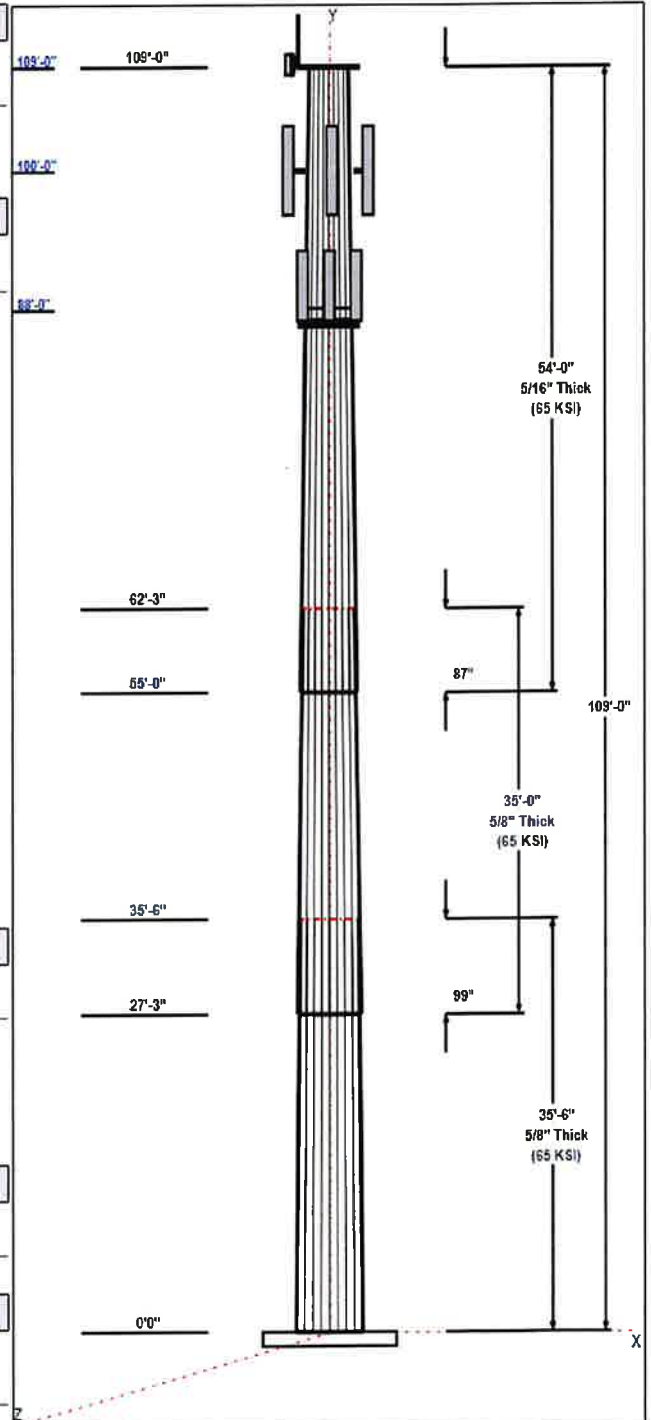
Discrete Appurtenances				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
109.00	111.20	1	BA6312-1	East Hartford Fire
109.00	110.00	1	HPD2-4.7	East Hartford Fire
109.00	109.00	1	Pipe	East Hartford Fire
109.00	109.00	1	Top Hat	-
107.90	107.90	1	6 FT Branches	-
100.00	100.00	12	HPA-65R-BUU-H8	AT&T
100.00	100.00	6	RRUS-32	AT&T
100.00	100.00	6	RRUS-E2	AT&T
100.00	100.00	6	RRUS-A2	AT&T
100.00	100.00	9	RRUS-11	AT&T
100.00	100.00	6	RRUS-12	AT&T
100.00	100.00	5	Raycap DC2-48-60-18-8F	AT&T
100.00	100.00	3	T-Arms	AT&T
97.20	97.20	1	8 FT Branches	-
88.00	90.00	3	NHH-65B-R2B	Verizon
88.00	90.00	3	NHHSS-65B-R2B	Verizon
88.00	90.00	3	B2/B66A RRRH-BR049	Verizon
88.00	90.00	3	B5/B13 RRRH-BR04C	Verizon
88.00	90.00	3	Samsung CBRS RRRH -	Verizon
88.00	87.00	1	Raycap	Verizon
88.00	88.00	1	ULPD12	Verizon
82.70	82.70	1	10 FT Branches	-
73.00	73.00	1	12 FT Branches	-

Linear Appurtenances				
Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	109.00	Inside	7/8" Coax	East Hartford Fire
0.00	100.00	Inside	3/8" Fiber	AT&T
0.00	100.00	Inside	3/8" RET	AT&T
0.00	100.00	Inside	DC Fiber	AT&T
0.00	90.00	Inside	1 5/8" Hybrid	Verizon

Anchor Bolts			
Qty	Specifications	Grade (ksi)	Arrangement
30	2.25" 18J	75.0	Radial

Base Plate			
Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.0000	81.5	50.0	Round

Reactions				
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)	
1.2D + 1.6W 97 mph Wind	4101.4	49.5	61.1	



Structure: CT22077-A-SBA

Type: Tapered	Base Shape: 18 Sided	4/6/2020
Site Name: East Hartford (465 Hill St)	Taper: 0.30000	
Height: 109.00 (ft)		Page: 3
Base Elev: 1.00 (ft)		



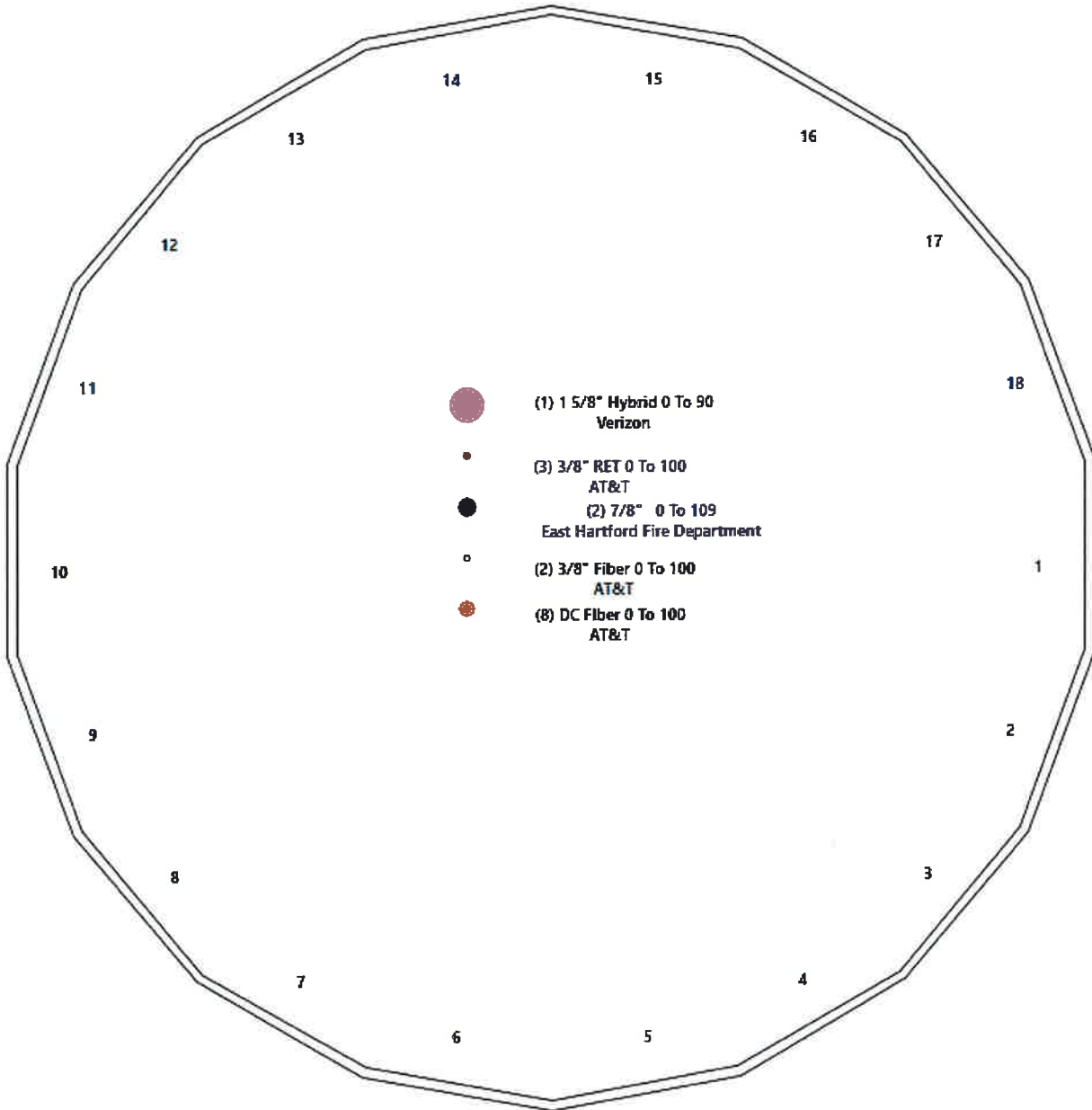
0.9D + 1.6W 97 mph Wind	4092.9	49.5	45.8
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1239.7	15.0	111.1
1.2D + 1.0E	208.8	2.5	61.1
0.9D + 1.0E	208.3	2.5	45.8
1.0D + 1.0W 60 mph Wind	979.5	11.8	50.9

Structure: CT22077-A-SBA - Coax Line Placement

Type: Monopine
Site Name: East Hartford (465 Hill St)
Height: 109.00 (ft)

4/6/2020

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Shaft Properties

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	35.500	0.6250	65		0.00	14,707
2	18	35.000	0.6250	65	Slip	99.00	12,882
3	18	54.000	0.3125	65	Slip	87.00	8,071
Total Shaft Weight:							35,660

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	67.33	0.00	132.3	74370.70	17.58	107.72	56.68	35.50	111.1	44131.7	14.58	90.68	0.300000
2	60.40	27.25	118.5	53528.26	15.63	96.64	49.90	62.25	97.75	29985.0	12.67	79.84	0.300000
3	52.70	55.00	51.96	18016.79	28.33	168.64	36.50	109.00	35.89	5938.41	19.18	116.8	0.300000

Load Summary

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	109.00	BA6312-1	1	2.00	0.44	1.00	56.71	1.921	1.00	0.00	2.20
2	109.00	HPD2-4.7	1	27.00	3.96	1.00	134.66	5.479	1.00	0.00	1.00
3	109.00	Pipe	1	137.25	5.00	1.00	310.64	13.121	1.00	0.00	0.00
4	109.00	Top Hat	1	160.00	20.00	1.00	448.75	38.047	1.00	0.00	0.00
5	107.90	6 FT Branches	1	720.00	45.00	1.00	2018.09	85.565	1.00	0.00	0.00
6	100.00	HPA-65R-BUU-H8	12	68.00	12.98	0.79	458.48	15.086	0.79	0.00	0.00
7	100.00	RRUS-32	6	53.00	2.74	0.67	173.52	3.695	0.67	0.00	0.00
8	100.00	RRUS-E2	6	59.40	3.15	0.67	189.40	4.088	0.67	0.00	0.00
9	100.00	RRUS-A2	6	21.20	1.86	0.67	67.48	3.108	0.67	0.00	0.00
10	100.00	RRUS-11	9	50.70	2.52	0.67	172.42	3.376	0.67	0.00	0.00
11	100.00	RRUS-12	6	60.00	2.70	0.67	145.89	3.546	0.67	0.00	0.00
12	100.00	Raycap DC2-48-60-18-8F	5	31.80	0.92	1.00	111.04	1.481	1.00	0.00	0.00
13	100.00	T-Arms	3	400.00	10.00	0.75	757.87	21.184	0.75	0.00	0.00
14	97.20	8 FT Branches	1	2350.00	150.50	1.00	6543.22	84.772	1.00	0.00	0.00
15	88.00	NHH-65B-R2B	3	43.70	8.08	0.83	311.96	9.745	0.83	0.00	2.00
16	88.00	NHHSS-65B-R2B	3	40.60	8.08	0.83	308.86	9.745	0.83	0.00	2.00
17	88.00	B2/B66A RRH-BR049	3	84.50	1.88	0.67	149.37	2.578	0.67	0.00	2.00
18	88.00	B5/B13 RRH-BR04C (RFV01U-D2A)	3	84.50	1.88	0.67	149.37	2.578	0.67	0.00	2.00
19	88.00	Samsung CBRS RRH - RT4401- 48A	3	6.60	1.19	0.67	37.28	2.186	0.67	0.00	2.00
20	88.00	Raycap RVZDC-6627-PF-48	1	32.00	3.79	1.00	200.22	4.834	1.00	0.00	-1.00
21	88.00	ULPD12	1	2419.26	41.68	1.00	6693.81	07.959	1.00	0.00	0.00
22	82.70	10 FT Branches	1	2706.00	160.00	1.00	7457.92	00.485	1.00	0.00	0.00
23	73.00	12 FT Branches	1	1386.00	82.60	1.00	3790.11	54.238	1.00	0.00	0.00
Totals:			78	14,512.11			43,864.72				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	109.00	(2) 7/8" Coax	0.00	Inside
0.00	100.00	(2) 3/8" Fiber	0.00	Inside
0.00	100.00	(3) 3/8" RET	0.00	Inside
0.00	100.00	(8) DC Fiber	0.00	Inside
0.00	90.00	(1) 1 5/8" Hybrid	0.00	Inside

Shaft Section Properties

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Page: 7
Struct Class: II		



Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in ³)	Weight (lb)
0.00		0.6250	67.325	132.311	74370.7	17.58	107.72	80.7	2175.	0.0
5.00		0.6250	65.825	129.336	69465.2	17.16	105.32	81.2	2078.	2225.8
10.00		0.6250	64.325	126.360	64780.3	16.74	102.92	81.7	1983.	2175.2
15.00		0.6250	62.825	123.385	60310.9	16.31	100.52	82.2	1890.	2124.6
20.00		0.6250	61.325	120.409	56051.9	15.89	98.12	82.6	1800.	2073.9
25.00		0.6250	59.825	117.434	51998.3	15.47	95.72	82.6	1711.	2023.3
27.25	Bot - Section 2	0.6250	59.150	116.095	50239.9	15.28	94.64	82.6	1672.	894.0
30.00		0.6250	58.325	114.458	48145.1	15.04	93.32	82.6	1625.	2180.6
35.00		0.6250	56.825	111.483	44487.0	14.62	90.92	82.6	1542.	3886.3
35.50	Top - Section 1	0.6250	57.925	113.665	47150.7	14.93	92.68	0.0	0.0	383.1
40.00		0.6250	56.575	110.987	43896.0	14.55	90.52	82.6	1528.	1720.0
45.00		0.6250	55.075	108.011	40459.3	14.13	88.12	82.6	1446.	1863.0
50.00		0.6250	53.575	105.036	37206.8	13.70	85.72	82.6	1367.	1812.4
55.00	Bot - Section 3	0.6250	52.075	102.060	34133.5	13.28	83.32	82.6	1291.	1761.8
60.00		0.6250	50.575	99.085	31234.2	12.86	80.92	82.6	1216.	2582.5
62.25	Top - Section 2	0.3125	50.525	49.803	15864.6	27.10	161.68	0.0	0.0	1137.4
65.00		0.3125	49.700	48.984	15095.4	26.63	159.04	70.1	598.2	462.2
70.00		0.3125	48.200	47.497	13761.3	25.79	154.24	71.1	562.3	820.8
73.00		0.3125	47.300	46.604	12999.9	25.28	151.36	71.7	541.3	480.3
75.00		0.3125	46.700	46.009	12508.3	24.94	149.44	72.1	527.5	315.1
80.00		0.3125	45.200	44.521	11333.7	24.09	144.64	73.1	493.9	770.1
82.70		0.3125	44.390	43.718	10731.1	23.64	142.05	73.6	476.1	405.3
85.00		0.3125	43.700	43.033	10235.0	23.25	139.84	74.1	461.3	339.5
88.00		0.3125	42.800	42.141	9611.2	22.74	136.96	74.7	442.3	434.7
90.00		0.3125	42.200	41.546	9209.7	22.40	135.04	75.1	429.8	284.8
95.00		0.3125	40.700	40.058	8255.3	21.55	130.24	76.0	399.5	694.2
97.20		0.3125	40.040	39.403	7857.2	21.18	128.13	76.5	386.5	297.4
100.00		0.3125	39.200	38.570	7369.3	20.71	125.44	77.0	370.3	371.5
105.00		0.3125	37.700	37.082	6549.0	19.86	120.64	78.0	342.1	643.6
107.90		0.3125	36.830	36.219	6102.4	19.37	117.86	78.6	326.3	361.7
109.00		0.3125	36.500	35.892	5938.4	19.18	116.80	78.8	320.4	135.0
										35660.0

Wind Loading - Shaft

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 15

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	509.48	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	498.13	0.650	0.000	5.00	28.168	18.31	626.8	0.0	2671.0
10.00		1.00	0.85	19.450	21.40	486.78	0.650	0.000	5.00	27.533	17.90	612.6	0.0	2610.2
15.00		1.00	0.86	19.690	21.66	478.35	0.650	0.000	5.00	26.898	17.48	605.9	0.0	2549.5
20.00		1.00	0.91	20.851	22.94	480.49	0.650	0.000	5.00	26.264	17.07	626.5	0.0	2488.7
25.00		1.00	0.95	21.810	23.99	479.39	0.650	0.000	5.00	25.629	16.66	639.4	0.0	2428.0
27.25 Bot - Section 2		1.00	0.97	22.194	24.41	478.14	0.650	0.000	2.25	11.326	7.36	287.6	0.0	1072.8
30.00		1.00	0.99	22.632	24.90	476.11	0.650	0.000	2.75	13.959	9.07	361.4	0.0	2616.8
35.00		1.00	1.02	23.356	25.69	471.22	0.650	0.000	5.00	24.889	16.18	665.0	0.0	4663.6
35.50 Top - Section 1		1.00	1.02	23.424	25.77	470.66	0.650	0.000	0.50	2.454	1.60	65.8	0.0	459.7
40.00		1.00	1.05	24.004	26.40	475.61	0.650	0.000	4.50	21.800	14.17	598.6	0.0	2064.0
45.00		1.00	1.07	24.593	27.05	468.65	0.650	0.000	5.00	23.619	15.35	664.5	0.0	2235.6
50.00		1.00	1.10	25.133	27.65	460.86	0.650	0.000	5.00	22.985	14.94	660.9	0.0	2174.9
55.00 Bot - Section 3		1.00	1.12	25.633	28.20	452.39	0.650	0.000	5.00	22.350	14.53	655.4	0.0	2114.1
60.00		1.00	1.14	26.099	28.71	443.33	0.650	0.000	5.00	21.980	14.29	656.2	0.0	3099.0
62.25 Top - Section 2		1.00	1.15	26.298	28.93	439.09	0.650	0.000	2.25	9.684	6.29	291.3	0.0	1364.8
65.00		1.00	1.16	26.535	29.19	439.29	0.650	0.000	2.75	11.661	7.58	354.0	0.0	554.6
70.00		1.00	1.18	26.946	29.64	429.32	0.650	0.000	5.00	20.710	13.46	638.4	0.0	984.9
73.00 Appurtenance(s)		1.00	1.19	27.182	29.90	423.14	0.650	0.000	3.00	12.122	7.88	376.9	0.0	576.4
75.00		1.00	1.19	27.335	30.07	418.95	0.650	0.000	2.00	7.954	5.17	248.7	0.0	378.2
80.00		1.00	1.21	27.704	30.47	408.22	0.650	0.000	5.00	19.441	12.64	616.2	0.0	924.2
82.70 Appurtenance(s)		1.00	1.22	27.896	30.69	402.29	0.650	0.000	2.70	10.234	6.65	326.6	0.0	486.4
85.00		1.00	1.23	28.056	30.86	397.17	0.650	0.000	2.30	8.572	5.57	275.1	0.0	407.4
88.00 Appurtenance(s)		1.00	1.23	28.259	31.08	390.40	0.650	0.000	3.00	10.979	7.14	354.9	0.0	521.7
90.00		1.00	1.24	28.391	31.23	385.83	0.650	0.000	2.00	7.193	4.68	233.6	0.0	341.7
95.00		1.00	1.25	28.713	31.58	374.21	0.650	0.000	5.00	17.537	11.40	576.1	0.0	833.0
97.20 Appurtenance(s)		1.00	1.26	28.850	31.74	369.02	0.650	0.000	2.20	7.515	4.88	248.0	0.0	356.9
100.00 Appurtenance(s)		1.00	1.27	29.021	31.92	362.35	0.650	0.000	2.80	9.387	6.10	311.7	0.0	445.7
105.00		1.00	1.28	29.318	32.25	350.26	0.650	0.000	5.00	16.268	10.57	545.6	0.0	772.3
107.90 Appurtenance(s)		1.00	1.29	29.485	32.43	343.15	0.650	0.000	2.90	9.145	5.94	308.5	0.0	434.0
109.00 Appurtenance(s)		1.00	1.29	29.548	32.50	340.44	0.650	0.000	1.10	3.413	2.22	115.4	0.0	162.0
Totals:								109.00	13,547.7	42,792.0				

Discrete Appurtenance Forces

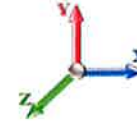
Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 15

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	109.00	Pipe	1	29.548	32.503	1.00	1.00	5.00	164.70	0.000	0.000	260.02	0.00	0.00
2	109.00	HPD2-4.7	1	29.604	32.564	1.00	1.00	3.96	32.40	0.000	1.000	206.33	0.00	206.33
3	109.00	BA6312-1	1	29.671	32.638	1.00	1.00	0.44	2.40	0.000	2.200	22.98	0.00	50.55
4	109.00	Top Hat	1	29.548	32.503	1.00	1.00	20.00	192.00	0.000	0.000	1040.08	0.00	0.00
5	107.90	6 FT Branches	1	29.485	32.434	1.00	1.00	45.00	864.00	0.000	0.000	2335.23	0.00	0.00
6	100.00	RRUS-11	9	29.021	31.924	0.54	0.80	12.16	547.56	0.000	0.000	620.93	0.00	0.00
7	100.00	RRUS-E2	6	29.021	31.924	0.54	0.80	10.13	427.68	0.000	0.000	517.44	0.00	0.00
8	100.00	RRUS-A2	6	29.021	31.924	0.54	0.80	5.98	152.64	0.000	0.000	305.54	0.00	0.00
9	100.00	T-Arms	3	29.021	31.924	0.56	0.75	16.88	1440.00	0.000	0.000	861.94	0.00	0.00
10	100.00	RRUS-12	6	29.021	31.924	0.54	0.80	8.68	432.00	0.000	0.000	443.52	0.00	0.00
11	100.00	Raycap DC2-48-60-18-8F	5	29.021	31.924	0.80	0.80	3.68	190.80	0.000	0.000	187.97	0.00	0.00
12	100.00	RRUS-32	6	29.021	31.924	0.54	0.80	8.81	381.60	0.000	0.000	450.09	0.00	0.00
13	100.00	HPA-65R-BUU-H8	12	29.021	31.924	0.63	0.80	98.44	979.20	0.000	0.000	5028.12	0.00	0.00
14	97.20	8 FT Branches	1	28.850	31.735	1.00	1.00	150.50	2820.00	0.000	0.000	7641.85	0.00	0.00
15	88.00	NHH-65B-R2B	3	28.391	31.231	0.66	0.80	16.10	157.32	0.000	2.000	804.27	0.00	1608.53
16	88.00	NHHSS-65B-R2B	3	28.391	31.231	0.66	0.80	16.10	146.16	0.000	2.000	804.27	0.00	1608.53
17	88.00	B2/B66A RRH-BR049	3	28.391	31.231	0.54	0.80	3.02	304.20	0.000	2.000	151.06	0.00	302.12
18	88.00	B5/B13 RRH-BR04C	3	28.391	31.231	0.54	0.80	3.02	304.20	0.000	2.000	151.06	0.00	302.12
19	88.00	Samsung CBRS RRH -	3	28.391	31.231	0.54	0.80	1.91	23.76	0.000	2.000	95.62	0.00	191.23
20	88.00	Raycap	1	28.192	31.011	0.80	0.80	3.03	38.40	0.000	-1.000	150.44	0.00	-150.44
21	88.00	ULPD12	1	28.259	31.085	1.00	1.00	41.68	2903.11	0.000	0.000	2072.98	0.00	0.00
22	82.70	10 FT Branches	1	27.896	30.686	1.00	1.00	160.00	3247.20	0.000	0.000	7855.51	0.00	0.00
23	73.00	12 FT Branches	1	27.182	29.900	1.00	1.00	82.60	1663.20	0.000	0.000	3951.60	0.00	0.00
Totals:									17,414.53			35,958.81		

Total Applied Force Summary

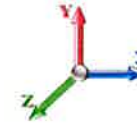
Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 15

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		626.76	2716.82	0.00	0.00
10.00		612.64	2656.07	0.00	0.00
15.00		605.91	2595.32	0.00	0.00
20.00		626.47	2534.57	0.00	0.00
25.00		639.44	2473.82	0.00	0.00
27.25		287.57	1093.40	0.00	0.00
30.00		361.42	2641.97	0.00	0.00
35.00		665.01	4709.43	0.00	0.00
35.50		65.76	464.26	0.00	0.00
40.00		598.65	2105.24	0.00	0.00
45.00		664.51	2281.45	0.00	0.00
50.00		660.86	2220.70	0.00	0.00
55.00		655.39	2159.95	0.00	0.00
60.00		656.24	3144.86	0.00	0.00
62.25		291.34	1385.46	0.00	0.00
65.00		353.99	579.86	0.00	0.00
70.00		638.43	1030.75	0.00	0.00
73.00	(1) attachments	4328.53	2267.07	0.00	0.00
75.00		248.74	396.51	0.00	0.00
80.00		616.16	970.00	0.00	0.00
82.70	(1) attachments	8182.12	3758.37	0.00	0.00
85.00		275.13	428.46	0.00	0.00
88.00	(17) attachments	4584.63	4426.35	0.00	3862.09
90.00		233.61	360.06	0.00	0.00
95.00		576.06	872.28	0.00	0.00
97.20	(1) attachments	7889.89	3194.18	0.00	0.00
100.00	(53) attachments	8727.19	5019.20	0.00	0.00
105.00		545.63	778.53	0.00	0.00
107.90	(1) attachments	2643.69	1301.63	0.00	0.00
109.00	(4) attachments	1644.77	554.82	0.00	256.88
	Totals:	49,506.53	61,121.37	0.00	4,118.97

Calculated Forces

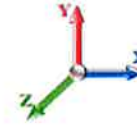
Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 15

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-61.09	-49.55	0.00	-4101.4	0.00	4101.41	9612.09	4806.04	26304.5	13171.8	0.00	0.000	0.000	0.318
5.00	-58.31	-49.00	0.00	-3853.6	0.00	3853.67	9453.86	4726.93	25284.3	12660.9	0.04	-0.076	0.000	0.311
10.00	-55.59	-48.45	0.00	-3608.6	0.00	3608.69	9292.97	4646.48	24276.8	12156.4	0.16	-0.152	0.000	0.303
15.00	-52.93	-47.91	0.00	-3366.4	0.00	3366.42	9129.41	4564.70	23282.4	11658.5	0.37	-0.229	0.000	0.295
20.00	-50.33	-47.34	0.00	-3126.8	0.00	3126.87	8945.81	4472.90	22258.5	11145.8	0.65	-0.306	0.000	0.286
25.00	-47.82	-46.73	0.00	-2890.1	0.00	2890.18	8724.74	4362.37	21166.6	10599.0	1.01	-0.382	0.000	0.278
27.25	-46.70	-46.47	0.00	-2785.0	0.00	2785.04	8625.26	4312.63	20684.1	10357.4	1.20	-0.417	0.000	0.274
30.00	-44.01	-46.13	0.00	-2657.2	0.00	2657.25	8503.68	4251.84	20102.1	10066.0	1.45	-0.459	0.000	0.269
35.00	-39.27	-45.45	0.00	-2426.6	0.00	2426.60	8282.61	4141.30	19065.0	9546.71	1.97	-0.534	0.000	0.259
35.50	-38.78	-45.41	0.00	-2403.8	0.00	2403.87	8444.72	4222.36	19822.8	9926.18	2.03	-0.542	0.000	0.247
40.00	-36.63	-44.83	0.00	-2199.5	0.00	2199.54	8245.77	4122.88	18894.9	9461.50	2.58	-0.609	0.000	0.237
45.00	-34.30	-44.18	0.00	-1975.3	0.00	1975.38	8024.70	4012.35	17889.9	8958.25	3.25	-0.677	0.000	0.225
50.00	-32.04	-43.53	0.00	-1754.4	0.00	1754.48	7803.63	3901.82	16912.3	8468.76	4.00	-0.742	0.000	0.211
55.00	-29.85	-42.88	0.00	-1536.8	0.00	1536.83	7582.57	3791.28	15962.3	7993.02	4.81	-0.805	0.000	0.196
60.00	-26.68	-42.19	0.00	-1322.4	0.00	1322.45	7361.50	3680.75	15039.7	7531.04	5.69	-0.865	0.000	0.179
62.25	-25.28	-41.89	0.00	-1227.5	0.00	1227.52	3116.45	1558.23	6440.45	3225.01	6.10	-0.891	0.000	0.389
65.00	-24.66	-41.56	0.00	-1112.3	0.00	1112.31	3089.39	1544.69	6278.97	3144.15	6.62	-0.921	0.000	0.362
70.00	-23.58	-40.93	0.00	-904.52	0.00	904.52	3038.11	1519.05	5986.03	2997.46	7.64	-1.016	0.000	0.310
73.00	-21.37	-36.58	0.00	-781.72	0.00	781.72	3006.06	1503.03	5810.85	2909.74	8.30	-1.069	0.000	0.276
75.00	-20.94	-36.34	0.00	-708.56	0.00	708.56	2984.16	1492.08	5694.37	2851.42	8.76	-1.101	0.000	0.256
80.00	-19.96	-35.73	0.00	-526.85	0.00	526.85	2927.55	1463.78	5404.50	2706.27	9.95	-1.171	0.000	0.202
82.70	-16.35	-27.47	0.00	-430.39	0.00	430.39	2895.88	1447.94	5248.88	2628.34	10.62	-1.204	0.000	0.170
85.00	-15.92	-27.20	0.00	-367.20	0.00	367.20	2868.28	1434.14	5116.91	2562.26	11.21	-1.228	0.000	0.149
88.00	-11.59	-22.52	0.00	-281.75	0.00	281.75	2831.43	1415.72	4945.65	2476.50	11.99	-1.255	0.000	0.118
90.00	-11.22	-22.29	0.00	-236.70	0.00	236.70	2806.34	1403.17	4832.08	2419.63	12.52	-1.271	0.000	0.102
95.00	-10.36	-21.69	0.00	-125.28	0.00	125.28	2741.73	1370.87	4550.54	2278.65	13.87	-1.299	0.000	0.059
97.20	-7.34	-13.73	0.00	-77.55	0.00	77.55	2712.46	1356.23	4427.82	2217.20	14.47	-1.306	0.000	0.038
100.00	-2.52	-4.89	0.00	-39.10	0.00	39.10	2674.46	1337.23	4272.75	2139.55	15.24	-1.312	0.000	0.019
105.00	-1.76	-4.33	0.00	-14.64	0.00	14.64	2604.52	1302.26	3999.24	2002.59	16.62	-1.318	0.000	0.008
107.90	-0.52	-1.66	0.00	-2.08	0.00	2.08	2562.73	1281.37	3842.75	1924.23	17.42	-1.319	0.000	0.001
109.00	0.00	-1.64	0.00	-0.26	0.00	0.26	2546.65	1273.32	3783.83	1894.73	17.72	-1.319	0.000	0.000

Wind Loading - Shaft

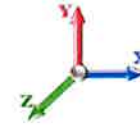
Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 15

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	509.48	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	498.13	0.650	0.000	5.00	28.168	18.31	626.8	0.0	2003.2
10.00		1.00	0.85	19.450	21.40	486.78	0.650	0.000	5.00	27.533	17.90	612.6	0.0	1957.7
15.00		1.00	0.86	19.690	21.66	478.35	0.650	0.000	5.00	26.898	17.48	605.9	0.0	1912.1
20.00		1.00	0.91	20.851	22.94	480.49	0.650	0.000	5.00	26.264	17.07	626.5	0.0	1866.5
25.00		1.00	0.95	21.810	23.99	479.39	0.650	0.000	5.00	25.629	16.66	639.4	0.0	1821.0
27.25 Bot - Section 2		1.00	0.97	22.194	24.41	478.14	0.650	0.000	2.25	11.326	7.36	287.6	0.0	804.6
30.00		1.00	0.99	22.632	24.90	476.11	0.650	0.000	2.75	13.959	9.07	361.4	0.0	1962.6
35.00		1.00	1.02	23.356	25.69	471.22	0.650	0.000	5.00	24.889	16.18	665.0	0.0	3497.7
35.50 Top - Section 1		1.00	1.02	23.424	25.77	470.66	0.650	0.000	0.50	2.454	1.60	65.8	0.0	344.8
40.00		1.00	1.05	24.004	26.40	475.61	0.650	0.000	4.50	21.800	14.17	598.6	0.0	1548.0
45.00		1.00	1.07	24.593	27.05	468.65	0.650	0.000	5.00	23.619	15.35	664.5	0.0	1676.7
50.00		1.00	1.10	25.133	27.65	460.86	0.650	0.000	5.00	22.985	14.94	660.9	0.0	1631.1
55.00 Bot - Section 3		1.00	1.12	25.633	28.20	452.39	0.650	0.000	5.00	22.350	14.53	655.4	0.0	1585.6
60.00		1.00	1.14	26.099	28.71	443.33	0.650	0.000	5.00	21.980	14.29	656.2	0.0	2324.3
62.25 Top - Section 2		1.00	1.15	26.298	28.93	439.09	0.650	0.000	2.25	9.684	6.29	291.3	0.0	1023.6
65.00		1.00	1.16	26.535	29.19	439.29	0.650	0.000	2.75	11.661	7.58	354.0	0.0	416.0
70.00		1.00	1.18	26.946	29.64	429.32	0.650	0.000	5.00	20.710	13.46	638.4	0.0	738.7
73.00 Appurtenance(s)		1.00	1.19	27.182	29.90	423.14	0.650	0.000	3.00	12.122	7.88	376.9	0.0	432.3
75.00		1.00	1.19	27.335	30.07	418.95	0.650	0.000	2.00	7.954	5.17	248.7	0.0	283.6
80.00		1.00	1.21	27.704	30.47	408.22	0.650	0.000	5.00	19.441	12.64	616.2	0.0	693.1
82.70 Appurtenance(s)		1.00	1.22	27.896	30.69	402.29	0.650	0.000	2.70	10.234	6.65	326.6	0.0	364.8
85.00		1.00	1.23	28.056	30.86	397.17	0.650	0.000	2.30	8.572	5.57	275.1	0.0	305.5
88.00 Appurtenance(s)		1.00	1.23	28.259	31.08	390.40	0.650	0.000	3.00	10.979	7.14	354.9	0.0	391.3
90.00		1.00	1.24	28.391	31.23	385.83	0.650	0.000	2.00	7.193	4.68	233.6	0.0	256.3
95.00		1.00	1.25	28.713	31.58	374.21	0.650	0.000	5.00	17.537	11.40	576.1	0.0	624.8
97.20 Appurtenance(s)		1.00	1.26	28.850	31.74	369.02	0.650	0.000	2.20	7.515	4.88	248.0	0.0	267.7
100.00 Appurtenance(s)		1.00	1.27	29.021	31.92	362.35	0.650	0.000	2.80	9.387	6.10	311.7	0.0	334.3
105.00		1.00	1.28	29.318	32.25	350.26	0.650	0.000	5.00	16.268	10.57	545.6	0.0	579.2
107.90 Appurtenance(s)		1.00	1.29	29.485	32.43	343.15	0.650	0.000	2.90	9.145	5.94	308.5	0.0	325.5
109.00 Appurtenance(s)		1.00	1.29	29.548	32.50	340.44	0.650	0.000	1.10	3.413	2.22	115.4	0.0	121.5
Totals:									109.00			13,547.7		32,094.0

Discrete Appurtenance Forces

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Page: 13
	Struct Class: II	



Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 15

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	109.00	Pipe	1	29.548	32.503	1.00	1.00	5.00	123.53	0.000	0.000	260.02	0.00	0.00
2	109.00	HPD2-4.7	1	29.604	32.564	1.00	1.00	3.96	24.30	0.000	1.000	206.33	0.00	206.33
3	109.00	BA6312-1	1	29.671	32.638	1.00	1.00	0.44	1.80	0.000	2.200	22.98	0.00	50.55
4	109.00	Top Hat	1	29.548	32.503	1.00	1.00	20.00	144.00	0.000	0.000	1040.08	0.00	0.00
5	107.90	6 FT Branches	1	29.485	32.434	1.00	1.00	45.00	648.00	0.000	0.000	2335.23	0.00	0.00
6	100.00	RRUS-11	9	29.021	31.924	0.54	0.80	12.16	410.67	0.000	0.000	620.93	0.00	0.00
7	100.00	RRUS-E2	6	29.021	31.924	0.54	0.80	10.13	320.76	0.000	0.000	517.44	0.00	0.00
8	100.00	RRUS-A2	6	29.021	31.924	0.54	0.80	5.98	114.48	0.000	0.000	305.54	0.00	0.00
9	100.00	T-Arms	3	29.021	31.924	0.56	0.75	16.88	1080.00	0.000	0.000	861.94	0.00	0.00
10	100.00	RRUS-12	6	29.021	31.924	0.54	0.80	8.68	324.00	0.000	0.000	443.52	0.00	0.00
11	100.00	Raycap DC2-48-60-18-8F	5	29.021	31.924	0.80	0.80	3.68	143.10	0.000	0.000	187.97	0.00	0.00
12	100.00	RRUS-32	6	29.021	31.924	0.54	0.80	8.81	286.20	0.000	0.000	450.09	0.00	0.00
13	100.00	HPA-65R-BUU-H8	12	29.021	31.924	0.63	0.80	98.44	734.40	0.000	0.000	5028.12	0.00	0.00
14	97.20	8 FT Branches	1	28.850	31.735	1.00	1.00	150.50	2115.00	0.000	0.000	7641.85	0.00	0.00
15	88.00	NHH-65B-R2B	3	28.391	31.231	0.66	0.80	16.10	117.99	0.000	2.000	804.27	0.00	1608.53
16	88.00	NHHSS-65B-R2B	3	28.391	31.231	0.66	0.80	16.10	109.62	0.000	2.000	804.27	0.00	1608.53
17	88.00	B2/B66A RRH-BR049	3	28.391	31.231	0.54	0.80	3.02	228.15	0.000	2.000	151.06	0.00	302.12
18	88.00	B5/B13 RRH-BR04C	3	28.391	31.231	0.54	0.80	3.02	228.15	0.000	2.000	151.06	0.00	302.12
19	88.00	Samsung CBRS RRH -	3	28.391	31.231	0.54	0.80	1.91	17.82	0.000	2.000	95.62	0.00	191.23
20	88.00	Raycap	1	28.192	31.011	0.80	0.80	3.03	28.80	0.000	-1.000	150.44	0.00	-150.44
21	88.00	ULPD12	1	28.259	31.085	1.00	1.00	41.68	2177.33	0.000	0.000	2072.98	0.00	0.00
22	82.70	10 FT Branches	1	27.896	30.686	1.00	1.00	160.00	2435.40	0.000	0.000	7855.51	0.00	0.00
23	73.00	12 FT Branches	1	27.182	29.900	1.00	1.00	82.60	1247.40	0.000	0.000	3951.60	0.00	0.00
Totals:									13,060.90			35,958.81		

Total Applied Force Summary

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 15

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		626.76	2037.62	0.00	0.00
10.00		612.64	1992.05	0.00	0.00
15.00		605.91	1946.49	0.00	0.00
20.00		626.47	1900.93	0.00	0.00
25.00		639.44	1855.37	0.00	0.00
27.25		287.57	820.05	0.00	0.00
30.00		361.42	1981.48	0.00	0.00
35.00		665.01	3532.07	0.00	0.00
35.50		65.76	348.20	0.00	0.00
40.00		598.65	1578.93	0.00	0.00
45.00		664.51	1711.08	0.00	0.00
50.00		660.86	1665.52	0.00	0.00
55.00		655.39	1619.96	0.00	0.00
60.00		656.24	2358.64	0.00	0.00
62.25		291.34	1039.09	0.00	0.00
65.00		353.99	434.90	0.00	0.00
70.00		638.43	773.06	0.00	0.00
73.00	(1) attachments	4328.53	1700.30	0.00	0.00
75.00		248.74	297.38	0.00	0.00
80.00		616.16	727.50	0.00	0.00
82.70	(1) attachments	8182.12	2818.78	0.00	0.00
85.00		275.13	321.34	0.00	0.00
88.00	(17) attachments	4584.63	3319.76	0.00	3862.09
90.00		233.61	270.04	0.00	0.00
95.00		576.06	654.21	0.00	0.00
97.20	(1) attachments	7889.89	2395.63	0.00	0.00
100.00	(53) attachments	8727.19	3764.40	0.00	0.00
105.00		545.63	583.89	0.00	0.00
107.90	(1) attachments	2643.69	976.22	0.00	0.00
109.00	(4) attachments	1644.77	416.12	0.00	256.88
	Totals:	49,506.53	45,841.03	0.00	4,118.97

Calculated Forces

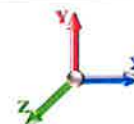
Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60

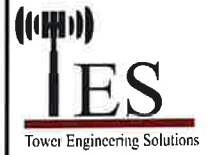


Iterations 15

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.81	-49.54	0.00	-4092.9	0.00	4092.91	9612.09	4806.04	26304.5	13171.8	0.00	0.000	0.000	0.316
5.00	-43.70	-48.97	0.00	-3845.2	0.00	3845.22	9453.86	4726.93	25284.3	12660.9	0.04	-0.076	0.000	0.308
10.00	-41.65	-48.41	0.00	-3600.3	0.00	3600.39	9292.97	4646.48	24276.8	12156.4	0.16	-0.152	0.000	0.301
15.00	-39.64	-47.85	0.00	-3358.3	0.00	3358.35	9129.41	4564.70	23282.4	11658.5	0.36	-0.229	0.000	0.293
20.00	-37.68	-47.26	0.00	-3119.1	0.00	3119.12	8945.81	4472.90	22258.5	11145.8	0.65	-0.305	0.000	0.284
25.00	-35.78	-46.65	0.00	-2882.8	0.00	2882.81	8724.74	4362.37	21166.6	10599.0	1.01	-0.381	0.000	0.276
27.25	-34.93	-46.38	0.00	-2777.8	0.00	2777.86	8625.26	4312.63	20684.1	10357.4	1.20	-0.416	0.000	0.272
30.00	-32.91	-46.03	0.00	-2650.3	0.00	2650.33	8503.68	4251.84	20102.1	10066.0	1.45	-0.458	0.000	0.267
35.00	-29.35	-45.36	0.00	-2420.1	0.00	2420.16	8282.61	4141.30	19065.0	9546.71	1.97	-0.533	0.000	0.257
35.50	-28.97	-45.31	0.00	-2397.4	0.00	2397.48	8444.72	4222.36	19822.8	9926.18	2.03	-0.541	0.000	0.245
40.00	-27.35	-44.73	0.00	-2193.5	0.00	2193.59	8245.77	4122.88	18894.9	9461.50	2.57	-0.607	0.000	0.235
45.00	-25.59	-44.07	0.00	-1969.9	0.00	1969.96	8024.70	4012.35	17889.9	8958.25	3.24	-0.675	0.000	0.223
50.00	-23.89	-43.42	0.00	-1749.6	0.00	1749.60	7803.63	3901.82	16912.3	8468.76	3.99	-0.740	0.000	0.210
55.00	-22.23	-42.76	0.00	-1532.5	0.00	1532.51	7582.57	3791.28	15962.3	7993.02	4.80	-0.803	0.000	0.195
60.00	-19.85	-42.09	0.00	-1318.6	0.00	1318.69	7361.50	3680.75	15039.7	7531.04	5.67	-0.862	0.000	0.178
62.25	-18.80	-41.79	0.00	-1223.9	0.00	1223.99	3116.45	1558.23	6440.45	3225.01	6.08	-0.888	0.000	0.386
65.00	-18.32	-41.45	0.00	-1109.0	0.00	1109.07	3089.39	1544.69	6278.97	3144.15	6.61	-0.919	0.000	0.359
70.00	-17.50	-40.82	0.00	-901.82	0.00	901.82	3038.11	1519.05	5986.03	2997.46	7.62	-1.014	0.000	0.307
73.00	-15.86	-36.47	0.00	-779.35	0.00	779.35	3006.06	1503.03	5810.85	2909.74	8.28	-1.066	0.000	0.274
75.00	-15.53	-36.23	0.00	-706.41	0.00	706.41	2984.16	1492.08	5694.37	2851.42	8.73	-1.098	0.000	0.254
80.00	-14.79	-35.62	0.00	-525.24	0.00	525.24	2927.55	1463.78	5404.50	2706.27	9.93	-1.168	0.000	0.200
82.70	-12.12	-27.38	0.00	-429.07	0.00	429.07	2895.88	1447.94	5248.88	2628.34	10.60	-1.201	0.000	0.168
85.00	-11.80	-27.11	0.00	-366.09	0.00	366.09	2868.28	1434.14	5116.91	2562.26	11.18	-1.225	0.000	0.147
88.00	-8.57	-22.45	0.00	-280.91	0.00	280.91	2831.43	1415.72	4945.65	2476.50	11.96	-1.252	0.000	0.117
90.00	-8.29	-22.22	0.00	-236.00	0.00	236.00	2806.34	1403.17	4832.08	2419.63	12.49	-1.267	0.000	0.101
95.00	-7.65	-21.63	0.00	-124.91	0.00	124.91	2741.73	1370.87	4550.54	2278.65	13.84	-1.295	0.000	0.058
97.20	-5.43	-13.69	0.00	-77.32	0.00	77.32	2712.46	1356.23	4427.82	2217.20	14.44	-1.303	0.000	0.037
100.00	-1.87	-4.88	0.00	-38.99	0.00	38.99	2674.46	1337.23	4272.75	2139.55	15.20	-1.309	0.000	0.019
105.00	-1.29	-4.32	0.00	-14.60	0.00	14.60	2604.52	1302.26	3999.24	2002.59	16.58	-1.314	0.000	0.008
107.90	-0.38	-1.65	0.00	-2.08	0.00	2.08	2562.73	1281.37	3842.75	1924.23	17.38	-1.315	0.000	0.001
109.00	0.00	-1.64	0.00	-0.26	0.00	0.26	2546.65	1273.32	3783.83	1894.73	17.68	-1.315	0.000	0.000

Wind Loading - Shaft

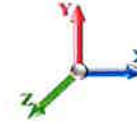
Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 14

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	1.410	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.687	5.00	29.573	35.49	201.7	713.3	3384.2
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.792	5.00	29.026	34.83	198.0	742.1	3352.4
15.00		1.00	0.86	5.232	5.76	0.00	1.200	1.860	5.00	28.449	34.14	196.5	753.8	3303.3
20.00		1.00	0.91	5.540	6.09	0.00	1.200	1.912	5.00	27.857	33.43	203.7	757.2	3245.9
25.00		1.00	0.95	5.795	6.37	0.00	1.200	1.953	5.00	27.256	32.71	208.5	755.7	3183.7
27.25 Bot - Section 2		1.00	0.97	5.897	6.49	0.00	1.200	1.969	2.25	12.064	14.48	93.9	339.2	1412.0
30.00		1.00	0.99	6.013	6.61	0.00	1.200	1.988	2.75	14.870	17.84	118.0	421.5	3038.3
35.00		1.00	1.02	6.206	6.83	0.00	1.200	2.017	5.00	26.570	31.88	217.6	759.4	5422.9
35.50 Top - Section 1		1.00	1.02	6.224	6.85	0.00	1.200	2.020	0.50	2.622	3.15	21.5	75.9	535.5
40.00		1.00	1.05	6.378	7.02	0.00	1.200	2.044	4.50	23.333	28.00	196.4	675.4	2739.4
45.00		1.00	1.07	6.534	7.19	0.00	1.200	2.068	5.00	25.342	30.41	218.6	740.0	2975.6
50.00		1.00	1.10	6.678	7.35	0.00	1.200	2.089	5.00	24.725	29.67	218.0	728.3	2903.1
55.00 Bot - Section 3		1.00	1.12	6.811	7.49	0.00	1.200	2.109	5.00	24.107	28.93	216.7	715.6	2829.7
60.00		1.00	1.14	6.934	7.63	0.00	1.200	2.127	5.00	23.752	28.50	217.4	710.3	3809.3
62.25 Top - Section 2		1.00	1.15	6.988	7.69	0.00	1.200	2.134	2.25	10.484	12.58	96.7	316.8	1681.6
65.00		1.00	1.16	7.050	7.76	0.00	1.200	2.144	2.75	12.644	15.17	117.7	382.8	937.4
70.00		1.00	1.18	7.160	7.88	0.00	1.200	2.159	5.00	22.510	27.01	212.7	681.0	1665.9
73.00 Appurtenance(s)		1.00	1.19	7.222	7.94	0.00	1.200	2.168	3.00	13.206	15.85	125.9	403.0	979.4
75.00		1.00	1.19	7.263	7.99	0.00	1.200	2.174	2.00	8.679	10.41	83.2	266.2	644.3
80.00		1.00	1.21	7.361	8.10	0.00	1.200	2.188	5.00	21.264	25.52	206.6	649.3	1573.4
82.70 Appurtenance(s)		1.00	1.22	7.412	8.15	0.00	1.200	2.195	2.70	11.222	13.47	109.8	345.8	832.2
85.00		1.00	1.23	7.454	8.20	0.00	1.200	2.201	2.30	9.416	11.30	92.7	291.0	698.4
88.00 Appurtenance(s)		1.00	1.23	7.508	8.26	0.00	1.200	2.209	3.00	12.084	14.50	119.8	373.5	895.2
90.00		1.00	1.24	7.544	8.30	0.00	1.200	2.214	2.00	7.930	9.52	79.0	246.2	588.0
95.00		1.00	1.25	7.629	8.39	0.00	1.200	2.225	5.00	19.392	23.27	195.3	598.2	1431.2
97.20 Appurtenance(s)		1.00	1.26	7.666	8.43	0.00	1.200	2.230	2.20	8.333	10.00	84.3	259.8	616.7
100.00 Appurtenance(s)		1.00	1.27	7.711	8.48	0.00	1.200	2.237	2.80	10.431	12.52	106.2	325.0	770.7
105.00		1.00	1.28	7.790	8.57	0.00	1.200	2.248	5.00	18.141	21.77	186.5	562.2	1334.5
107.90 Appurtenance(s)		1.00	1.29	7.834	8.62	0.00	1.200	2.254	2.90	10.234	12.28	105.8	319.9	753.9
109.00 Appurtenance(s)		1.00	1.29	7.851	8.64	0.00	1.200	2.256	1.10	3.826	4.59	39.7	120.4	282.4
Totals:								109.00				4,488.5		57,820.3

Discrete Appurtenance Forces

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

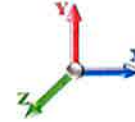


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 14

Dead Load Factor 1.20
Wind Load Factor 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	109.00	Pipe	1	7.851	8.636	1.00	1.00	13.12	295.34	0.000	0.000	113.31	0.00	0.00
2	109.00	HPD2-4.7	1	7.866	8.652	1.00	1.00	5.48	116.26	0.000	1.000	47.40	0.00	47.40
3	109.00	BA6312-1	1	7.884	8.672	1.00	1.00	1.92	57.11	0.000	2.200	16.66	0.00	36.64
4	109.00	Top Hat	1	7.851	8.636	1.00	1.00	38.05	640.75	0.000	0.000	328.58	0.00	0.00
5	107.90	6 FT Branches	1	7.834	8.618	1.00	1.00	85.57	2882.09	0.000	0.000	737.38	0.00	0.00
6	100.00	RRUS-11	9	7.711	8.482	0.54	0.80	16.28	1643.03	0.000	0.000	138.13	0.00	0.00
7	100.00	RRUS-E2	6	7.711	8.482	0.54	0.80	13.15	1207.68	0.000	0.000	111.52	0.00	0.00
8	100.00	RRUS-A2	6	7.711	8.482	0.54	0.80	10.00	369.12	0.000	0.000	84.78	0.00	0.00
9	100.00	T-Arms	3	7.711	8.482	0.56	0.75	35.75	2273.62	0.000	0.000	303.22	0.00	0.00
10	100.00	RRUS-12	6	7.711	8.482	0.54	0.80	11.40	853.14	0.000	0.000	96.72	0.00	0.00
11	100.00	Raycap DC2-48-60-18-8F	5	7.711	8.482	0.80	0.80	5.93	498.48	0.000	0.000	50.26	0.00	0.00
12	100.00	RRUS-32	6	7.711	8.482	0.54	0.80	11.88	1104.74	0.000	0.000	100.78	0.00	0.00
13	100.00	HPA-65R-BUU-H8	12	7.711	8.482	0.63	0.80	114.41	5664.94	0.000	0.000	970.43	0.00	0.00
14	97.20	8 FT Branches	1	7.666	8.432	1.00	1.00	284.77	9363.22	0.000	0.000	2401.24	0.00	0.00
15	88.00	NHH-65B-R2B	3	7.544	8.298	0.66	0.80	19.41	962.10	0.000	2.000	161.09	0.00	322.17
16	88.00	NHHSS-65B-R2B	3	7.544	8.298	0.66	0.80	19.41	950.94	0.000	2.000	161.09	0.00	322.17
17	88.00	B2/B66A RRH-BR049	3	7.544	8.298	0.54	0.80	4.14	461.31	0.000	2.000	34.39	0.00	68.79
18	88.00	B5/B13 RRH-BR04C	3	7.544	8.298	0.54	0.80	4.14	461.31	0.000	2.000	34.39	0.00	68.79
19	88.00	Samsung CBRS RRH -	3	7.544	8.298	0.54	0.80	3.51	95.09	0.000	2.000	29.16	0.00	58.33
20	88.00	Raycap	1	7.491	8.240	0.80	0.80	3.87	206.62	0.000	-1.000	31.86	0.00	-31.86
21	88.00	ULPD12	1	7.508	8.259	1.00	1.00	107.96	6096.92	0.000	0.000	891.67	0.00	0.00
22	82.70	10 FT Branches	1	7.412	8.153	1.00	1.00	300.49	10705.12	0.000	0.000	2449.93	0.00	0.00
23	73.00	12 FT Branches	1	7.222	7.945	1.00	1.00	154.24	5453.31	0.000	0.000	1225.35	0.00	0.00
Totals:									52,362.25			10,519.35		

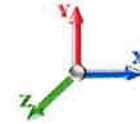
Total Applied Force Summary

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Page: 18
	Struct Class: II	



Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 14

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		201.74	3430.07	0.00	0.00
10.00		198.01	3398.21	0.00	0.00
15.00		196.47	3349.10	0.00	0.00
20.00		203.71	3291.76	0.00	0.00
25.00		208.49	3229.50	0.00	0.00
27.25		93.91	1432.63	0.00	0.00
30.00		118.04	3063.49	0.00	0.00
35.00		217.65	5468.78	0.00	0.00
35.50		21.54	540.11	0.00	0.00
40.00		196.44	2780.61	0.00	0.00
45.00		218.59	3021.41	0.00	0.00
50.00		217.95	2948.97	0.00	0.00
55.00		216.73	2875.50	0.00	0.00
60.00		217.41	3855.14	0.00	0.00
62.25		96.70	1702.22	0.00	0.00
65.00		117.67	962.64	0.00	0.00
70.00		212.74	1711.73	0.00	0.00
73.00	(1) attachments	1351.25	6460.20	0.00	0.00
75.00		83.21	662.66	0.00	0.00
80.00		206.62	1619.27	0.00	0.00
82.70	(1) attachments	2559.73	11562.08	0.00	0.00
85.00		92.65	719.48	0.00	0.00
88.00	(17) attachments	1463.41	10156.97	0.00	808.38
90.00		78.97	606.30	0.00	0.00
95.00		195.28	1470.43	0.00	0.00
97.20	(1) attachments	2485.56	9997.15	0.00	0.00
100.00	(53) attachments	1962.02	14407.46	0.00	0.00
105.00		186.54	1340.69	0.00	0.00
107.90	(1) attachments	843.21	3639.57	0.00	0.00
109.00	(4) attachments	545.60	1393.22	0.00	84.05
	Totals:	15,007.83	111,097.40	0.00	892.42

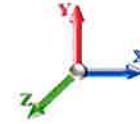
Calculated Forces

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Page: 19
	Struct Class: II	



Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 14

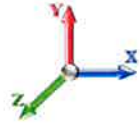
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-111.0	-15.03	0.00	-1239.7	0.00	1239.71	9612.09	4806.04	26304.5	13171.8	0.00	0.000	0.000	0.106
5.00	-107.6	-14.87	0.00	-1164.5	0.00	1164.56	9453.86	4726.93	25284.3	12660.9	0.01	-0.023	0.000	0.103
10.00	-104.2	-14.71	0.00	-1090.2	0.00	1090.20	9292.97	4646.48	24276.8	12156.4	0.05	-0.046	0.000	0.101
15.00	-100.9	-14.55	0.00	-1016.6	0.00	1016.64	9129.41	4564.70	23282.4	11658.5	0.11	-0.069	0.000	0.098
20.00	-97.60	-14.39	0.00	-943.87	0.00	943.87	8945.81	4472.90	22258.5	11145.8	0.20	-0.092	0.000	0.096
25.00	-94.37	-14.20	0.00	-871.95	0.00	871.95	8724.74	4362.37	21166.6	10599.0	0.31	-0.115	0.000	0.093
27.25	-92.93	-14.12	0.00	-840.00	0.00	840.00	8625.26	4312.63	20684.1	10357.4	0.36	-0.126	0.000	0.092
30.00	-89.87	-14.02	0.00	-801.17	0.00	801.17	8503.68	4251.84	20102.1	10066.0	0.44	-0.139	0.000	0.090
35.00	-84.39	-13.81	0.00	-731.06	0.00	731.06	8282.61	4141.30	19065.0	9546.71	0.60	-0.161	0.000	0.087
35.50	-83.85	-13.80	0.00	-724.15	0.00	724.15	8444.72	4222.36	19822.8	9926.18	0.61	-0.164	0.000	0.083
40.00	-81.07	-13.63	0.00	-662.04	0.00	662.04	8245.77	4122.88	18894.9	9461.50	0.78	-0.184	0.000	0.080
45.00	-78.04	-13.43	0.00	-593.91	0.00	593.91	8024.70	4012.35	17889.9	8958.25	0.98	-0.204	0.000	0.076
50.00	-75.09	-13.22	0.00	-526.79	0.00	526.79	7803.63	3901.82	16912.3	8468.76	1.21	-0.224	0.000	0.072
55.00	-72.21	-13.02	0.00	-460.68	0.00	460.68	7582.57	3791.28	15962.3	7993.02	1.45	-0.243	0.000	0.067
60.00	-68.35	-12.80	0.00	-395.60	0.00	395.60	7361.50	3680.75	15039.7	7531.04	1.72	-0.261	0.000	0.062
62.25	-66.65	-12.70	0.00	-366.81	0.00	366.81	3116.45	1558.23	6440.45	3225.01	1.84	-0.268	0.000	0.135
65.00	-65.68	-12.60	0.00	-331.88	0.00	331.88	3089.39	1544.69	6278.97	3144.15	2.00	-0.277	0.000	0.127
70.00	-63.97	-12.41	0.00	-268.87	0.00	268.87	3038.11	1519.05	5986.03	2997.46	2.30	-0.306	0.000	0.111
73.00	-57.51	-11.03	0.00	-231.66	0.00	231.66	3006.06	1503.03	5810.85	2909.74	2.50	-0.321	0.000	0.099
75.00	-56.85	-10.96	0.00	-209.60	0.00	209.60	2984.16	1492.08	5694.37	2851.42	2.64	-0.331	0.000	0.093
80.00	-55.23	-10.76	0.00	-154.81	0.00	154.81	2927.55	1463.78	5404.50	2706.27	3.00	-0.352	0.000	0.076
82.70	-43.68	-8.13	0.00	-125.76	0.00	125.76	2895.88	1447.94	5248.88	2628.34	3.20	-0.361	0.000	0.063
85.00	-42.96	-8.04	0.00	-107.06	0.00	107.06	2868.28	1434.14	5116.91	2562.26	3.38	-0.368	0.000	0.057
88.00	-32.81	-6.51	0.00	-82.13	0.00	82.13	2831.43	1415.72	4945.65	2476.50	3.61	-0.376	0.000	0.045
90.00	-32.21	-6.43	0.00	-69.10	0.00	69.10	2806.34	1403.17	4832.08	2419.63	3.77	-0.381	0.000	0.040
95.00	-30.74	-6.23	0.00	-36.93	0.00	36.93	2741.73	1370.87	4550.54	2278.65	4.17	-0.389	0.000	0.027
97.20	-20.76	-3.68	0.00	-23.22	0.00	23.22	2712.46	1356.23	4427.82	2217.20	4.35	-0.391	0.000	0.018
100.00	-6.36	-1.62	0.00	-12.92	0.00	12.92	2674.46	1337.23	4272.75	2139.55	4.58	-0.393	0.000	0.008
105.00	-5.02	-1.42	0.00	-4.82	0.00	4.82	2604.52	1302.26	3999.24	2002.59	5.00	-0.395	0.000	0.004
107.90	-1.39	-0.56	0.00	-0.69	0.00	0.69	2562.73	1281.37	3842.75	1924.23	5.24	-0.395	0.000	0.001
109.00	0.00	-0.55	0.00	-0.08	0.00	0.08	2546.65	1273.32	3783.83	1894.73	5.33	-0.395	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 20

Load Case: 1.2D + 1.0E						Iterations 13
Gust Response Factor	1.10			Sds	0.19	Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.10	S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.81	SA	0.08	Seismic Importance Factor 1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.01	0.01	0.00	
5.00		2225.8	0.01	0.05	0.03	29.14	
10.00		2175.1	0.02	0.06	0.04	39.24	
15.00		2124.5	0.04	0.07	0.04	44.04	
20.00		2073.9	0.07	0.07	0.04	46.96	
25.00		2023.3	0.11	0.07	0.04	49.49	
27.25	Bot - Section 2	893.98	0.12	0.07	0.03	22.62	
30.00		2180.6	0.15	0.07	0.03	57.42	
35.00		3886.3	0.20	0.06	0.02	108.89	
35.50	Top - Section 1	383.06	0.21	0.06	0.02	10.79	
40.00		1719.9	0.26	0.05	0.02	49.94	
45.00		1863.0	0.33	0.04	0.01	53.66	
50.00		1812.3	0.41	0.02	0.01	48.70	
55.00	Bot - Section 3	1761.7	0.49	-0.01	0.01	40.76	
60.00		2582.5	0.58	-0.05	0.01	46.76	
62.25	Top - Section 2	1137.3	0.62	-0.06	0.02	17.91	
65.00		462.21	0.68	-0.08	0.03	6.06	
70.00		820.76	0.79	-0.11	0.05	8.36	
73.00	Appurtenance(s)	1866.3	0.86	-0.12	0.07	19.46	
75.00		315.14	0.90	-0.12	0.09	3.70	
80.00		770.13	1.02	-0.10	0.14	15.42	
82.70	Appurtenance(s)	3111.3	1.09	-0.07	0.18	86.91	
85.00		339.47	1.16	-0.03	0.22	12.48	
88.00	Appurtenance(s)	3665.7	1.24	0.04	0.28	188.38	
90.00		284.77	1.29	0.11	0.33	17.98	
95.00		694.20	1.44	0.36	0.47	69.24	
97.20	Appurtenance(s)	2647.4	1.51	0.52	0.55	315.58	
100.00	Appurtenance(s)	4164.3	1.59	0.76	0.66	612.06	
105.00		643.57	1.76	1.34	0.90	131.96	
107.90	Appurtenance(s)	1081.6	1.85	1.79	1.07	263.68	
109.00	Appurtenance(s)	461.21	1.89	1.98	1.14	119.65	
Totals:		50,172.1				2,537.2	Total Wind: 49,506.5

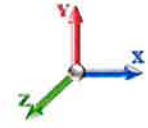
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0E										Iterations 13
Gust Response Factor 1.10					Sds 0.19					Ss 0.18
Dead Load Factor 1.20			Seismic Load Factor 1.00			Sd1 0.10			S1 0.06	
Wind Load Factor 0.00		Structure Frequency (f1) 0.81		SA 0.08		Seismic Importance Factor 1.00				



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-61.12	-2.54	0.00	-208.77	0.00	208.77	9612.09	4806.04	26304.5	13171.8	0.00	0.00	0.00	0.022
5.00	-58.40	-2.51	0.00	-196.08	0.00	196.08	9453.86	4726.93	25284.3	12660.9	0.00	0.00	0.00	0.022
10.00	-55.75	-2.48	0.00	-183.51	0.00	183.51	9292.97	4646.48	24276.8	12156.4	0.01	-0.01	0.021	0.021
15.00	-53.15	-2.44	0.00	-171.12	0.00	171.12	9129.41	4564.70	23282.4	11658.5	0.02	-0.01	0.021	0.021
20.00	-50.62	-2.39	0.00	-158.94	0.00	158.94	8945.81	4472.90	22258.5	11145.8	0.03	-0.02	0.020	0.020
25.00	-48.14	-2.34	0.00	-146.98	0.00	146.98	8724.74	4362.37	21166.6	10599.0	0.05	-0.02	0.019	0.019
27.25	-47.05	-2.32	0.00	-141.70	0.00	141.70	8625.26	4312.63	20684.1	10357.4	0.06	-0.02	0.019	0.019
30.00	-44.41	-2.27	0.00	-135.31	0.00	135.31	8503.68	4251.84	20102.1	10066.0	0.07	-0.02	0.019	0.019
35.00	-39.70	-2.16	0.00	-123.97	0.00	123.97	8282.61	4141.30	19065.0	9546.71	0.10	-0.03	0.018	0.018
35.50	-39.23	-2.15	0.00	-122.90	0.00	122.90	8444.72	4222.36	19822.8	9926.18	0.10	-0.03	0.017	0.017
40.00	-37.13	-2.10	0.00	-113.23	0.00	113.23	8245.77	4122.88	18894.9	9461.50	0.13	-0.03	0.016	0.016
45.00	-34.85	-2.05	0.00	-102.73	0.00	102.73	8024.70	4012.35	17889.9	8958.25	0.17	-0.03	0.016	0.016
50.00	-32.63	-2.00	0.00	-92.50	0.00	92.50	7803.63	3901.82	16912.3	8468.76	0.20	-0.04	0.015	0.015
55.00	-30.47	-1.96	0.00	-82.51	0.00	82.51	7582.57	3791.28	15962.3	7993.02	0.25	-0.04	0.014	0.014
60.00	-27.32	-1.91	0.00	-72.72	0.00	72.72	7361.50	3680.75	15039.7	7531.04	0.29	-0.04	0.013	0.013
62.25	-25.94	-1.89	0.00	-68.43	0.00	68.43	3116.45	1558.23	6440.45	3225.01	0.31	-0.05	0.030	0.030
65.00	-25.36	-1.89	0.00	-63.22	0.00	63.22	3089.39	1544.69	6278.97	3144.15	0.34	-0.05	0.028	0.028
70.00	-24.33	-1.88	0.00	-53.79	0.00	53.79	3038.11	1519.05	5986.03	2997.46	0.39	-0.05	0.026	0.026
73.00	-22.06	-1.86	0.00	-48.15	0.00	48.15	3006.06	1503.03	5810.85	2909.74	0.43	-0.06	0.024	0.024
75.00	-21.66	-1.86	0.00	-44.44	0.00	44.44	2984.16	1492.08	5694.37	2851.42	0.45	-0.06	0.023	0.023
80.00	-20.69	-1.84	0.00	-35.16	0.00	35.16	2927.55	1463.78	5404.50	2706.27	0.51	-0.06	0.020	0.020
82.70	-16.93	-1.75	0.00	-30.19	0.00	30.19	2895.88	1447.94	5248.88	2628.34	0.55	-0.07	0.017	0.017
85.00	-16.50	-1.74	0.00	-26.16	0.00	26.16	2868.28	1434.14	5116.91	2562.26	0.58	-0.07	0.016	0.016
88.00	-12.08	-1.54	0.00	-20.95	0.00	20.95	2831.43	1415.72	4945.65	2476.50	0.62	-0.07	0.013	0.013
90.00	-11.72	-1.53	0.00	-17.86	0.00	17.86	2806.34	1403.17	4832.08	2419.63	0.65	-0.07	0.012	0.012
95.00	-10.85	-1.46	0.00	-10.23	0.00	10.23	2741.73	1370.87	4550.54	2278.65	0.73	-0.07	0.008	0.008
97.20	-7.65	-1.14	0.00	-7.03	0.00	7.03	2712.46	1356.23	4427.82	2217.20	0.76	-0.07	0.006	0.006
100.00	-2.63	-0.52	0.00	-3.84	0.00	3.84	2674.46	1337.23	4272.75	2139.55	0.81	-0.07	0.003	0.003
105.00	-1.86	-0.39	0.00	-1.25	0.00	1.25	2604.52	1302.26	3999.24	2002.59	0.88	-0.07	0.001	0.001
107.90	-0.55	-0.12	0.00	-0.13	0.00	0.13	2562.73	1281.37	3842.75	1924.23	0.93	-0.07	0.000	0.000
109.00	0.00	-0.12	0.00	0.00	0.00	0.00	2546.65	1273.32	3783.83	1894.73	0.94	-0.07	0.000	0.000

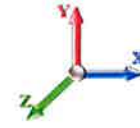
Seismic Segment Forces (Factored)

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E						Iterations 13
Gust Response Factor	1.10			Sds	0.19	Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10	S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.81	SA	0.08	Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.01	0.01	0.00	
5.00		2225.8	0.01	0.05	0.03	29.14	
10.00		2175.1	0.02	0.06	0.04	39.24	
15.00		2124.5	0.04	0.07	0.04	44.04	
20.00		2073.9	0.07	0.07	0.04	46.96	
25.00		2023.3	0.11	0.07	0.04	49.49	
27.25	Bot - Section 2	893.98	0.12	0.07	0.03	22.62	
30.00		2180.6	0.15	0.07	0.03	57.42	
35.00		3886.3	0.20	0.06	0.02	108.89	
35.50	Top - Section 1	383.06	0.21	0.06	0.02	10.79	
40.00		1719.9	0.26	0.05	0.02	49.94	
45.00		1863.0	0.33	0.04	0.01	53.66	
50.00		1812.3	0.41	0.02	0.01	48.70	
55.00	Bot - Section 3	1761.7	0.49	-0.01	0.01	40.76	
60.00		2582.5	0.58	-0.05	0.01	46.76	
62.25	Top - Section 2	1137.3	0.62	-0.06	0.02	17.91	
65.00		462.21	0.68	-0.08	0.03	6.06	
70.00		820.76	0.79	-0.11	0.05	8.36	
73.00	Appurtenance(s)	1866.3	0.86	-0.12	0.07	19.46	
75.00		315.14	0.90	-0.12	0.09	3.70	
80.00		770.13	1.02	-0.10	0.14	15.42	
82.70	Appurtenance(s)	3111.3	1.09	-0.07	0.18	86.91	
85.00		339.47	1.16	-0.03	0.22	12.48	
88.00	Appurtenance(s)	3665.7	1.24	0.04	0.28	188.38	
90.00		284.77	1.29	0.11	0.33	17.98	
95.00		694.20	1.44	0.36	0.47	69.24	
97.20	Appurtenance(s)	2647.4	1.51	0.52	0.55	315.58	
100.00	Appurtenance(s)	4164.3	1.59	0.76	0.66	612.06	
105.00		643.57	1.76	1.34	0.90	131.96	
107.90	Appurtenance(s)	1081.6	1.85	1.79	1.07	263.68	
109.00	Appurtenance(s)	461.21	1.89	1.98	1.14	119.65	
Totals:		50,172.1				2,537.2	Total Wind: 49,506.5

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

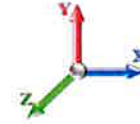
Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E

Gust Response Factor 1.10	Sds 0.19	Iterations 13
Dead Load Factor 0.90	Seismic Load Factor 1.00	Ss 0.18
Wind Load Factor 0.00	Structure Frequency (f1) 0.81	S1 0.06
	SA 0.08	Seismic Importance Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.84	-2.54	0.00	-208.33	0.00	208.33	9612.09	4806.04	26304.5	13171.8	0.00	0.00	0.00	0.021
5.00	-43.80	-2.51	0.00	-195.64	0.00	195.64	9453.86	4726.93	25284.3	12660.9	0.00	0.00	0.00	0.020
10.00	-41.81	-2.48	0.00	-183.08	0.00	183.08	9292.97	4646.48	24276.8	12156.4	0.01	-0.01	-0.01	0.020
15.00	-39.86	-2.43	0.00	-170.70	0.00	170.70	9129.41	4564.70	23282.4	11658.5	0.02	-0.01	-0.01	0.019
20.00	-37.96	-2.39	0.00	-158.53	0.00	158.53	8945.81	4472.90	22258.5	11145.8	0.03	-0.02	-0.02	0.018
25.00	-36.11	-2.34	0.00	-146.59	0.00	146.59	8724.74	4362.37	21166.6	10599.0	0.05	-0.02	-0.02	0.018
27.25	-35.29	-2.32	0.00	-141.32	0.00	141.32	8625.26	4312.63	20684.1	10357.4	0.06	-0.02	-0.02	0.018
30.00	-33.31	-2.26	0.00	-134.95	0.00	134.95	8503.68	4251.84	20102.1	10066.0	0.07	-0.02	-0.02	0.017
35.00	-29.77	-2.15	0.00	-123.64	0.00	123.64	8282.61	4141.30	19065.0	9546.71	0.10	-0.03	-0.03	0.017
35.50	-29.43	-2.14	0.00	-122.56	0.00	122.56	8444.72	4222.36	19822.8	9926.18	0.10	-0.03	-0.03	0.016
40.00	-27.85	-2.09	0.00	-112.92	0.00	112.92	8245.77	4122.88	18894.9	9461.50	0.13	-0.03	-0.03	0.015
45.00	-26.14	-2.04	0.00	-102.45	0.00	102.45	8024.70	4012.35	17889.9	8958.25	0.17	-0.03	-0.03	0.015
50.00	-24.47	-1.99	0.00	-92.24	0.00	92.24	7803.63	3901.82	16912.3	8468.76	0.20	-0.04	-0.04	0.014
55.00	-22.85	-1.95	0.00	-82.28	0.00	82.28	7582.57	3791.28	15962.3	7993.02	0.24	-0.04	-0.04	0.013
60.00	-20.49	-1.90	0.00	-72.52	0.00	72.52	7361.50	3680.75	15039.7	7531.04	0.29	-0.04	-0.04	0.012
62.25	-19.45	-1.89	0.00	-68.24	0.00	68.24	3116.45	1558.23	6440.45	3225.01	0.31	-0.05	-0.05	0.027
65.00	-19.02	-1.88	0.00	-63.05	0.00	63.05	3089.39	1544.69	6278.97	3144.15	0.34	-0.05	-0.05	0.026
70.00	-18.24	-1.87	0.00	-53.65	0.00	53.65	3038.11	1519.05	5986.03	2997.46	0.39	-0.05	-0.05	0.024
73.00	-16.54	-1.85	0.00	-48.03	0.00	48.03	3006.06	1503.03	5810.85	2909.74	0.43	-0.06	-0.06	0.022
75.00	-16.25	-1.85	0.00	-44.32	0.00	44.32	2984.16	1492.08	5694.37	2851.42	0.45	-0.06	-0.06	0.021
80.00	-15.52	-1.83	0.00	-35.07	0.00	35.07	2927.55	1463.78	5404.50	2706.27	0.51	-0.06	-0.06	0.018
82.70	-12.70	-1.75	0.00	-30.12	0.00	30.12	2895.88	1447.94	5248.88	2628.34	0.55	-0.06	-0.06	0.016
85.00	-12.38	-1.73	0.00	-26.10	0.00	26.10	2868.28	1434.14	5116.91	2562.26	0.58	-0.07	-0.07	0.015
88.00	-9.06	-1.54	0.00	-20.90	0.00	20.90	2831.43	1415.72	4945.65	2476.50	0.62	-0.07	-0.07	0.012
90.00	-8.79	-1.52	0.00	-17.82	0.00	17.82	2806.34	1403.17	4832.08	2419.63	0.65	-0.07	-0.07	0.010
95.00	-8.13	-1.45	0.00	-10.21	0.00	10.21	2741.73	1370.87	4550.54	2278.65	0.73	-0.07	-0.07	0.007
97.20	-5.74	-1.13	0.00	-7.01	0.00	7.01	2712.46	1356.23	4427.82	2217.20	0.76	-0.07	-0.07	0.005
100.00	-1.98	-0.52	0.00	-3.84	0.00	3.84	2674.46	1337.23	4272.75	2139.55	0.80	-0.07	-0.07	0.003
105.00	-1.39	-0.38	0.00	-1.25	0.00	1.25	2604.52	1302.26	3999.24	2002.59	0.88	-0.07	-0.07	0.001
107.90	-0.42	-0.12	0.00	-0.13	0.00	0.13	2562.73	1281.37	3842.75	1924.23	0.92	-0.07	-0.07	0.000
109.00	0.00	-0.12	0.00	0.00	0.00	0.00	2546.65	1273.32	3783.83	1894.73	0.94	-0.07	-0.07	0.000

Wind Loading - Shaft

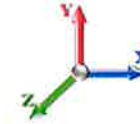
Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 14

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	315.14	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	308.12	0.650	0.000	5.00	28.168	18.31	149.9	0.0	2225.8
10.00		1.00	0.85	7.442	8.19	301.10	0.650	0.000	5.00	27.533	17.90	146.5	0.0	2175.2
15.00		1.00	0.86	7.534	8.29	295.89	0.650	0.000	5.00	26.898	17.48	144.9	0.0	2124.6
20.00		1.00	0.91	7.978	8.78	297.21	0.650	0.000	5.00	26.264	17.07	149.8	0.0	2073.9
25.00		1.00	0.95	8.345	9.18	296.53	0.650	0.000	5.00	25.629	16.66	152.9	0.0	2023.3
27.25 Bot - Section 2		1.00	0.97	8.492	9.34	295.76	0.650	0.000	2.25	11.326	7.36	68.8	0.0	894.0
30.00		1.00	0.99	8.659	9.53	294.50	0.650	0.000	2.75	13.959	9.07	86.4	0.0	2180.6
35.00		1.00	1.02	8.936	9.83	291.48	0.650	0.000	5.00	24.889	16.18	159.0	0.0	3886.3
35.50 Top - Section 1		1.00	1.02	8.962	9.86	291.13	0.650	0.000	0.50	2.454	1.60	15.7	0.0	383.1
40.00		1.00	1.05	9.184	10.10	294.19	0.650	0.000	4.50	21.800	14.17	143.2	0.0	1720.0
45.00		1.00	1.07	9.410	10.35	289.88	0.650	0.000	5.00	23.619	15.35	158.9	0.0	1863.0
50.00		1.00	1.10	9.616	10.58	285.07	0.650	0.000	5.00	22.985	14.94	158.0	0.0	1812.4
55.00 Bot - Section 3		1.00	1.12	9.807	10.79	279.83	0.650	0.000	5.00	22.350	14.53	156.7	0.0	1761.8
60.00		1.00	1.14	9.986	10.98	274.23	0.650	0.000	5.00	21.980	14.29	156.9	0.0	2582.5
62.25 Top - Section 2		1.00	1.15	10.062	11.07	271.60	0.650	0.000	2.25	9.684	6.29	69.7	0.0	1137.4
65.00		1.00	1.16	10.153	11.17	271.73	0.650	0.000	2.75	11.661	7.58	84.7	0.0	462.2
70.00		1.00	1.18	10.310	11.34	265.56	0.650	0.000	5.00	20.710	13.46	152.7	0.0	820.8
73.00 Appurtenance(s)		1.00	1.19	10.400	11.44	261.74	0.650	0.000	3.00	12.122	7.88	90.1	0.0	480.3
75.00		1.00	1.19	10.459	11.50	259.14	0.650	0.000	2.00	7.954	5.17	59.5	0.0	315.1
80.00		1.00	1.21	10.600	11.66	252.51	0.650	0.000	5.00	19.441	12.64	147.3	0.0	770.1
82.70 Appurtenance(s)		1.00	1.22	10.673	11.74	248.84	0.650	0.000	2.70	10.234	6.65	78.1	0.0	405.3
85.00		1.00	1.23	10.734	11.81	245.67	0.650	0.000	2.30	8.572	5.57	65.8	0.0	339.5
88.00 Appurtenance(s)		1.00	1.23	10.812	11.89	241.48	0.650	0.000	3.00	10.979	7.14	84.9	0.0	434.7
90.00		1.00	1.24	10.863	11.95	238.66	0.650	0.000	2.00	7.193	4.68	55.9	0.0	284.8
95.00		1.00	1.25	10.986	12.08	231.47	0.650	0.000	5.00	17.537	11.40	137.8	0.0	694.2
97.20 Appurtenance(s)		1.00	1.26	11.038	12.14	228.26	0.650	0.000	2.20	7.515	4.88	59.3	0.0	297.4
100.00 Appurtenance(s)		1.00	1.27	11.104	12.21	224.14	0.650	0.000	2.80	9.387	6.10	74.5	0.0	371.5
105.00		1.00	1.28	11.218	12.34	216.66	0.650	0.000	5.00	16.268	10.57	130.5	0.0	643.6
107.90 Appurtenance(s)		1.00	1.29	11.281	12.41	212.26	0.650	0.000	2.90	9.145	5.94	73.8	0.0	361.7
109.00 Appurtenance(s)		1.00	1.29	11.305	12.44	210.58	0.650	0.000	1.10	3.413	2.22	27.6	0.0	135.0
Totals:								109.00				3,239.7		35,660.0

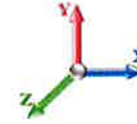
Discrete Appurtenance Forces

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 14

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	109.00	Pipe	1	11.305	12.436	1.00	1.00	5.00	137.25	0.000	0.000	62.18	0.00	0.00
2	109.00	HPD2-4.7	1	11.327	12.460	1.00	1.00	3.96	27.00	0.000	1.000	49.34	0.00	49.34
3	109.00	BA6312-1	1	11.353	12.488	1.00	1.00	0.44	2.00	0.000	2.200	5.49	0.00	12.09
4	109.00	Top Hat	1	11.305	12.436	1.00	1.00	20.00	160.00	0.000	0.000	248.72	0.00	0.00
5	107.90	6 FT Branches	1	11.281	12.410	1.00	1.00	45.00	720.00	0.000	0.000	558.43	0.00	0.00
6	100.00	RRUS-11	9	11.104	12.214	0.54	0.80	12.16	456.30	0.000	0.000	148.48	0.00	0.00
7	100.00	RRUS-E2	6	11.104	12.214	0.54	0.80	10.13	356.40	0.000	0.000	123.74	0.00	0.00
8	100.00	RRUS-A2	6	11.104	12.214	0.54	0.80	5.98	127.20	0.000	0.000	73.06	0.00	0.00
9	100.00	T-Arms	3	11.104	12.214	0.56	0.75	16.88	1200.00	0.000	0.000	206.12	0.00	0.00
10	100.00	RRUS-12	6	11.104	12.214	0.54	0.80	8.68	360.00	0.000	0.000	106.06	0.00	0.00
11	100.00	Raycap DC2-48-60-18-8F	5	11.104	12.214	0.80	0.80	3.68	159.00	0.000	0.000	44.95	0.00	0.00
12	100.00	RRUS-32	6	11.104	12.214	0.54	0.80	8.81	318.00	0.000	0.000	107.63	0.00	0.00
13	100.00	HPA-65R-BUU-H8	12	11.104	12.214	0.63	0.80	98.44	816.00	0.000	0.000	1202.39	0.00	0.00
14	97.20	8 FT Branches	1	11.038	12.142	1.00	1.00	150.50	2350.00	0.000	0.000	1827.42	0.00	0.00
15	88.00	NHH-65B-R2B	3	10.863	11.949	0.66	0.80	16.10	131.10	0.000	2.000	192.33	0.00	384.65
16	88.00	NHHSS-65B-R2B	3	10.863	11.949	0.66	0.80	16.10	121.80	0.000	2.000	192.33	0.00	384.65
17	88.00	B2/B66A RRH-BR049	3	10.863	11.949	0.54	0.80	3.02	253.50	0.000	2.000	36.12	0.00	72.25
18	88.00	B5/B13 RRH-BR04C	3	10.863	11.949	0.54	0.80	3.02	253.50	0.000	2.000	36.12	0.00	72.25
19	88.00	Samsung CBRS RRH -	3	10.863	11.949	0.54	0.80	1.91	19.80	0.000	2.000	22.87	0.00	45.73
20	88.00	Raycap	1	10.787	11.865	0.80	0.80	3.03	32.00	0.000	-1.000	35.98	0.00	-35.98
21	88.00	ULPD12	1	10.812	11.893	1.00	1.00	41.68	2419.26	0.000	0.000	495.72	0.00	0.00
22	82.70	10 FT Branches	1	10.673	11.741	1.00	1.00	160.00	2706.00	0.000	0.000	1878.51	0.00	0.00
23	73.00	12 FT Branches	1	10.400	11.440	1.00	1.00	82.60	1386.00	0.000	0.000	944.96	0.00	0.00
Totals:									14,512.11			8,598.93		

Total Applied Force Summary

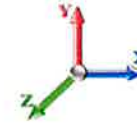
Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 14

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		149.88	2264.02	0.00	0.00
10.00		146.50	2213.39	0.00	0.00
15.00		144.89	2162.77	0.00	0.00
20.00		149.81	2112.14	0.00	0.00
25.00		152.91	2061.52	0.00	0.00
27.25		68.77	911.17	0.00	0.00
30.00		86.43	2201.65	0.00	0.00
35.00		159.02	3924.52	0.00	0.00
35.50		15.73	386.88	0.00	0.00
40.00		143.16	1754.37	0.00	0.00
45.00		158.91	1901.20	0.00	0.00
50.00		158.03	1850.58	0.00	0.00
55.00		156.73	1799.95	0.00	0.00
60.00		156.93	2620.71	0.00	0.00
62.25		69.67	1154.55	0.00	0.00
65.00		84.65	483.22	0.00	0.00
70.00		152.67	858.96	0.00	0.00
73.00	(1) attachments	1035.09	1889.23	0.00	0.00
75.00		59.48	330.42	0.00	0.00
80.00		147.34	808.33	0.00	0.00
82.70	(1) attachments	1956.61	3131.98	0.00	0.00
85.00		65.79	357.05	0.00	0.00
88.00	(17) attachments	1096.34	3688.62	0.00	923.55
90.00		55.86	300.05	0.00	0.00
95.00		137.75	726.90	0.00	0.00
97.20	(1) attachments	1886.73	2661.82	0.00	0.00
100.00	(53) attachments	2086.96	4182.67	0.00	0.00
105.00		130.48	648.77	0.00	0.00
107.90	(1) attachments	632.19	1084.69	0.00	0.00
109.00	(4) attachments	393.32	462.35	0.00	61.43
Totals:		11,838.63	50,934.47	0.00	984.98

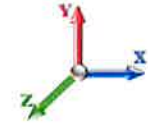
Calculated Forces

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 14

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-50.93	-11.85	0.00	-979.46	0.00	979.46	9612.09	4806.04	26304.5	13171.8	0.00	0.000	0.000	0.080
5.00	-48.66	-11.71	0.00	-920.23	0.00	920.23	9453.86	4726.93	25284.3	12660.9	0.01	-0.018	0.000	0.078
10.00	-46.45	-11.58	0.00	-861.67	0.00	861.67	9292.97	4646.48	24276.8	12156.4	0.04	-0.036	0.000	0.076
15.00	-44.28	-11.45	0.00	-803.78	0.00	803.78	9129.41	4564.70	23282.4	11658.5	0.09	-0.055	0.000	0.074
20.00	-42.17	-11.31	0.00	-746.55	0.00	746.55	8945.81	4472.90	22258.5	11145.8	0.15	-0.073	0.000	0.072
25.00	-40.10	-11.16	0.00	-690.01	0.00	690.01	8724.74	4362.37	21166.6	10599.0	0.24	-0.091	0.000	0.070
27.25	-39.19	-11.10	0.00	-664.90	0.00	664.90	8625.26	4312.63	20684.1	10357.4	0.29	-0.100	0.000	0.069
30.00	-36.98	-11.02	0.00	-634.38	0.00	634.38	8503.68	4251.84	20102.1	10066.0	0.35	-0.110	0.000	0.067
35.00	-33.06	-10.85	0.00	-579.30	0.00	579.30	8282.61	4141.30	19065.0	9546.71	0.47	-0.128	0.000	0.065
35.50	-32.67	-10.84	0.00	-573.88	0.00	573.88	8444.72	4222.36	19822.8	9926.18	0.48	-0.129	0.000	0.062
40.00	-30.91	-10.70	0.00	-525.08	0.00	525.08	8245.77	4122.88	18894.9	9461.50	0.61	-0.145	0.000	0.059
45.00	-29.01	-10.55	0.00	-471.56	0.00	471.56	8024.70	4012.35	17889.9	8958.25	0.78	-0.162	0.000	0.056
50.00	-27.16	-10.39	0.00	-418.82	0.00	418.82	7803.63	3901.82	16912.3	8468.76	0.95	-0.177	0.000	0.053
55.00	-25.35	-10.24	0.00	-366.86	0.00	366.86	7582.57	3791.28	15962.3	7993.02	1.15	-0.192	0.000	0.049
60.00	-22.73	-10.07	0.00	-315.68	0.00	315.68	7361.50	3680.75	15039.7	7531.04	1.36	-0.206	0.000	0.045
62.25	-21.58	-10.00	0.00	-293.02	0.00	293.02	3116.45	1558.23	6440.45	3225.01	1.46	-0.213	0.000	0.098
65.00	-21.09	-9.92	0.00	-265.51	0.00	265.51	3089.39	1544.69	6278.97	3144.15	1.58	-0.220	0.000	0.091
70.00	-20.23	-9.77	0.00	-215.90	0.00	215.90	3038.11	1519.05	5986.03	2997.46	1.82	-0.243	0.000	0.079
73.00	-18.34	-8.73	0.00	-186.59	0.00	186.59	3006.06	1503.03	5810.85	2909.74	1.98	-0.255	0.000	0.070
75.00	-18.01	-8.67	0.00	-169.13	0.00	169.13	2984.16	1492.08	5694.37	2851.42	2.09	-0.263	0.000	0.065
80.00	-17.20	-8.53	0.00	-125.75	0.00	125.75	2927.55	1463.78	5404.50	2706.27	2.38	-0.280	0.000	0.052
82.70	-14.08	-6.56	0.00	-102.73	0.00	102.73	2895.88	1447.94	5248.88	2628.34	2.54	-0.287	0.000	0.044
85.00	-13.72	-6.49	0.00	-87.65	0.00	87.65	2868.28	1434.14	5116.91	2562.26	2.68	-0.293	0.000	0.039
88.00	-10.04	-5.38	0.00	-67.25	0.00	67.25	2831.43	1415.72	4945.65	2476.50	2.86	-0.300	0.000	0.031
90.00	-9.74	-5.32	0.00	-56.50	0.00	56.50	2806.34	1403.17	4832.08	2419.63	2.99	-0.303	0.000	0.027
95.00	-9.01	-5.18	0.00	-29.90	0.00	29.90	2741.73	1370.87	4550.54	2278.65	3.31	-0.310	0.000	0.016
97.20	-6.36	-3.28	0.00	-18.51	0.00	18.51	2712.46	1356.23	4427.82	2217.20	3.46	-0.312	0.000	0.011
100.00	-2.19	-1.17	0.00	-9.33	0.00	9.33	2674.46	1337.23	4272.75	2139.55	3.64	-0.313	0.000	0.005
105.00	-1.54	-1.03	0.00	-3.50	0.00	3.50	2604.52	1302.26	3999.24	2002.59	3.97	-0.315	0.000	0.002
107.90	-0.46	-0.40	0.00	-0.50	0.00	0.50	2562.73	1281.37	3842.75	1924.23	4.16	-0.315	0.000	0.000
109.00	0.00	-0.39	0.00	-0.06	0.00	0.06	2546.65	1273.32	3783.83	1894.73	4.23	-0.315	0.000	0.000

Final Analysis Summary

Structure: CT22077-A-SBA	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	49.5	0.00	61.09	0.00	0.00	4101.41
0.9D + 1.6W 97 mph Wind	49.5	0.00	45.81	0.00	0.00	4092.91
1.2D + 1.0Di + 1.0Wi 50 mph Wind	15.0	0.00	111.09	0.00	0.00	1239.71
1.2D + 1.0E	2.5	0.00	61.12	0.00	0.00	208.77
0.9D + 1.0E	2.5	0.00	45.84	0.00	0.00	208.33
1.0D + 1.0W 60 mph Wind	11.8	0.00	50.93	0.00	0.00	979.46

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 97 mph Wind	-25.28	-41.89	0.00	-1227.5	0.00	-1227.5	3116.45	1558.2	6440.45	3225.01	62.25	0.389
0.9D + 1.6W 97 mph Wind	-18.80	-41.79	0.00	-1223.9	0.00	-1223.9	3116.45	1558.2	6440.45	3225.01	62.25	0.386
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-66.65	-12.70	0.00	-366.81	0.00	-366.81	3116.45	1558.2	6440.45	3225.01	62.25	0.135
1.2D + 1.0E	-25.94	-1.89	0.00	-68.43	0.00	-68.43	3116.45	1558.2	6440.45	3225.01	62.25	0.030
0.9D + 1.0E	-19.45	-1.89	0.00	-68.24	0.00	-68.24	3116.45	1558.2	6440.45	3225.01	62.25	0.027
1.0D + 1.0W 60 mph Wind	-21.58	-10.00	0.00	-293.02	0.00	-293.02	3116.45	1558.2	6440.45	3225.01	62.25	0.098


Base Plate Summary

Structure: CT22077-A-SB	Code: EIA/TIA-222-G	4/6/2020
Site Name: East Hartford (465 Hill St)	Exposure: C	
Height: 109.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 29

Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 50.00	Bolt Circle: 75.50
Moment (kip-ft): 6146.00	Width (in): 81.50	Number Bolts: 30.00
Axial (kip): 108.40	Style: Round	Bolt Type: 2.25" 18J
Shear (kip): 64.60	Polygon Sides: 0.00	Bolt Diameter (in): 2.25
Analysis	Clip Length (in): 0.00	Yield (ksi): 75.00
Moment (kip-ft): 4101.41	Effective Len (in): 11.56	Ultimate (ksi): 100.00
Axial (kip): 111.09	Moment (kip-in): 370.41	Arrangement: Radial
Shear (kip): 49.55	Allow Stress (ksi): 67.50	Cluster Dist (in): 0.00
	Applied Stress (ksi): 0.00	Start Angle (deg): 0.00
Moment Design %: 66.73	Stress Ratio: 0.32	Compression
		Force (kip): 90.62
		Allowable (kip): 260.00
		Ratio: 0.36
		Tension
		Force (kip): 83.21
		Allowable (kip): 260.00
		Ratio: 0.33

	Monopole Mat Foundation Design		<i>Date</i>	
			4/6/2020	
	Customer Name:	Verizon	EIA/TIA Standard:	EIA-222-G
	Site Name:		Structure Height (Ft.):	109
	Site Number:	CT22077-A-SBA	Engineer Name:	T. Alajaj
Engr. Number:	93055	Engineer Login ID:		

Foundation Info Obtained from:

Structure Type:

Analysis or Design?

Base Reactions (Factored):

Axial Load (Kips):

Uplift Force (Kips):

Foundation Geometries:

Diameter of Pier (ft.):

Pier Height A. G. (ft.):

Length of Pad (ft.):

Final Length of pad (ft)

Material Properties and Rebar Info:

Concrete Strength (psi):

Vertical bar yield (ksi)

Vertical Rebar Size #:

Qty. of Vertical Rebars:

Pad Rebar Yield (Ksi):

Concrete Cover (in.):

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):

Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):

Soil Design Parameters:

Soil Unit Weight (pcf):

Water Table B.G.S. (ft):

Ultimate Bearing Pressure (psf):

Consider Friction for O.T.M. (Y/N):

Consider soil hor. resist. for OTM.:

Drawings/Calculations

Monopole

Analysis

111.1 Shear Force (Kips): 49.5

0.0 Moment (Kips-ft): 4101.4

Mods required -Yes/No?: No

Depth of Base BG (ft.): 6.0

Thickness of Pad (ft): 3.00

Width of Pad (ft.): 32

Final width of pad (ft): 32.0

Steel Elastic Modulus: 29000 ksi

Tie steel yield (ksi): 60

Tie / Stirrup Size #: 5

Tie Spacing (in): 6.0

Pad Steel Rebar Size (#): 8

Unit Weight of Concrete: 150.0 pcf

Qty. of Rebar in Pad (W): 32

Qty. of Rebar in Pad (W): 32

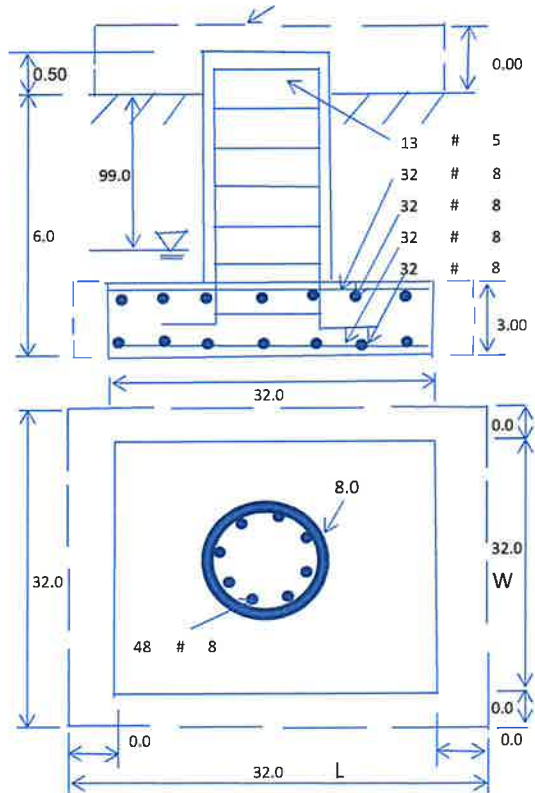
120.0 Soil Buoyant Weight: 50.0 Pcf

99.0 Unit Weight of Water: 62.4 pcf

8000 Ultimate Skin Friction: 425 Psf

No Consider Friction for bearing (Y/N): Yes

Yes Reduction factor on the maximum soil bearing pressure: 1.00



Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):

Total Buoyant Soil Volume (cu. Ft.):

Total Effective Soil Weight (Kips):

Total Dry Concrete Volume (cu. Ft.):

Total Buoyant Concrete Volume (cu. Ft.):

Total Effective Concrete Weight (Kips):

Uplift Strength Reduction Factor: 0.75

2921.20

0.00

350.54

3247.93

0.00

487.19

Compression Strength Reduction Factor: 0.75

Total Dry Soil Weight (Kips):

Total Buoyant Soil Weight (Kips):

Weight from the Concrete Block at Top (K):

Total Dry Concrete Weight (Kips):

Total Buoyant Concrete Weight (Kips):

Total Vertical Load on Base (Kips):

350.54

0.00

0.00

487.19

0.00

948.83

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):

Allowable Foundation Overturning Resistance (kips-ft.):

Factor of Safety Against Overturning (O. R. Moment/Design Moment):

1357

13841.0

3.27

< Allowable Factored Soil Bearing (psf): 6000

> Design Factored Momont (kips-ft): 4236

OK!

0.23 OK!

0.31 OK!

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	0.79	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	7324.9	> Design Factored Moment (Mu, Kips-F	4274.7	0.58	OK!
Calculated Shear Capacity (Kips):	1162.8	> Design Factored Shear (Kips):	49.5	0.04	OK!
Calculated Tension Capacity (Tn, Kips):	2047.7	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12730.1	> Design Factored Axial Load (Pu Kips):	111.1	0.01	OK!
Moment & Axial Strength Combination:	0.58	OK! Check Tie Spacing (Design/Required):		0.5	OK!
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1184.0	> One-Way Factored Shear (L-D. Kips):	287.7	0.24	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1184.0	> One-Way Factored Shear (W-D., Kips)	287.7	0.24	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1178.0	> One-Way Factored Shear (C-C, Kips):	264.0	0.22	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0020	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0020		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3631.1	> Moment at Bottom (L-Dir. K-Ft):	2018.7	0.56	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3631.1	> Moment at Bottom (W-Dir. K-Ft):	2018.7	0.56	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	5115.1	> Moment at Bottom (C-C Dir. K-Ft):	2854.8	0.56	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0020	OK! Upper Steel Reinf. Ratio (W-Dir.):	0.0020		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	3631.1	> Moment at the top (L-Dir K-Ft):	685.3	0.19	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	3631.1	> Moment at the top (W-Dir K-Ft):	685.3	0.19	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	5115.1	> Moment at the top (C-C Dir. K-Ft):	640.9	0.13	OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	1640.6	k-ft.	Max. factored shear stress $v_{u,CP}$:	0.8	Psi
Max. factored shear stress $v_{u,AB}$:	12.7	Psi	Factored shear Strength ϕv_n :	189.7	Psi
Max. factored shear stress v_u :	12.7	Psi	Check Usage of Punching Shear Capacity:	0.07	OK!

ATTACHMENT 6



Date: 5/27/2020



Submitted To: Verizon Wireless
118 Flanders Road – Third Floor
Westborough, MA 01581

Subject: Mount Structural Analysis Report

Verizon Wireless Designation: Site Name: East Hartford 10 CT

Site Data: 465 Hills Street, East Hartford, CT 06108
Latitude 41° 44' 26.73", Longitude -72° 35' 2.78"

We are pleased to submit this **"Mount Structural Analysis Report"** to determine the structural capacity of the antenna mount utilized by Verizon Wireless at the above referenced site.

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

Existing + Proposed Equipment **Adequate Capacity (45.9%)**
Note: See Analysis Criteria for loading configuration

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

We 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.

Prepared by Consulting Engineer:

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057
EFI GLOBAL, INC.
PEC 0001245
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Atlanta, GA 30338
Tel: (770) 693-0835



Reviewed By:

Proterra Design Group, LLC

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	90'
Structure Type	Monopole
Exposure Category	C
Wind Speed	124 mph * $\sqrt{0.6}$ = 96 mph (ASD)
Ice Loading	1.00" with 50 mph Wind
Risk Category	II
Topographic Factor	Kzt = 1.0

Table 1.1 – Existing and Final Appurtenance Configuration for Verizon

Qty	Model
3	Commscope NHH-65B-R2B – Antennas
3	Commscope NHHSS-65B-R2B – Antennas
3	Samsung B2/B66A RRH-BR049 – RRHs
3	Samsung B5/B13 RRH-BR04C – RRHs
3	Samsung CBRS RRH-RT4401-48A – RRHs
1	Raycap RVZDC-6627-PF-48 – Squids

*To be mounted behind antennas.

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
Email	ProTerra Design Group, LLC	05/13/2020
Equipment Loading	ProTerra Design Group, LLC	05/13/2020
Mount Photos	ProTerra Design Group, LLC	-

2.1) Analysis Method

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

2.2) Analysis Conditions and Assumptions

- 1) The mount was built and installed in accordance with the manufacturer's specifications.
- 2) The mount has been maintained and will be maintained in accordance with the manufacturer's specifications. All structural members and connections of the mount are in good condition and can achieve theoretical strength.
- 3) The configuration of antennas is as specified in "1) Analysis Criteria".
- 4) The analysis was performed for the subject mount only. It does not include an evaluation of the other mounts or the tower, which should be analyzed by others.
- 5) The evaluation does not include any antenna rigging loads. The equipment should not be rigged using the subject antenna mount as the support.
- 6) The analysis includes a minimum 250 lbf maintenance point load at the worst-case location on the mount, as well as a minimum 250 lbf maintenance point load at each antenna location in conjunction with a 30 mph wind load.
- 7) Any steel grating represented in this model is for loading purposes only and it is not considered to provide any structural restraint or support.
- 8) Member sizes per available photos 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 around the antenna 1" dimension is added considering the artificial green wraps.
- 10) 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.

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

3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

Table 3.1 – Mount Component Stresses vs. Capacity

Component	% Capacity	Pass / Fail
Base Perimeter Pipe	<20%	Pass
Antenna Mount Pipe	38.5	Pass
Main Support Tube	45.9	Pass
Platform Base Corner Pipe	22.6	Pass

Platform Mount: The existing platform mount has **adequate** capacity for the proposed changes by Verizon. For the code specified load combinations and as a maximum, the mount members are stressed to **45.9%** of their structural capacity.

APPENDIX
INPUT LOADS
ANALYSIS OUTPUT

CLIENT: Verizon
 PROJECT: East Hartford 10 CT
 SUBJECT: Antenna Loads - JTA-222 G Standard (Chapter 18 revisions).

Tower Height	150.00	ft	Type of Mount	sp, km
Basic Wind Speed, V	95	mph (Ultimate Speed/50)(0.6)		
Basic Wind Speed with Ice, V _i	50	mph		
Maintenance Load Factor, L _m	0.0977	Load Factor for Maint. Load Cases (Basic Wind Speed=20 mph)		
Design Ice Thickness, I	1	inches		

Table 2-3 Impact Factor

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

Table 2-4 Exposure Category Coefficients

Exposure Category	Z ₀	z	K _{zmin}	K _z	K _e	m
1	500	3.5	0.95	1	0.6	

Table 2-5 Topographic Categories
 K_t 1.000

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
1	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
2	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
3	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
4	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
5	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
6	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
7	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
8	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
9	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
10	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
11	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
12	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
13	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
14	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
15	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
16	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
17	0.95

Table 2-3 Wind Directionality Factor, K_d

Structure Type	K _d
18	0.95

Factor for Pole 2

CLIENT: Veribon
 PROJECT: East Hartford 10 CT
 SUBJECT: Antenna Loads -TIA 222 G Standard (changes 18 revisions)

Antenna AND Mount Without Ice

Mounting Pole	Height (ft)	#	Weight (lbs)	H (in)	W (in)	D (in)	Ks	**A ₁ (ft ²)	***A ₁ (ft ²)	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	Kc	Ks	qr (pcf)	Pounds			Vertical Load (Statics)		
																	Wind Load (Front)	Wind Load (Side)	Total Wind Load (Side)			
Pos 1	90.00	1	87.5	15.0	15.0	10.0	0.80	1.56	1.04	1.00	1.50	1.20	1.20	1.238	1.238	27.7	468	312	31	97.5	4	
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
Pos 2	80.00	2	43.7	33.0	12.9	8.1	0.80	6.54	4.13	5.88	9.01	1.34	1.47	1.238	1.238	27.7	437.7	302.6	307	87	7	
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	7
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	7
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	7
Pos 3	80.00	1	82.0	15.0	15.0	8.1	0.80	1.56	0.84	1.00	1.85	1.20	1.20	1.238	1.238	27.7	46.8	25.3	25	82	7	
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	7
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	7
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	7
Pos 2 for side wind	80.00	1	43.7	73.0	12.9	8.1	0.80	6.54	4.13	5.88	9.01	1.34	1.47	1.238	1.238	27.7	218.9	150.4	150	44	4	
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
Pos 3	80.00	1	82.0	15.0	15.0	8.1	0.80	1.56	0.84	1.00	1.85	1.20	1.20	1.238	1.238	27.7	46.8	25.3	25	82	4	
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
Pos 4	80.00	1	82.0	15.0	15.0	8.1	0.80	1.56	0.84	1.00	1.85	1.20	1.20	1.238	1.238	27.7	46.8	25.3	25	82	4	
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4
			0.00	-	-	-	0.80	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	4

* Enter N/A in the IV column for non shrouded apertures.
 ** A₁ is the product of H and W
 *** A₁ is the product of H and D

Mount	Height (ft)	Member	L (in)	W (in)	D (in)	Weight (lb/ft)	Ca	Kc	qr (pcf)	Wind Load (PLF)	Lateral Load (Statics)	Vertical Load (Statics)
	80.00	3.0 STD Pipe	12.00	3.50	0.00	0.00	1.20	1.238	25.0	0	0	0
	80.00	4.0 STD Pipe	12.00	4.50	0.00	0.00	1.20	1.238	25.0	11	0	0
	80.00	2.0 STD Pipe	12.00	2.38	0.00	0.00	1.20	1.238	25.0	6	0	0
	80.00	12-303-303	8.00	2.75	2.85	0.00	-	-	-	-	-	-
	80.00	Alloy Diamond	7.60	6.00	0.00	0.00	-	-	-	-	-	-
	80.00	NSS 44614	0.00	4.00	4.00	0.00	-	-	-	-	-	-
	80.00	PL 6 x 107	0.00	0.50	4.00	0.00	-	-	-	-	-	-
	80.00	Double Angle (L12-502-2x10)	0.00	5.00	2.50	0.00	-	-	-	-	-	-
	80.00	Double Angle (L12-502-2x10)	0.00	3.00	3.00	0.00	-	-	-	-	-	-
	80.00	Channel (W6x16)	0.00	0.00	0.00	0.00	-	-	-	-	-	-
	80.00	Channel (W6x16)	0.00	0.00	0.00	0.00	-	-	-	-	-	-
	80.00	Channel (W6x16)	0.00	0.00	0.00	0.00	-	-	-	-	-	-
	80.00	Channel (W6x16)	0.00	0.00	0.00	0.00	-	-	-	-	-	-
	80.00	Channel (W6x16)	0.00	3.63	5.38	0.00	-	-	-	-	-	-

The dimension L is the longest dimension of the member
 The dimension W is the height & width of the member that results wind load
 Ca will equal 1.2 for round members and 2.0 for flat members

CLIENT: **Vizion**
 PROJECT: **East Hartford 10 CT**
 SUBJECT: **Antenna Load, 31X-322-G Standard (Chapter 16 revisions)**

6 (in) 2:21:1072 Kz 1.1033258 reduction 0.271727

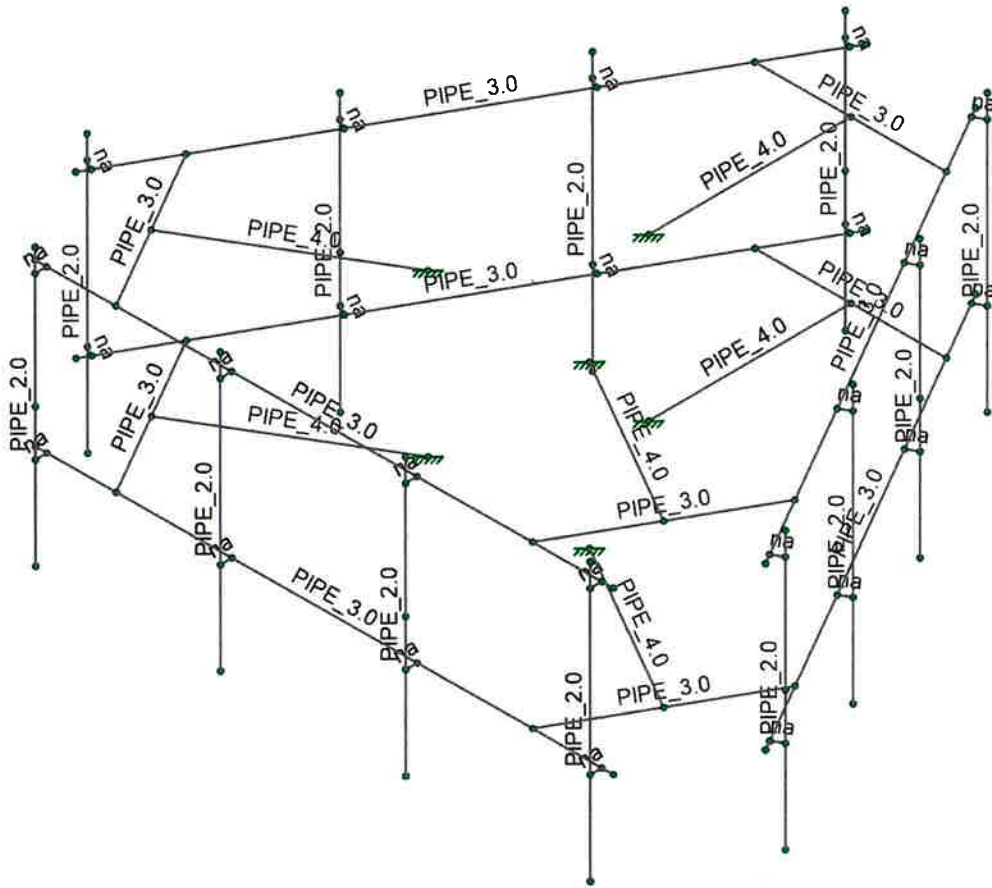
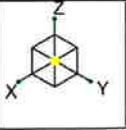
Antenna AND Mount With Ice

Mounting Pole	Height (ft)	#	Model Number	H (in)	W (in)	D (in)	Ke	A ₁ (ft ²)	A ₂ (ft ²)	Volume Ice (ft ³)	Weight Ice (lbs)	Ca (FRONT)	Ca (SIDE)	Kz	q _i (psf)	Pounds				Total Ice Load			
																Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)				
Pos. 1	90.00	1	Empty Samsung S2986A RRI-BR049	15.0	15.0	10.0	0.80	1.06	0.90	1.85	103.39	0.70	0.70	1.238	7.5	0.0	5.0	4.3	17.7	12.8	100	13	
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Pos. 2	90.00	2	Commscope WHI-655-R2B	73.0	11.9	8.1	0.80	2.74	2.63	5.07	284.17	0.75	0.76	1.238	7.5	0.0	27.9	27.8	148.8	109.4	588	108	
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Pos. 3	90.00	1	Empty S5173 RRIH-BR04C	15.0	15.0	8.1	0.80	1.06	0.85	1.86	102.02	0.70	0.70	1.238	7.5	0.0	5.0	4.3	17.7	12.8	100	11	
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Pos. 3 for side wind	90.00	1	Commscope WHI-655-S2E	73.0	11.9	8.1	0.80	2.74	2.63	5.07	284.17	0.75	0.76	1.238	7.5	0.0	13.5	13.8	70.3	54.7	245	35	
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Pos. 3	90.00	1	Empty	-	-	-	0.80	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0	
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Pos. 4	90.00	1	Empty	-	-	-	0.80	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0	
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0
			Empty	-	-	-	0.80	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0	0

* A₁, A₂, Volume Ice and Weight Ice are calculated per unit.
 ** Ca will equal 1.2 for all ice load calculations.

Mount	Height (ft)	Member	L (in)	W (in)	D (in)	Ke	A ₁ (ft ²)	A ₂ (ft ²)	Volume Ice (ft ³)	Weight Ice (lbs)	Ca (FRONT)	Ca (SIDE)	Kz	q _i (psf)	PLF			
															Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)
Mount	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15
	80.00	3.0 S10 Pole	12.00	3.50	0.00	0.80	0.61	0.59	0.28	15.43	1.20	1.20	1.238	6.8	5.0	4.7	7.3	15

* The dimension L is the longest dimension of the member.
 ** The dimension W is the height of the member that retains wind load.
 *** A₁ is the area of ice built up on the LV plate.
 **** Ca will equal 1.2 for all ice load calculations.

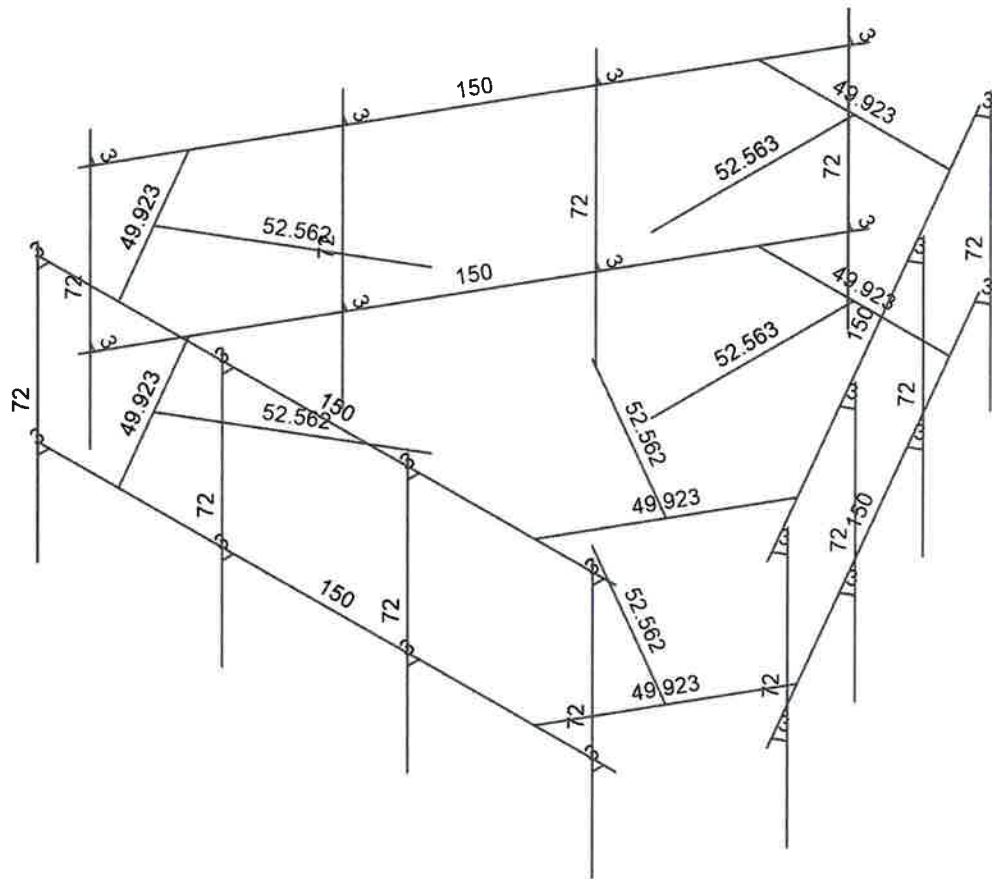
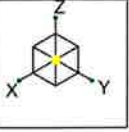


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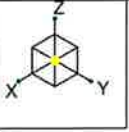
East Hartford 10 CT

SK-8
 May 27, 2020
 East Hartford 10 CT.R3D

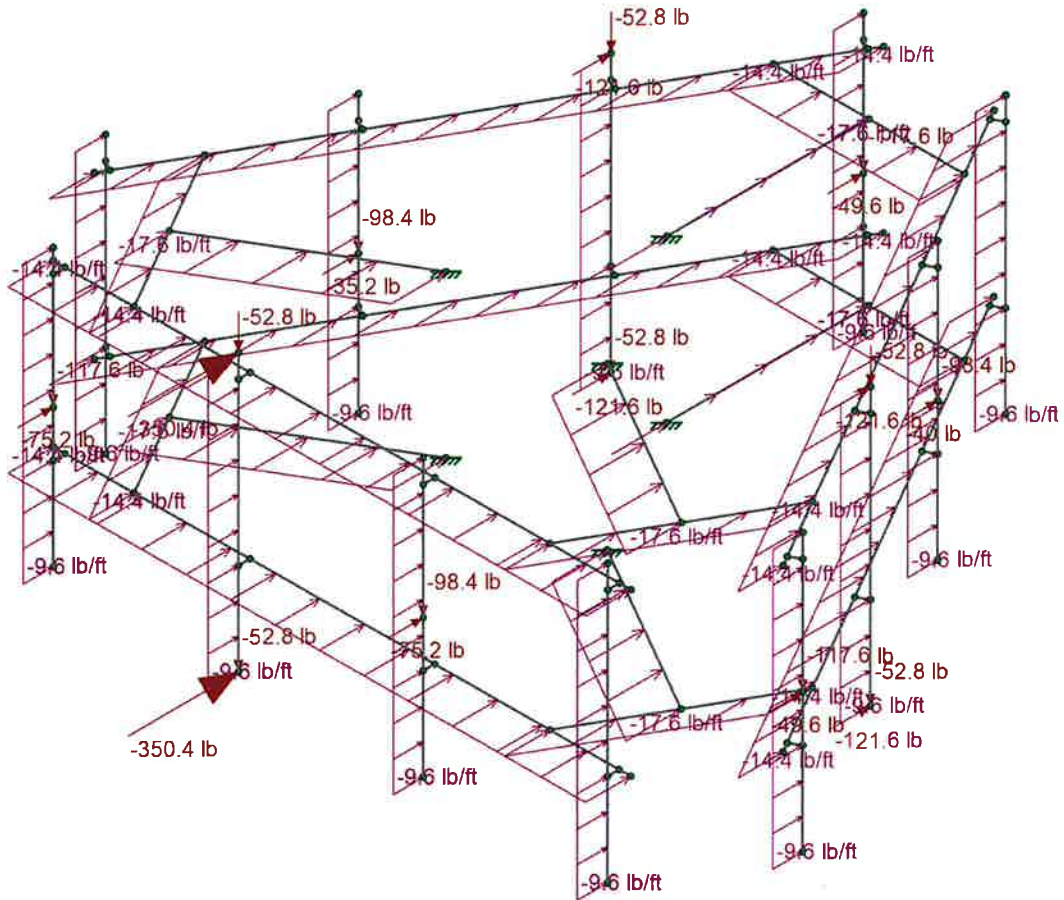
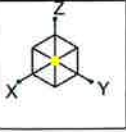


Member Length (in) Displayed
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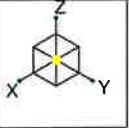


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AF		May 27, 2020	
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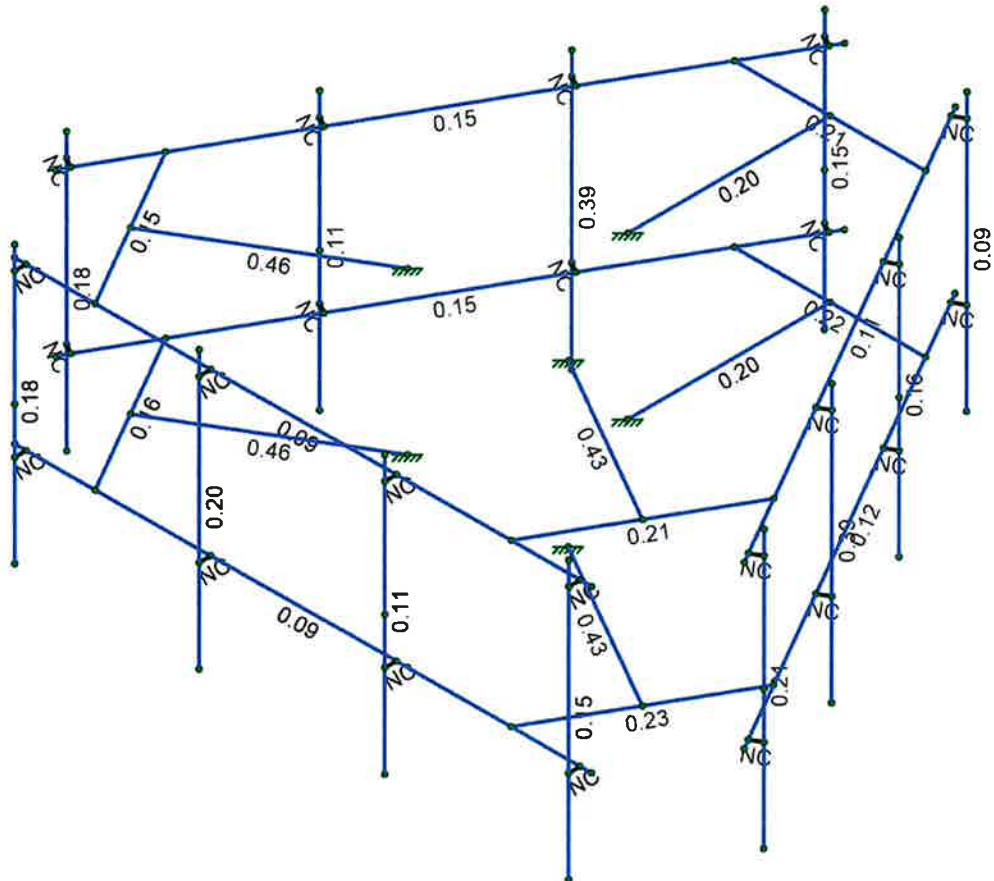


Loads: LC 1, DL + WL (NO ICE) 0 Degree
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Code Check (Env)	
Black	No Calc
Red	> 1.0
Pink	.90-1.0
Green	.75-.90
Light Blue	.50-.75
Dark Blue	.0-50

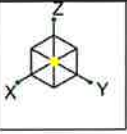


Member Code Checks Displayed (Enveloped)
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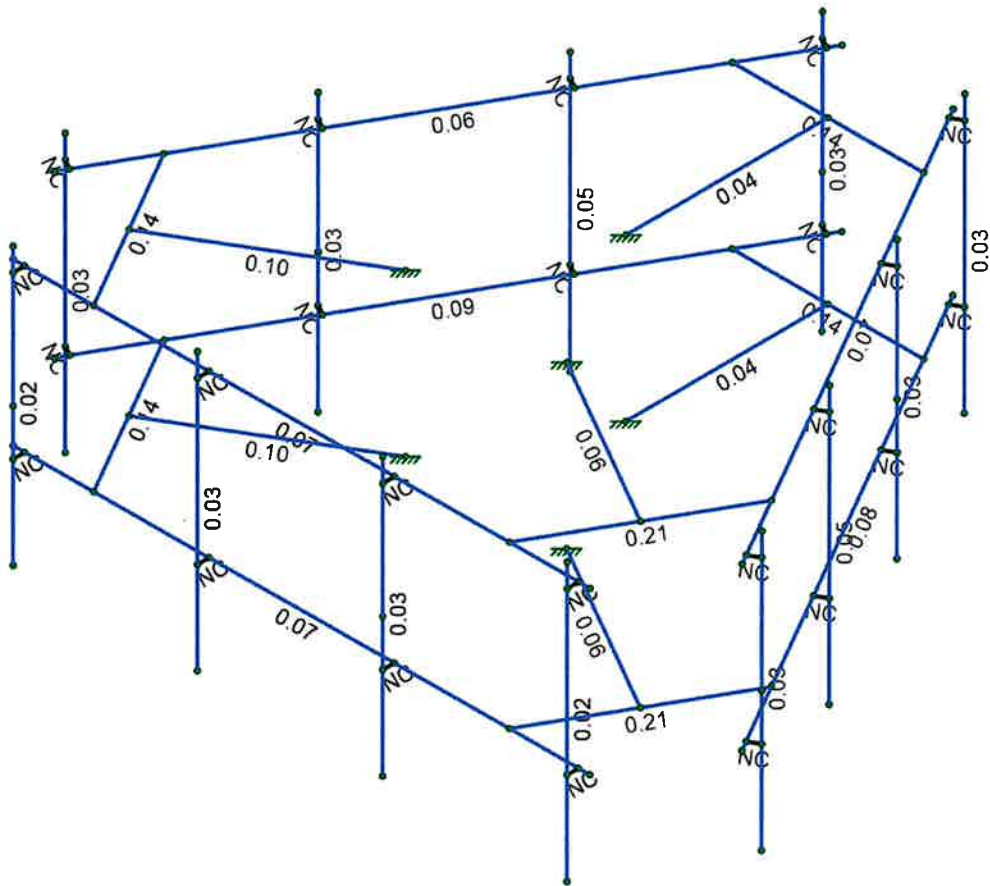
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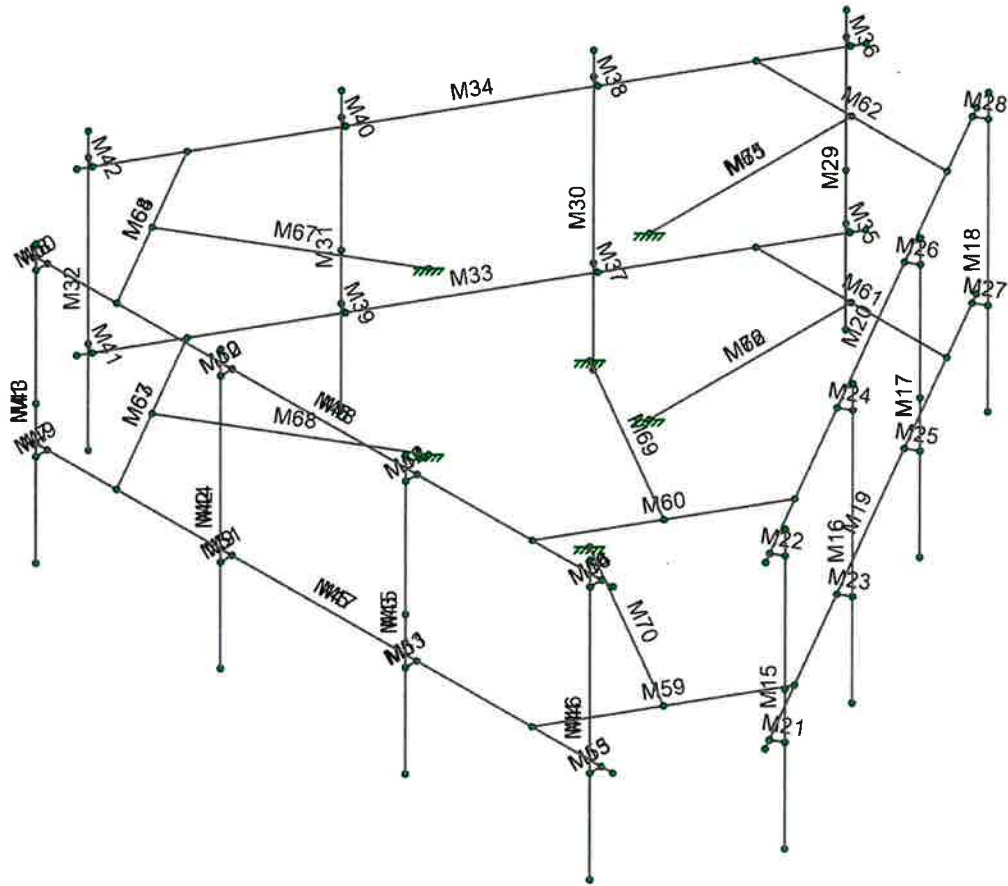
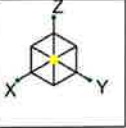


Shear Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Light Blue	.50-.75
Dark Blue	.0- .50



Member Shear Checks Displayed (Enveloped)
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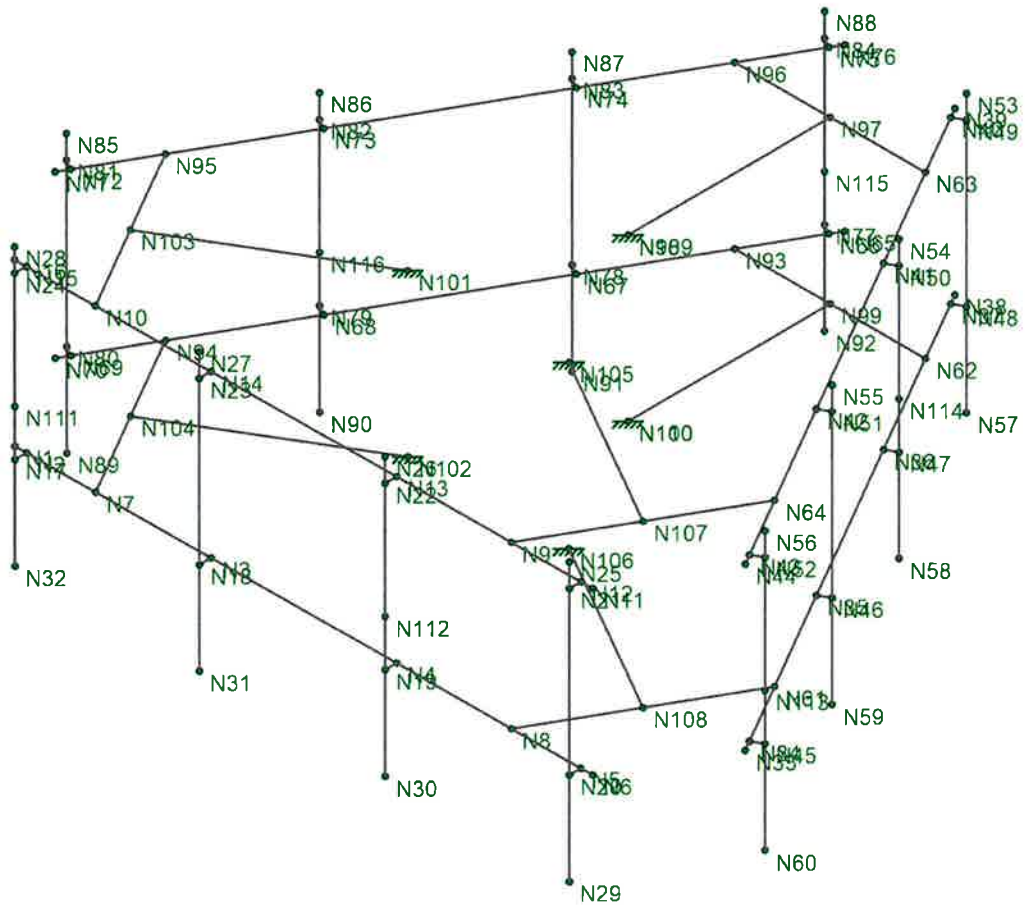
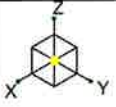


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Model Settings

Number of Reported Sections	5
Number of Internal Sections	97
Member Area Load Mesh Size (in ²)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes
Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	Yes
Maximum Number of Iterations	3
Single	No
Multiple (Optimum)	Yes
Maximum	No
Global Axis corresponding to vertical direction	Z
Convert Existing Data	Yes
Default Global Plane for z-axis	XY
Plate Local Axis Orientation	Nodal
Hot Rolled Steel	AISC 14th (360-10): LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	AISC 14th (360-10): LRFD
Cold Formed Steel	AISI NAS-01: ASD
Stiffness Adjustment	Yes (Iterative)
Wood	AF&PA NDS-05/08: ASD
Temperature	< 100F
Concrete	ACI 318-05
Masonry	ACI 530-05: ASD
Aluminum	AAADM1-05: ASD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	AISC 14th (360-10): ASD
Stiffness Adjustment	Yes (Iterative)
Analysis Methodology	Exact Integration Method
Parme Beta Factor	0.65
Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2"d bar spacing)	No
List forces which were ignored for design in the Detail Report	Yes
Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No
Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4
Code	ASCE 7-05



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Model Settings (Continued)

Risk Category	I
Drift Cat	Other
Base Elevation (ft)	-999999
Include the weight of the structure in base shear calcs	Yes

S _v (g)	1
SD _v (g)	1
SD _s (g)	1
T _i (sec)	-1

T (sec)	
T (sec)	
C ₁	0.035
C ₂	0.035
C ₁ Exp.	0.75
C ₂ Exp.	0.75
R	8.5
R	8.5
Ω ₀	1
Ω ₀	1
C _s	4
C _d	4
ρ	1
ρ	1



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Line Project Grid

No Data to Print...

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. C...	Density [k...	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr....	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr....	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	HR1	W4X13	Beam	Wide Flan...	A36 Gr.36	Typical	3.83	3.86	11.3	0.151

Primary Member Properties

	Label	I Node	J Node	K Node	Rotate(deg)	Section/S...	Type	Design List	Material	Design Rule
1	M1	N32	N28			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
2	M2	N31	N27			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
3	M3	N30	N26			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
4	M4	N29	N25			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
5	M5	N1	N6			PIPE 3.0	Column	Pipe	A53 Gr.B	Typical
6	M6	N16	N11			PIPE 3.0	Column	Pipe	A53 Gr.B	Typical
7	M7	N2	N17			RIGID	None	None	RIGID	Typical
8	M8	N15	N24			RIGID	None	None	RIGID	Typical
9	M9	N3	N18			RIGID	None	None	RIGID	Typical
10	M10	N14	N23			RIGID	None	None	RIGID	Typical
11	M11	N4	N19			RIGID	None	None	RIGID	Typical
12	M12	N13	N22			RIGID	None	None	RIGID	Typical
13	M13	N5	N20			RIGID	None	None	RIGID	Typical
14	M14	N12	N21			RIGID	None	None	RIGID	Typical
15	M15	N60	N56		120	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
16	M16	N59	N55		120	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
17	M17	N58	N54		120	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
18	M18	N57	N53		120	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
19	M19	N33	N38			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
20	M20	N44	N39			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
21	M21	N34	N45			RIGID	None	None	RIGID	Typical
22	M22	N43	N52			RIGID	None	None	RIGID	Typical
23	M23	N35	N46			RIGID	None	None	RIGID	Typical
24	M24	N42	N51			RIGID	None	None	RIGID	Typical
25	M25	N36	N47			RIGID	None	None	RIGID	Typical
26	M26	N41	N50			RIGID	None	None	RIGID	Typical
27	M27	N37	N48			RIGID	None	None	RIGID	Typical
28	M28	N40	N49			RIGID	None	None	RIGID	Typical
29	M29	N92	N88		240	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
30	M30	N91	N87		240	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
31	M31	N90	N86		240	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
32	M32	N89	N85		240	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
33	M33	N65	N70			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
34	M34	N76	N71			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
35	M35	N66	N77			RIGID	None	None	RIGID	Typical
36	M36	N75	N84			RIGID	None	None	RIGID	Typical
37	M37	N67	N78			RIGID	None	None	RIGID	Typical
38	M38	N74	N83			RIGID	None	None	RIGID	Typical
39	M39	N68	N79			RIGID	None	None	RIGID	Typical
40	M40	N73	N82			RIGID	None	None	RIGID	Typical



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Primary Member Properties (Continued)

	Label	I Node	J Node	K Node	Rotate(deg)	Section/S...	Type	Design List	Material	Design Rule
41	M41	N69	N80			RIGID	None	None	RIGID	Typical
42	M42	N72	N81			RIGID	None	None	RIGID	Typical
43	M43	N32	N28			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
44	M44	N31	N27			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
45	M45	N30	N26			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
46	M46	N29	N25			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
47	M47	N1	N6			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
48	M48	N16	N11			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
49	M49	N2	N17			RIGID	None	None	RIGID	Typical
50	M50	N15	N24			RIGID	None	None	RIGID	Typical
51	M51	N3	N18			RIGID	None	None	RIGID	Typical
52	M52	N14	N23			RIGID	None	None	RIGID	Typical
53	M53	N4	N19			RIGID	None	None	RIGID	Typical
54	M54	N13	N22			RIGID	None	None	RIGID	Typical
55	M55	N5	N20			RIGID	None	None	RIGID	Typical
56	M56	N12	N21			RIGID	None	None	RIGID	Typical
57	M57	N7	N94			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
58	M58	N10	N95			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
59	M59	N61	N8			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
60	M60	N64	N9			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
61	M61	N93	N62			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
62	M62	N96	N63			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
63	M63	N7	N94			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
64	M64	N10	N95			PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical
65	M65	N97	N98			PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical
66	M66	N99	N100			PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical
67	M67	N103	N101			PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical
68	M68	N104	N102			PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical
69	M69	N107	N105			PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical
70	M70	N108	N106			PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical
71	M71	N97	N109			PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical
72	M72	N99	N110			PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical

Advanced Member Properties

	Label	I Release	J Release	I Offset [in]	J Offset [in]	T/C Only	Physical	Deflectio...	Analysis...	Activation	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None
13	M13						Yes	** NA **			None
14	M14						Yes	** NA **			None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18						Yes	** NA **			None
19	M19						Yes	Default			None
20	M20						Yes	Default			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None



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Advanced Member Properties (Continued)

	Label	I Release	J Release	I Offset [in]	J Offset [in]	T/C Only	Physical	Deflectio...	Analysis...	Activation	Seismic...
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28						Yes	** NA **			None
29	M29						Yes	** NA **			None
30	M30						Yes	** NA **			None
31	M31						Yes	** NA **			None
32	M32						Yes	** NA **			None
33	M33						Yes	Default			None
34	M34						Yes	Default			None
35	M35						Yes	** NA **			None
36	M36						Yes	** NA **			None
37	M37						Yes	** NA **			None
38	M38						Yes	** NA **			None
39	M39						Yes	** NA **			None
40	M40						Yes	** NA **			None
41	M41						Yes	** NA **			None
42	M42						Yes	** NA **			None
43	M43						Yes	** NA **			None
44	M44						Yes	** NA **			None
45	M45						Yes	** NA **			None
46	M46						Yes	** NA **			None
47	M47						Yes	Default			None
48	M48						Yes	Default			None
49	M49						Yes	** NA **			None
50	M50						Yes	** NA **			None
51	M51						Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53						Yes	** NA **			None
54	M54						Yes	** NA **			None
55	M55						Yes	** NA **			None
56	M56						Yes	** NA **			None
57	M57						Yes	Default			None
58	M58						Yes	Default			None
59	M59						Yes	Default			None
60	M60						Yes	Default			None
61	M61						Yes	Default			None
62	M62						Yes	Default			None
63	M63						Yes	Default			None
64	M64						Yes	Default			None
65	M65						Yes	Default			None
66	M66						Yes	Default			None
67	M67						Yes	Default			None
68	M68						Yes	Default			None
69	M69						Yes	Default			None
70	M70						Yes	Default			None
71	M71						Yes	Default			None
72	M72						Yes	Default			None

Hot Rolled Member Properties

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp t...	Lcomp...	L-Torqu...	K y-y	K z-z	Cb	Function
1	M1	PIPE 2.0	72			Lbyy						Lateral
2	M2	PIPE 2.0	72			Lbyy						Lateral
3	M3	PIPE 2.0	72			Lbyy						Lateral
4	M4	PIPE 2.0	72			Lbyy						Lateral
5	M5	PIPE 3.0	150			Lbyy						Lateral
6	M6	PIPE 3.0	150			Lbyy						Lateral



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Hot Rolled Member Properties (Continued)

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp t...	Lcomp...	L-Torqu...	K y-y	K z-z	Cb	Function
7	M15	PIPE 2.0	72					Lbyy				Lateral
8	M16	PIPE 2.0	72					Lbyy				Lateral
9	M17	PIPE 2.0	72					Lbyy				Lateral
10	M18	PIPE 2.0	72					Lbyy				Lateral
11	M19	PIPE 3.0	150					Lbyy				Lateral
12	M20	PIPE 3.0	150					Lbyy				Lateral
13	M29	PIPE 2.0	72					Lbyy				Lateral
14	M30	PIPE 2.0	72					Lbyy				Lateral
15	M31	PIPE 2.0	72					Lbyy				Lateral
16	M32	PIPE 2.0	72					Lbyy				Lateral
17	M33	PIPE 3.0	150					Lbyy				Lateral
18	M34	PIPE 3.0	150					Lbyy				Lateral
19	M43	PIPE 2.0	72					Lbyy				Lateral
20	M44	PIPE 2.0	72					Lbyy				Lateral
21	M45	PIPE 2.0	72					Lbyy				Lateral
22	M46	PIPE 2.0	72					Lbyy				Lateral
23	M47	PIPE 3.0	150					Lbyy				Lateral
24	M48	PIPE 3.0	150					Lbyy				Lateral
25	M57	PIPE 3.0	49.923					Lbyy				Lateral
26	M58	PIPE 3.0	49.923					Lbyy				Lateral
27	M59	PIPE 3.0	49.923					Lbyy				Lateral
28	M60	PIPE 3.0	49.923					Lbyy				Lateral
29	M61	PIPE 3.0	49.923					Lbyy				Lateral
30	M62	PIPE 3.0	49.923					Lbyy				Lateral
31	M63	PIPE 3.0	49.923					Lbyy				Lateral
32	M64	PIPE 3.0	49.923					Lbyy				Lateral
33	M65	PIPE 4.0	52.563					Lbyy				Lateral
34	M66	PIPE 4.0	52.563					Lbyy				Lateral
35	M67	PIPE 4.0	52.562					Lbyy				Lateral
36	M68	PIPE 4.0	52.562					Lbyy				Lateral
37	M69	PIPE 4.0	52.562					Lbyy				Lateral
38	M70	PIPE 4.0	52.562					Lbyy				Lateral
39	M71	PIPE 4.0	52.563					Lbyy				Lateral
40	M72	PIPE 4.0	52.563					Lbyy				Lateral

Nodes

	Label	X [in]	Y [in]	Z [in]	Temp [deg F]	Detach From Dia...
1	N1	60	-75	0		
2	N2	60	-72	0		
3	N3	60	-24	0		
4	N4	60	24	0		
5	N5	60	72	0		
6	N6	60	75	0		
7	N7	60	-54	0		
8	N8	60	54	0		
9	N9	60	54	42		
10	N10	60	-54	42		
11	N11	60	75	42		
12	N12	60	72	42		
13	N13	60	24	42		
14	N14	60	-24	42		
15	N15	60	-72	42		
16	N16	60	-75	42		
17	N17	63	-72	0		
18	N18	63	-24	0		
19	N19	63	24	0		
20	N20	63	72	0		
21	N21	63	72	42		



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Nodes (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [deg F]	Detach From Dia...
22	N22	63	24	42		
23	N23	63	-24	42		
24	N24	63	-72	42		
25	N25	63	72	48		
26	N26	63	24	48		
27	N27	63	-24	48		
28	N28	63	-72	48		
29	N29	63	72	-24		
30	N30	63	24	-24		
31	N31	63	-24	-24		
32	N32	63	-72	-24		
33	N33	34.951905	89.461524	0		
34	N34	32.353829	87.961524	0		
35	N35	-9.21539	63.961524	0		
36	N36	-50.78461	39.961524	0		
37	N37	-92.353829	15.961524	0		
38	N38	-94.951905	14.461524	0		
39	N39	-94.951905	14.461524	42		
40	N40	-92.353829	15.961524	42		
41	N41	-50.78461	39.961524	42		
42	N42	-9.21539	63.961524	42		
43	N43	32.353829	87.961524	42		
44	N44	34.951905	89.461524	42		
45	N45	30.853829	90.5596	0		
46	N46	-10.71539	66.5596	0		
47	N47	-52.28461	42.5596	0		
48	N48	-93.853829	18.5596	0		
49	N49	-93.853829	18.5596	42		
50	N50	-52.28461	42.5596	42		
51	N51	-10.71539	66.5596	42		
52	N52	30.853829	90.5596	42		
53	N53	-93.853829	18.5596	48		
54	N54	-52.28461	42.5596	48		
55	N55	-10.71539	66.5596	48		
56	N56	30.853829	90.5596	48		
57	N57	-93.853829	18.5596	-24		
58	N58	-52.28461	42.5596	-24		
59	N59	-10.71539	66.5596	-24		
60	N60	30.853829	90.5596	-24		
61	N61	16.765372	78.961524	0		
62	N62	-76.765372	24.961524	0		
63	N63	-76.765372	24.961524	42		
64	N64	16.765372	78.961524	42		
65	N65	-94.951905	-14.461524	0		
66	N66	-92.353829	-15.961524	0		
67	N67	-50.78461	-39.961524	0		
68	N68	-9.21539	-63.961524	0		
69	N69	32.353829	-87.961524	0		
70	N70	34.951905	-89.461524	0		
71	N71	34.951905	-89.461524	42		
72	N72	32.353829	-87.961524	42		
73	N73	-9.21539	-63.961524	42		
74	N74	-50.78461	-39.961524	42		
75	N75	-92.353829	-15.961524	42		
76	N76	-94.951905	-14.461524	42		
77	N77	-93.853829	-18.5596	0		
78	N78	-52.28461	-42.5596	0		
79	N79	-10.71539	-66.5596	0		



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	Label	X [in]	Y [in]	Z [in]	Temp [deg F]	Detach From Dia...
80	N80	30.853829	-90.5596	0		
81	N81	30.853829	-90.5596	42		
82	N82	-10.71539	-66.5596	42		
83	N83	-52.28461	-42.5596	42		
84	N84	-93.853829	-18.5596	42		
85	N85	30.853829	-90.5596	48		
86	N86	-10.71539	-66.5596	48		
87	N87	-52.28461	-42.5596	48		
88	N88	-93.853829	-18.5596	48		
89	N89	30.853829	-90.5596	-24		
90	N90	-10.71539	-66.5596	-24		
91	N91	-52.28461	-42.5596	-24		
92	N92	-93.853829	-18.5596	-24		
93	N93	-76.765372	-24.961524	0		
94	N94	16.765372	-78.961524	0		
95	N95	16.765372	-78.961524	42		
96	N96	-76.765372	-24.961524	42		
97	N97	-76.765372	-0.	42		
98	N98	-24.202872	0.00001	42		
99	N99	-76.765372	-0.	0		
100	N100	-24.202872	0.00001	0		
101	N101	12.101436	-20.960302	42		
102	N102	12.101436	-20.960302	0		
103	N103	38.382686	-66.480762	42		
104	N104	38.382686	-66.480762	0		
105	N105	12.101436	20.960302	42		
106	N106	12.101436	20.960302	0		
107	N107	38.382686	66.480762	42		
108	N108	38.382686	66.480762	0		
109	N109	-24.202872	-0.	42		
110	N110	-24.202872	-0.	0		
111	N111	63	-72	12		
112	N112	63	24	12		
113	N113	30.853829	90.5596	12		
114	N114	-52.28461	42.5596	12		
115	N115	-93.853829	-18.5596	12		
116	N116	-10.71539	-66.5596	12		

Boundary Conditions

	Node 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	N98	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N100	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N101	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N102	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N105	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N106	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N109	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N110	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Desc...	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Me...)	Surface(P...
1	DEAD LO...	None			-1	12				
2	DEAD LO...	None				12		40		
3	WIND LO...	None				12		40		
4	WIND LO...	None				12		40		
5	WIND LO...	None				12		40		
6	WIND LO...	None				12		40		



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Basic Load Cases (Continued)

	BLC Desc...	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Me...	Surface(P...
7	LIVE LOA...	None				1				
8	LIVE LOA...	None				1				
9	LIVE LOA...	None				1				
10	MAINTEN...	None				1				
11	MAINTEN...	None				1				
12	MAINTEN...	None				1				
13	MAINTEN...	None				1				
14	EQ Horiz...	None				12				
15	EQ Horiz...	None				12				
16	EQ Vertical	None				12				

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

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N111	L	Z	-98	Active
2	N113	L	Z	-98	Active
3	N115	L	Z	-98	Active
4	N27	L	Z	-44	Active
5	N31	L	Z	-44	Active
6	N55	L	Z	-44	Active
7	N59	L	Z	-44	Active
8	N87	L	Z	-44	Active
9	N91	L	Z	-44	Active
10	N112	L	Z	-82	Active
11	N114	L	Z	-82	Active
12	N116	L	Z	-82	Active

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

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N111	L	Z	-103	Active
2	N113	L	Z	-103	Active
3	N115	L	Z	-103	Active
4	N27	L	Z	-285	Active
5	N31	L	Z	-285	Active
6	N55	L	Z	-285	Active
7	N59	L	Z	-285	Active
8	N87	L	Z	-285	Active
9	N91	L	Z	-285	Active
10	N112	L	Z	-94	Active
11	N114	L	Z	94	Active
12	N116	L	Z	-94	Active

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

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N111	L	X	-47	Active
2	N113	L	X	-31	Active
3	N115	L	X	-31	Active
4	N27	L	X	-219	Active
5	N31	L	X	-219	Active
6	N55	L	X	-76	Active
7	N59	L	X	-76	Active
8	N87	L	X	-76	Active
9	N91	L	X	-76	Active
10	N112	L	X	-47	Active
11	N114	L	X	-25	Active
12	N116	L	X	-22	Active



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

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N111	L	Y	-31	Active
2	N113	L	Y	-47	Active
3	N115	L	Y	-47	Active
4	N27	L	Y	-76	Active
5	N31	L	Y	-76	Active
6	N55	L	Y	-219	Active
7	N59	L	Y	-219	Active
8	N87	L	Y	-219	Active
9	N91	L	Y	-219	Active
10	N112	L	Y	-25	Active
11	N114	L	Y	-47	Active
12	N116	L	Y	-47	Active

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

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N111	L	X	-18	Active
2	N113	L	X	-13	Active
3	N115	L	X	-13	Active
4	N27	L	X	-74	Active
5	N31	L	X	-74	Active
6	N55	L	X	-28	Active
7	N59	L	X	-28	Active
8	N87	L	X	-28	Active
9	N91	L	X	-28	Active
10	N112	L	X	-10	Active
11	N114	L	X	-11	Active
12	N116	L	X	-11	Active

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

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N111	L	Y	-13	Active
2	N113	L	Y	-18	Active
3	N115	L	Y	-18	Active
4	N27	L	Y	-28	Active
5	N31	L	Y	-28	Active
6	N55	L	Y	-74	Active
7	N59	L	Y	-74	Active
8	N87	L	Y	-74	Active
9	N91	L	Y	-74	Active
10	N112	L	Y	-11	Active
11	N114	L	Y	-18	Active
12	N116	L	Y	-18	Active

Node Loads and Enforced Displacements (BLC 7 : LIVE LOAD 1)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N32	L	Z	-250	Active

Node Loads and Enforced Displacements (BLC 8 : LIVE LOAD 2)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N31	L	Z	-250	Active

Node Loads and Enforced Displacements (BLC 9 : LIVE LOAD 3)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N30	L	Z	-250	Active



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

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N32	L	Z	-500	Active

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

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N31	L	Z	-500	Active

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

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N30	L	Z	-500	Active

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

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N29	L	Z	-500	Active

Node Loads and Enforced Displacements (BLC 14 : EQ Horizontal X)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N111	L	X	-8	Active
2	N113	L	X	-8	Active
3	N115	L	X	-8	Active
4	N27	L	X	-4	Active
5	N31	L	X	-4	Active
6	N55	L	X	-4	Active
7	N59	L	X	-4	Active
8	N87	L	X	-4	Active
9	N91	L	X	-4	Active
10	N112	L	X	-7	Active
11	N114	L	X	-7	Active
12	N116	L	X	-7	Active

Node Loads and Enforced Displacements (BLC 15 : EQ Horizontal Y)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N111	L	Y	-8	Active
2	N113	L	Y	-8	Active
3	N115	L	Y	-8	Active
4	N27	L	Y	-4	Active
5	N31	L	Y	-4	Active
6	N55	L	Y	-4	Active
7	N59	L	Y	-4	Active
8	N87	L	Y	-4	Active
9	N91	L	Y	-4	Active
10	N112	L	Y	-7	Active
11	N114	L	Y	-7	Active
12	N116	L	Y	-7	Active

Node Loads and Enforced Displacements (BLC 16 : EQ Vertical)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N111	L	Z	-4	Active
2	N113	L	Z	-4	Active
3	N115	L	Z	-4	Active
4	N27	L	Z	-2	Active
5	N31	L	Z	-2	Active
6	N55	L	Z	-2	Active
7	N59	L	Z	-2	Active
8	N87	L	Z	-2	Active
9	N91	L	Z	-2	Active



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Node Loads and Enforced Displacements (BLC 16 : EQ Vertical) (Continued)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
10	N112	L	Z	-2	Active
11	N114	L	Z	-2	Active
12	N116	L	Z	-2	Active

Member Distributed Loads (BLC 2 : DEAD LOAD ICE)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [...]	Inactive [(lb, k-...
1	M32	Z	-12	-12	0	%100	Active
2	M29	Z	-12	-12	0	%100	Active
3	M16	Z	-12	-12	0	%100	Active
4	M43	Z	-12	-12	0	%100	Active
5	M30	Z	-12	-12	0	%100	Active
6	M4	Z	-12	-12	0	%100	Active
7	M3	Z	-12	-12	0	%100	Active
8	M31	Z	-12	-12	0	%100	Active
9	M46	Z	-12	-12	0	%100	Active
10	M2	Z	-12	-12	0	%100	Active
11	M15	Z	-12	-12	0	%100	Active
12	M18	Z	-12	-12	0	%100	Active
13	M1	Z	-12	-12	0	%100	Active
14	M17	Z	-12	-12	0	%100	Active
15	M45	Z	-12	-12	0	%100	Active
16	M44	Z	-12	-12	0	%100	Active
17	M60	Z	-15	-15	0	%100	Active
18	M61	Z	-15	-15	0	%100	Active
19	M63	Z	-15	-15	0	%100	Active
20	M62	Z	-15	-15	0	%100	Active
21	M6	Z	-15	-15	0	%100	Active
22	M34	Z	-15	-15	0	%100	Active
23	M5	Z	-15	-15	0	%100	Active
24	M47	Z	-15	-15	0	%100	Active
25	M20	Z	-15	-15	0	%100	Active
26	M64	Z	-15	-15	0	%100	Active
27	M19	Z	-15	-15	0	%100	Active
28	M59	Z	-15	-15	0	%100	Active
29	M33	Z	-15	-15	0	%100	Active
30	M48	Z	-15	-15	0	%100	Active
31	M57	Z	-15	-15	0	%100	Active
32	M58	Z	-15	-15	0	%100	Active
33	M70	Z	-18	-18	0	%100	Active
34	M72	Z	-18	-18	0	%100	Active
35	M67	Z	-18	-18	0	%100	Active
36	M65	Z	-18	-18	0	%100	Active
37	M68	Z	-18	-18	0	%100	Active
38	M71	Z	-18	-18	0	%100	Active
39	M66	Z	-18	-18	0	%100	Active
40	M69	Z	-18	-18	0	%100	Active

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

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [...]	Inactive [(lb, k-...
1	M32	X	-6	-6	0	%100	Active
2	M17	X	-6	-6	0	%100	Active
3	M15	X	-6	-6	0	%100	Active
4	M31	X	-6	-6	0	%100	Active
5	M30	X	-6	-6	0	%100	Active
6	M4	X	-6	-6	0	%100	Active
7	M45	X	-6	-6	0	%100	Active
8	M29	X	-6	-6	0	%100	Active



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 Designer : AF
 Job Number : 2078010
 Model Name : East Hartford 10 CT

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

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...	End Location [...	Inactive [(lb, k-...
9	M1	X	-6	-6	0	%100	Active
10	M43	X	-6	-6	0	%100	Active
11	M18	X	-6	-6	0	%100	Active
12	M3	X	-6	-6	0	%100	Active
13	M46	X	-6	-6	0	%100	Active
14	M44	X	-6	-6	0	%100	Active
15	M16	X	-6	-6	0	%100	Active
16	M2	X	-6	-6	0	%100	Active
17	M58	PX	-9	-9	0	%100	Active
18	M34	PX	-9	-9	0	%100	Active
19	M19	PX	-9	-9	0	%100	Active
20	M63	PX	-9	-9	0	%100	Active
21	M60	PX	-9	-9	0	%100	Active
22	M57	PX	-9	-9	0	%100	Active
23	M20	PX	-9	-9	0	%100	Active
24	M61	PX	-9	-9	0	%100	Active
25	M47	PX	-9	-9	0	%100	Active
26	M6	PX	-9	-9	0	%100	Active
27	M64	PX	-9	-9	0	%100	Active
28	M59	PX	-9	-9	0	%100	Active
29	M33	PX	-9	-9	0	%100	Active
30	M5	PX	-9	-9	0	%100	Active
31	M62	PX	-9	-9	0	%100	Active
32	M48	PX	-9	-9	0	%100	Active
33	M68	PX	-11	-11	0	%100	Active
34	M66	PX	-11	-11	0	%100	Active
35	M69	PX	-11	-11	0	%100	Active
36	M70	PX	-11	-11	0	%100	Active
37	M65	PX	-11	-11	0	%100	Active
38	M71	PX	-11	-11	0	%100	Active
39	M72	PX	-11	-11	0	%100	Active
40	M67	PX	-11	-11	0	%100	Active

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

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...	End Location [...	Inactive [(lb, k-...
1	M32	Y	-6	-6	0	%100	Active
2	M29	Y	-6	-6	0	%100	Active
3	M16	Y	-6	-6	0	%100	Active
4	M43	Y	-6	-6	0	%100	Active
5	M30	Y	-6	-6	0	%100	Active
6	M4	Y	-6	-6	0	%100	Active
7	M3	Y	-6	-6	0	%100	Active
8	M31	Y	-6	-6	0	%100	Active
9	M46	Y	-6	-6	0	%100	Active
10	M2	Y	-6	-6	0	%100	Active
11	M15	Y	-6	-6	0	%100	Active
12	M18	Y	-6	-6	0	%100	Active
13	M1	Y	-6	-6	0	%100	Active
14	M17	Y	-6	-6	0	%100	Active
15	M45	Y	-6	-6	0	%100	Active
16	M44	Y	-6	-6	0	%100	Active
17	M60	PY	-9	-9	0	%100	Active
18	M61	PY	-9	-9	0	%100	Active
19	M63	PY	-9	-9	0	%100	Active
20	M62	PY	-9	-9	0	%100	Active
21	M6	PY	-9	-9	0	%100	Active
22	M34	PY	-9	-9	0	%100	Active
23	M5	PY	-9	-9	0	%100	Active



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

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...	End Location [...	Inactive [(lb, k-...
24	M47	PY	-9	-9	0	%100	Active
25	M20	PY	-9	-9	0	%100	Active
26	M64	PY	-9	-9	0	%100	Active
27	M19	PY	-9	-9	0	%100	Active
28	M59	PY	-9	-9	0	%100	Active
29	M33	PY	-9	-9	0	%100	Active
30	M48	PY	-9	-9	0	%100	Active
31	M57	PY	-9	-9	0	%100	Active
32	M58	PY	-9	-9	0	%100	Active
33	M70	PY	-11	-11	0	%100	Active
34	M72	PY	-11	-11	0	%100	Active
35	M67	PY	-11	-11	0	%100	Active
36	M65	PY	-11	-11	0	%100	Active
37	M68	PY	-11	-11	0	%100	Active
38	M71	PY	-11	-11	0	%100	Active
39	M66	PY	-11	-11	0	%100	Active
40	M69	PY	-11	-11	0	%100	Active

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

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...	End Location [...	Inactive [(lb, k-...
1	M32	X	-4.7	-4.7	0	%100	Active
2	M29	X	-4.7	-4.7	0	%100	Active
3	M16	X	-4.7	-4.7	0	%100	Active
4	M43	X	-4.7	-4.7	0	%100	Active
5	M30	X	-4.7	-4.7	0	%100	Active
6	M4	X	-4.7	-4.7	0	%100	Active
7	M3	X	-4.7	-4.7	0	%100	Active
8	M31	X	-4.7	-4.7	0	%100	Active
9	M46	X	-4.7	-4.7	0	%100	Active
10	M2	X	-4.7	-4.7	0	%100	Active
11	M15	X	-4.7	-4.7	0	%100	Active
12	M18	X	-4.7	-4.7	0	%100	Active
13	M1	X	-4.7	-4.7	0	%100	Active
14	M17	X	-4.7	-4.7	0	%100	Active
15	M45	X	-4.7	-4.7	0	%100	Active
16	M44	X	-4.7	-4.7	0	%100	Active
17	M60	PX	-5	-5	0	%100	Active
18	M61	PX	-5	-5	0	%100	Active
19	M63	PX	-5	-5	0	%100	Active
20	M62	PX	-5	-5	0	%100	Active
21	M6	PX	-5	-5	0	%100	Active
22	M34	PX	-5	-5	0	%100	Active
23	M5	PX	-5	-5	0	%100	Active
24	M47	PX	-5	-5	0	%100	Active
25	M20	PX	-5	-5	0	%100	Active
26	M64	PX	-5	-5	0	%100	Active
27	M19	PX	-5	-5	0	%100	Active
28	M59	PX	-5	-5	0	%100	Active
29	M33	PX	-5	-5	0	%100	Active
30	M48	PX	-5	-5	0	%100	Active
31	M57	PX	-5	-5	0	%100	Active
32	M58	PX	-5	-5	0	%100	Active
33	M70	PX	-5.2	-5.2	0	%100	Active
34	M72	PX	-5.2	-5.2	0	%100	Active
35	M67	PX	-5.2	-5.2	0	%100	Active
36	M65	PX	-5.2	-5.2	0	%100	Active
37	M68	PX	-5.2	-5.2	0	%100	Active
38	M71	PX	-5.2	-5.2	0	%100	Active



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

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [...]	Inactive [(lb, k-...
39	M66	PX	-5.2	-5.2	0	%100	Active
40	M69	PX	-5.2	-5.2	0	%100	Active

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

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [...]	Inactive [(lb, k-...
1	M32	Y	-4.7	-4.7	0	%100	Active
2	M29	Y	-4.7	-4.7	0	%100	Active
3	M16	Y	-4.7	-4.7	0	%100	Active
4	M43	Y	-4.7	-4.7	0	%100	Active
5	M30	Y	-4.7	-4.7	0	%100	Active
6	M4	Y	-4.7	-4.7	0	%100	Active
7	M3	Y	-4.7	-4.7	0	%100	Active
8	M31	Y	-4.7	-4.7	0	%100	Active
9	M46	Y	-4.7	-4.7	0	%100	Active
10	M2	Y	-4.7	-4.7	0	%100	Active
11	M15	Y	-4.7	-4.7	0	%100	Active
12	M18	Y	-4.7	-4.7	0	%100	Active
13	M1	Y	-4.7	-4.7	0	%100	Active
14	M17	Y	-4.7	-4.7	0	%100	Active
15	M45	Y	-4.7	-4.7	0	%100	Active
16	M44	Y	-4.7	-4.7	0	%100	Active
17	M60	PY	-5	-5	0	%100	Active
18	M61	PY	-5	-5	0	%100	Active
19	M63	PY	-5	-5	0	%100	Active
20	M62	PY	-5	-5	0	%100	Active
21	M6	PY	-5	-5	0	%100	Active
22	M34	PY	-5	-5	0	%100	Active
23	M5	PY	-5	-5	0	%100	Active
24	M47	PY	-5	-5	0	%100	Active
25	M20	PY	-5	-5	0	%100	Active
26	M64	PY	-5	-5	0	%100	Active
27	M19	PY	-5	-5	0	%100	Active
28	M59	PY	-5	-5	0	%100	Active
29	M33	PY	-5	-5	0	%100	Active
30	M48	PY	-5	-5	0	%100	Active
31	M57	PY	-5	-5	0	%100	Active
32	M58	PY	-5	-5	0	%100	Active
33	M70	PY	-5.2	-5.2	0	%100	Active
34	M72	PY	-5.2	-5.2	0	%100	Active
35	M67	PY	-5.2	-5.2	0	%100	Active
36	M65	PY	-5.2	-5.2	0	%100	Active
37	M68	PY	-5.2	-5.2	0	%100	Active
38	M71	PY	-5.2	-5.2	0	%100	Active
39	M66	PY	-5.2	-5.2	0	%100	Active
40	M69	PY	-5.2	-5.2	0	%100	Active

Load Combinations

	De...	So...	PD...	SR...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...
1	DL...	Yes	Y		1	1.2			3	1.6			
2	DL...	Yes	Y		1	1.2			3	1.3...	4	0.8	
3	DL...	Yes	Y		1	1.2			3	0.8	4	1.3...	
4	DL...	Yes	Y		1	1.2					4	1.6	
5	DL...	Yes	Y		1	1.2			3	-0.8	4	1.3...	
6	DL...	Yes	Y		1	1.2			3	-1....	4	0.8	
7	DL...	Yes	Y		1	1.2			3	-1.6			
8	DL...	Yes	Y		1	1.2			3	-1....	4	-0.8	
9	DL...	Yes	Y		1	1.2			3	-0.8	4	-1....	



Company : ProTerra/EFI
 Designer : AF
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Load Combinations (Continued)

De...	So...	PD...	SR...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...
10	DL...	Yes	Y	1	1.2			3	0.8	4	-1.6				
11	DL...	Yes	Y	1	1.2			3	0.8	4	-1.6				
12	DL...	Yes	Y	1	1.2			3	1.3	4	-0.8				
13	DL...	Yes	Y	1	1.2	2	1	5	1						
14	DL...	Yes	Y	1	1.2	2	1	5	0.8	6	0.5				
15	DL...	Yes	Y	1	1.2	2	1	5	0.5	6	0.8				
16	DL...	Yes	Y	1	1.2	2	1			6	1				
17	DL...	Yes	Y	1	1.2	2	1	5	-0.5	6	0.8				
18	DL...	Yes	Y	1	1.2	2	1	5	-0.5	6	0.5				
19	DL...	Yes	Y	1	1.2	2	1	5	-1						
20	DL...	Yes	Y	1	1.2	2	1	5	-0.5	6	-0.5				
21	DL...	Yes	Y	1	1.2	2	1	5	-0.5	6	-0.5				
22	DL...	Yes	Y	1	1.2	2	1			6	-1				
23	DL...	Yes	Y	1	1.2	2	1	5	0.5	6	-0.5				
24	DL...	Yes	Y	1	1.2	2	1	5	0.8	6	-0.5				
25	DE...	Yes	Y	1	1.2					7	1.5				
26	DE...	Yes	Y	1	1.2					8	1.5				
27	DE...	Yes	Y	1	1.2					9	1.5				
28	DL...	Yes	Y	1	1.2	10	1.5	3	0.1						
29	DL...	Yes	Y	1	1.2	11	1.5	3	0.1						
30	DL...	Yes	Y	1	1.2	12	1.5	3	0.1						
31	DL...	Yes	Y	1	1.2	13	1.5	3	0.1						
32	DL...	Yes	Y	1	1.2	10	1.5	4	0.1						
33	DL...	Yes	Y	1	1.2	11	1.5	4	0.1						
34	DL...	Yes	Y	1	1.2	12	1.5	4	0.1						
35	DL...	Yes	Y	1	1.2	13	1.5	4	0.1						
36	DL...	Yes	Y	1	1.2	10	1.5	3	-0.5						
37	DL...	Yes	Y	1	1.2	11	1.5	3	-0.5						
38	DL...	Yes	Y	1	1.2	12	1.5	3	-0.5						
39	DL...	Yes	Y	1	1.2	13	1.5	3	-0.5						
40	DL...	Yes	Y	1	1.2	10	1.5	4	-0.5						
41	DL...	Yes	Y	1	1.2	11	1.5	4	-0.5						
42	DL...	Yes	Y	1	1.2	12	1.5	4	-0.5						
43	DL...	Yes	Y	1	1.2	13	1.5	4	-0.5						
44	DL...	Yes	Y	1	1.2	14	1	16	1						
45	DL...	Yes	Y	1	1.2	15	1	16	1						

ATTACHMENT 7

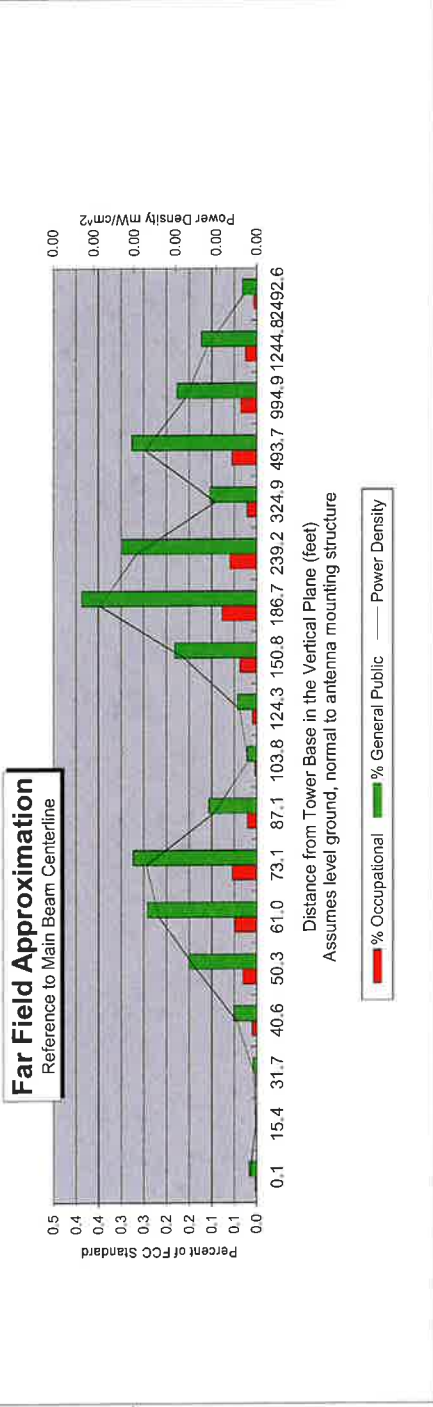
Far Field Approximation
with downtilt variation

**Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types**



Location:	East Hartford 10, CT
Site #:	
Date:	06/25/20
Name:	Mark Brauer
File Name:	EAST HARTFORD 10, CT - FF

Operating Freq. (MHz)	746.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	14.5
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	160.0
Number of channels:	1



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	87.0	88.4	92.6	96.0	100.5	106.2	113.6	123.1	135.4	151.7	174.1	206.0	254.5	336.3	501.3	998.7	1247.8	2494.1
Distance from Antenna Structure Base in Horizontal plane	0.1	15.4	31.7	40.6	50.3	61.0	73.1	87.1	103.8	124.3	150.8	186.7	239.2	324.9	493.7	994.9	1244.8	2492.6
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	31.96	39.61	35.13	26.28	21.15	18.61	17.51	20.91	27.16	23.07	15.56	10.82	10.14	12.3	4.57	0.5	0.18	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0
Percent of General Population Standard	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.1	0.0	0.0	0.2	0.4	0.3	0.1	0.3	0.2	0.1	0.0

Antenna Type NHH-65B
Max% 0.39%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Data, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Power Density (mW/cm^2).
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

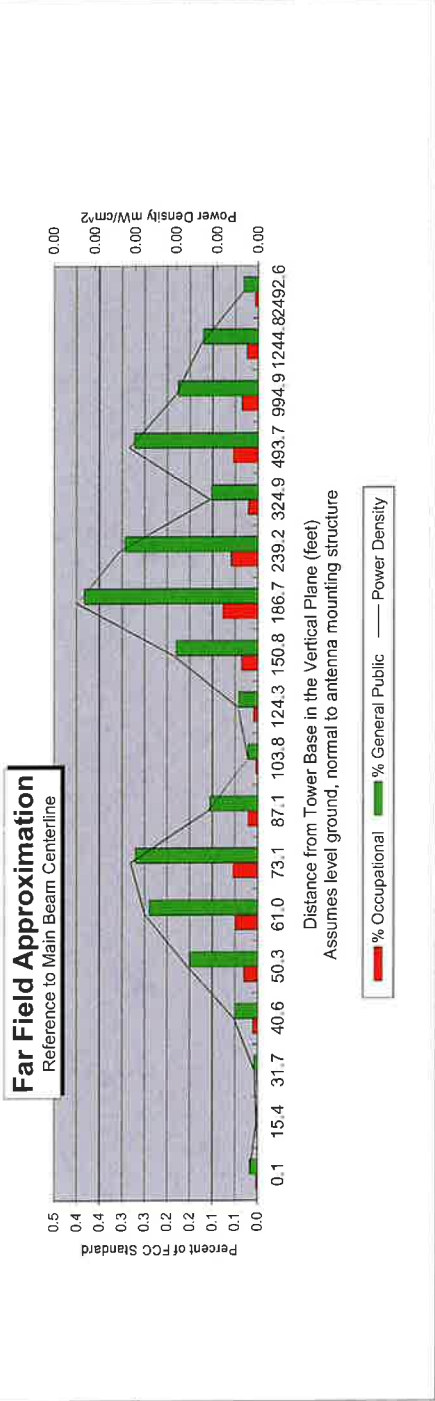
Far Field Approximation
with downtilt variation

**Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types**



Location:	East Hartford 10, CT
Site #:	
Date:	06/25/20
Name:	Mark Brauer
File Name:	EAST HARTFORD 10, CT - FF

Operating Freq. (MHz)	869.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	15.1
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	160.0
Number of channels:	1



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	87.0	88.4	92.6	96.0	100.5	106.2	113.6	123.1	135.4	151.7	174.1	206.0	254.5	336.3	501.3	998.7	1247.8	2494.1
Distance from Antenna Structure Base in Horizontal plane	0.1	15.4	31.7	40.6	50.3	61.0	73.1	87.1	103.8	124.3	150.8	186.7	239.2	324.9	493.7	994.9	1244.8	2492.6
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	31.96	39.61	35.13	26.28	21.15	18.61	17.51	20.91	27.16	23.07	15.56	10.82	10.14	12.3	4.57	0.5	0.18	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Percent of General Population Standard	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.1	0.0	0.0	0.2	0.4	0.3	0.1	0.3	0.2	0.1	0.0

Antenna Type NHH-65B
Max% 0.38%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Data, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Power.
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

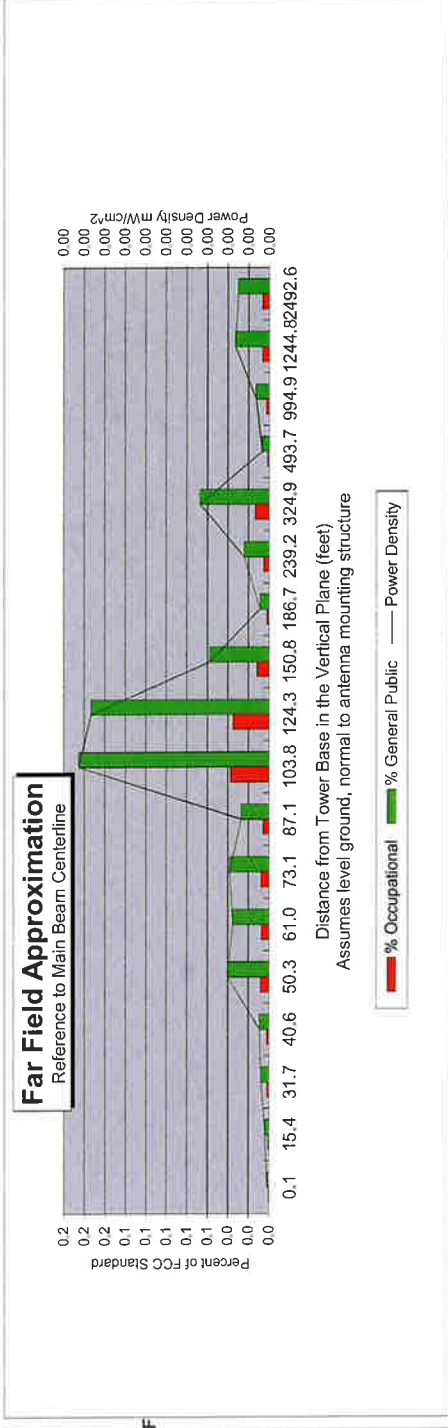
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types



Location:	East Hartford 10, CT
Site #:	
Date:	06/25/20
Name:	Mark Brauer
File Name:	EAST HARTFORD 10, CT - FF

Operating Freq. (MHz)	1970.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	17.9
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	180.0
Number of channels:	1



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	87.0	88.4	92.6	96.0	100.5	106.2	113.6	123.1	135.4	151.7	174.1	206.0	254.5	336.3	501.3	998.7	1247.8	2494.1
Distance from Antenna Structure Base in Horizontal plane	0.1	15.4	31.7	40.6	50.3	61.0	73.1	87.1	103.8	124.3	150.8	186.7	239.2	324.9	493.7	994.9	1244.8	2492.6
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	42.3	39	35.6	34.5	27.7	27.8	26.9	27.7	18.5	17.8	21.4	28.1	21.9	15	21.5	12.8	6.7	1.1
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent of General Population Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0

Antenna Type NHH-65B
Max% 0.19%

Instructions:

- 1) Fill in Site Location, Site number, Date, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBi to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Pov
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

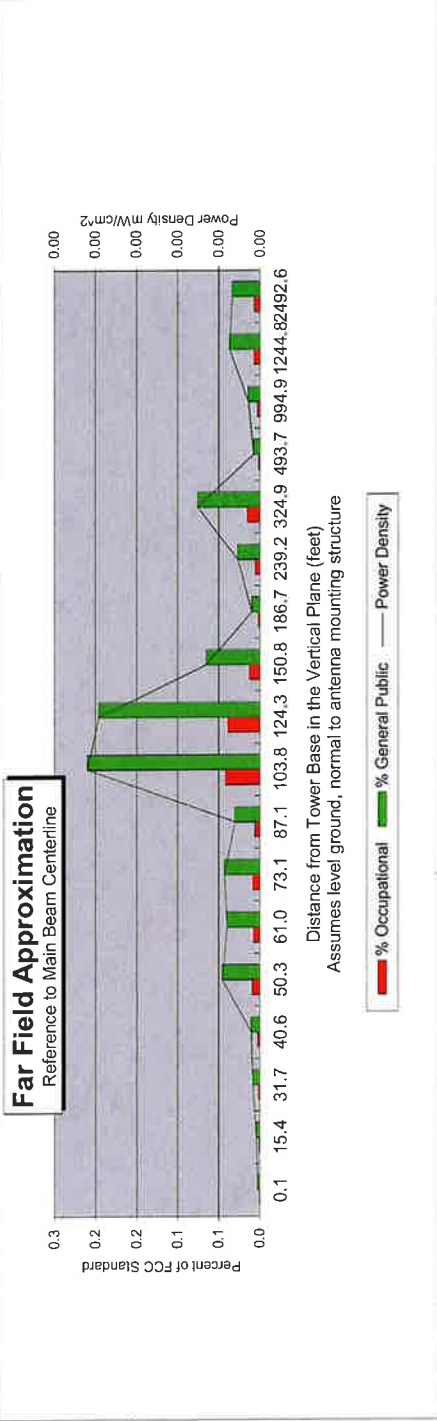
Far Field Approximation
with downtilt variation

**Estimated Radiated Emission
Single Emmitter Far Field Model
Dipole / Wire/ Yagi Antenna Types**



Location:	East Hartford 10, CT
Site #:	
Date:	06/25/20
Name:	Mark Brauer
File Name:	EAST HARTFORD 10, CT - FF

Operating Freq. (MHz)	2110.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	18.4
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	180.0
Number of channels:	1



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	87.0	88.4	92.6	96.0	100.5	106.2	113.6	123.1	135.4	151.7	174.1	206.0	254.5	336.3	501.3	998.7	1247.8	2494.1
Distance from Antenna Structure Base in Horizontal plane	0.1	15.4	31.7	40.6	50.3	61.0	73.1	87.1	103.8	124.3	150.8	186.7	239.2	324.9	493.7	994.9	1244.8	2492.6
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	42.3	39	35.6	34.5	27.7	27.8	26.9	27.7	18.5	17.8	21.4	28.1	21.9	15	21.5	12.8	6.7	1.1
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent of General Population Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0

Antenna Type NHHSS-65B
Max% 0.21%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dEd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Pov
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

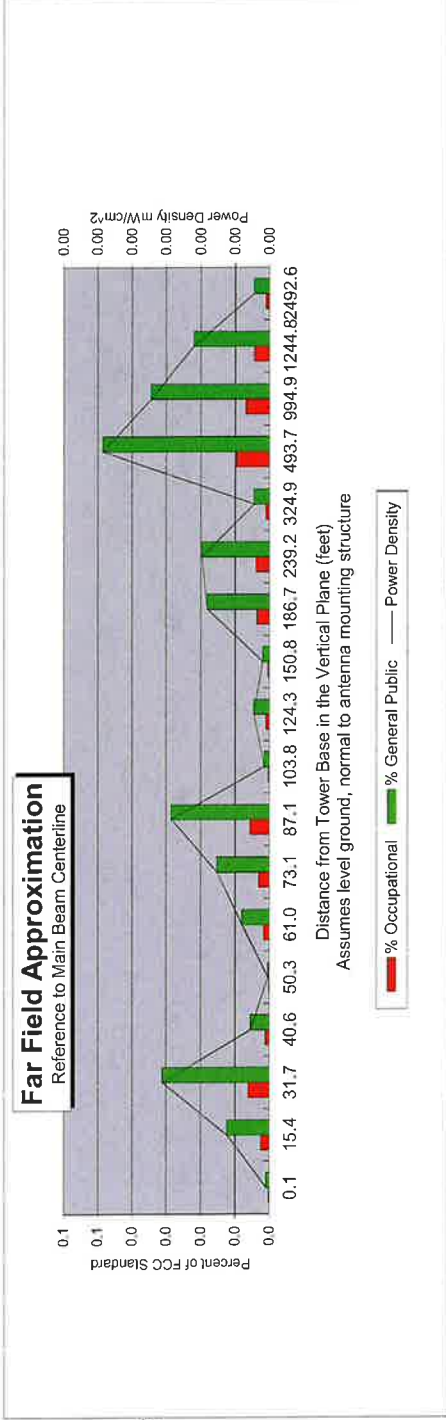
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types



Location:	EAST HARTFORD 10, CT
Site #:	
Date:	06/25/20
Name:	Mark Brauer
File Name:	EAST HARTFORD 10, CT - FF

Operating Freq. (MHz)	3660.0
Antenna Height (ft)	90.0
Antenna Gain (dBi)	15.0
Antenna Size (in.)	72.0
Downtilt (degrees)	0.0
Feedline Loss (dB)	0.0
Power @ J4 (w)	50.0
Number of channels:	1



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	87.0	88.4	92.6	96.0	100.5	106.2	113.6	123.1	135.4	151.7	174.1	206.0	254.5	336.3	501.3	998.7	1247.8	2494.1
Distance from Antenna Structure Base in Horizontal plane	0.1	15.4	31.7	40.6	50.3	61.0	73.1	87.1	103.8	124.3	150.8	186.7	239.2	324.9	493.7	994.9	1244.8	2492.6
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.9	25.5	21.1	28.3	39.6	25.8	22.4	19	30.9	25.1	27.6	16.5	14.3	18.3	4.5	0	0	0.9
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent of General Population Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Antenna Type NHSS-65B
Max% 0.05%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Power Density.
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

ATTACHMENT 8



Certificate of Mailing — Firm

Name and Address of Sender		TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here Postmark with Date of Receipt			
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103		3	3	neopost® 07/08/2020 US POSTAGE \$002.84 ZIP 06103 041L12203937			
Postmaster, per (name of receiving employee)		<i>Y.P.</i>					
USPS® Tracking Number Firm-specific Identifier		Address (Name, Street, City, State, and ZIP Code™)		Postage	Fee	Special Handling	Parcel Airlift
1.		Marcia A. Leclerc, Mayor Town of East Hartford 740 Main Street East Hartford, CT 06108					
2.		Jeffrey Cormier, Town Planner Town of East Hartford 740 Main Street East Hartford, CT 06108					
3.		Heidi K. McNamara, Trustee 465 Hills Street East Hartford, CT 06108					
4.							
5.							
6.							

