CROWN CASTLE

1 Cityplace Dr, Suite 490

Creve Coeur, MO 63141

Phone: (314) 513-0147

www.crowncastle.com

April 23, 2021

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

RE: **Notice of Exempt Modification for T-Mobile**
Crown Site ID# 800529; T-Mobile Site ID# CT116861
890 Evergreen Ave. Hamden, CT 06518
Latitude: 41.40666900/ Longitude: -72.90445400

Dear Ms. Bachman:

T-Mobile currently maintains three (3) antennas at the 104-foot mount on the existing 108-foot Silo Tower located at 890 Evergreen Ave. in Hamden. The property is owned by Conn Agricultural Expt Station and the Tower by Crown Castle. T-Mobile now intends to replace three (3) existing antennas and add three (3) new antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Planned Modifications:
Tower:

Remove and Replace:
(3) Commscope – SBNHH-1D65A Antennas **(REMOVE) –** (3) RFS APXVAA4L18_43-U-NA20 Antennas – **(REPLACE)**

Install New:
(3) Ericsson AIR6449 B41 Antennas
(3) Ericsson 4449 B71+B85 Radios
(3) Ericsson 4424 B25 Radios
(3) Ericsson 4415 B66A Radios
(6) 1 5/8" Hybrid Cables
(1) Antenna Mount

Remove:
(3) RFS/Celwave ATMAA1412D-1A20 TMAs
(3) Commscope – ATBT-BOTTOM-24V TMAs
(12) Coax Cables

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Ground:

Remove and Replace:
(1) PTS 8003 Cabinet **(REMOVE) -** (1) 6160 Site Support Cabinet (SSC) **(REPLACE)**
(1) AAV Cabinet **(REMOVE)** – (1) B160 Cabinet **(REPLACE)**

Install New:
(1) PSU 4813 Booster in 6160 SSC
(2) BB 6648 in 6160 SSC
(1) IXRE Router in 6160 SSC

Remove:
(3) 11 B12 RRUs

The facility was approved by the Town of Hamden Planning and Zoning Commission by way of Site Plan Application #00-1263 on September 9, 2001.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to Curt B. Leng, Mayor for the Town of Hamden, as well as William DeMatteo, Acting Building Official for the Town of Hamden. A copy will also be sent to the property owner.

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

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

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

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

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

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

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

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

Sincerely,

Colin Robinson

Colin Robinson
Project Manager
NETWORK BUILDING + CONSULTING
100 Apollo Drive Suite 303
Chelmsford, MA 01824
crobinson@nbcllc.com
(360) 561-3311

cc:

Curt B. Leng, Mayor *(via email only to cleng@hamden.com)*
Hamden Government Center
2750 Dixwell Avenue
Hamden, CT 06518
203-287-7100

William DeMatteo, Acting Building Official *(via email only to bdematteo@hamden.com)*
Hamden Government Center
2750 Dixwell Avenue
Hamden, CT 06518
203-287-7160

Conn Agricultural Expt Station *(Via email only to Michael.Last@Ct.Gov)*
890 Evergreen Ave
Hamden Ct 06518
(203) 974-8500

Colin Robinson

From: Colin Robinson
Sent: Friday, April 23, 2021 11:42 AM
To: cleng@hamden.com
Cc: Colin Robinson
Subject: CSC Exempt Modification Application 890 Evergreen Ave Hamden, CT 800529
Attachments: CSC Exempt Modification Application 890 Evergreen Ave Hamden, CT 800529 04232021.pdf

Good Morning Mayor Leng,

Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 890 Evergreen Ave Hamden, CT.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,

Colin

Colin Robinson
Project Manager
NETWORK BUILDING + CONSULTING
100 Apollo Drive | Suite 303 | Chelmsford, MA | 01824
M 360.561.3311

Colin Robinson

From: Colin Robinson
Sent: Friday, April 23, 2021 11:41 AM
To: 'Michael.Last@Ct.Gov'
Cc: Colin Robinson
Subject: CSC Exempt Modification Application 890 Evergreen Ave Hamden, CT 800529
Attachments: CSC Exempt Modification Application 890 Evergreen Ave Hamden, CT 800529 04232021.pdf

Good Morning Mr. Last,

Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 890 Evergreen Ave Hamden, CT. You are being notified as the property owner.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,

Colin

Colin Robinson
Project Manager
NETWORK BUILDING + CONSULTING
100 Apollo Drive | Suite 303 | Chelmsford, MA | 01824
M 360.561.3311

Colin Robinson

From: Colin Robinson
Sent: Friday, April 23, 2021 11:42 AM
To: bdematteo@hamden.com
Cc: Colin Robinson
Subject: CSC Exempt Modification Application 890 Evergreen Ave Hamden, CT 800529
Attachments: CSC Exempt Modification Application 890 Evergreen Ave Hamden, CT 800529 04232021.pdf

Good Morning Mr. DeMatteo,

Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 890 Evergreen Ave Hamden, CT.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,

Colin

Colin Robinson
Project Manager
NETWORK BUILDING + CONSULTING
100 Apollo Drive | Suite 303 | Chelmsford, MA | 01824
M 360.561.3311

Exhibit A

Original Facility Approval

TOWN OF HAMDEN

CONNECTICUT

BOND RELEASE RECOMMENDATION/ACTION

MEMO TO: Planning & Zoning Commission

FROM: Joseph J. Venditto, Zoning Enforcement Officer

DATE: March 7, 2002

RE: Bond Release

ADDRESS: 890 Evergreen Ave

PROJECT: Site Plan 00-1263

TOTAL BOND AMOUNT:	Present Amt.	Recommendation Amt. to Retain
Site Work	13,527.	0
Right of Way	0.	0
Subtotal	13,527.	0
Other 10%	1,473.	0
TOTAL	15,000.	0

Bond total covers all items listed or not listed. Categories are for estimation purposes only.

Comments: All Site Work Complete. Bond Release Can Be Recommended.

$60.00 FEE

#_____

TOWN OF HAMDEN
APPLICATION FOR CERTIFICATE OF ZONING COMPLIANCE

Property Address 890 EVERGREEN ~~AVE~~ PARK Zoning District R-4 CELL (860) 306-0337

Property Owner CROWN CASTLE NEW ENGLAND LLC Phone # (860) 657-1563

Property Owner Address 703 HARTFORD AVE, GLASTONBURY, CT 06033

Type of Zoning Permit: CONNECTICUT SITING COUNCIL

I certify that the work required has been completed in accordance with approved plans except as noted on attached asbuilt drawing.

Applicant Signature _____ Date 8-26-02
Owner/Agent

PRINTED NAME WILLIAM G WATSON - JR

ADDRESS 703 HARTFORD AVE, GLASTONBURY, CT 06033

TELEPHONE # (860) 657-1563 FAX # (860) 633-7078

Certificate #_____

Certificate of Zoning Compliance

Zoning Enforcement Officer Findings, based upon inspection of MARCH 5, 2002

Unconditional [X] Meets all requirements

Conditional [ ] See list below

Following is a list of requirements determined from inspection which while not yet complete do not adversely affect use/occupancy of the premises and for which sufficient security is being held:

Signed _____ Date 3/5/02
Zoning Enforcement Officer

This is not a Certificate of Occupancy under the Building Code

RECEIVED
TOWN OF HAMDEN
2002
PLANNING AND ZONING DEPT.

Rev 08/1601

CROWN INTERNATIONAL

Crown Castle Atlantic LLC
Northeast Region
703 Hebron Avenue, 2nd Floor
Glastonbury, CT 06033

Tel 860 633.9369
Fax 860 633.7078
www.crowncastle.com

February 25, 2002

Mr. Joseph J. Venditto
Town of Hamden
2372 Whitney Avenue
Hamden, CT 06518

Re: Hamden Telecommunications Facility
CT Agricultural Station
Hamden, CT

Dear Mr. Venditto,

Please find enclosed two (2) stamped original as built drawings for the referenced Telecommunications facility.

Also enclosed is a copy of a letter dated January 11, 2002 from Mr. Roberts of URS Corporation the A&E firm of record for this project addressing the Bollard issue.

I am requesting that a Certificate of Zoning Compliance be issued for this project.

If you have any questions and/or need any additional information please do not hesitate to call. If I'm not in the office you can reach me on my cell phone (860) 306-0337.

Sincerely,
Crown Atlantic Company.LLC

William W. Watson
Project Manager

WWW:www

TOWN OF HAMDEN

CONNECTICUT

Draft Minutes subject to Commission approval

MINUTES: ZONING SECTION, Planning & Zoning Commission, Town of Hamden, held a Public Hearing and Regular Meeting on Tuesday, September 25, 2001 and the following were reviewed:

Commissioners in Attendance:	Mr. Crocco Mr. Del Vecchio Mr. Sims Mr. Cesare, (for Mr. Vegliante) Ms. Woodward, (for Ms. Benevides)
Staff in Attendance:	Mr. O'Brien, Town Planner Mr. Lee, Town Attorney Ms. Raccio, Stenographer Ms. Gaiolini, Clerk

Mr. Del Vecchio opened the Regular Meeting at 7:10 p.m. He introduced the Commission, and staff and gave an overview of the procedures for the evening.

A. Regular Meeting

1. Site Plan/WS 01-1308
   72 Crest Way, Lot #12
   Office/Storage
   Robert Massaro, Applicant
   Deadline: October 18, 2001

Bernard Wright, 71 Charnes Dr., East Haven, CT. Will answer any questions the Commission may have.

Mr. O'Brien stated this had been submitted several months back. There were questions from the Town Engineer, those questions have since been answered & incorporated on the map. Mr. Savarese's letter dated 9/20/01 states the plan is now satisfactory to his department. The comments from December 18th have been addressed. RWA comments dated 9/17/01. The comment on slope stabilization has already been discussed.

Mr. Del Vecchio said item #3 (stabilization) will be taken care of, it has already been discussed with the applicant. Mr. O'Brien noted the parking lot is not paved but crushed stone. Sometimes that is better with respect to drainage. Mr. Del Vecchio read the RWA letter. Mr. Wright said there are 3 dry wells to retain and also take any water coming down the slope. Also provided pipe from dry well to dry well so if 1 fills up it drains into next one. No heavy equipment to speak of. Mr. Crocco questioned location of parking and catch basins. 2 in the crushed stone part and 1 in the black top (the front is black top). Mr. Del Vecchio asked if Mr. Wright had reviewed the Town Planner's recommendations. Mr. Wright answered yes, noting the erosion and sediment control will be in place and iron pins set at a later date. As built site plan to Al Savarese. Will post bond after permit issued. Dumpster to the rear of the building. They don't need it because all they have is office space, but if required by the Town, they will provide. Mr. Crocco questioned the warehouse itself, above the office - you're not asking for storage on top? Mr. Wright answered, not right now. Mr. Crocco also asked Mr. O'Brien for clarification on the placing of corner pins & bond releases.

Mr. Sims motions to approve 01-1308 with the recommendations of the Town Planner:

- Parking location and handicapped parking to be approved by Town Planner
- Dumpster location to be approved by Town Planner
- Submit slope stabilization plan to Town Planner & Town Engineer
- Erosion sediment controls installed prior to beginning of construction
- RWA recommendations of letter dated 9/17/01 to be incorporated
- Iron pins to be set
- No outdoor storage
- Post bond prior to zoning permit

Mr. Cesare seconds. Unanimous. **APPROVED.**

B. Informational

Mr. Del Vecchio noted Item B is Informational. There is actually no action being taken on either of these 2 items. These are administrative bond releases. This Commission has voted and given the Town Planner the authority to release up to $15,000.00. Both released per Roger O'Brien.

1. Site Plan 00-1263
   890 Evergreen Ave./Rockwood Farms
   Administrative Bond Release $15,000.00
   Requested by Crown Castle

2. Site Plan 01-1307
   88 Mulberry Hill Rd.
   Single Family Lot
   Bond Release $2,200.00
   Requested by Joan Wagner

C. Approval of Minutes

1. Approve Minutes of June 26, 2001 Regular Meeting. (Mr. Sims, Mr. Crocco & Mr. Del Vecchio were present at that meeting and can vote). Mr. Crocco motions to approve as written. Mr. Sims seconds. **APPROVED.**

2. Approve Minutes of July 24, 2001 Regular Meeting. Mr. Sims motions to approve as written. Mr. Crocco seconds. **APPROVED.**

Ms. Woodward motions to adjourn. Mr. Cesare seconds. Closed at 7:30 p.m.

Submitted by: Deborah Gaiolini, Clerk

Exhibit B

Property Card

890 EVERGREEN AVE

Location	890 EVERGREEN AVE	**Mblu**	2930/ 081/ 01/ /
Acct#		**Owner**	CONN AGRICULURAL EXPT STATION
Assessment	$201,390	**Appraisal**	$302,700
PID	123443	**Building Count**	1

Current Value

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2020	$137,700	$0	$0	$165,000	$302,700
Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2020	$96,390	$0	$0	$105,000	$201,390

Owner of Record

Owner	CONN AGRICULURAL EXPT STATION	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	890 EVERGREEN AVE HAMDEN, CT 06518	**Book & Page**	64/ 135
		Sale Date	01/04/1911

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
CONN AGRICULURAL EXPT STATION	$0		64/ 135	01/04/1911

Building Information

Building 1 : Section 1

Year Built: 2000
Living Area: 1,473
Building Percent Good: 86

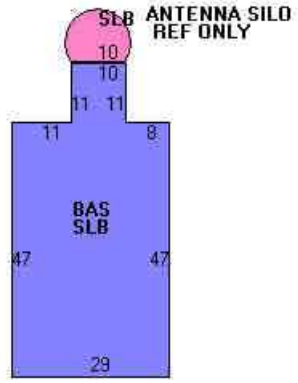
Building Attributes	
Field	**Description**
STYLE	Telephone Bldg

MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	RAD/TV TR M96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	4330
Heat/AC	HEAT/AC SPLIT
Frame Type	MASONRY
Baths/Plumbing	NONE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	10
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/HamdenCTPhotos//\00\02\79/86.jpg)

Building Layout



(http://images.vgsi.com/photos/HamdenCTPhotos//Sketches/123443_2243

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,473	1,473
SLB	Slab	1,527	0
		3,000	1,473

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 4310
Description TEL REL TW M96

Land Line Valuation

Size (Acres) 0
Frontage

Zone	R4	**Depth**	
Neighborhood	110	**Assessed Value**	$105,000
Alt Land Appr	No	**Appraised Value**	$165,000
Category			

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2019	$125,600	$0	$0	$165,000	$290,600
2018	$125,600	$0	$0	$165,000	$290,600
2017	$125,600	$0	$0	$165,000	$290,600

Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2019	$87,920	$0	$0	$105,000	$192,920
2018	$87,920	$0	$0	$105,000	$192,920
2017	$87,920	$0	$0	$105,000	$192,920

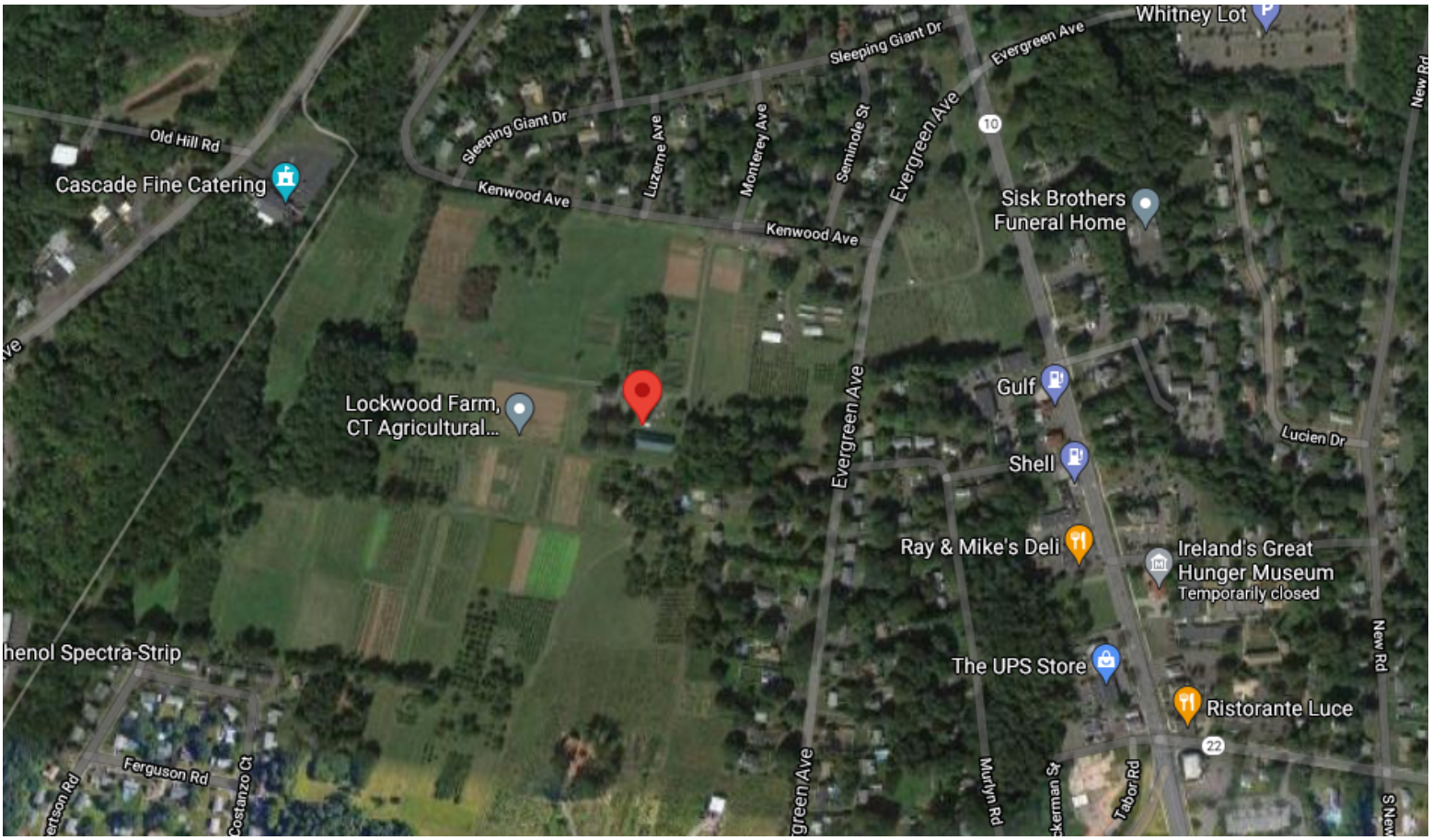

Whitney Lot
Sleeping Giant Dr
Evergreen Ave
Old Hill Rd
Cascade Fine Catering
Sleeping Giant Dr
Luzerne Ave
Monterey Ave
Seminole St
Evergreen Ave
10
Kenwood Ave
Kenwood Ave
Sisk Brothers Funeral Home
Lockwood Farm, CT Agricultural...
Gulf
Evergreen Ave
Lucien Dr
Shell
Ray & Mike's Deli
Ireland's Great Hunger Museum
Temporarily closed
henol Spectra-Strip
The UPS Store
New Rd
Ristorante Luce
22
Ferguson Rd
Murlyn Rd
Tabor Rd

Exhibit C

Construction Drawings

T-Mobile

T-MOBILE SITE NUMBER: CT11686I
T-MOBILE SITE NAME: CROWN COMM. -HAMDEN
SITE TYPE: TALL SILO
TOWER HEIGHT: 108'-0"

BUSINESS UNIT #: 800529
SITE ADDRESS: 890 EVERGREEN AVENUE HAMDEN, CT 06518
COUNTY: NEW HAVEN
JURISDICTION: TOWN OF HAMDEN

T-MOBILE ANCHOR SITE CONFIGURATION: 67D5998C_1XAIR+1QP+1OP (U21 MARKET)

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	CT HAMDEN NORTH CAC
SITE ADDRESS:	890 EVERGREEN AVENUE HAMDEN, CT 06518
COUNTY:	NEW HAVEN
MAP/PARCEL #:	2930-081-00-0000
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.40666900° (41° 24' 23.90")
LONGITUDE:	-72.90445400° (-72° 54' 16.32")
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	194 FT
CURRENT ZONING:	RF
JURISDICTION:	TOWN OF HAMDEN
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	CONN AGRICULTURAL EXPT STATION 890 EVERGREEN AVENUE HAMBEN, CT 06518
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	TBD --
TELCO PROVIDER:	TBD --

PROJECT TEAM

A&E FIRM:	INFINIGY 1033 WATERVLIET SHAKER RD. ALBANY, NY 12205
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1500 CORPORATE DRIVE CANONSBURG, PA 15317
	TRICIA PELON - PROJECT MANAGER (518) 373-3507
	JASON D'AMICO - CONSTRUCTION MANAGER (860) 209-0104

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA LAYOUT
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
C-6	EQUIPMENT SPECS
C-7	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR ----. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

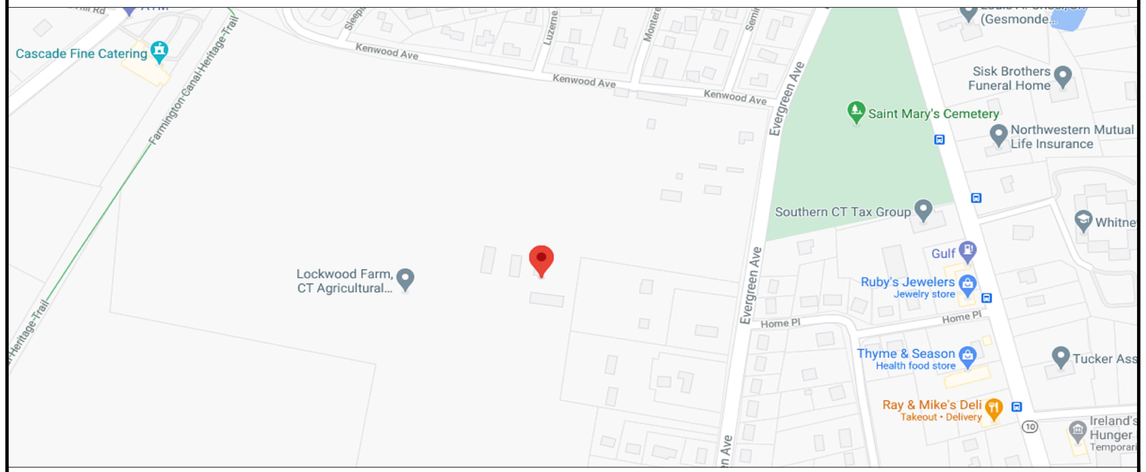
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (3) ANTENNAS
- REMOVE (6) TMAs
- REMOVE (12) COAX CABLES
- INSTALL (6) ANTENNAS
- INSTALL (9) RRHs
- INSTALL (6) HYBRID CABLES

GROUND SCOPE OF WORK:
- REMOVE (1) AAV & (1) PTS 8003 CABINET
- REMOVE (3) RRHs
- INSTALL (1) 6160 & (1) B160 BATTERY CABINETS
- INSTALL (1) PSU4813 BOOSTER IN (P) CABINET
- INSTALL (2) BB6648 IN (P) CABINET
- INSTALL (1) IXRE ROUTER IN (P) CABINET

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2018 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: DATED:	BY OTHERS
MOUNT ANALYSIS: DATED:	INFINIGY ENGINEERING, PLLC 03/04/2021
RFDS REVISION: DATED:	3 02/03/2021
ORDER ID: REVISION:	529728 0

CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS BEFORE YOU DIG!

APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.		
LAND USE PLANNER		
T-MOBILE		
OPERATIONS		
RF		
NETWORK		
BACKHAUL		
CONSTRUCTION MANAGER		

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11686I

BU #: **800529**
CT HAMDEN NORTH CAC

890 EVERGREEN AVENUE
HAMDEN, CT 06518

EXISTING 108'-0" TALL SILO

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	04/08/2021	RCD	FINAL	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
4/8/21

SHEET NUMBER: T-1
REVISION: A

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T–MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER.......40 ksi
   #5 BARS AND LARGER.......60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.......3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER.......2"
   #5 BARS AND SMALLER.......1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS.......3/4"
   BEAMS AND COLUMNS.......1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

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T-MOBILE SITE NUMBER:
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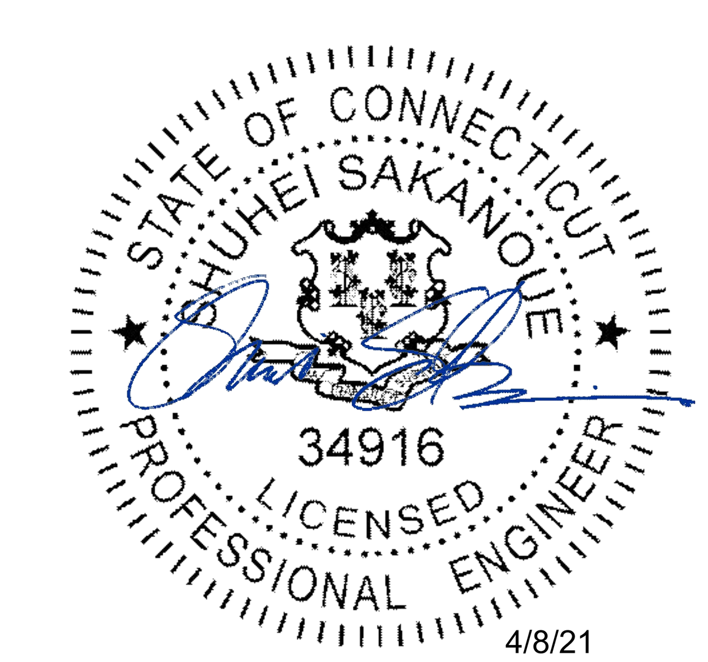
BU #: **800529**
CT HAMDEN NORTH CAC

890 EVERGREEN AVENUE
HAMDEN, CT 06518

EXISTING 108'-0" TALL SILO

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	04/08/2021	RCD	FINAL	SS



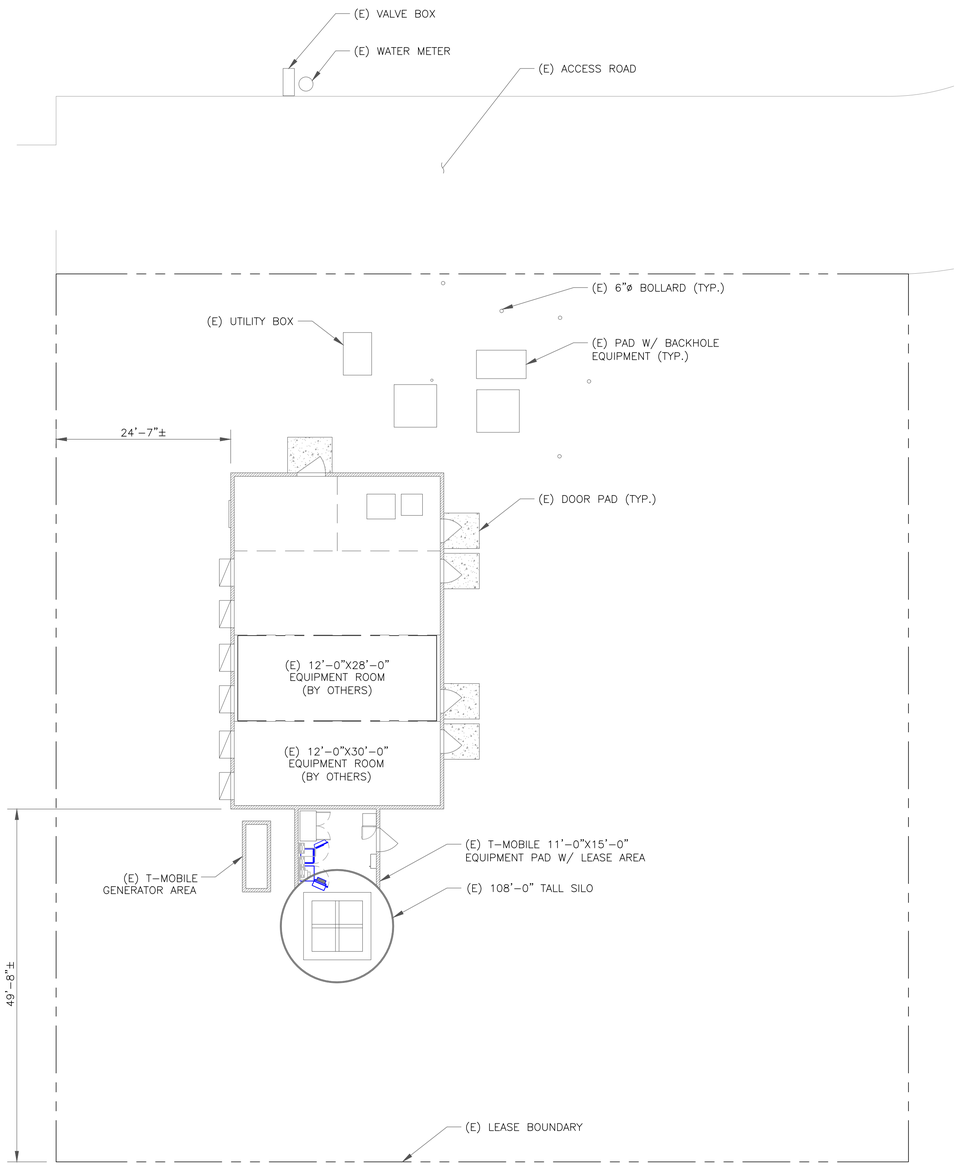
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: **T-2**

REVISION: **A**

NOTE:

1. PLANS BASED ON SITE PLAN PROVIDED BY TOWER OWNER AND SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING T–MOBILE EQUIPMENT.

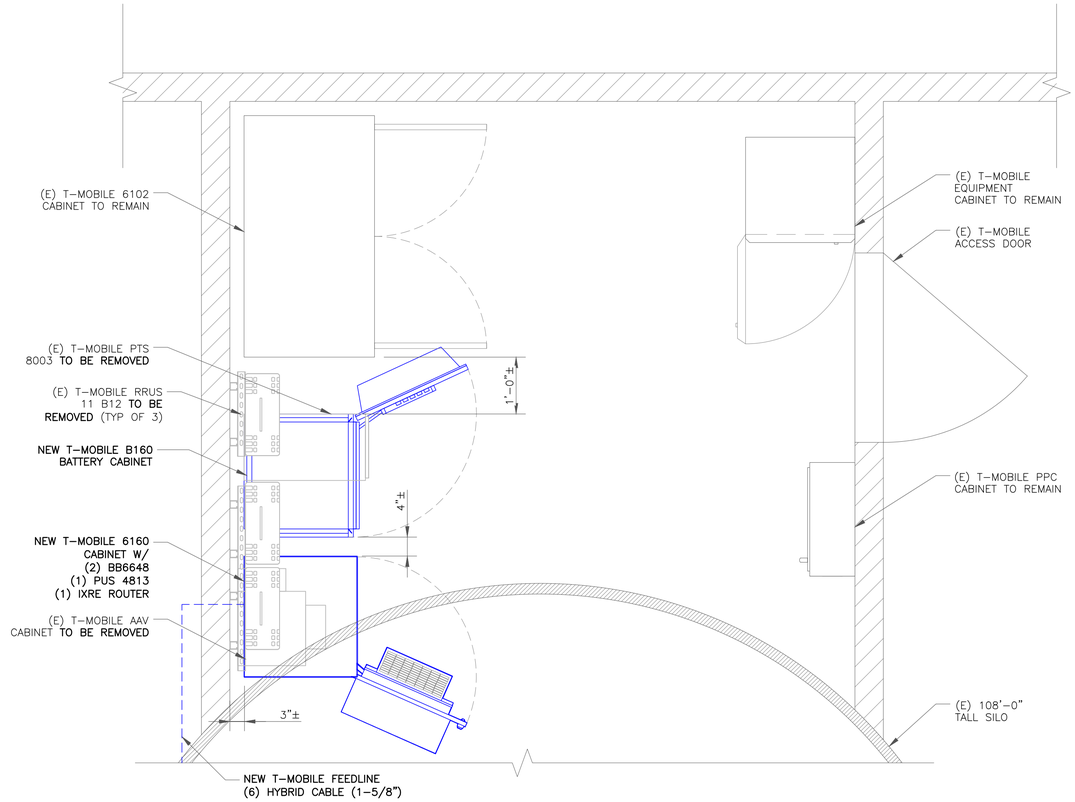


1 SITE PLAN
SCALE: 4' 2' 0 4' 3/16"=1'–0" (FULL SIZE) 3/32"=1'–0" (11x17)

N

NOTES:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T–MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



2 ENLARGED SITE PLAN
SCALE: 2' 1' 0 2' 1/2"=1'–0" (FULL SIZE) 1/4"=1'–0" (11x17)

N

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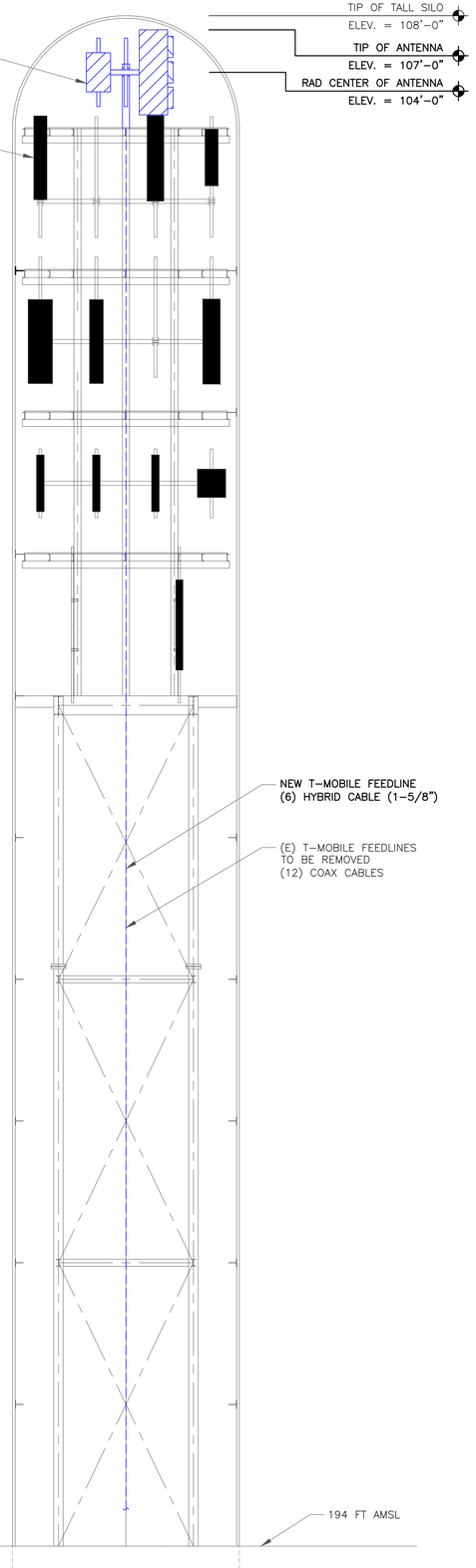
STATE OF CONNECTICUT
SUHEI SAKANO
34916
LICENSED PROFESSIONAL ENGINEER
4/8/21

SHEET NUMBER: C-1

REVISION: A



NOTES:

1. ELEVATION BASED ON DRAWING PROVIDED BY TOWER OWNER. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.
2. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.

T-MOBILE EQUIPMENT

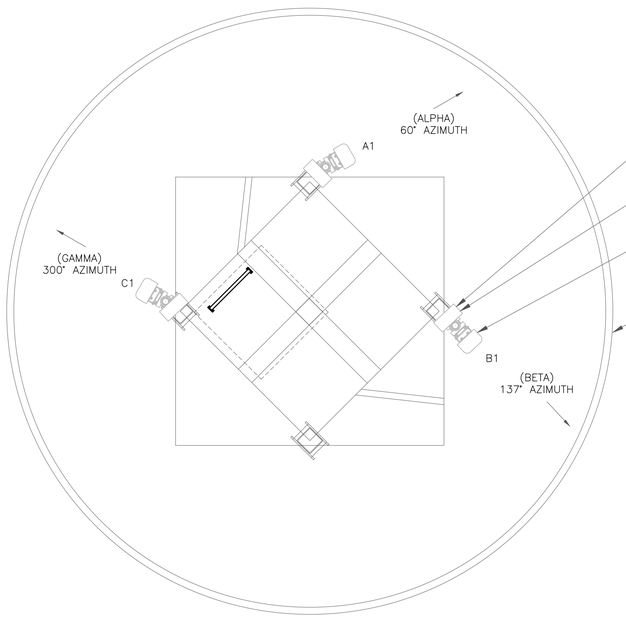
ANTENNA CL: 104'-0"
MOUNT CL: 100-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

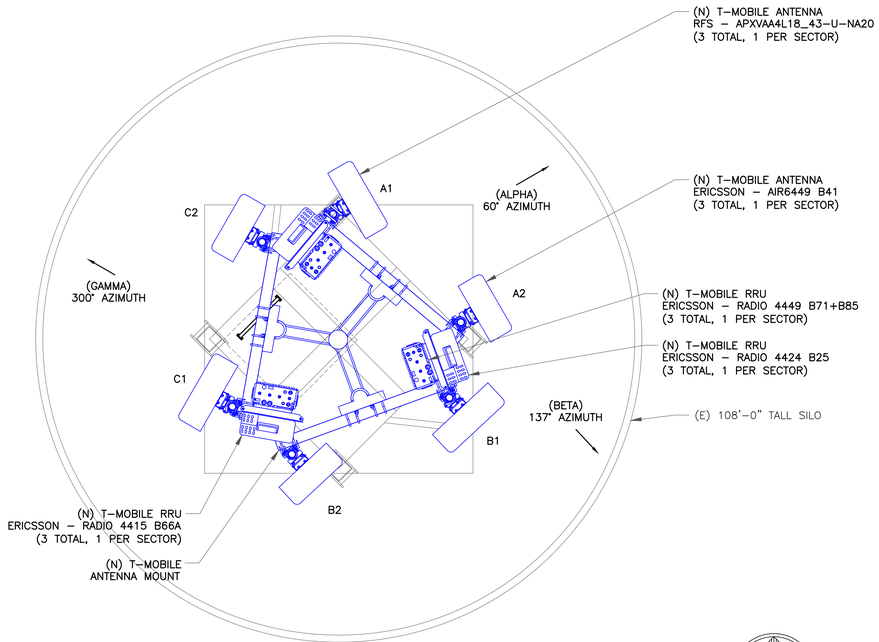
1 FINAL ELEVATION
SCALE: NOT TO SCALE

NOTE:
A STRUCTURAL EVALUATION OF THE T-MOBILE ANTENNA MOUNTS HAS BEEN PERFORMED BY IKIMLEY-HORN AND ASSOCIATES, INC. REFER TO ANTENNA MOUNT STRUCTURAL ANALYSIS DATED 01-20-2021 PRIOR TO CONSTRUCTION.

INFINIGY HAS NOT EVALUATED THE TOWER FOR THIS SITE AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. CONTRACTOR TO COORDINATE LOADING WITH RF ENGINEER. REFER TO STRUCTURAL ANALYSIS PERFORMED BY OTHERS PRIOR TO CONSTRUCTION.



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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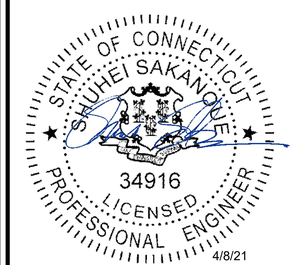


SHEET NUMBER: C-2

REVISION: A

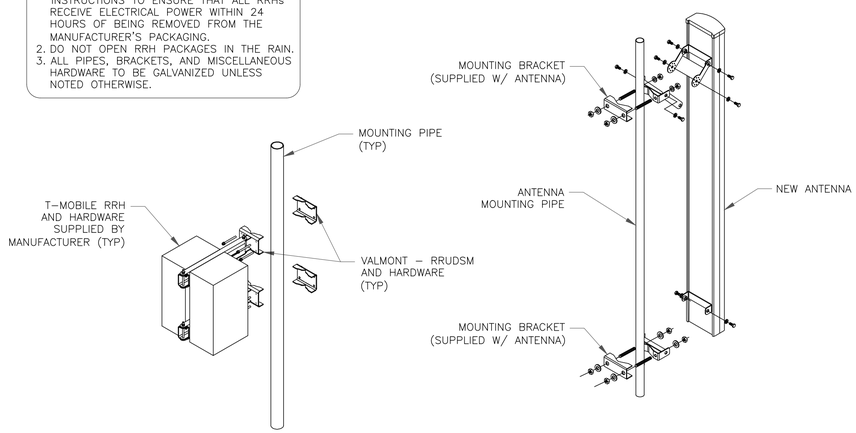
ANTENNA SCHEDULE

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	L700, L600, N600, L1900, G1900, L2100	104'-0"	60°	RFS	APXVAA4L18_43-U-NA20	0°	4°/4°/4° 4°/4°/4°	(1) ERICSSON – RRUS 4449 B71+B85 (1) ERICSSON – RRUS 4424 B25 (1) ERICSSON – RRUS 4415 B66A	(1) 6X12 HCS HYBRID
ALPHA	--	--	--	--	--	--	--	--	--	--
ALPHA	A2	L2500, N2500	104'-0"	60°	ERICSSON	AIR6449 B41	0°	4°/4°	--	(1) 6X12 HCS HYBRID
BETA	B1	L700, L600, N600, L1900, G1900, L2100	104'-0"	137°	RFS	APXVAA4L18_43-U-NA20	0°	4°/4°/4° 4°/4°/4°	(1) ERICSSON – RRUS 4449 B71+B85 (1) ERICSSON – RRUS 4424 B25 (1) ERICSSON – RRUS 4415 B66A	(1) 6X12 HCS HYBRID
BETA	--	--	--	--	--	--	--	--	--	--
BETA	B2	L2500, N2500	104'-0"	137°	ERICSSON	AIR6449 B41	0°	4°/4°	--	(1) 6X12 HCS HYBRID
GAMMA	C1	L700, L600, N600, L1900, G1900, L2100	104'-0"	300°	RFS	APXVAA4L18_43-U-NA20	0°	4°/4°/4° 4°/4°/4°	(1) ERICSSON – RRUS 4449 B71+B85 (1) ERICSSON – RRUS 4424 B25 (1) ERICSSON – RRUS 4415 B66A	(1) 6X12 HCS HYBRID
GAMMA	--	--	--	--	--	--	--	--	--	--
GAMMA	C2	L2500, N2500	104'-0"	300°	ERICSSON	AIR6449 B41	0°	4°/4°	--	(1) 6X12 HCS HYBRID

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

NOTE:

1. CONTRACTOR SHALL INSTALL 3RD DUAL RRH MOUNT TO ACCOMMODATE ALL RRH BRACKETS HOLES IF NECESSARY.

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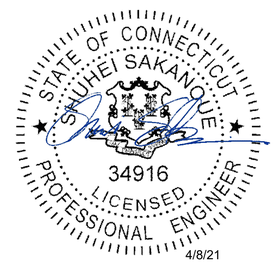
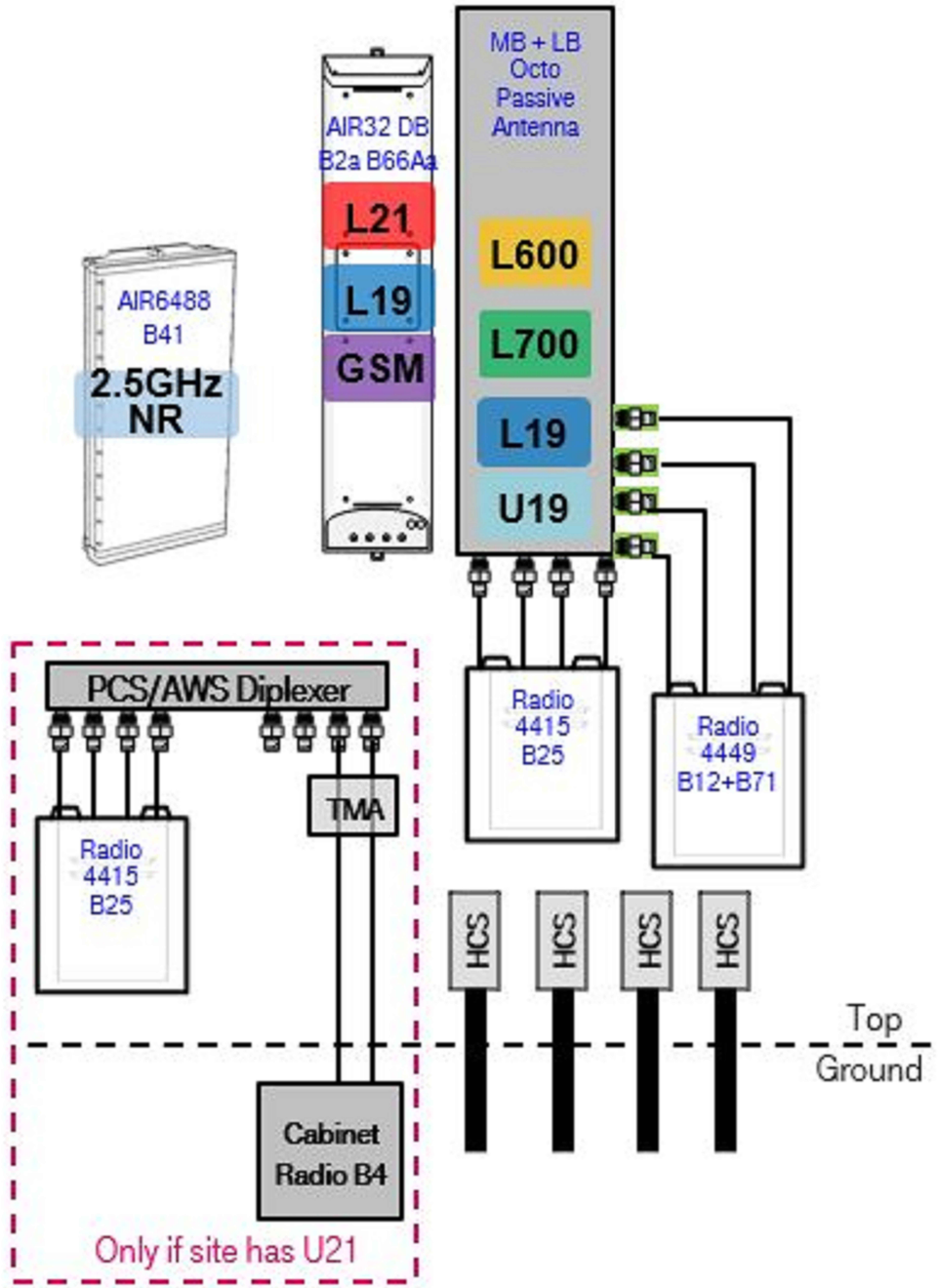


SHEET NUMBER: C-3

REVISION: A



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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EXISTING 108'-0" TALL SILO

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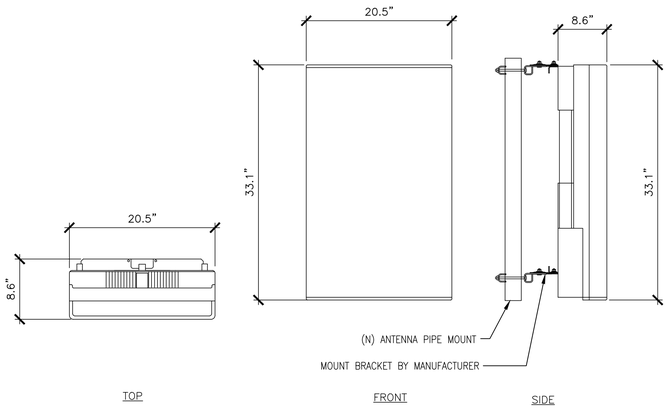
STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
4/8/21

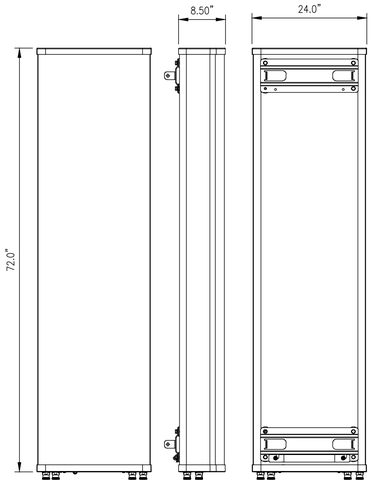
SHEET NUMBER: C-4
REVISION: A

MANUFACTURER: ERICSSON
MODEL: AIR6449 B41
WEIGHT: 104 LBS (W/ MOUNT BRACKET 113)
DIMENSIONS: 33.1"H. X 20.5"W. X 8.6"D.
FREQUENCY: REFER TO RF DATA SHEET

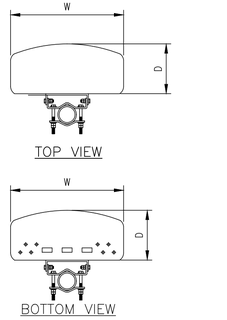


1 (N) AIR6449 B41 ANTENNA SPEC
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE



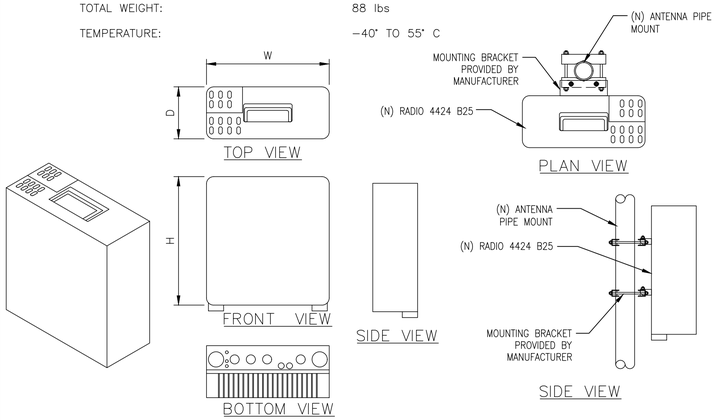
700MHz RFS ANTENNAS	
MODEL	WEIGHT (lb)
(6') APXVAA4L18_43-UNA20_NA20	131.30
WEIGHT W/ MOUNTING BRACKET (lb):	154



3 (N) APXVAA4L18_43-U-NA20 ANTENNA SPEC
SCALE: NOT TO SCALE

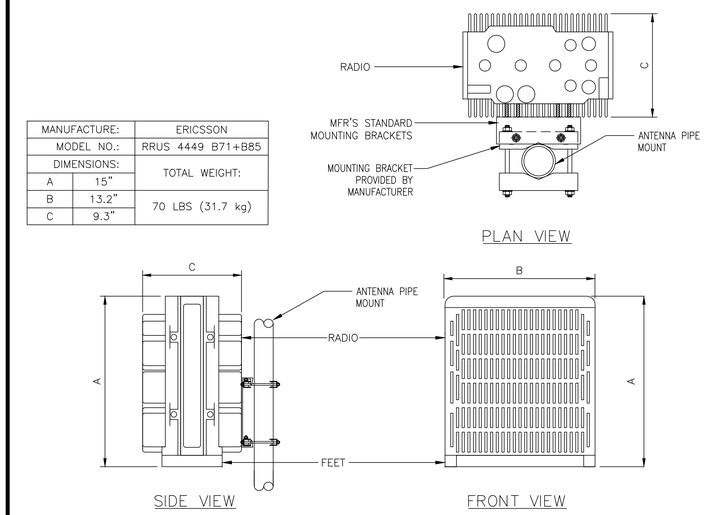
ERICSSON RADIO-4424 B25

DIMENSIONS, WxDxH:	13.5"x9.6"x16.5"
MAX OUTPUT POWER:	4x80W (2x(2x80W))
TOTAL WEIGHT:	88 lbs
TEMPERATURE:	-40° TO 55° C



4 (N) RADIO 4424 B25 SPEC
SCALE: NOT TO SCALE

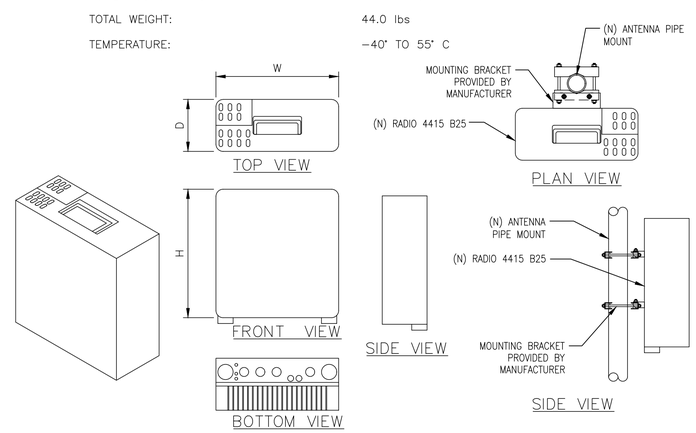
MANUFACTURE:	ERICSSON	
MODEL NO.:	RRUS 4449 B71+B85	
DIMENSIONS:		TOTAL WEIGHT:
A	15"	
B	13.2"	70 LBS (31.7 kg)
C	9.3"	



5 (N) RADIO 4449 B71+B85 SPEC
SCALE: NOT TO SCALE

ERICSSON RADIO-4415 B66A

DIMENSIONS, WxDxH:	13.19"x5.39"x14.96"
POWER CONSUMPTION:	660 WATTS
TOTAL WEIGHT:	44.0 lbs
TEMPERATURE:	-40° TO 55° C



6 (N) RADIO 4415 B66A SPEC
SCALE: NOT TO SCALE

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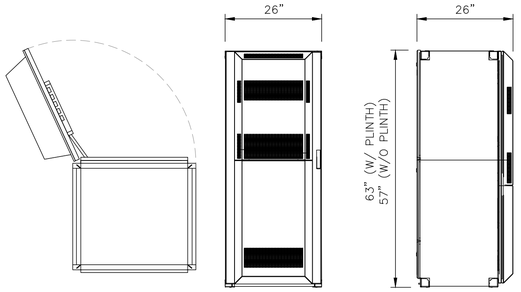
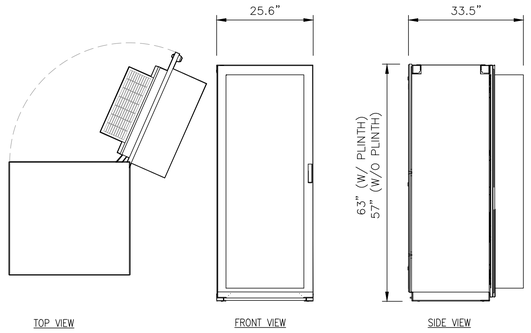
STATE OF CONNECTICUT
SATHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
4/8/21

SHEET NUMBER: C-5
REVISION: A



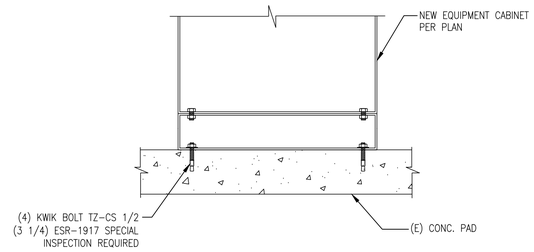
ERICSSON MODEL NO.:	B160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x26"x26" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	485 LBS
MAXIMUM WEIGHT:	2100± LBS

1 (N) B160 CABINET DETAIL
SCALE: NOT TO SCALE



ERICSSON MODEL NO.:	6160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x25.6"x25.6" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	410 LBS
MAXIMUM WEIGHT:	770± LBS

2 (N) 6160 CABINET DETAIL
SCALE: NOT TO SCALE



3 (N) EQUIPMENT CABINET MOUNTING DETAIL
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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STATE OF CONNECTICUT
CHUHEI SAKAMOTO III
34916
LICENSED PROFESSIONAL ENGINEER
4/8/21

SHEET NUMBER: C-6
REVISION: A

T-MOBILE PANEL SCHEDULE

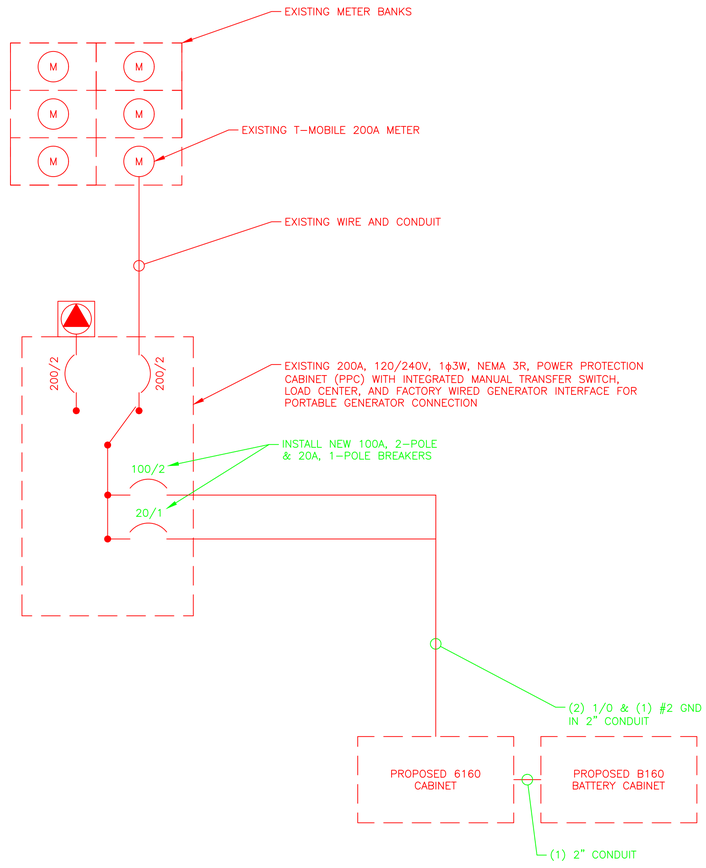
MAIN: 200A MAIN BREAKER			**VOTAGE/PHASE:** 120/240V, 1-PHASE, 3-WIRE						**SHORT CIRCUIT CURRENT RATING:** --		
MOUNTING: INSIDE PPC ENCLOSURE			**ENCLOSURE:** NEMA 3R						**SURGE PROTECTION DEVICE:** YES		
					PHASE LOADS (VA)						
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	A	B	CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
6160**	**7000**	**C**	**100**	**1**	14200		2	100	NC	insert	Not Labeled
	7000	**C**		**3**		7180	**4**	**20**	**NC**	**180**	**6160 GFI****
Blank				5			6			0	Blank
				7			8				
				9			10				
				11			12				
				13			14				
				15			16				
BASE LOAD (VA) =					14200	7180					
25% OF CONTINUOUS LOAD (VA) =					3550	1795					
TOTAL LOAD (VA) =					17750	8975					
TOTAL LOAD (A) =					147.9	74.8					

C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD
*INDICATES NEW LOAD. ALL OTHER LOADS ARE EXISTING.
NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS FOR EQUIPMENT CABINETS THEREFORE THE CABINET LOADS SHOWN ARE ESTIMATED

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
2000 CORPORATE DRIVE
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T-MOBILE SITE NUMBER:
CT11686I

BU #: **800529**
CT HAMDEN NORTH CAC

890 EVERGREEN AVENUE
HAMDEN, CT 06518

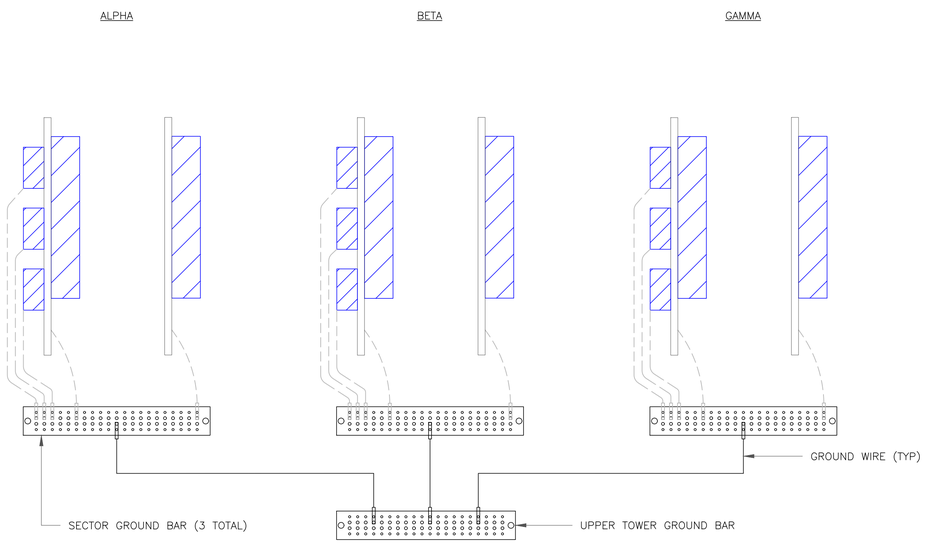
EXISTING 108'-0" TALL SILO

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	04/08/2021	RCD	FINAL	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
4/8/21

SHEET NUMBER: E-1
REVISION: A



NOTE:

ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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BU #: **800529**
CT HAMDEN NORTH CAC

890 EVERGREEN AVENUE
HAMDEN, CT 06518

EXISTING 108'-0" TALL SILO

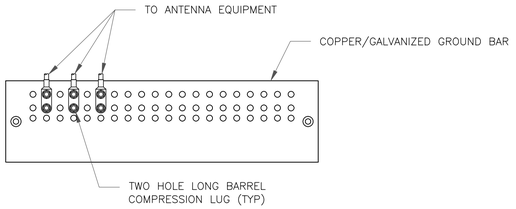
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	04/08/2021	RCD	FINAL	SS

STATE OF CONNECTICUT
KAZUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
4/8/21

SHEET NUMBER: G-1

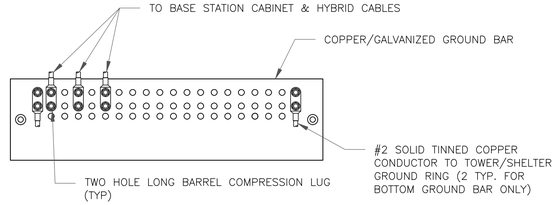
REVISION: A



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

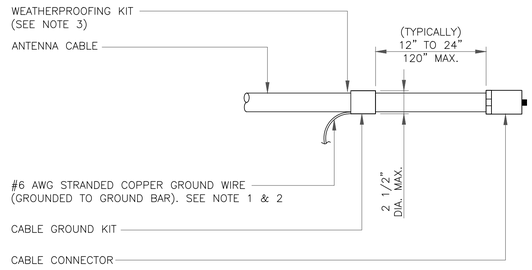
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

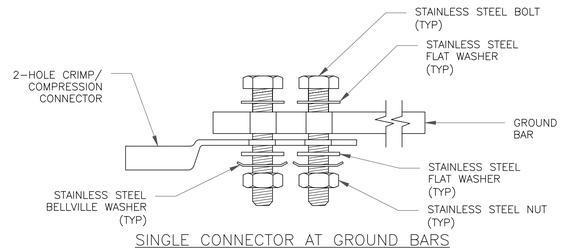
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



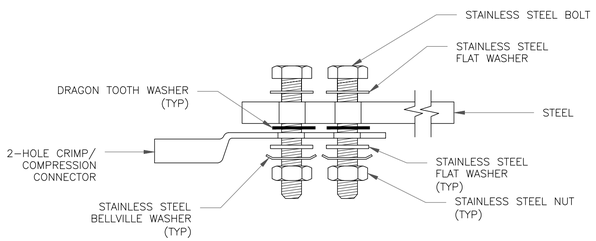
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

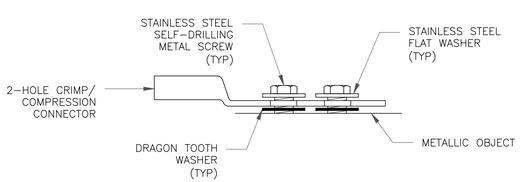
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

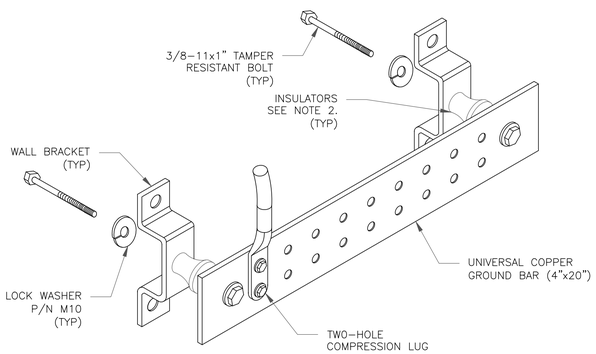


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

5 GROUND BAR DETAIL
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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0	04/08/2021	RCD	FINAL	SS

STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
4/8/21

SHEET NUMBER: G-2
REVISION: A

Exhibit D

Structural Analysis Report

Date: **March 12, 2021**

GPD Engineering and Architecture
Professional Corporation

Andrew Bazinet
Crown Castle
6325 Ardrey Kell Rd, Suite 600
Charlotte, NC 28277

520 South Main Street Suite 2531
Akron, Ohio 44311
(216) 927-8663

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11686I
	Carrier Site Name:	Crown Comm. -Hamden
Crown Castle Designation:	**BU Number:**	800529
	Site Name:	CT HAMDEN NORTH CAC
	JDE Job Number:	620129
	Work Order Number:	1926878
	Order Number:	529728 Rev. 0
Engineering Firm Designation:	**GPD Project Number:**	2021777.800529.10
Site Data:	**890 Evergreen Avenue, Hamden, New Haven County, CT 06518** **Latitude *41° 24' 23.9"*, Longitude *-72° 54' 16.32"*** **100 Foot – Stealth Self Support Tower**	

Dear Andrew Bazinet,

We are pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

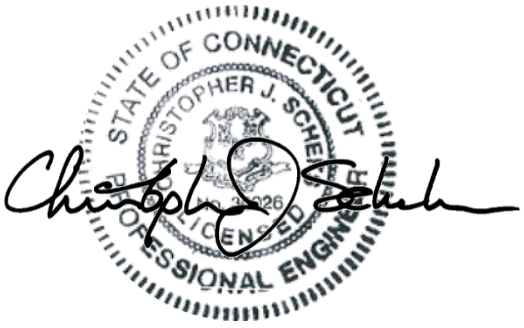
LC5: Proposed Equipment Configuration **Sufficient Capacity – 50.9%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Krisli Mocka

Respectfully submitted by:

Christopher J. Scheks, P.E.
Connecticut # 0030026



3/12/2021

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 100 ft Self Support tower designed by Stealth Network Technologies Inc. in December of 2000.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
100.0	104.0	3	RFS/Celwave	APXVAA4L18_43-U-NA20_TMO	6	1-5/8
		3	Ericsson	AIR6449 B41_T-MOBILE		
		3	Ericsson	RADIO 4415 B66A_CCIV3		
		3	Ericsson	RADIO 4424 B25_TMOV1		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
	100.0	3	Site Pro 1	USF-2U Standoff Frame		
		3	Site Pro 1	P360 Horizontal Pipe		
		6	Site Pro 1	P272 Mount Pipe		

Table 2 – Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
95.0	98.0	3	Samsung Telecommunications	RFV01U-D2A	2	1-1/4
		3	Amphenol	BXA-70063-6CF-EDIN-X		
		3	Antel	BXA-80080/4CF		
		6	Commscope	JAHH-65B-R3B		
	95.0	3	Alcatel Lucent	B25 RRH4X30-4R		
		3	Alcatel Lucent	B66A RRH4X45-4R		
		2	RFS Celwave	DB-T1-6Z-8AB-0Z		
85.0	85.0	3	CCI Antennas	HPA-65R-BUU-H6	6 2 5	7/8 3/8 3/4
		3	CCI Antennas	DMP65R-BU6D		
		3	CCI Antennas	OPA65R-BU6BA-K		
		1	Raycap	DC6-48-60-18-8F		
		1	Raycap	DC9-48-60-24-8C-EV		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RADIO 4415 B30		
		3	Ericsson	RRUS 4426 B66		
		3	Ericsson	RRUS 4449 B5/B12		
75.0	75.0	2	CSA Wireless	A-18A24N-U	11	1-1/4
		10	Decibel	DB844H90E-XY		
65.0	65.0	3	Kathrein	742 213	6	1-5/8

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Reports	GPD Project #: 2016777.800529.04, dated 8/10/2016	6400183	CCISITES
Tower Foundation Drawings/Design/Specs	Stealth Job #: 00-065, dated 12/5/2000	671923	CCISITES
Tower Manufacturer Drawings	Stealth Job #: 00-065, dated 12/5/2000	605026	CCISITES
Tower Structural Analysis Letter	GPD Project #: 2016777.800529.03, dated 6/17/2016	6316916	CCISITES
Tower Structural Analysis	GPD Project #: 2020777.800529.09, dated 6/3/2020	9116984	CCISITES
Mount Analysis	Infinigy Engineering, PLLC Report Designation: 1039-Z0001-B, dated 3/4/2021	9659886	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.7.0) and RISA 3D (Version 17.0.4), commercially available analysis software packages, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable,

Crown Castle has calculated and provided the effective area for panel antennas using approved methods following intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions or items in Table 3 are not valid or have been made in error. GPD should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	SF*P_allow (lb)	% Capacity	Pass / Fail
L1	100 - 90	Leg	HSS6x6x1/4	M4	9.635	181.658	2.5%	Pass
		Diagonal	2L2x2x3/16x1/2	M16	6.651	29.85	8.8%	Pass
		Top Girt	C6x10.5	M8	2.281	59.887	0.6%	Pass
L2	90 - 80	Leg	HSS6x6x1/4	M20	21.091	181.658	6.9%	Pass
		Diagonal	2L2x2x3/16x1/2	M32	9.308	29.85	15.5%	Pass
		Top Girt	C6x10.5	M24	2.586	59.887	5.8%	Pass
L3	80 - 70	Leg	HSS6x6x1/4	M36	41.455	181.658	13.2%	Pass
		Diagonal	2L2x2x3/16x1/2	M48	11.98	29.85	23.6%	Pass
		Top Girt	C6x10.5	M37	3.619	59.887	6.0%	Pass
L4	70 - 60	Leg	HSS6x6x1/4	M49	67.311	181.658	25.0%	Pass
		Diagonal	2L2x2x3/16x1/2	M64	15.21	29.85	30.7%	Pass
		Top Girt	C6x10.5	M56	10.247	59.887	6.2%	Pass
T1	60 - 40	Leg	HSS8x8x1/4	M68	51.25	199.192	15.1%	Pass
		Diagonal	2L4x4x3/8x1/2	M73	27.12	112.46	14.9%	Pass
		Top Girt	W16x45	M72	16.402	426.018	48.1%	Pass
T2	40 - 20	Leg	HSS8x8x1/4	M81	85.856	199.192	26.9%	Pass
		Diagonal	2L4x4x3/8x1/2	M90	39.461	112.46	22.3%	Pass
		Top Girt	W6x12	M88	26.582	59.891	16.4%	Pass
T3	20 - 0	Leg	HSS8x8x1/4	M97	123.18	199.192	37.3%	Pass
		Diagonal	2L4x4x3/8x1/2	M106	57.7	112.46	32.1%	Pass
		Top Girt	W6x12	M101	35.921	59.891	29.1%	Pass
							Summary	
						Leg (T3)	37.3%	Pass
						Diagonal (T3)	32.1%	Pass
						Top Girt (T1)	48.1%	Pass
						Bolt Checks	50.9%	Pass
						Rating =	50.9%	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	0.0	12.4	Pass
1,2	Base Foundation Reinforcement	0.0	11.4	Pass
1,2	Base Foundation Soil Interaction	0.0	32.8	Pass

Structure Rating (max from all components) =	50.9%

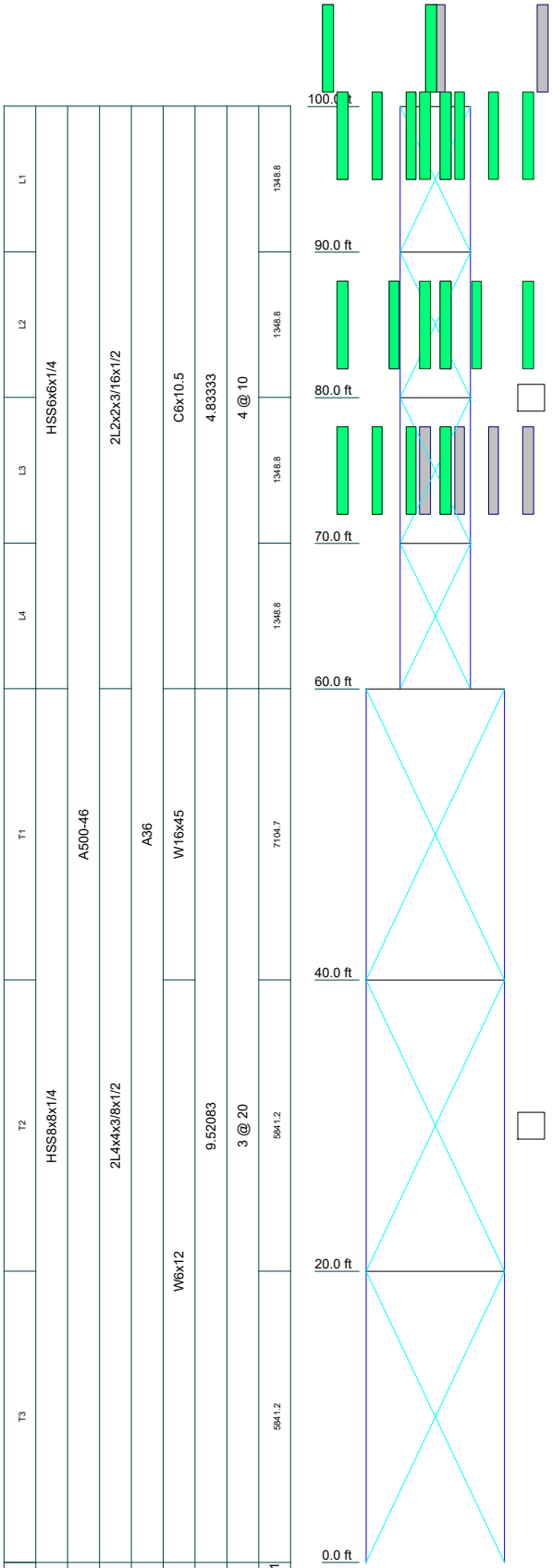
Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Rating per TIA-222-H Section 15.5

4.1) Recommendations

The existing tower and its foundation are sufficient for the proposed loading and do not require modifications.

APPENDIX A

TNXTOWER & RISA 3D OUTPUT



Section	T3	T2	T1	L4	L3	L2	L1
Legs		HSS8x8x1/4	HSS6x6x1/4				
Leg Grade			A500-46				
Diagonals		2L4x4x3/8x1/2	2L2x2x3/16x1/2				
Diagonal Grade			A36				
Top Girts	W6x12		W16x45			C6x10.5	
Face Width (ft)		9.52083				4.83333	
# Panels @ (ft)		3 @ 20				4 @ 10	
Weight (lb)	5841.2	5841.2	7104.7	1348.8	1348.8	1348.8	1348.8
24182.1							

TOWER DESIGN NOTES

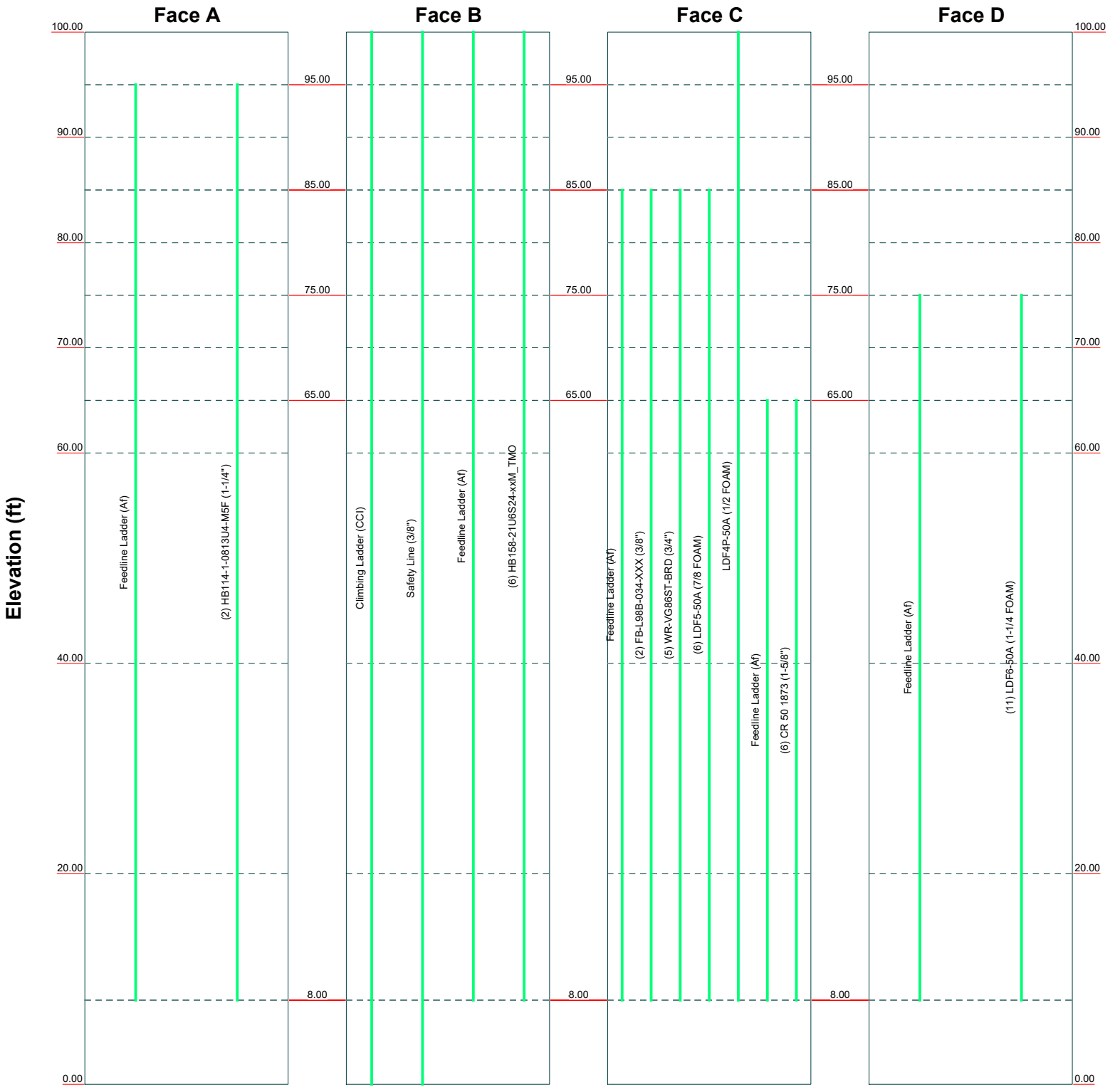
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft

GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (555) 555-1234
FAX: (555) 555-1235

Job: ***BU #: 800529, CT HAMDEN NORTH CAC***		
Project: ***2021777.800529.10***		
Client: Crown Castle	Drawn by: KMocka	App'd:
Code: TIA-222-H	Date: 03/10/21	Scale: NTS
Path: T:\Crown\800529\10\5_Structural\00_Structure\00_Rev 0\03_Modeling\tnxTower\800529.eri		Dwg No. E-1

Feed Line Distribution Chart
0' - 100'

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



GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (555) 555-1234
FAX: (555) 555-1235

Job: ***BU #: 800529, CT HAMDEN NORTH CAC***			
Project: ***2021777.800529.10***			
Client: Crown Castle	Drawn by: KMocka	App'd:	
Code: TIA-222-H	Date: 03/10/21	Scale: NTS	
Path: T:\Crown\800529\10\5_Structural\00_Structure\00_Rev 0\03_Modeling\tnxTower\800529.eri		Dwg No. E-7	

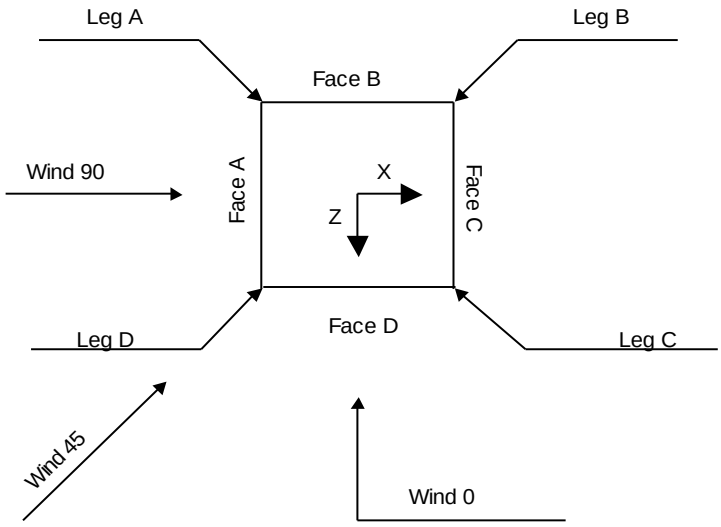
Tower Input Data

The main tower is a 4x free standing tower with an overall height of 100.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 9.52 ft at the top and 9.52 ft at the base.
An index plate is provided at the 4 sided -tower connection.
There is a 4 sided latticed pole with a face width of 4.83 ft.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 199.00 ft.
Basic wind speed of 125 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in latticed pole member design is 1.05.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Stress ratio used in tower member design is 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Square Tower

4 Sided Latticed Pole Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
L1	100.00-90.00			4.83	1	10.00
L2	90.00-80.00			4.83	1	10.00
L3	80.00-70.00			4.83	1	10.00
L4	70.00-60.00			4.83	1	10.00

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
L1	100.00-90.00	10.00	X Brace	No	Yes	0.0000	0.0000
L2	90.00-80.00	10.00	X Brace	No	Yes	0.0000	0.0000
L3	80.00-70.00	10.00	X Brace	No	Yes	0.0000	0.0000
L4	70.00-60.00	10.00	X Brace	No	Yes	0.0000	0.0000

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
L1 100.00-90.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)
L2 90.00-80.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)
L3 80.00-70.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)
L4 70.00-60.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
L1 100.00-90.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
L2 90.00-80.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
L3 80.00-70.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
L4 70.00-60.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 100.00-90.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
L2 90.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
L3 80.00-70.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
L4 70.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
L1	Yes	No	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
100.00-90.00				1	1	1	1	1	1	1
L2	Yes	No	1	1	1	1	1	1	1	1
90.00-80.00				1	1	1	1	1	1	1
L3	Yes	No	1	1	1	1	1	1	1	1
80.00-70.00				1	1	1	1	1	1	1
L4	Yes	No	1	1	1	1	1	1	1	1
70.00-60.00				1	1	1	1	1	1	1

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

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
L1 100.00-90.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
L2 90.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
L3 80.00-70.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
L4 70.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
L1 100.00-90.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
L2 90.00-80.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
L3 80.00-70.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
L4 70.00-60.00	Flange	0.8750 A325N	4	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	60.00-40.00			9.52	1	20.00
T2	40.00-20.00			9.52	1	20.00
T3	20.00-0.00			9.52	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	60.00-40.00	20.00	X Brace	No	Yes	0.0000	0.0000
T2	40.00-20.00	20.00	X Brace	No	Yes	0.0000	0.0000
T3	20.00-0.00	20.00	X Brace	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 60.00-40.00	Tube	HSS8x8x1/4	A500-46 (46 ksi)	Double Equal Angle	2L4x4x3/8x1/2	A36 (36 ksi)
T2 40.00-20.00	Tube	HSS8x8x1/4	A500-46 (46 ksi)	Double Equal Angle	2L4x4x3/8x1/2	A36 (36 ksi)
T3 20.00-0.00	Tube	HSS8x8x1/4	A500-46 (46 ksi)	Double Equal Angle	2L4x4x3/8x1/2	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 60.00-40.00	Wide Flange	W16x45	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T2 40.00-20.00	Wide Flange	W6x12	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T3 20.00-0.00	Wide Flange	W6x12	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
T2 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
T3 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T3 20.00-0.00	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 60.00-40.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T2 40.00-20.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 20.00-0.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
Climbing Ladder (CCI)	B	No	No	CaAa (Out Of Face)	100.00 - 0.00	0.0000	0.45	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	4.81 6.97 9.48 15.54
Safety Line (3/8")	B	No	No	CaAa (Out Of Face)	100.00 - 0.00	0.0000	0.45	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.22 0.75 1.28 2.34
Feedline Ladder (Af)	B	No	No	CaAa (Out Of Face)	100.00 - 8.00	0.0000	0	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	8.40 13.50 18.60 28.80
HB158-21U6S24-xxM_TMO	B	No	No	CaAa (Out Of Face)	100.00 - 8.00	0.0000	0	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	1.90 3.42 5.55 11.65
Feedline Ladder (Af)	A	No	No	CaAa (Out Of Face)	95.00 - 8.00	0.0000	0	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	8.40 13.50 18.60 28.80
HB114-1-0813U4-M5F (1-1/4")	A	No	No	CaAa (Out Of Face)	95.00 - 8.00	0.0000	0	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	1.20 2.45 4.30 9.85
Feedline Ladder (Af)	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	8.40 13.50 18.60 28.80
FB-L98B-034-	C	No	No	CaAa (Out	85.00 - 8.00	0.0000	0	2	No	0.00	0.06

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
XXX (3/8")				Of Face)					Ice	0.00	0.60
									1/2" Ice	0.00	1.76
									1" Ice	0.00	5.91
									2" Ice		
WR-VG86ST-BRD (3/4")	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	5	No Ice	0.00	0.60
									1/2" Ice	0.00	1.39
									1" Ice	0.00	2.79
									2" Ice	0.00	7.43
LDF5-50A (7/8 FOAM)	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	6	No Ice	0.00	0.33
									1/2" Ice	0.00	1.30
									1" Ice	0.00	2.88
									2" Ice	0.00	7.88
LDF4P-50A (1/2 FOAM)	C	No	No	CaAa (Out Of Face)	100.00 - 8.00	0.0000	0.3	1	No Ice	0.00	0.15
									1/2" Ice	0.00	0.84
									1" Ice	0.00	2.14
									2" Ice	0.00	6.58
Feedline Ladder (Af)	C	No	No	CaAa (Out Of Face)	65.00 - 8.00	0.0000	0.45	1	No Ice	0.00	8.40
									1/2" Ice	0.00	13.50
									1" Ice	0.00	18.60
									2" Ice	0.00	28.80
CR 50 1873 (1-5/8")	C	No	No	CaAa (Out Of Face)	65.00 - 8.00	0.0000	0.45	6	No Ice	0.00	0.83
									1/2" Ice	0.00	2.34
									1" Ice	0.00	4.47
									2" Ice	0.00	10.55
Feedline Ladder (Af)	D	No	No	CaAa (Out Of Face)	75.00 - 8.00	0.0000	0	1	No Ice	0.00	8.40
									1/2" Ice	0.00	13.50
									1" Ice	0.00	18.60
									2" Ice	0.00	28.80
LDF6-50A (1-1/4 FOAM)	D	No	No	CaAa (Out Of Face)	75.00 - 8.00	0.0000	0	11	No Ice	0.00	0.66
									1/2" Ice	0.00	1.91
									1" Ice	0.00	3.78
									2" Ice	0.00	9.33

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	100.00-90.00	A	0.000	0.000	0.000	0.000	54.00
		B	0.000	0.000	0.000	0.000	248.30
		C	0.000	0.000	0.000	0.000	1.50
		D	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L2	90.00-80.00	A	0.000	0.000	0.000	0.000	108.00
		B	0.000	0.000	0.000	0.000	248.30
		C	0.000	0.000	0.000	0.000	68.97
		D	0.000	0.000	0.000	0.000	0.00
L3	80.00-70.00	A	0.000	0.000	0.000	0.000	108.00
		B	0.000	0.000	0.000	0.000	248.30
		C	0.000	0.000	0.000	0.000	136.44
		D	0.000	0.000	0.000	0.000	78.30
L4	70.00-60.00	A	0.000	0.000	0.000	0.000	108.00
		B	0.000	0.000	0.000	0.000	248.30
		C	0.000	0.000	0.000	0.000	203.34
		D	0.000	0.000	0.000	0.000	156.60
T1	60.00-40.00	A	0.000	0.000	0.000	0.000	216.00
		B	0.000	0.000	0.000	0.000	496.60
		C	0.000	0.000	0.000	0.000	540.48
		D	0.000	0.000	0.000	0.000	313.20
T2	40.00-20.00	A	0.000	0.000	0.000	0.000	216.00
		B	0.000	0.000	0.000	0.000	496.60
		C	0.000	0.000	0.000	0.000	540.48
		D	0.000	0.000	0.000	0.000	313.20
T3	20.00-0.00	A	0.000	0.000	0.000	0.000	129.60
		B	0.000	0.000	0.000	0.000	338.20
		C	0.000	0.000	0.000	0.000	324.29
		D	0.000	0.000	0.000	0.000	187.92

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	100.00-90.00	A	1.417	0.000	0.000	0.000	0.000	180.45
		B		0.000	0.000	0.000	0.000	851.66
		C		0.000	0.000	0.000	0.000	39.92
		D		0.000	0.000	0.000	0.000	0.00
L2	90.00-80.00	A	1.402	0.000	0.000	0.000	0.000	357.56
		B		0.000	0.000	0.000	0.000	843.22
		C		0.000	0.000	0.000	0.000	450.00
		D		0.000	0.000	0.000	0.000	0.00
L3	80.00-70.00	A	1.384	0.000	0.000	0.000	0.000	353.85
		B		0.000	0.000	0.000	0.000	833.82
		C		0.000	0.000	0.000	0.000	847.52
		D		0.000	0.000	0.000	0.000	437.67
L4	70.00-60.00	A	1.364	0.000	0.000	0.000	0.000	349.66
		B		0.000	0.000	0.000	0.000	823.22
		C		0.000	0.000	0.000	0.000	1144.79
		D		0.000	0.000	0.000	0.000	861.30
T1	60.00-40.00	A	1.329	0.000	0.000	0.000	0.000	684.28
		B		0.000	0.000	0.000	0.000	1608.36
		C		0.000	0.000	0.000	0.000	2827.25
		D		0.000	0.000	0.000	0.000	1672.19
T2	40.00-20.00	A	1.263	0.000	0.000	0.000	0.000	656.09
		B		0.000	0.000	0.000	0.000	1537.01
		C		0.000	0.000	0.000	0.000	2664.69
		D		0.000	0.000	0.000	0.000	1577.74
T3	20.00-0.00	A	1.132	0.000	0.000	0.000	0.000	360.08
		B		0.000	0.000	0.000	0.000	930.83
		C		0.000	0.000	0.000	0.000	1405.20
		D		0.000	0.000	0.000	0.000	834.15

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	100.00-90.00	0.0000	0.0000	0.0000	0.0000
L2	90.00-80.00	0.0000	0.0000	0.0000	0.0000
L3	80.00-70.00	0.0000	0.0000	0.0000	0.0000
L4	70.00-60.00	0.0000	0.0000	0.0000	0.0000
T1	60.00-40.00	0.0000	0.0000	0.0000	0.0000
T2	40.00-20.00	0.0000	0.0000	0.0000	0.0000
T3	20.00-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
APXVAA18_43-U-A20 w/ P272 Mount Pipe	A	From Leg	2.00 0.00 4.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	114.63 202.22 311.63 559.98
APXVAA18_43-U-A20 w/ P272 Mount Pipe	B	From Leg	2.00 0.00 4.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	114.63 202.22 311.63 559.98
APXVAA18_43-U-A20 w/ P272 Mount Pipe	D	From Leg	2.00 0.00 4.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	114.63 202.22 311.63 559.98
AIR6449 B41_T-MOBILE w/ P272 Mount Pipe	A	From Leg	2.00 0.00 4.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	136.53 191.31 251.99 394.33
AIR6449 B41_T-MOBILE w/ P272 Mount Pipe	B	From Leg	2.00 0.00 4.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	136.53 191.31 251.99 394.33
AIR6449 B41_T-MOBILE w/ P272 Mount Pipe	D	From Leg	2.00 0.00 4.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	136.53 191.31 251.99 394.33
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	2.00 0.00 4.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	73.21 92.97 115.64 170.44
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	2.00 0.00 4.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	73.21 92.97 115.64 170.44
RADIO 4449 B71	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	73.21

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* °	*Placement* *ft*		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* *lb*
B85A_T-MOBILE			0.00			1/2" Ice	0.00	0.00	92.97
			4.00			1" Ice	0.00	0.00	115.64
						2" Ice	0.00	0.00	170.44
RADIO 4424 B25_TMOV1	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	97.00
			0.00			1/2" Ice	0.00	0.00	105.87
			4.00			1" Ice	0.00	0.00	126.50
						2" Ice	0.00	0.00	176.82
RADIO 4424 B25_TMOV1	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	97.00
			0.00			1/2" Ice	0.00	0.00	105.87
			4.00			1" Ice	0.00	0.00	126.50
						2" Ice	0.00	0.00	176.82
RADIO 4424 B25_TMOV1	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	97.00
			0.00			1/2" Ice	0.00	0.00	105.87
			4.00			1" Ice	0.00	0.00	126.50
						2" Ice	0.00	0.00	176.82
RADIO 4415 B66A_CCIV3	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	46.30
			0.00			1/2" Ice	0.00	0.00	58.71
			4.00			1" Ice	0.00	0.00	73.48
						2" Ice	0.00	0.00	110.91
RADIO 4415 B66A_CCIV3	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	46.30
			0.00			1/2" Ice	0.00	0.00	58.71
			4.00			1" Ice	0.00	0.00	73.48
						2" Ice	0.00	0.00	110.91
RADIO 4415 B66A_CCIV3	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	46.30
			0.00			1/2" Ice	0.00	0.00	58.71
			4.00			1" Ice	0.00	0.00	73.48
						2" Ice	0.00	0.00	110.91
Site Pro 1 P360 Horizontal	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	38.00
			0.00			1/2" Ice	0.00	0.00	47.60
			4.00			1" Ice	0.00	0.00	62.00
						2" Ice	0.00	0.00	101.90
Site Pro 1 P360 Horizontal	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	38.00
			0.00			1/2" Ice	0.00	0.00	47.60
			4.00			1" Ice	0.00	0.00	62.00
						2" Ice	0.00	0.00	101.90
Site Pro 1 P360 Horizontal	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	38.00
			0.00			1/2" Ice	0.00	0.00	47.60
			4.00			1" Ice	0.00	0.00	62.00
						2" Ice	0.00	0.00	101.90
Site Pro 1 USF-2U Standoff Frame	A	From Leg	1.00	0.0000	100.00	No Ice	0.00	0.00	128.25
			0.00			1/2" Ice	0.00	0.00	160.30
			4.00			1" Ice	0.00	0.00	192.35
						2" Ice	0.00	0.00	256.45
Site Pro 1 USF-2U Standoff Frame	B	From Leg	1.00	0.0000	100.00	No Ice	0.00	0.00	128.25
			0.00			1/2" Ice	0.00	0.00	160.30
			4.00			1" Ice	0.00	0.00	192.35
						2" Ice	0.00	0.00	256.45
Site Pro 1 USF-2U Standoff Frame	D	From Leg	1.00	0.0000	100.00	No Ice	0.00	0.00	128.25
			0.00			1/2" Ice	0.00	0.00	160.30
			4.00			1" Ice	0.00	0.00	192.35
						2" Ice	0.00	0.00	256.45
BXA-80080/4CF w/ Mount Pipe	A	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	39.85
			0.00			1/2" Ice	0.00	0.00	89.34
			3.00			1" Ice	0.00	0.00	145.14
						2" Ice	0.00	0.00	279.30
BXA-80080/4CF w/ Mount Pipe	C	From Centroid-Le	4.00	0.0000	95.00	No Ice	0.00	0.00	39.85
			0.00			1/2" Ice	0.00	0.00	89.34

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
		g	3.00				1" Ice	0.00	0.00	145.14
							2" Ice	0.00	0.00	279.30
BXA-80080/4CF w/ Mount Pipe	D	From Centroid-Le g	4.00 0.00 3.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	39.85 89.34 145.14 279.30
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 3.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	86.15 162.72 247.46 445.07
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 3.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	86.15 162.72 247.46 445.07
(2) JAHH-65B-R3B w/ Mount Pipe	D	From Centroid-Le g	4.00 0.00 3.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	86.15 162.72 247.46 445.07
BXA-70063-6CF-EDIN-X w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 3.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	42.25 103.01 171.49 335.23
BXA-70063-6CF-EDIN-X w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 3.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	42.25 103.01 171.49 335.23
BXA-70063-6CF-EDIN-X w/ Mount Pipe	D	From Centroid-Le g	4.00 0.00 3.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	42.25 103.01 171.49 335.23
B25 RRH4x30-4R	A	From Centroid-Le g	4.00 0.00 0.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	51.00 68.46 88.75 138.59
B25 RRH4x30-4R	C	From Centroid-Le g	4.00 0.00 0.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	51.00 68.46 88.75 138.59
B25 RRH4x30-4R	D	From Centroid-Le g	4.00 0.00 0.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	51.00 68.46 88.75 138.59
RFV01U-D2A	A	From Centroid-Le g	4.00 0.00 0.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	73.00 89.43 108.53 155.50
RFV01U-D2A	C	From Centroid-Le g	4.00 0.00 0.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	73.00 89.43 108.53 155.50
RFV01U-D2A	D	From Centroid-Le g	4.00 0.00 0.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	73.00 89.43 108.53 155.50
DB-T1-6Z-8AB-0Z	A	From Centroid-Le g	4.00 0.00 0.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	44.00 80.13 120.22

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
						2" Ice	0.00	0.00	213.04
DB-T1-6Z-8AB-0Z	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	44.00 80.13 120.22 213.04
B66A RRH4X45-4R	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	56.80 76.92 100.15 156.66
B66A RRH4X45-4R	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	56.80 76.92 100.15 156.66
B66A RRH4X45-4R	D	From Centroid-Leg	4.00 0.00 0.00	0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	56.80 76.92 100.15 156.66
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	76.55 158.03 247.79 455.80
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	76.55 158.03 247.79 455.80
HPA-65R-BUU-H6 w/ Mount Pipe	D	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	76.55 158.03 247.79 455.80
OPA65R-BU6BA-K w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	55.00 107.49 166.08 302.36
OPA65R-BU6BA-K w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	55.00 107.49 166.08 302.36
OPA65R-BU6BA-K w/ Mount Pipe	D	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	55.00 107.49 166.08 302.36
DMP65R-BU6D w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	104.71 196.98 297.77 528.51
DMP65R-BU6D w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	104.71 196.98 297.77 528.51
DMP65R-BU6D w/ Mount Pipe	D	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	104.71 196.98 297.77 528.51
RRUS 32 B2	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	52.90 73.96 98.21 157.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
RRUS 32 B2	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	52.90 73.96 98.21 157.06
RRUS 32 B2	D	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	52.90 73.96 98.21 157.06
RADIO 4415 B30	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	42.90 54.99 69.43 106.12
RADIO 4415 B30	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	42.90 54.99 69.43 106.12
RADIO 4415 B30	D	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	42.90 54.99 69.43 106.12
RRUS 4449 B5/B12	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	71.00 89.51 110.84 162.74
RRUS 4449 B5/B12	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	71.00 89.51 110.84 162.74
RRUS 4449 B5/B12	D	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	71.00 89.51 110.84 162.74
RRUS 4426 B66	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	48.40 61.22 76.43 114.82
RRUS 4426 B66	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	48.40 61.22 76.43 114.82
RRUS 4426 B66	D	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	48.40 61.22 76.43 114.82
DC6-48-60-18-8F Surge Suppression Unit	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	18.90 36.62 56.82 105.34
DC9-48-60-24-8C-EV	D	From Centroid-Leg	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	26.20 63.27 104.42 199.74
A-18A24N-U w/ Mount pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	43.55 88.76 139.53 261.39
A-18A24N-U w/ Mount pipe	D	From	4.00	0.0000	75.00	No Ice	0.00	0.00	43.55

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* °	*Placement* *ft*		*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *lb*
		Centroid-Leg	0.00 0.00			1/2" Ice 1" Ice	0.00 0.00	0.00 0.00	88.76 139.53
						2" Ice	0.00	0.00	261.39
(3) DB844H90E-XY w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	43.20 90.60 144.32
						2" Ice	0.00	0.00	274.74
(4) DB844H90E-XY w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	43.20 90.60 144.32
						2" Ice	0.00	0.00	274.74
(3) DB844H90E-XY w/ Mount Pipe	D	From Centroid-Leg	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	43.20 90.60 144.32
						2" Ice	0.00	0.00	274.74
742 213 w/ Mount Pipe	A	From Leg	1.00 0.00 0.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	51.20 97.45 151.50
						2" Ice	0.00	0.00	287.00
742 213 w/ Mount Pipe	C	From Leg	1.00 0.00 0.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	51.20 97.45 151.50
						2" Ice	0.00	0.00	287.00
742 213 w/ Mount Pipe	D	From Leg	1.00 0.00 0.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	51.20 97.45 151.50
						2" Ice	0.00	0.00	287.00

TIA-222-H: Analysis Wind Loading
CT HAMDEN NORTH CAC
2021777.800529.10

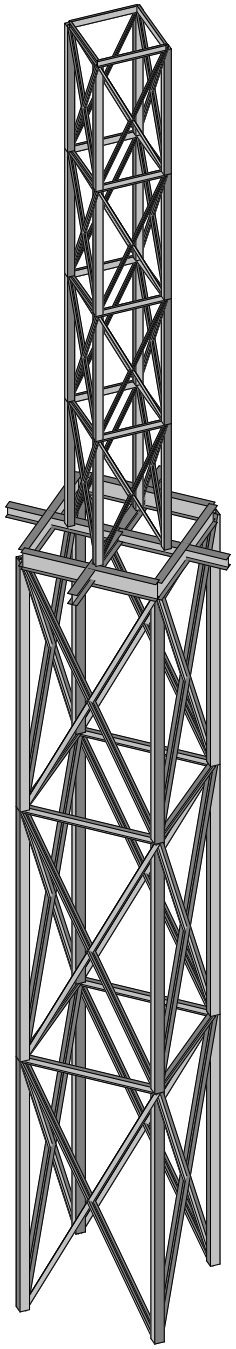
Structure Information		
Structure Type:	Self Support	
Structure Height:	108	ft
Gh (Gust Effect Factor) =	1.00	
Risk Category:	II	

Code Specifications		
IBC Edition:	2015	
TIA/EIA Code:	H	
Ultimate Wind Speed (No Ice) =	125	mph (3-s gust)
Ultimate Wind Speed (With Ice) =	50	mph (3-s gust)
Ice Thickness	1.5	in
Exposure Category	C	
Tower Base Elevation (AMSL)	199	ft

Topographic Inputs	
Topographic Feature:	N/A

Section Sets										No Ice	Ice Output	
Tower Components	Member Type	Length (in)	Side (Longest seeing wind) (in)	Other Side (in)	Calculated Dc, for ice weight (in)	Dc, for ice weight (in)	Area Type (Round or Flat)	K_a	User's Wind Multiplier	Normal Wind Pressure (lb/ft^2)*	Normal Ice Wind Force (lb/ft^2)*	Ice Weight (lb/ft)*
Top Cap	Pipe	96	192	192		192.00	Round	0.90	0.60	28.85	3.29	397.88
Tower from 90'-100'	Pipe	120	192	192		192.00	Round	0.90	0.60	28.34	3.23	394.50
Tower from 80'-90'	Pipe	120	192	192		192.00	Round	0.90	0.60	27.69	3.15	390.10
Tower from 70'-80'	Pipe	120	192	192		192.00	Round	0.90	0.60	26.97	3.07	385.20
Tower from 60'-70'	Pipe	120	192	192		192.00	Round	0.90	0.60	26.17	2.98	379.69
Tower from 40'-60'	Pipe	240	192	192		192.00	Round	0.90	0.60	24.76	2.82	369.77
Tower from 20'-40'	Pipe	240	192	192		192.00	Round	0.90	0.60	22.23	2.53	351.22
Tower from 0'-20'	Pipe	240	192	192		192.00	Round	0.90	0.60	19.24	2.18	314.43

*All forces are unfactored.



GPD	BU #: 800529, CT HAMDEN NORTH CAC	SK - 1
KM		Mar 10, 2021 at 2:17 PM
2021777.800529.10	3D - Rendering	800529.10.rt3

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Standard Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A500-46	29000	11200	.2946	.65	.49	46	1.2	58	1.1
2	A36	29000	11200	.2946	.65	.49	36	1.5	58	1.2
3	A992-50	29000	11200	.295	.65	.49	50	1.5	65	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru..	A [in2]	Iyy [i...	Izz [i...	J [in4]
1	TWR_LEG_L1	HSS6x6x1/4	Column	None	A500-46	Typical	5.24	28.6	28.6	45.6
2	TWR_TOP_GIRT_L1	C6X10.5	Beam	None	A36	Typical	3.07	.86	15.1	.128
3	TWR_DIAG_L1	2L2x2x3/16x1/2	Column	None	A36	Typical	1.4297	1.5042	.5448	.0168
4	TWR_LEG_L2	HSS6x6x1/4	Column	None	A500-46	Typical	5.24	28.6	28.6	45.6
5	TWR_TOP_GIRT_L2	C6X10.5	Beam	None	A36	Typical	3.07	.86	15.1	.128
6	TWR_DIAG_L2	2L2x2x3/16x1/2	Column	None	A36	Typical	1.4297	1.5042	.5448	.0168
7	TWR_LEG_L3	HSS6x6x1/4	Column	None	A500-46	Typical	5.24	28.6	28.6	45.6
8	TWR_TOP_GIRT_L3	C6X10.5	Beam	None	A36	Typical	3.07	.86	15.1	.128
9	TWR_DIAG_L3	2L2x2x3/16x1/2	Column	None	A36	Typical	1.4297	1.5042	.5448	.0168
10	TWR_LEG_L4	HSS6x6x1/4	Column	None	A500-46	Typical	5.24	28.6	28.6	45.6
11	TWR_TOP_GIRT_L4	C6X10.5	Beam	None	A36	Typical	3.07	.86	15.1	.128
12	TWR_DIAG_L4	2L2x2x3/16x1/2	Column	None	A36	Typical	1.4297	1.5042	.5448	.0168
13	TWR_LEG_T1	HSS8x8x1/4	Column	None	A500-46	Typical	7.1	70.7	70.7	111
14	TWR_TOP_GIRT_T1	W16X45	Beam	None	A992-50	Typical	13.3	32.8	586	1.11
15	TWR_INNER_BRACE_T1	W10X33	Beam	None	A992-50	Typical	9.71	36.6	171	.583
16	TWR_DIAG_T1	2L4x4x3/8x1/2	Column	None	A36	Typical	5.7188	19.7...	8.7172	.2681
17	TWR_LEG_T2	HSS8x8x1/4	Column	None	A500-46	Typical	7.1	70.7	70.7	111
18	TWR_TOP_GIRT_T2	W6X12	Beam	None	A992-50	Typical	3.55	2.99	22.1	.0903

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Ru..	A [in2]	Iyy [i...	Izz [i...	J [in4]
19	TWR_DIAG_T2	2L4x4x3/8x1/2	Column	None	A36	Typical	5.7188	19.7...	8.7172	.2681
20	TWR_LEG_T3	HSS8x8x1/4	Column	None	A500-46	Typical	7.1	70.7	70.7	111
21	TWR_TOP_GIRT_T3	W6X12	Beam	None	A992-50	Typical	3.55	2.99	22.1	.0903
22	TWR_DIAG_T3	2L4x4x3/8x1/2	Column	None	A36	Typical	5.7188	19.7...	8.7172	.2681

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	M9	N2	N3			TWR_DIAG_L1	Column	None	A36	Typical
2	M10	N4	N1			TWR_DIAG_L1	Column	None	A36	Typical
3	M11	N4	N5			TWR_DIAG_L1	Column	None	A36	Typical
4	M12	N6	N3			TWR_DIAG_L1	Column	None	A36	Typical
5	M13	N6	N7			TWR_DIAG_L1	Column	None	A36	Typical
6	M14	N8	N5			TWR_DIAG_L1	Column	None	A36	Typical
7	M15	N8	N1			TWR_DIAG_L1	Column	None	A36	Typical
8	M16	N2	N7			TWR_DIAG_L1	Column	None	A36	Typical
9	M25	N13	N4			TWR_DIAG_L2	Column	None	A36	Typical
10	M26	N14	N2			TWR_DIAG_L2	Column	None	A36	Typical
11	M27	N14	N6			TWR_DIAG_L2	Column	None	A36	Typical
12	M28	N15	N4			TWR_DIAG_L2	Column	None	A36	Typical
13	M29	N15	N8			TWR_DIAG_L2	Column	None	A36	Typical
14	M30	N16	N6			TWR_DIAG_L2	Column	None	A36	Typical
15	M31	N16	N2			TWR_DIAG_L2	Column	None	A36	Typical
16	M32	N13	N8			TWR_DIAG_L2	Column	None	A36	Typical
17	M41	N21	N14			TWR_DIAG_L3	Column	None	A36	Typical
18	M42	N22	N13			TWR_DIAG_L3	Column	None	A36	Typical
19	M43	N22	N15			TWR_DIAG_L3	Column	None	A36	Typical
20	M44	N23	N14			TWR_DIAG_L3	Column	None	A36	Typical
21	M45	N23	N16			TWR_DIAG_L3	Column	None	A36	Typical
22	M46	N24	N15			TWR_DIAG_L3	Column	None	A36	Typical
23	M47	N24	N13			TWR_DIAG_L3	Column	None	A36	Typical
24	M48	N21	N16			TWR_DIAG_L3	Column	None	A36	Typical
25	M57	N29	N22			TWR_DIAG_L4	Column	None	A36	Typical
26	M58	N30	N21			TWR_DIAG_L4	Column	None	A36	Typical
27	M59	N30	N23			TWR_DIAG_L4	Column	None	A36	Typical
28	M60	N31	N22			TWR_DIAG_L4	Column	None	A36	Typical
29	M61	N31	N24			TWR_DIAG_L4	Column	None	A36	Typical
30	M62	N32	N23			TWR_DIAG_L4	Column	None	A36	Typical
31	M63	N32	N21			TWR_DIAG_L4	Column	None	A36	Typical
32	M64	N29	N24			TWR_DIAG_L4	Column	None	A36	Typical
33	M73	N38	N39			TWR_DIAG_T1	Column	None	A36	Typical
34	M74	N40	N37			TWR_DIAG_T1	Column	None	A36	Typical
35	M75	N40	N41			TWR_DIAG_T1	Column	None	A36	Typical
36	M76	N42	N39			TWR_DIAG_T1	Column	None	A36	Typical
37	M77	N42	N43			TWR_DIAG_T1	Column	None	A36	Typical
38	M78	N44	N41			TWR_DIAG_T1	Column	None	A36	Typical
39	M79	N44	N37			TWR_DIAG_T1	Column	None	A36	Typical
40	M80	N38	N43			TWR_DIAG_T1	Column	None	A36	Typical
41	M89	N49	N40			TWR_DIAG_T2	Column	None	A36	Typical
42	M90	N50	N38		360	TWR_DIAG_T2	Column	None	A36	Typical
43	M91	N50	N42			TWR_DIAG_T2	Column	None	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
44	M92	N51	N40		360	TWR_DIAG_T2	Column	None	A36	Typical
45	M93	N51	N44			TWR_DIAG_T2	Column	None	A36	Typical
46	M94	N52	N42		360	TWR_DIAG_T2	Column	None	A36	Typical
47	M95	N52	N38			TWR_DIAG_T2	Column	None	A36	Typical
48	M96	N49	N44		360	TWR_DIAG_T2	Column	None	A36	Typical
49	M105	N57	N50			TWR_DIAG_T3	Column	None	A36	Typical
50	M106	N58	N49			TWR_DIAG_T3	Column	None	A36	Typical
51	M107	N58	N51			TWR_DIAG_T3	Column	None	A36	Typical
52	M108	N59	N50			TWR_DIAG_T3	Column	None	A36	Typical
53	M109	N59	N52			TWR_DIAG_T3	Column	None	A36	Typical
54	M110	N60	N51			TWR_DIAG_T3	Column	None	A36	Typical
55	M111	N60	N49			TWR_DIAG_T3	Column	None	A36	Typical
56	M112	N57	N52			TWR_DIAG_T3	Column	None	A36	Typical
57	M1	N2	N1		45	TWR_LEG_L1	Column	None	A500-46	Typical
58	M2	N4	N3		135	TWR_LEG_L1	Column	None	A500-46	Typical
59	M3	N6	N5		225	TWR_LEG_L1	Column	None	A500-46	Typical
60	M4	N8	N7		315	TWR_LEG_L1	Column	None	A500-46	Typical
61	M17	N13	N2		45	TWR_LEG_L2	Column	None	A500-46	Typical
62	M18	N14	N4		135	TWR_LEG_L2	Column	None	A500-46	Typical
63	M19	N15	N6		225	TWR_LEG_L2	Column	None	A500-46	Typical
64	M20	N16	N8		315	TWR_LEG_L2	Column	None	A500-46	Typical
65	M33	N21	N13		45	TWR_LEG_L3	Column	None	A500-46	Typical
66	M34	N22	N14		135	TWR_LEG_L3	Column	None	A500-46	Typical
67	M35	N23	N15		225	TWR_LEG_L3	Column	None	A500-46	Typical
68	M36	N24	N16		315	TWR_LEG_L3	Column	None	A500-46	Typical
69	M49	N29	N21		45	TWR_LEG_L4	Column	None	A500-46	Typical
70	M50	N30	N22		135	TWR_LEG_L4	Column	None	A500-46	Typical
71	M51	N31	N23		225	TWR_LEG_L4	Column	None	A500-46	Typical
72	M52	N32	N24		315	TWR_LEG_L4	Column	None	A500-46	Typical
73	M65	N38	N37		45	TWR_LEG_T1	Column	None	A500-46	Typical
74	M66	N40	N39		135	TWR_LEG_T1	Column	None	A500-46	Typical
75	M67	N42	N41		225	TWR_LEG_T1	Column	None	A500-46	Typical
76	M68	N44	N43		315	TWR_LEG_T1	Column	None	A500-46	Typical
77	M81	N49	N38		45	TWR_LEG_T2	Column	None	A500-46	Typical
78	M82	N50	N40		135	TWR_LEG_T2	Column	None	A500-46	Typical
79	M83	N51	N42		225	TWR_LEG_T2	Column	None	A500-46	Typical
80	M84	N52	N44		315	TWR_LEG_T2	Column	None	A500-46	Typical
81	M97	N57	N49		45	TWR_LEG_T3	Column	None	A500-46	Typical
82	M98	N58	N50		135	TWR_LEG_T3	Column	None	A500-46	Typical
83	M99	N59	N51		225	TWR_LEG_T3	Column	None	A500-46	Typical
84	M100	N60	N52		315	TWR_LEG_T3	Column	None	A500-46	Typical
85	M5	N1	N3		180	TWR_TOP_G...	Beam	None	A36	Typical
86	M6	N3	N5		180	TWR_TOP_G...	Beam	None	A36	Typical
87	M7	N5	N7		180	TWR_TOP_G...	Beam	None	A36	Typical
88	M8	N7	N1		180	TWR_TOP_G...	Beam	None	A36	Typical
89	M21	N2	N4		180	TWR_TOP_G...	Beam	None	A36	Typical
90	M22	N4	N6		180	TWR_TOP_G...	Beam	None	A36	Typical
91	M23	N6	N8		180	TWR_TOP_G...	Beam	None	A36	Typical
92	M24	N8	N2		180	TWR_TOP_G...	Beam	None	A36	Typical
93	M37	N13	N14		180	TWR_TOP_G...	Beam	None	A36	Typical
94	M38	N14	N15		180	TWR_TOP_G...	Beam	None	A36	Typical
95	M39	N15	N16		180	TWR_TOP_G...	Beam	None	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
96	M40	N16	N13		180	TWR_TOP_G...	Beam	None	A36	Typical
97	M53	N21	N22		180	TWR_TOP_G...	Beam	None	A36	Typical
98	M54	N22	N23		180	TWR_TOP_G...	Beam	None	A36	Typical
99	M55	N23	N24		180	TWR_TOP_G...	Beam	None	A36	Typical
100	M56	N24	N21		180	TWR_TOP_G...	Beam	None	A36	Typical
101	M69	N37	N39			TWR_TOP_G...	Beam	None	A992-50	Typical
102	M70	N39	N41			TWR_TOP_G...	Beam	None	A992-50	Typical
103	M71	N41	N43			TWR_TOP_G...	Beam	None	A992-50	Typical
104	M72	N43	N37			TWR_TOP_G...	Beam	None	A992-50	Typical
105	M85	N38	N40		359.9999	TWR_TOP_G...	Beam	None	A992-50	Typical
106	M86	N40	N42		359.9999	TWR_TOP_G...	Beam	None	A992-50	Typical
107	M87	N42	N44		359.9999	TWR_TOP_G...	Beam	None	A992-50	Typical
108	M88	N44	N38		359.9999	TWR_TOP_G...	Beam	None	A992-50	Typical
109	M101	N49	N50			TWR_TOP_G...	Beam	None	A992-50	Typical
110	M102	N50	N51			TWR_TOP_G...	Beam	None	A992-50	Typical
111	M103	N51	N52			TWR_TOP_G...	Beam	None	A992-50	Typical
112	M104	N52	N49			TWR_TOP_G...	Beam	None	A992-50	Typical
113	M113	N67	N65			TWR_INNER...	Beam	None	A992-50	Typical
114	M114	N65	N69			TWR_INNER...	Beam	None	A992-50	Typical
115	M115	N66	N65			TWR_INNER...	Beam	None	A992-50	Typical
116	M116	N65	N68			TWR_INNER...	Beam	None	A992-50	Typical

Member Advanced Data

	Label	I Release	J Relea...	I Offset[...	J Offset...	T/C Only	Physical	Defl Ratio O...	Analysis Offs...	Inactive	Seismic Design Rules
1	M9	BenPIN	BenPIN				Yes	** NA **			None
2	M10	BenPIN	BenPIN				Yes	** NA **			None
3	M11	BenPIN	BenPIN				Yes	** NA **			None
4	M12	BenPIN	BenPIN				Yes	** NA **			None
5	M13	BenPIN	BenPIN				Yes	** NA **			None
6	M14	BenPIN	BenPIN				Yes	** NA **			None
7	M15	BenPIN	BenPIN				Yes	** NA **			None
8	M16	BenPIN	BenPIN				Yes	** NA **			None
9	M25	BenPIN	BenPIN				Yes	** NA **			None
10	M26	BenPIN	BenPIN				Yes	** NA **			None
11	M27	BenPIN	BenPIN				Yes	** NA **			None
12	M28	BenPIN	BenPIN				Yes	** NA **			None
13	M29	BenPIN	BenPIN				Yes	** NA **			None
14	M30	BenPIN	BenPIN				Yes	** NA **			None
15	M31	BenPIN	BenPIN				Yes	** NA **			None
16	M32	BenPIN	BenPIN				Yes	** NA **			None
17	M41	BenPIN	BenPIN				Yes	** NA **			None
18	M42	BenPIN	BenPIN				Yes	** NA **			None
19	M43	BenPIN	BenPIN				Yes	** NA **			None
20	M44	BenPIN	BenPIN				Yes	** NA **			None
21	M45	BenPIN	BenPIN				Yes	** NA **			None
22	M46	BenPIN	BenPIN				Yes	** NA **			None
23	M47	BenPIN	BenPIN				Yes	** NA **			None
24	M48	BenPIN	BenPIN				Yes	** NA **			None
25	M57	BenPIN	BenPIN				Yes	** NA **			None
26	M58	BenPIN	BenPIN				Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Relea...	I Offset[...	J Offset...	T/C Only	Physical	Defl Ratio O...	Analysis Offs...	Inactive	Seismic Design Rules
27	M59	BenPIN	BenPIN				Yes	** NA **			None
28	M60	BenPIN	BenPIN				Yes	** NA **			None
29	M61	BenPIN	BenPIN				Yes	** NA **			None
30	M62	BenPIN	BenPIN				Yes	** NA **			None
31	M63	BenPIN	BenPIN				Yes	** NA **			None
32	M64	BenPIN	BenPIN				Yes	** NA **			None
33	M73	BenPIN	BenPIN				Yes	** NA **			None
34	M74	BenPIN	BenPIN				Yes	** NA **			None
35	M75	BenPIN	BenPIN				Yes	** NA **			None
36	M76	BenPIN	BenPIN				Yes	** NA **			None
37	M77	BenPIN	BenPIN				Yes	** NA **			None
38	M78	BenPIN	BenPIN				Yes	** NA **			None
39	M79	BenPIN	BenPIN				Yes	** NA **			None
40	M80	BenPIN	BenPIN				Yes	** NA **			None
41	M89	BenPIN	BenPIN				Yes	** NA **			None
42	M90	BenPIN	BenPIN				Yes	** NA **			None
43	M91	BenPIN	BenPIN				Yes	** NA **			None
44	M92	BenPIN	BenPIN				Yes	** NA **			None
45	M93	BenPIN	BenPIN				Yes	** NA **			None
46	M94	BenPIN	BenPIN				Yes	** NA **			None
47	M95	BenPIN	BenPIN				Yes	** NA **			None
48	M96	BenPIN	BenPIN				Yes	** NA **			None
49	M105	BenPIN	BenPIN				Yes	** NA **			None
50	M106	BenPIN	BenPIN				Yes	** NA **			None
51	M107	BenPIN	BenPIN				Yes	** NA **			None
52	M108	BenPIN	BenPIN				Yes	** NA **			None
53	M109	BenPIN	BenPIN				Yes	** NA **			None
54	M110	BenPIN	BenPIN				Yes	** NA **			None
55	M111	BenPIN	BenPIN				Yes	** NA **			None
56	M112	BenPIN	BenPIN				Yes	** NA **			None
57	M1						Yes	** NA **			None
58	M2						Yes	** NA **			None
59	M3						Yes	** NA **			None
60	M4						Yes	** NA **			None
61	M17						Yes	** NA **			None
62	M18						Yes	** NA **			None
63	M19						Yes	** NA **			None
64	M20						Yes	** NA **			None
65	M33						Yes	** NA **			None
66	M34						Yes	** NA **			None
67	M35						Yes	** NA **			None
68	M36						Yes	** NA **			None
69	M49	BenPIN					Yes	** NA **			None
70	M50	BenPIN					Yes	** NA **			None
71	M51	BenPIN					Yes	** NA **			None
72	M52	BenPIN					Yes	** NA **			None
73	M65						Yes	** NA **			None
74	M66						Yes	** NA **			None
75	M67						Yes	** NA **			None
76	M68						Yes	** NA **			None
77	M81						Yes	** NA **			None
78	M82						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Relea...	I Offset[...	J Offset...	T/C Only	Physical	Defl Ratio O...	Analysis Offs...	Inactive	Seismic Design Rules
79	M83						Yes	** NA **			None
80	M84						Yes	** NA **			None
81	M97						Yes	** NA **			None
82	M98						Yes	** NA **			None
83	M99						Yes	** NA **			None
84	M100						Yes	** NA **			None
85	M5	BenPIN	BenPIN				Yes				None
86	M6	BenPIN	BenPIN				Yes				None
87	M7	BenPIN	BenPIN				Yes				None
88	M8	BenPIN	BenPIN				Yes				None
89	M21	BenPIN	BenPIN				Yes				None
90	M22	BenPIN	BenPIN				Yes				None
91	M23	BenPIN	BenPIN				Yes				None
92	M24	BenPIN	BenPIN				Yes				None
93	M37	BenPIN	BenPIN				Yes				None
94	M38	BenPIN	BenPIN				Yes				None
95	M39	BenPIN	BenPIN				Yes				None
96	M40	BenPIN	BenPIN				Yes				None
97	M53	BenPIN	BenPIN				Yes				None
98	M54	BenPIN	BenPIN				Yes				None
99	M55	BenPIN	BenPIN				Yes				None
100	M56	BenPIN	BenPIN				Yes				None
101	M69	BenPIN	BenPIN				Yes				None
102	M70	BenPIN	BenPIN				Yes				None
103	M71	BenPIN	BenPIN				Yes				None
104	M72	BenPIN	BenPIN				Yes				None
105	M85	BenPIN	BenPIN				Yes				None
106	M86	BenPIN	BenPIN				Yes				None
107	M87	BenPIN	BenPIN				Yes				None
108	M88	BenPIN	BenPIN				Yes				None
109	M101	BenPIN	BenPIN				Yes				None
110	M102	BenPIN	BenPIN				Yes				None
111	M103	BenPIN	BenPIN				Yes				None
112	M104	BenPIN	BenPIN				Yes				None
113	M113	BenPIN					Yes				None
114	M114		BenPIN				Yes				None
115	M115	BenPIN					Yes				None
116	M116		BenPIN				Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-tor...	Kyy	Kzz	Cb	Fun...
1	M9	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
2	M10	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
3	M11	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
4	M12	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
5	M13	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
6	M14	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
7	M15	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
8	M16	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
9	M25	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-tor...	Kyy	Kzz	Cb	Fun...
10	M26	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
11	M27	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
12	M28	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
13	M29	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
14	M30	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
15	M31	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
16	M32	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
17	M41	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
18	M42	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
19	M43	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
20	M44	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
21	M45	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
22	M46	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
23	M47	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
24	M48	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
25	M57	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
26	M58	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
27	M59	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
28	M60	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
29	M61	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
30	M62	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
31	M63	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
32	M64	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
33	M73	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
34	M74	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
35	M75	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
36	M76	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
37	M77	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
38	M78	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
39	M79	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
40	M80	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
41	M89	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
42	M90	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
43	M91	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
44	M92	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
45	M93	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
46	M94	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
47	M95	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
48	M96	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
49	M105	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
50	M106	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
51	M107	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
52	M108	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
53	M109	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
54	M110	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
55	M111	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
56	M112	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
57	M1	TWR_LEG_L1	10	10	10	10	10	10	1	1		Lat...
58	M2	TWR_LEG_L1	10	10	10	10	10	10	1	1		Lat...
59	M3	TWR_LEG_L1	10	10	10	10	10	10	1	1		Lat...
60	M4	TWR_LEG_L1	10	10	10	10	10	10	1	1		Lat...
61	M17	TWR_LEG_L2	10	10	10	10	10	10	1	1		Lat...

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-tor...	Kyy	Kzz	Cb	Fun...
62	M18	TWR_LEG_L2	10	10	10	10	10	10	1	1		Lat...
63	M19	TWR_LEG_L2	10	10	10	10	10	10	1	1		Lat...
64	M20	TWR_LEG_L2	10	10	10	10	10	10	1	1		Lat...
65	M33	TWR_LEG_L3	10	10	10	10	10	10	1	1		Lat...
66	M34	TWR_LEG_L3	10	10	10	10	10	10	1	1		Lat...
67	M35	TWR_LEG_L3	10	10	10	10	10	10	1	1		Lat...
68	M36	TWR_LEG_L3	10	10	10	10	10	10	1	1		Lat...
69	M49	TWR_LEG_L4	10	10	10	10	10	10	1	1		Lat...
70	M50	TWR_LEG_L4	10	10	10	10	10	10	1	1		Lat...
71	M51	TWR_LEG_L4	10	10	10	10	10	10	1	1		Lat...
72	M52	TWR_LEG_L4	10	10	10	10	10	10	1	1		Lat...
73	M65	TWR_LEG_T1	20	20	20	20	20	20	1	1		Lat...
74	M66	TWR_LEG_T1	20	20	20	20	20	20	1	1		Lat...
75	M67	TWR_LEG_T1	20	20	20	20	20	20	1	1		Lat...
76	M68	TWR_LEG_T1	20	20	20	20	20	20	1	1		Lat...
77	M81	TWR_LEG_T2	20	20	20	20	20	20	1	1		Lat...
78	M82	TWR_LEG_T2	20	20	20	20	20	20	1	1		Lat...
79	M83	TWR_LEG_T2	20	20	20	20	20	20	1	1		Lat...
80	M84	TWR_LEG_T2	20	20	20	20	20	20	1	1		Lat...
81	M97	TWR_LEG_T3	20	20	20	20	20	20	1	1		Lat...
82	M98	TWR_LEG_T3	20	20	20	20	20	20	1	1		Lat...
83	M99	TWR_LEG_T3	20	20	20	20	20	20	1	1		Lat...
84	M100	TWR_LEG_T3	20	20	20	20	20	20	1	1		Lat...
85	M5	TWR_TOP_GIRT_L1	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
86	M6	TWR_TOP_GIRT_L1	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
87	M7	TWR_TOP_GIRT_L1	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
88	M8	TWR_TOP_GIRT_L1	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
89	M21	TWR_TOP_GIRT_L2	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
90	M22	TWR_TOP_GIRT_L2	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
91	M23	TWR_TOP_GIRT_L2	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
92	M24	TWR_TOP_GIRT_L2	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
93	M37	TWR_TOP_GIRT_L3	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
94	M38	TWR_TOP_GIRT_L3	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
95	M39	TWR_TOP_GIRT_L3	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
96	M40	TWR_TOP_GIRT_L3	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
97	M53	TWR_TOP_GIRT_L4	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
98	M54	TWR_TOP_GIRT_L4	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
99	M55	TWR_TOP_GIRT_L4	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
100	M56	TWR_TOP_GIRT_L4	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
101	M69	TWR_TOP_GIRT_T1	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
102	M70	TWR_TOP_GIRT_T1	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
103	M71	TWR_TOP_GIRT_T1	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
104	M72	TWR_TOP_GIRT_T1	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
105	M85	TWR_TOP_GIRT_T2	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
106	M86	TWR_TOP_GIRT_T2	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
107	M87	TWR_TOP_GIRT_T2	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
108	M88	TWR_TOP_GIRT_T2	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
109	M101	TWR_TOP_GIRT_T3	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
110	M102	TWR_TOP_GIRT_T3	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
111	M103	TWR_TOP_GIRT_T3	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
112	M104	TWR_TOP_GIRT_T3	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
113	M113	TWR_INNER_BRAC...	7.8125	7.813	7.813	7.813	7.813	7.813	2.1	2.1		Lat...

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-tor...	Kyy	Kzz	Cb	Fun...
114	M114	TWR_INNER_BRAC...	7.8125	7.813	7.813	7.813	7.813	7.813	2.1	2.1		Lat...
115	M115	TWR_INNER_BRAC...	7.8125	7.813	7.813	7.813	7.813	7.813	2.1	2.1		Lat...
116	M116	TWR_INNER_BRAC...	7.8125	7.813	7.813	7.813	7.813	7.813	2.1	2.1		Lat...

Basic Load Cases

	BLC Description	Category	X G...	Y Gra...	Z Gr...	Joint	Point	Distri...	Area(Member)	Surface(Plate/Wall)
1	Dead	DL		-1		56	288	60	4	
2	No Ice Wind 0Á	None				64				
3	No Ice Wind 45Á	None				128				
4	No Ice Wind 90Á	None				64				
5	No Ice Wind 135Á	None				128				
6	No Ice Wind 180Á	None				64				
7	No Ice Wind 225Á	None				128				
8	No Ice Wind 270Á	None				64				
9	No Ice Wind 315Á	None				128				
10	Ice Weight	IL				56	288	172		
11	Ice Wind 0Á	None				64				
12	Ice Wind 45Á	None				128				
13	Ice Wind 90Á	None				64				
14	Ice Wind 135Á	None				128				
15	Ice Wind 180Á	None				64				
16	Ice Wind 225Á	None				128				
17	Ice Wind 270Á	None				64				
18	Ice Wind 315Á	None				128				
19	Live	LL							4	
20	Roof Live	RLL								
21	Snow	SL								
22	BLC 1 Transient Area Loads	None						96		
23	BLC 19 Transient Area Loa...	None						96		

Load Combinations

	Description	Solve	PD...	S...	B...	Fact...	BLC	Fa...	BLC	Fac...	B...	Fa...	BLC	Fac...	BLC	F...	BLC	F...	...	F...	...	F...	...	F...
1	1.4 DL	Yes	Y		DL	1.4																		
2	1.2 DL + 1.6 LL + 0.5 RLL	Yes	Y		DL	1.2	LL	1.6	RLL	.5														
3	1.2 DL + 1.6 LL + 0.5 SL +...	Yes	Y		DL	1.2	LL	1.6	SL	.5			IL	.2										
4	1.2 DL + 1 LL + 1.6 RLL	Yes	Y		DL	1.2	LL	1	RLL	1.6														
5	1.2 DL + 1 LL + 1.6 SL	Yes	Y		DL	1.2	LL	1	SL	1.6														
6	1.2 DL + 1.6 RLL + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	2	.5												
7	1.2 DL + 1.6 SL + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	2	.5												
8	1.2 DL + 1 LL + 0.5 RLL + ...	Yes	Y		DL	1.2	LL	1	RLL	.5	2	1												
9	1.2 DL + 1 LL + 0.5 SL + 1...	Yes	Y		DL	1.2	LL	1	SL	.5	2	1												
10	0.9 DL + 1 W @ 0Á	Yes	Y		DL	.9					2	1												
11	1.2 DL + 1.6 RLL + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	3	.5												
12	1.2 DL + 1.6 SL + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	3	.5												
13	1.2 DL + 1 LL + 0.5 RLL + ...	Yes	Y		DL	1.2	LL	1	RLL	.5	3	1												
14	1.2 DL + 1 LL + 0.5 SL + 1...	Yes	Y		DL	1.2	LL	1	SL	.5	3	1												
15	0.9 DL + 1 W @ 45Á	Yes	Y		DL	.9					3	1												
16	1.2 DL + 1.6 RLL + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	4	.5												
17	1.2 DL + 1.6 SL + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	4	.5												

Load Combinations (Continued)

	Description	Solve	PD...	S...	B...	Fact...	BLC	Fa...	BLC	Fac...	B...	Fa...	BLC	Fac...	BLC	F...	BLC	F...	...	F...	...	F...	...	F...
18	1.2 DL + 1 LL + 0.5 RLL + ...	Yes	Y		DL	1.2	LL	1	RLL	.5	4	1												
19	1.2 DL + 1 LL + 0.5 SL + 1...	Yes	Y		DL	1.2	LL	1	SL	.5	4	1												
20	0.9 DL + 1 W @ 90Á	Yes	Y		DL	.9					4	1												
21	1.2 DL + 1.6 RLL + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	5	.5												
22	1.2 DL + 1.6 SL + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	5	.5												
23	1.2 DL + 1 LL + 0.5 RLL + ...	Yes	Y		DL	1.2	LL	1	RLL	.5	5	1												
24	1.2 DL + 1 LL + 0.5 SL + 1...	Yes	Y		DL	1.2	LL	1	SL	.5	5	1												
25	0.9 DL + 1 W @ 135Á	Yes	Y		DL	.9					5	1												
26	1.2 DL + 1.6 RLL + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	6	.5												
27	1.2 DL + 1.6 SL + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	6	.5												
28	1.2 DL + 1 LL + 0.5 RLL + ...	Yes	Y		DL	1.2	LL	1	RLL	.5	6	1												
29	1.2 DL + 1 LL + 0.5 SL + 1...	Yes	Y		DL	1.2	LL	1	SL	.5	6	1												
30	0.9 DL + 1 W @ 180Á	Yes	Y		DL	.9					6	1												
31	1.2 DL + 1.6 RLL + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	7	.5												
32	1.2 DL + 1.6 SL + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	7	.5												
33	1.2 DL + 1 LL + 0.5 RLL + ...	Yes	Y		DL	1.2	LL	1	RLL	.5	7	1												
34	1.2 DL + 1 LL + 0.5 SL + 1...	Yes	Y		DL	1.2	LL	1	SL	.5	7	1												
35	0.9 DL + 1 W @ 225Á	Yes	Y		DL	.9					7	1												
36	1.2 DL + 1.6 RLL + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	8	.5												
37	1.2 DL + 1.6 SL + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	8	.5												
38	1.2 DL + 1 LL + 0.5 RLL + ...	Yes	Y		DL	1.2	LL	1	RLL	.5	8	1												
39	1.2 DL + 1 LL + 0.5 SL + 1...	Yes	Y		DL	1.2	LL	1	SL	.5	8	1												
40	0.9 DL + 1 W @ 270Á	Yes	Y		DL	.9					8	1												
41	1.2 DL + 1.6 RLL + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	9	.5												
42	1.2 DL + 1.6 SL + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	9	.5												
43	1.2 DL + 1 LL + 0.5 RLL + ...	Yes	Y		DL	1.2	LL	1	RLL	.5	9	1												
44	1.2 DL + 1 LL + 0.5 SL + 1...	Yes	Y		DL	1.2	LL	1	SL	.5	9	1												
45	0.9 DL + 1 W @ 315Á	Yes	Y		DL	.9					9	1												
46	1.2 DL + 1 Ice + 0.5 SL + ...	Yes	Y		DL	1.2	IL	1	SL	.5	11	1		1										
47	0.9 DL + 1 Ice + 1 Ice W ...	Yes	Y		DL	.9	IL	1			11	1		1										
48	1.2 DL + 1 Ice + 0.5 SL + ...	Yes	Y		DL	1.2	IL	1	SL	.5	12	1		1										
49	0.9 DL + 1 Ice + 1 Ice W ...	Yes	Y		DL	.9	IL	1			12	1		1										
50	1.2 DL + 1 Ice + 0.5 SL + ...	Yes	Y		DL	1.2	IL	1	SL	.5	13	1		1										
51	0.9 DL + 1 Ice + 1 Ice W ...	Yes	Y		DL	.9	IL	1			13	1		1										
52	1.2 DL + 1 Ice + 0.5 SL + ...	Yes	Y		DL	1.2	IL	1	SL	.5	14	1		1										
53	0.9 DL + 1 Ice + 1 Ice W ...	Yes	Y		DL	.9	IL	1			14	1		1										
54	1.2 DL + 1 Ice + 0.5 SL + ...	Yes	Y		DL	1.2	IL	1	SL	.5	15	1		1										
55	0.9 DL + 1 Ice + 1 Ice W ...	Yes	Y		DL	.9	IL	1			15	1		1										
56	1.2 DL + 1 Ice + 0.5 SL + ...	Yes	Y		DL	1.2	IL	1	SL	.5	16	1		1										
57	0.9 DL + 1 Ice + 1 Ice W ...	Yes	Y		DL	.9	IL	1			16	1		1										
58	1.2 DL + 1 Ice + 0.5 SL + ...	Yes	Y		DL	1.2	IL	1	SL	.5	17	1		1										
59	0.9 DL + 1 Ice + 1 Ice W ...	Yes	Y		DL	.9	IL	1			17	1		1										
60	1.2 DL + 1 Ice + 0.5 SL + ...	Yes	Y		DL	1.2	IL	1	SL	.5	18	1		1										
61	0.9 DL + 1 Ice + 1 Ice W ...	Yes	Y		DL	.9	IL	1			18	1		1										

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N57	max	15.899	24	142.521	24	13.128	45	0	61	0	34	0	61
2		min	-13.078	45	-118.158	45	-15.831	23	0	1	0	13	0	1
3	N58	max	13.078	35	143.209	14	13.058	35	0	61	0	24	0	61

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
4		min	-15.899	13	-117.629	35	-15.92	13	0	1	0	43	0	1
5	N59	max	13.108	25	142.909	44	15.921	44	0	61	0	14	0	61
6		min	-15.853	43	-117.822	25	-13.058	25	0	1	0	33	0	1
7	N60	max	15.853	34	142.221	34	15.832	34	0	61	0	44	0	61
8		min	-13.108	15	-118.351	15	-13.128	15	0	1	0	23	0	1
9	Totals:	max	29.647	30	111.665	60	29.647	40						
10		min	-29.647	8	38.889	10	-29.647	18						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc...	Dir	LC	phi...	phi...	phi...	phi...	Cb	Eqn
1	M72	W16X45	.505	4.76	29	.148	0	y	29	426...	598...	54....	273...	1	H1-1b
2	M71	W16X45	.501	4.76	39	.147	9.5...	y	39	426...	598...	54....	273...	1	H1-1b
3	M69	W16X45	.500	4.76	19	.146	9.5...	y	19	426...	598...	54....	273...	1	H1-1b
4	M70	W16X45	.495	4.76	9	.145	9.5...	y	9	426...	598...	54....	273...	1	H1-1b
5	M116	W10X33	.433	3.418	29	.537	4.72	y	29	205...	436...	52.5	142...	1	H1-1b
6	M114	W10X33	.429	3.418	39	.531	4.72	y	39	205...	436...	52.5	142...	1	H1-1b
7	M113	W10X33	.425	4.395	19	.530	3.0...	y	19	205...	436...	52.5	142...	1	H1-1b
8	M115	W10X33	.420	4.395	9	.524	3.0...	y	9	205...	436...	52.5	142...	1	H1-1b
9	M98	HSS8x8x1/4	.392	20	14	.001	0	z	44	199...	293...	66....	66....	1	H1-1a
10	M99	HSS8x8x1/4	.391	20	44	.001	0	z	14	199...	293...	66....	66....	1	H1-1a
11	M97	HSS8x8x1/4	.391	20	24	.001	0	z	14	199...	293...	66....	66....	1	H1-1a
12	M100	HSS8x8x1/4	.390	20	34	.001	0	z	44	199...	293...	66....	66....	1	H1-1a
13	M107	2L4x4x3/8x1/2	.337	5.999	14	.002	11....	y	60	112...	185...	20....	13....	1	H1-1a
14	M108	2L4x4x3/8x1/2	.337	5.999	44	.002	11....	y	48	112...	185...	20....	13....	1	H1-1a
15	M106	2L4x4x3/8x1/2	.336	5.999	14	.002	11....	y	52	112...	185...	20....	13....	1	H1-1a
16	M105	2L4x4x3/8x1/2	.336	5.999	24	.002	11....	y	48	112...	185...	20....	13....	1	H1-1a
17	M109	2L4x4x3/8x1/2	.335	5.999	44	.002	11....	y	56	112...	185...	20....	13....	1	H1-1a
18	M110	2L4x4x3/8x1/2	.335	5.999	34	.002	11....	y	60	112...	185...	20....	13....	1	H1-1a
19	M112	2L4x4x3/8x1/2	.335	5.999	24	.002	11....	y	56	112...	185...	20....	13....	1	H1-1a
20	M111	2L4x4x3/8x1/2	.335	5.999	34	.002	11....	y	52	112...	185...	20....	13....	1	H1-1a
21	M63	2L2x2x3/16x1/2	.322	5.553	24	.005	0	y	34	29....	46....	2.8...	1.6...	1	H1-1a
22	M62	2L2x2x3/16x1/2	.322	5.553	34	.005	0	y	24	29....	46....	2.8...	1.6...	1	H1-1a
23	M64	2L2x2x3/16x1/2	.322	5.553	44	.005	0	y	34	29....	46....	2.8...	1.6...	1	H1-1a
24	M61	2L2x2x3/16x1/2	.321	5.553	14	.005	0	y	24	29....	46....	2.8...	1.6...	1	H1-1a
25	M57	2L2x2x3/16x1/2	.318	5.553	34	.005	0	y	44	29....	46....	2.8...	1.6...	1	H1-1a
26	M58	2L2x2x3/16x1/2	.318	5.553	14	.005	0	y	44	29....	46....	2.8...	1.6...	1	H1-1a
27	M60	2L2x2x3/16x1/2	.317	5.553	24	.005	0	y	14	29....	46....	2.8...	1.6...	1	H1-1a
28	M59	2L2x2x3/16x1/2	.317	5.553	44	.005	0	y	14	29....	46....	2.8...	1.6...	1	H1-1a
29	M104	W6X12	.306	4.76	10	.003	9.5...	y	50	59....	159...	8.7	22....	1	H1-1a
30	M103	W6X12	.306	4.76	20	.003	9.5...	y	46	59....	159...	8.7	22....	1	H1-1a
31	M101	W6X12	.305	4.76	40	.003	9.5...	y	46	59....	159...	8.7	22....	1	H1-1a
32	M102	W6X12	.305	4.76	30	.003	9.5...	y	50	59....	159...	8.7	22....	1	H1-1a
33	M82	HSS8x8x1/4	.282	0	14	.000	0	z	44	199...	293...	66....	66....	1	H1-1a
34	M83	HSS8x8x1/4	.281	0	44	.000	0	z	14	199...	293...	66....	66....	1	H1-1a
35	M81	HSS8x8x1/4	.280	0	24	.000	0	z	14	199...	293...	66....	66....	1	H1-1a
36	M84	HSS8x8x1/4	.279	0	34	.000	0	z	44	199...	293...	66....	66....	1	H1-1a
37	M52	HSS6x6x1/4	.262	10	29	.001	0	y	34	181...	216...	38....	38....	1	H1-1a
38	M49	HSS6x6x1/4	.258	10	39	.001	0	y	24	181...	216...	38....	38....	1	H1-1a
39	M51	HSS6x6x1/4	.257	10	19	.001	0	z	34	181...	216...	38....	38....	1	H1-1a
40	M50	HSS6x6x1/4	.253	10	9	.001	0	y	34	181...	216...	38....	38....	1	H1-1a

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc...	Dir	LC	phi...	phi...	phi...	phi...	Cb	Eqn
41	M47	2L2x2x3/16x1/2	.248	2.777	29	.003	5.5...	y	39	29....	46....	2.8...	1.6...	1	H1-1a
42	M48	2L2x2x3/16x1/2	.248	2.777	39	.003	5.5...	y	29	29....	46....	2.8...	1.6...	1	H1-1a
43	M46	2L2x2x3/16x1/2	.247	2.777	29	.003	5.5...	y	19	29....	46....	2.8...	1.6...	1	H1-1a
44	M45	2L2x2x3/16x1/2	.247	2.777	19	.003	5.5...	y	29	29....	46....	2.8...	1.6...	1	H1-1a
45	M42	2L2x2x3/16x1/2	.244	2.777	9	.003	5.5...	y	39	29....	46....	2.8...	1.6...	1	H1-1a
46	M41	2L2x2x3/16x1/2	.244	2.777	39	.003	5.5...	y	9	29....	46....	2.8...	1.6...	1	H1-1a
47	M43	2L2x2x3/16x1/2	.243	2.777	9	.003	5.5...	y	19	29....	46....	2.8...	1.6...	1	H1-1a
48	M44	2L2x2x3/16x1/2	.242	2.777	19	.003	5.5...	y	9	29....	46....	2.8...	1.6...	1	H1-1a
49	M90	2L4x4x3/8x1/2	.234	5.538	14	.002	11....	y	52	112..	185..	20....	13....	1	H1-1a
50	M89	2L4x4x3/8x1/2	.234	5.538	24	.002	11....	y	48	112..	185..	20....	13....	1	H1-1a
51	M91	2L4x4x3/8x1/2	.234	5.538	14	.002	11....	y	60	112..	185..	20....	13....	1	H1-1a
52	M92	2L4x4x3/8x1/2	.234	5.538	44	.002	11....	y	48	112..	185..	20....	13....	1	H1-1a
53	M96	2L4x4x3/8x1/2	.234	5.538	24	.002	11....	y	60	112..	185..	20....	13....	1	H1-1a
54	M95	2L4x4x3/8x1/2	.234	5.538	34	.002	11....	y	48	112..	185..	20....	13....	1	H1-1a
55	M93	2L4x4x3/8x1/2	.234	5.538	44	.002	11....	y	52	112..	185..	20....	13....	1	H1-1a
56	M94	2L4x4x3/8x1/2	.233	5.538	34	.002	11....	y	48	112..	185..	20....	13....	1	H1-1a
57	M86	W6X12	.172	0	30	.003	9.5...	y	50	59....	159..	8.7	22....	1	H1-1...
58	M87	W6X12	.172	0	20	.003	9.5...	y	46	59....	159..	8.7	22....	1	H1-1...
59	M85	W6X12	.172	0	40	.003	9.5...	y	46	59....	159..	8.7	22....	1	H1-1...
60	M88	W6X12	.172	0	10	.003	9.5...	y	50	59....	159..	8.7	22....	1	H1-1...
61	M31	2L2x2x3/16x1/2	.163	0	24	.003	5.5...	y	39	29....	46....	2.8...	1.6...	1	H1-1...
62	M32	2L2x2x3/16x1/2	.163	0	44	.003	5.5...	y	29	29....	46....	2.8...	1.6...	1	H1-1...
63	M30	2L2x2x3/16x1/2	.162	0	34	.003	5.5...	y	19	29....	46....	2.8...	1.6...	1	H1-1...
64	M29	2L2x2x3/16x1/2	.161	0	14	.003	5.5...	y	29	29....	46....	2.8...	1.6...	1	H1-1...
65	M66	HSS8x8x1/4	.159	0	14	.000	0	y	14	199..	293..	66....	66....	1	H1-1...
66	M25	2L2x2x3/16x1/2	.159	0	34	.003	5.5...	y	9	29....	46....	2.8...	1.6...	1	H1-1...
67	M26	2L2x2x3/16x1/2	.159	0	14	.003	5.5...	y	9	29....	46....	2.8...	1.6...	1	H1-1...
68	M65	HSS8x8x1/4	.159	0	24	.000	0	y	24	199..	293..	66....	66....	1	H1-1...
69	M67	HSS8x8x1/4	.158	0	44	.000	0	y	44	199..	293..	66....	66....	1	H1-1...
70	M68	HSS8x8x1/4	.158	0	34	.000	0	y	34	199..	293..	66....	66....	1	H1-1...
71	M28	2L2x2x3/16x1/2	.157	0	24	.003	5.5...	y	9	29....	46....	2.8...	1.6...	1	H1-1...
72	M27	2L2x2x3/16x1/2	.157	0	44	.003	5.5...	y	19	29....	46....	2.8...	1.6...	1	H1-1...
73	M80	2L4x4x3/8x1/2	.156	0	24	.002	11....	y	58	112..	185..	20....	13....	1	H1-1...
74	M79	2L4x4x3/8x1/2	.156	0	34	.002	11....	y	50	112..	185..	20....	13....	1	H1-1...
75	M74	2L4x4x3/8x1/2	.156	0	14	.002	11....	y	54	112..	185..	20....	13....	1	H1-1...
76	M73	2L4x4x3/8x1/2	.156	0	24	.002	11....	y	46	112..	185..	20....	13....	1	H1-1...
77	M77	2L4x4x3/8x1/2	.156	0	44	.002	11....	y	54	112..	185..	20....	13....	1	H1-1...
78	M78	2L4x4x3/8x1/2	.156	0	34	.002	11....	y	46	112..	185..	20....	13....	1	H1-1...
79	M75	2L4x4x3/8x1/2	.155	0	14	.002	11....	y	58	112..	185..	20....	13....	1	H1-1...
80	M76	2L4x4x3/8x1/2	.155	0	44	.002	11....	y	50	112..	185..	20....	13....	1	H1-1...
81	M36	HSS6x6x1/4	.139	0	29	.001	0	z	29	181..	216..	38....	38....	1	H1-1...
82	M33	HSS6x6x1/4	.136	0	39	.001	0	y	19	181..	216..	38....	38....	1	H1-1...
83	M35	HSS6x6x1/4	.135	0	19	.001	0	z	39	181..	216..	38....	38....	1	H1-1...
84	M34	HSS6x6x1/4	.131	0	9	.001	0	z	29	181..	216..	38....	38....	1	H1-1...
85	M16	2L2x2x3/16x1/2	.092	0	44	.003	5.5...	y	29	29....	46....	2.8...	1.6...	1	H1-1...
86	M15	2L2x2x3/16x1/2	.092	0	24	.003	5.5...	y	39	29....	46....	2.8...	1.6...	1	H1-1...
87	M13	2L2x2x3/16x1/2	.092	0	14	.003	5.5...	y	19	29....	46....	2.8...	1.6...	1	H1-1...
88	M14	2L2x2x3/16x1/2	.092	0	34	.003	5.5...	y	19	29....	46....	2.8...	1.6...	1	H1-1...
89	M10	2L2x2x3/16x1/2	.088	0	14	.003	5.5...	y	9	29....	46....	2.8...	1.6...	1	H1-1...
90	M9	2L2x2x3/16x1/2	.088	0	34	.003	5.5...	y	9	29....	46....	2.8...	1.6...	1	H1-1...
91	M11	2L2x2x3/16x1/2	.088	0	44	.003	5.5...	y	9	29....	46....	2.8...	1.6...	1	H1-1...
92	M12	2L2x2x3/16x1/2	.088	0	24	.003	5.5...	y	9	29....	46....	2.8...	1.6...	1	H1-1...

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc...	Dir	LC	phi...	phi...	phi...	phi...	Cb	Eqn
93	M20	HSS6x6x1/4	.072	0	29	.000	0	z	39	181...	216...	38....	38....	1	H1-1...
94	M17	HSS6x6x1/4	.071	0	39	.000	0	y	9	181...	216...	38....	38....	1	H1-1...
95	M19	HSS6x6x1/4	.068	0	19	.000	0	z	9	181...	216...	38....	38....	1	H1-1...
96	M18	HSS6x6x1/4	.066	0	9	.000	0	z	39	181...	216...	38....	38....	1	H1-1...
97	M55	C6X10.5	.065	2.417	3	.019	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
98	M39	C6X10.5	.063	2.417	3	.019	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
99	M23	C6X10.5	.061	2.417	3	.019	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
100	M54	C6X10.5	.060	2.417	3	.017	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
101	M56	C6X10.5	.060	2.467	3	.017	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
102	M38	C6X10.5	.058	2.417	3	.017	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
103	M40	C6X10.5	.058	2.467	3	.017	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
104	M22	C6X10.5	.057	2.417	3	.017	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
105	M24	C6X10.5	.056	2.467	3	.017	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
106	M53	C6X10.5	.056	2.417	3	.017	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
107	M37	C6X10.5	.055	2.417	3	.017	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
108	M21	C6X10.5	.053	2.417	3	.017	4.8...	y	3	59....	99....	2.4...	15....	1	H1-1b
109	M4	HSS6x6x1/4	.026	0	54	.000	0	y	19	181...	216...	38....	38....	1	H1-1...
110	M1	HSS6x6x1/4	.023	0	39	.000	0	z	9	181...	216...	38....	38....	1	H1-1...
111	M3	HSS6x6x1/4	.022	0	19	.000	0	z	9	181...	216...	38....	38....	1	H1-1...
112	M2	HSS6x6x1/4	.020	0	9	.000	0	y	19	181...	216...	38....	38....	1	H1-1...
113	M8	C6X10.5	.006	2.417	56	.002	4.8...	y	46	59....	99....	2.4...	15....	1	H1-1b
114	M7	C6X10.5	.006	2.417	52	.002	4.8...	y	46	59....	99....	2.4...	15....	1	H1-1b
115	M5	C6X10.5	.006	2.417	60	.002	4.8...	y	60	59....	99....	2.4...	15....	1	H1-1b
116	M6	C6X10.5	.006	2.417	48	.002	4.8...	y	46	59....	99....	2.4...	15....	1	H1-1b

Project #: 2021777.800529.10

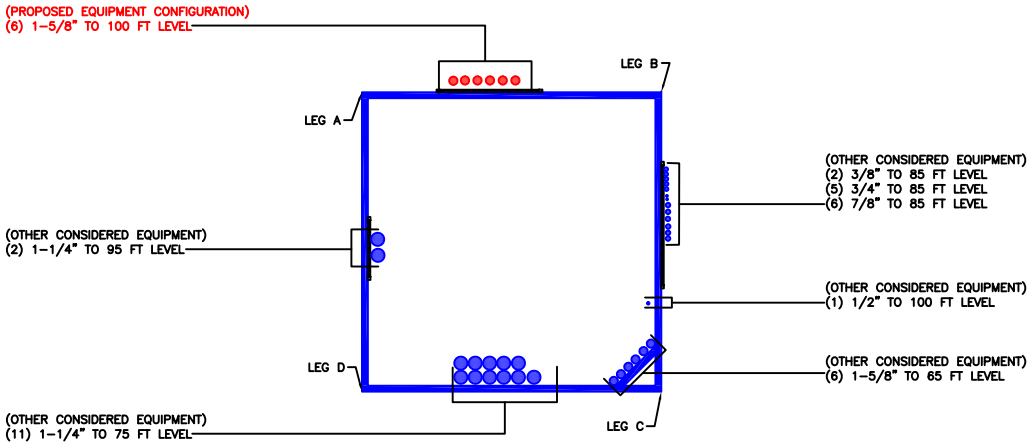
Bolt Checks

Date: 3/12/2021

Section #	Elevation	Component Type	Bolt Grade	Bolt Size (in)	# of Bolts	Maximum Load (k)	Maximum Load per Bolt (k)	Allowable Load per Bolt (k)	Ratio	Allowable Ratio	% Capacity	Criteria
L1	100	Diagonal	A325N	0.875	2	2.75	1.375	15.588	0.088	1.000	8.4%	1.05
L2	90	Diagonal	A325N	0.875	2	4.86	2.43	15.588	0.156	1.000	14.8%	1.05
L3	80	Diagonal	A325N	0.875	2	7.255	3.628	15.588	0.233	1.000	22.2%	1.05
L4	70	Leg	A325N	0.875	4	44.445	22.222	41.556	0.535	1.000	50.9%	1.05
		Diagonal	A325N	0.875	2	9.072	4.536	15.588	0.291	1.000	27.7%	1.05
T1	60	Diagonal	A325N	0.875	2	17.599	8.8	41.372	0.213	1.000	20.3%	1.05
T2	40	Top Girt	A325N	0.875	2	14.432	7.216	24.354	0.296	1.000	28.2%	1.05
		Diagonal	A325N	0.875	2	25.16	12.58	41.372	0.304	1.000	29.0%	1.05
T3	20	Top Girt	A325N	0.875	2	23.224	11.612	24.354	0.477	1.000	45.4%	1.05
		Diagonal	A325N	0.875	2	36.514	18.257	41.372	0.441	1.000	42.0%	1.05
										Maximum Capacity	50.9%	

APPENDIX B

BASE LEVEL DRAWING



CROWN REGION ADDRESS

USA

CLM	UPDATED PER WORK ORDER 1700015	21/03/19	
DM	UPDATED PER WORK ORDER 1765329	02/07/19	
MJT	UPDATED PER WORK ORDER 1794884	25/09/19	
NK	UPDATED PER WORK ORDER 1832795	27/02/20	
LR	UPDATED PER WORK ORDER 1850825	29/05/20	
SMB	UPDATED PER WORK ORDER 1851217	27/08/20	
RS	UPDATED PER WORK ORDER 1882484	31/08/20	
RS	UPDATED PER WORK ORDER 1898533	18/11/20	
MM	UPDATED PER WORK ORDER 1926875	19/02/21	

DRAWN BY: AAM
CHECKED BY:
DRAWING DATE: 19/05/06

SITE NUMBER:
SITE NAME:

SITE NAME

CT HAMDEN NORTH CAC

BUSINESS UNIT NUMBER

800529

SITE ADDRESS

890 EVERGREEN AVENUE
HAMDEN, CT 06514
NEW HAVEN COUNTY
USA

SHEET TITLE

BASE LEVEL DRAWING

SHEET NUMBER

N.T.S.

A1-0

PLOT DATE: 7/26/2016
U:\AutoCAD\Border\BASELEVEL BORDER.dwg

FILE NAME: 800529_BASELEVEL.dwg

APPENDIX C

ADDITIONAL CALCULATIONS

Self Support Anchor Rod Capacity

Site Info	
BU #	800529
Site Name	T HAMDEN NORTH CA
Order #	529728 Rev. 0

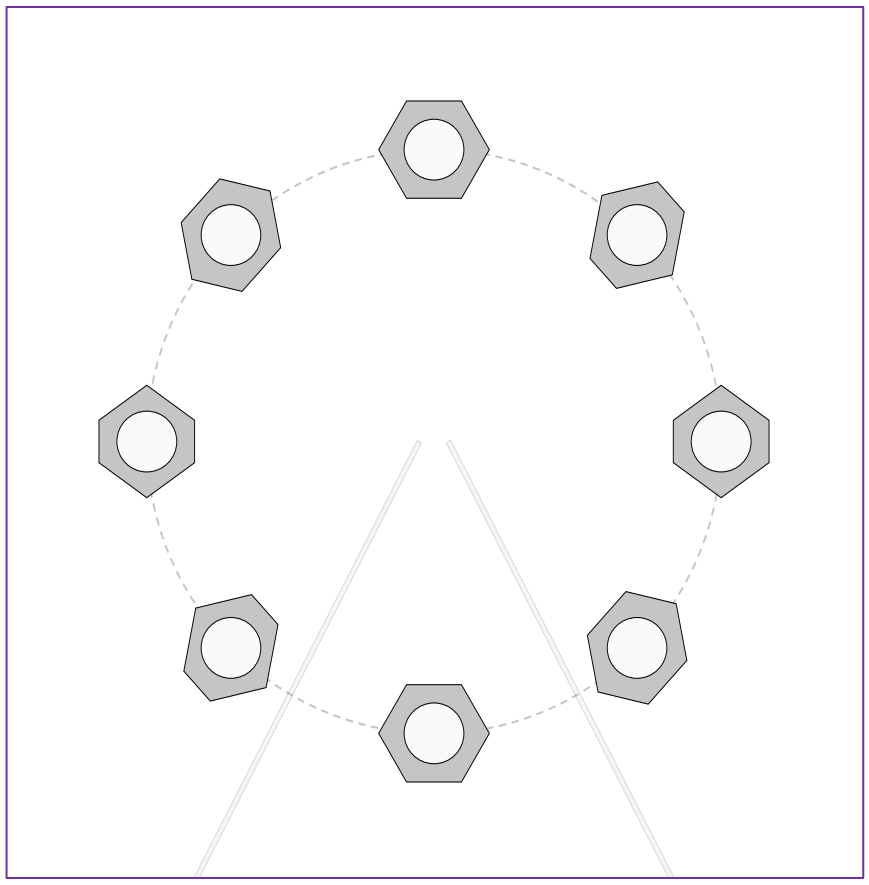
Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	0.00	118.35
Shear Force (kips)	22.50	18.55

**TIA-222-H Section 15.5 Applied*

Considered Eccentricity	
Leg Mod Eccentricity (in)	0.000
Anchor Rod N.A Shift (in)	0.000
Total Eccentricity (in)	0.000

**Anchor Rod Eccentricity Applied*



Connection Properties

Anchor Rod Data

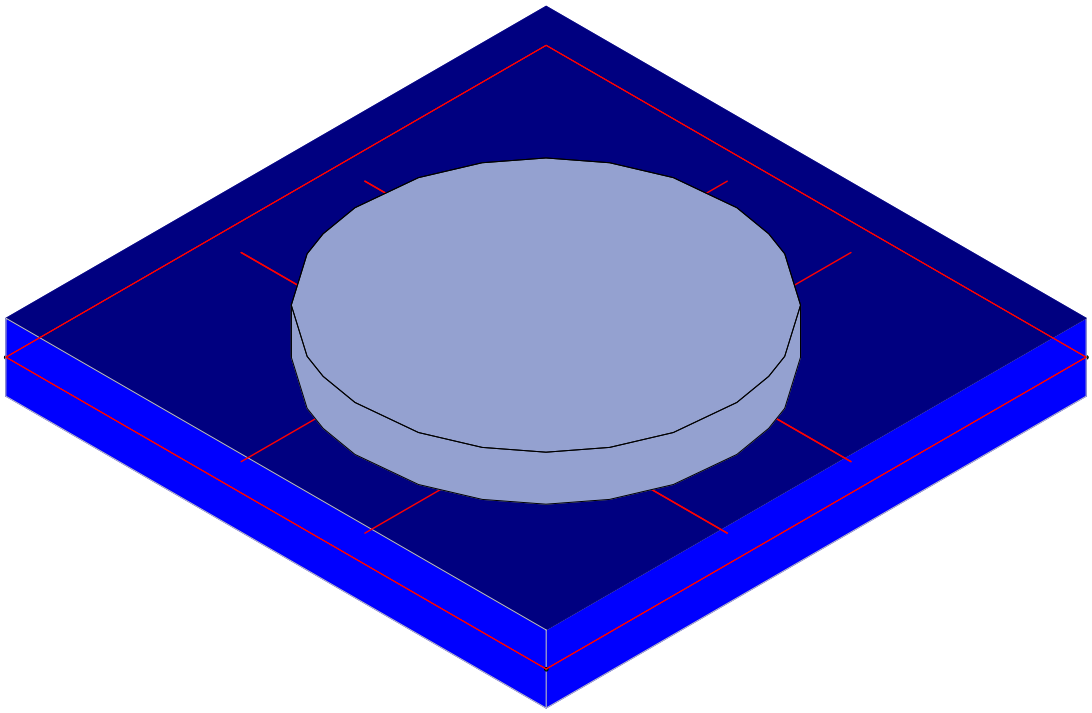
(8) 1-1/4" ø bolts (A36 N; Fy=36 ksi, Fu=58 ksi)

l_{ar} (in): 0

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 14.79	ϕPn_t = 42.15	**Stress Rating**
Vu = 2.32	ϕVn = 26.69	**12.4%**
Mu = n/a	ϕMn = n/a	**Pass**



Loads: DL - Dead Load
Results for LC 1, 1.4 DL

GPD		SK - 1
KM	CT HAMDEN NORTH CAC	Mar 10, 2021 at 2:41 PM
2021777.800529.10	3D Rendering - Foundation	800529.fnd

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	100
Mesh Size (in)	24
Max Iterations	10
Merge Tolerance (in)	.12
Solver	Sparse Accelerated
Coefficient of Friction	.3
No. of Shear Regions	4
Shear Region Spacing Increment (in)	4
Min 1 Bar Dia Spacing for Beams?	No
Optimize footings for OTM / Sliding?	No
Parme Beta Factor	.65
Pile Safety Factor	3
Concrete Stress Block	Rectangular
Concrete Rebar Set	ASTM A615
Concrete Code	ACI 318-14
HR Steel Pile Code	AISC 14th(360-10): ASD
Wood Pile Code	AWC NDS-18: ASD

Concrete Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/f...	f'c[ksi]	Lambda	Flex Steel[...	Shear Ste...
1	Conc3000NW	3156	1372	.15	.6	.145	3	1	60	60
2	Conc3500NW	3409	1482	.15	.6	.145	3.5	1	60	60
3	Conc4000NW	3644	1584	.15	.6	.145	4	1	60	60
4	Conc3000LW	2085	907	.15	.6	.11	3	.75	60	60
5	Conc3500LW	2252	979	.15	.6	.11	3.5	.75	60	60
6	Conc4000LW	2408	1047	.15	.6	.11	4	.75	60	60

Slabs

	Label	Thickness [in]	Material	Local Axis Angle [d...	Analysis Offset [in]	Passive Pressure [...	Soil Overb...
1	S2	36	Conc3000NW	0	0	0	0

Soil Definitions

	Label	Subgrade Modulus[k/ft^3]	Allowable Bearing[ksf]	Depth Properties	Default?
1	Default	259.2	4.5	None	Yes

General Design Parameters

	Label	Max Bending Chk	Max Shear Chk	Top Cover[in]	Bottom Cover[in]
1	Circular	1	1	1.5	3
2	Square	1	1	1.5	1.5

Slab Rebar Parameters

	Label	Top Bar	Bottom ...	Max Top Bar ...	Min Top Bar Spacing[in]	Max Bot Bar ...	Min Bot Bar ...	Spacing Incr...	Rebar Options
1	Circular	#6	#3	9	9	999	999	2	Force Top and Bottom
2	Square	#5	#8	9	9	9	9	2	Force Top and Bottom

Load Combinations

	Label	S...	S...	A...	SF	Ca..	Factor	Ca..	Fa..	Ca..	Fa..	Categ...	Fa..	Ca..	Fa..	Ca..	Fa..	Ca..	Fa..	Ca..	Fa..	Ca..	Fa..	Ca..	Fa..
1	1.4 DL	Y...				DL	1	OL1	1																
2	1.2 DL + 1.6 LL + 0.5 RLL	Y...				DL	1	OL2	1																
3	1.2 DL + 1.6 LL + 0.5 SL ...	Y...				DL	1	OL3	1																
4	1.2 DL + 1 LL + 1.6 RLL	Y...				DL	1	OL4	1																
5	1.2 DL + 1 LL + 1.6 SL	Y...				DL	1	OL5	1																
6	1.2 DL + 1.6 RLL + 0.5 ...	Y...				DL	1	OL6	1																
7	1.2 DL + 1.6 SL + 0.5 W ...	Y...				DL	1	OL7	1																
8	1.2 DL + 1 LL + 0.5 RLL ...	Y...				DL	1	OL8	1																
9	1.2 DL + 1 LL + 0.5 SL + ...	Y...				DL	1	OL9	1																
10	0.9 DL + 1 W @ 0Á	Y...				DL	1	O...	1																
11	1.2 DL + 1.6 RLL + 0.5 ...	Y...				DL	1	ELX	1																
12	1.2 DL + 1.6 SL + 0.5 W ...	Y...				DL	1	ELY	1																
13	1.2 DL + 1 LL + 0.5 RLL ...	Y...				DL	1	ELZ	1																
14	1.2 DL + 1 LL + 0.5 SL + ...	Y...				DL	1	W...	1																
15	0.9 DL + 1 W @ 45Á	Y...				DL	1	W...	1																
16	1.2 DL + 1 Ice + 0.5 SL +...	Y...				DL	1	W...	1																
17	0.9 DL + 1 Ice + 1 Ice W ...	Y...				DL	1	W...	1																
18	1.2 DL + 1 Ice + 0.5 SL +...	Y...				DL	1	W...	1																
19	0.9 DL + 1 Ice + 1 Ice W ...	Y...				DL	1	W...	1																
20	1.4 DL	Y...	Y...			DL	1	OL1	1																
21	1.2 DL + 1.6 LL + 0.5 RLL	Y...	Y...			DL	1	OL2	1																
22	1.2 DL + 1.6 LL + 0.5 SL ...	Y...	Y...			DL	1	OL3	1																
23	1.2 DL + 1 LL + 1.6 RLL	Y...	Y...			DL	1	OL4	1																
24	1.2 DL + 1 LL + 1.6 SL	Y...	Y...			DL	1	OL5	1																
25	1.2 DL + 1.6 RLL + 0.5 ...	Y...	Y...			DL	1	OL6	1																
26	1.2 DL + 1.6 SL + 0.5 W ...	Y...	Y...			DL	1	OL7	1																
27	1.2 DL + 1 LL + 0.5 RLL ...	Y...	Y...			DL	1	OL8	1																
28	1.2 DL + 1 LL + 0.5 SL + ...	Y...	Y...			DL	1	OL9	1																
29	0.9 DL + 1 W @ 0Á	Y...	Y...			DL	1	O...	1																
30	1.2 DL + 1.6 RLL + 0.5 ...	Y...	Y...			DL	1	ELX	1																
31	1.2 DL + 1.6 SL + 0.5 W ...	Y...	Y...			DL	1	ELY	1																
32	1.2 DL + 1 LL + 0.5 RLL ...	Y...	Y...			DL	1	ELZ	1																
33	1.2 DL + 1 LL + 0.5 SL + ...	Y...	Y...			DL	1	W...	1																
34	0.9 DL + 1 W @ 45Á	Y...	Y...			DL	1	W...	1																
35	1.2 DL + 1 Ice + 0.5 SL +...	Y...	Y...			DL	1	W...	1																
36	0.9 DL + 1 Ice + 1 Ice W ...	Y...	Y...			DL	1	W...	1																
37	1.2 DL + 1 Ice + 0.5 SL +...	Y...	Y...			DL	1	W...	1																
38	0.9 DL + 1 Ice + 1 Ice W ...	Y...	Y...			DL	1	W...	1																

Design Strips

	Label	Rebar Angle from Pl...	No. of Design Cuts	Design Rule
1	DS4	90	50	Square
2	DS2	0	50	Square
3	DS3	90	50	Square

Strip Reinforcing

	Label	UC Top	LC	Top Bars	Governin...	UC Bot	LC	Bot Bars/...	Governin...	UC Shear	LC	Governin...
1	DS4	.07	15	#5@9in	DS4-X37	.088	13	#8@9in	DS4-X17	.094	15	DS4-X29
2	DS2	.12	10	#5@9in	DS2-X17	.109	8	#8@9in	DS2-X34	.119	10	DS2-X25
3	DS3	.07	15	#5@9in	DS3-X37	.088	13	#8@9in	DS3-X17	.094	15	DS3-X29

Slab Overturning Safety Factors (By Combination)

	LC	Slab	Angle[deg]	Mo-xx[k-ft]	Ms-xx[k-ft]	Mo-zz[k-ft]	Ms-zz[k-ft]	Ms-xx/Mo-xx	Ms-zz/Mo-zz
1	20	S2	0	0	4440.157	0	4435.179	9.999+	9.999+
2	21	S2	0	0	4509.055	0	4505.768	9.999+	9.999+
3	22	S2	0	0	4657.613	0	4654.411	9.999+	9.999+
4	23	S2	0	0	4443.939	0	4440.282	9.999+	9.999+
5	24	S2	0	0	4443.939	0	4440.282	9.999+	9.999+
6	25	S2	0	241.649	3706.416	0	4375.56	9.999+	9.999+
7	26	S2	0	241.649	3706.416	0	4375.56	9.999+	9.999+
8	27	S2	0	991.75	3706.416	0	4529.206	3.737	9.999+
9	28	S2	0	991.75	3706.416	0	4529.206	3.737	9.999+
10	29	S2	0	1250.773	3706.416	0	4263.856	2.963	9.999+
11	30	S2	0	0	4910.01	17.773	3706.416	9.999+	9.999+
12	31	S2	0	0	4910.01	17.773	3706.416	9.999+	9.999+
13	32	S2	0	426.191	3706.416	548.318	3706.416	8.697	6.76
14	33	S2	0	426.191	3706.416	548.318	3706.416	8.697	6.76
15	34	S2	0	686.324	3706.416	808.894	3706.416	5.4	4.582
16	35	S2	0	0	5274.486	0	5084.433	9.999+	9.999+
17	36	S2	0	0	5117.025	0	4928.258	9.999+	9.999+
18	37	S2	0	0	5209.817	0	5220.27	9.999+	9.999+
19	38	S2	0	0	5052.423	0	5063.936	9.999+	9.999+

Slab Sliding Safety Factors (By Combination)

	LC	Slab	Angle[deg]	Va-xx[k]	Vr-xx[k]	Va-zz[k]	Vr-zz[k]	SR-xx	SR-zz
1	20	S2	0	0	110.808	0	110.808	9.999+	9.999+
2	21	S2	0	0	112.567	0	112.567	9.999+	9.999+
3	22	S2	0	0	116.156	0	116.156	9.999+	9.999+
4	23	S2	0	0	110.936	0	110.936	9.999+	9.999+
5	24	S2	0	0	110.936	0	110.936	9.999+	9.999+
6	25	S2	0	0	93.393	0	108.216	9.999+	9.999+
7	26	S2	0	0	93.393	0	108.216	9.999+	9.999+
8	27	S2	0	11.372	92.66	0	110.935	8.148	9.999+
9	28	S2	0	11.372	92.66	0	110.935	8.148	9.999+
10	29	S2	0	17.981	92.66	0	104.327	5.153	9.999+
11	30	S2	0	0	97.734	0	97.734	9.999+	9.999+
12	31	S2	0	0	97.734	0	97.734	9.999+	9.999+
13	32	S2	0	2.689	92.66	2.689	92.66	9.999+	9.999+
14	33	S2	0	2.689	92.66	2.689	92.66	9.999+	9.999+
15	34	S2	0	9.297	92.66	9.296	92.66	9.966	9.967
16	35	S2	0	0	122.786	0	126.16	9.999+	9.999+
17	36	S2	0	0	118.896	0	122.271	9.999+	9.999+
18	37	S2	0	0	123.773	0	123.774	9.999+	9.999+
19	38	S2	0	0	119.885	0	119.885	9.999+	9.999+

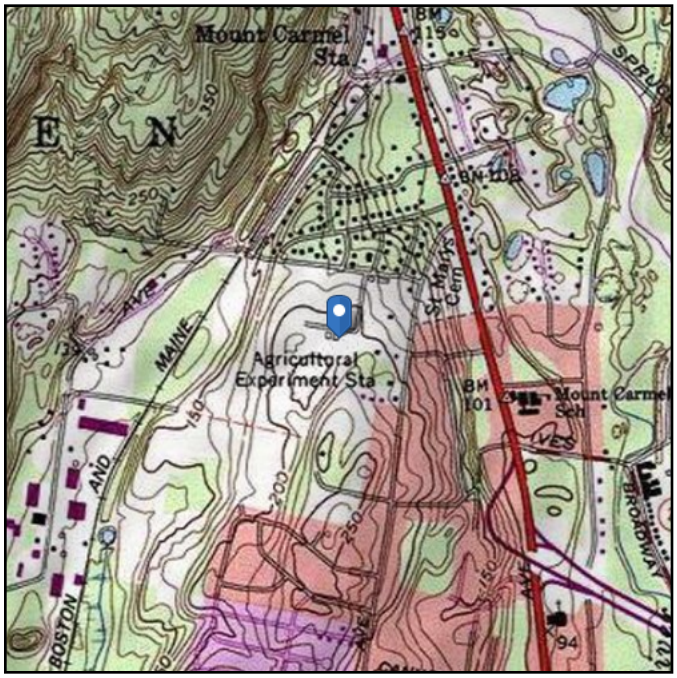
Envelope Slab Soil Pressures

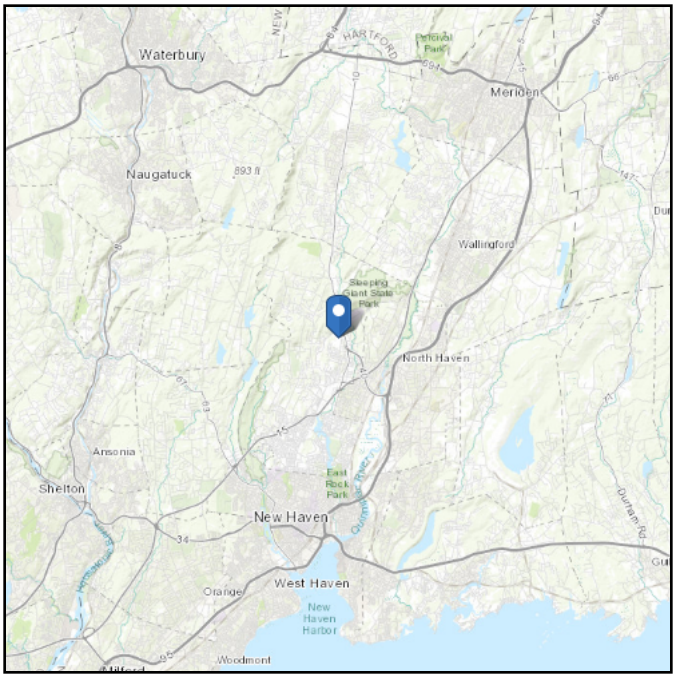
	Label	UC	LC	Soil Pressure[ksf]	Allowable Bearing[ksf]	Point
1	S2	.344	32	1.546	4.5	N34

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	205.84 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.406639
Soil Class:	D - Stiff Soil	**Longitude:**	-72.904533





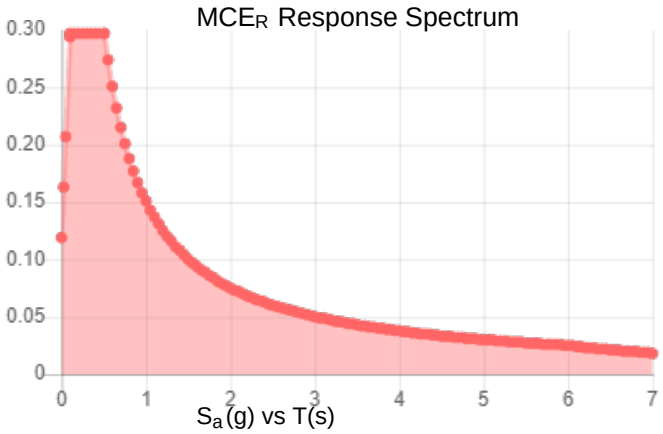
Seismic

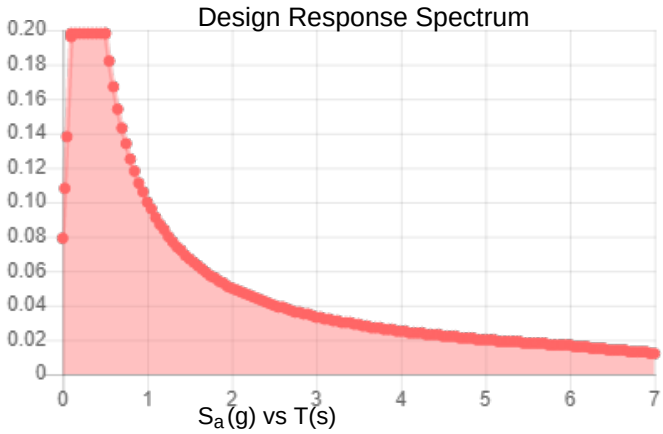
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.185	S_{DS} :	0.198
S_1 :	0.063	S_{D1} :	0.1
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.096
S_{MS} :	0.297	PGA_M :	0.154
S_{M1} :	0.151	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Jul 12 2019

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Jul 12 2019

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

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

Exhibit E

Mount Analysis

Date: **March 4, 2021**

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589

Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**T-Mobile Anchor**	
	Carrier Site Number:	CT11686I
	Carrier Site Name:	Crown Comm. - Hamden
Crown Castle Designation:	**Crown Castle BU Number:**	800529
	Crown Castle Site Name:	CT HAMPDEN NORTH CAC
	Crown Castle JDE Job Number:	620129
	Crown Castle Order Number:	529728 Rev.0
Engineering Firm Designation:	**Infinigy Engineering, PLLC Report Designation:**	1039-Z0001-B
Site Data:	**890 Evergreen Avenue, Hamden, New Haven County, CT, 06518** **Latitude 41°24'23.90" Longitude -72°54'16.32"**	
Structure Information:	**Tower Height & Type:**	**100.0 ft Silo**
	Mount Elevation:	**100.0 ft**
	Mount Type:	**5.0 ft Sector Frame**

Dear Darcy Tarr,

Infinigy Engineering, PLLC is pleased to submit this **"Mount Replacement Analysis Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

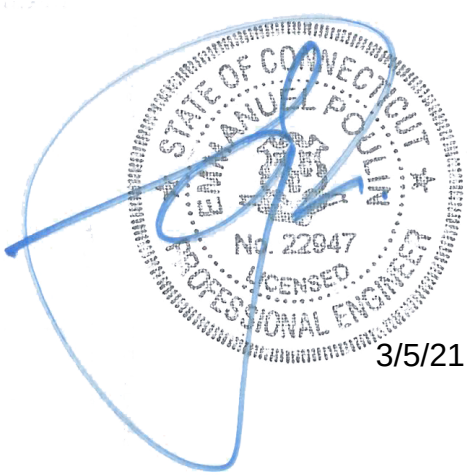
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Sector Frame **Sufficient**
***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Alex Mercado, E.I.T.

Respectfully Submitted by:
Emmanuel Poulin, P.E.
518-690-0790
structural@infinigy.com
CT PE License No. 22947



3/5/21

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed 3 sector 5.0 ft Sector Frame, designed by Site Pro 1.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC / 2018 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.185
Seismic S_1:	0.063
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	250 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
100.0	104.0	3	ERICSSON	AIR6449 B41_T-MOBILE	5.0 ft Sector Frame
		3	RFS/CELWAVE	APXVAA4L18_43-U-NA20_TMO	
		3	ERICSSON	RADIO 4415 B66A_CCIV3	
		3	ERICSSON	RADIO 4424 B25_TMOV1	
		3	ERICSSON	RADIO 4449 B71 B85A_ T-MOBILE	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	529728 Rev.0	CCI Sites
Mount Manufacturer Drawings	Site Pro 1	USF-2U, P360, P284, SCX43-K, SCX45-K	CCI Sites
Loading Documents	T-Mobile	RFDS Version 3	TSA

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

Infinigy Mount Analysis Tool V2.1.5, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B “Software Input Calculations”.

This analysis was performed in accordance with Crown Castle’s ENG-SOW-10208 *Tower Mount Analysis* (Revision B).

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) 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.
4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	Q345 (GR 36)
HSS (Rectangular)	Q235-GB (GR 35)
Pipe	Q235-GB (GR 35)
Connection Bolts	SAE J429 Grade 2

This analysis may be affected if any assumptions are not valid or have been made in error. Infinigy Engineering, PLLC should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Sector Frame, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2,3	Mount Pipe(s)	MP1	100.0	4.7	Pass
	Horizontal(s)	HOR1		28.9	Pass
	Standoff(s)	SA6		23.8	Pass
	Bracing(s)	BR2		5.8	Pass
	Support Pipe(s)	SP2		20.4	Pass
	Mast	M50		18.9	Pass
	Mount Connection(s)	--		79.1	Pass

Structure Rating (max from all components) =	79.1%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in “Appendix D – Additional Calculations” for detailed mount connection calculations.
3) All sectors are typical

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

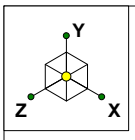
1. Installation of (1) Site Pro 1 USF-2U Standoff Frame with (1) Site Pro 1 P360 horizontal pipe attaching them with (1) Site Pro 1 SCX45-K Crossover Plate per sector.

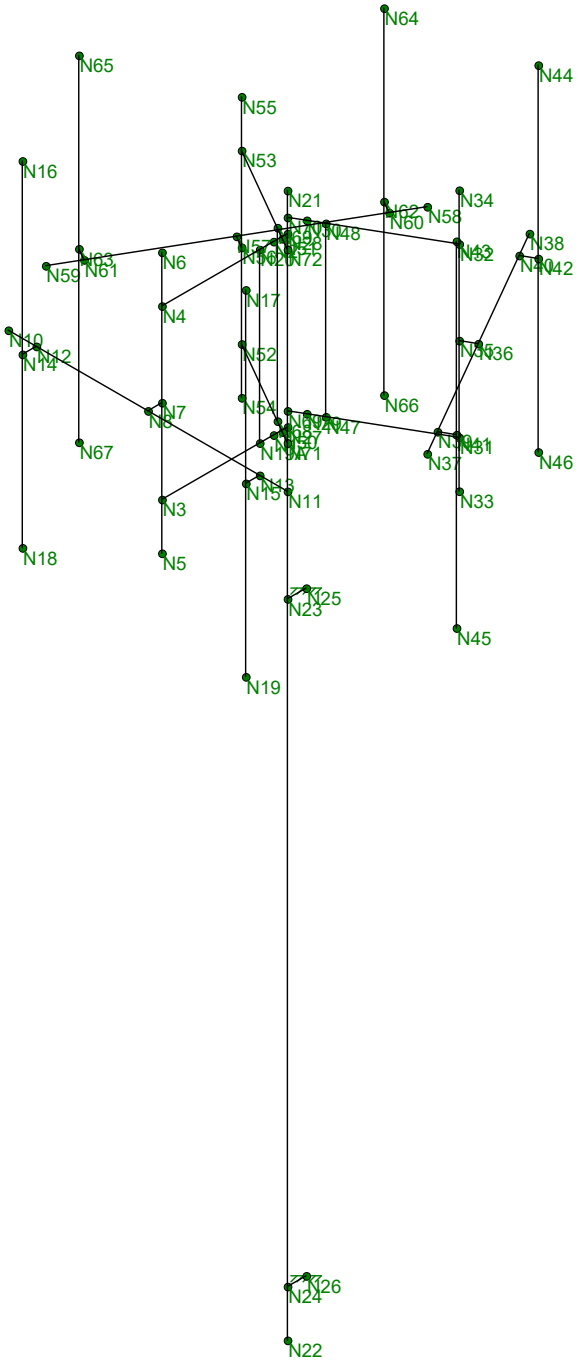
2. Installation of (2) Site Pro 1 P272 mount pipes with (2) Site Pro 1 SCX43-K Crossover Plates per sector.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS





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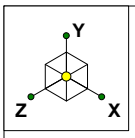

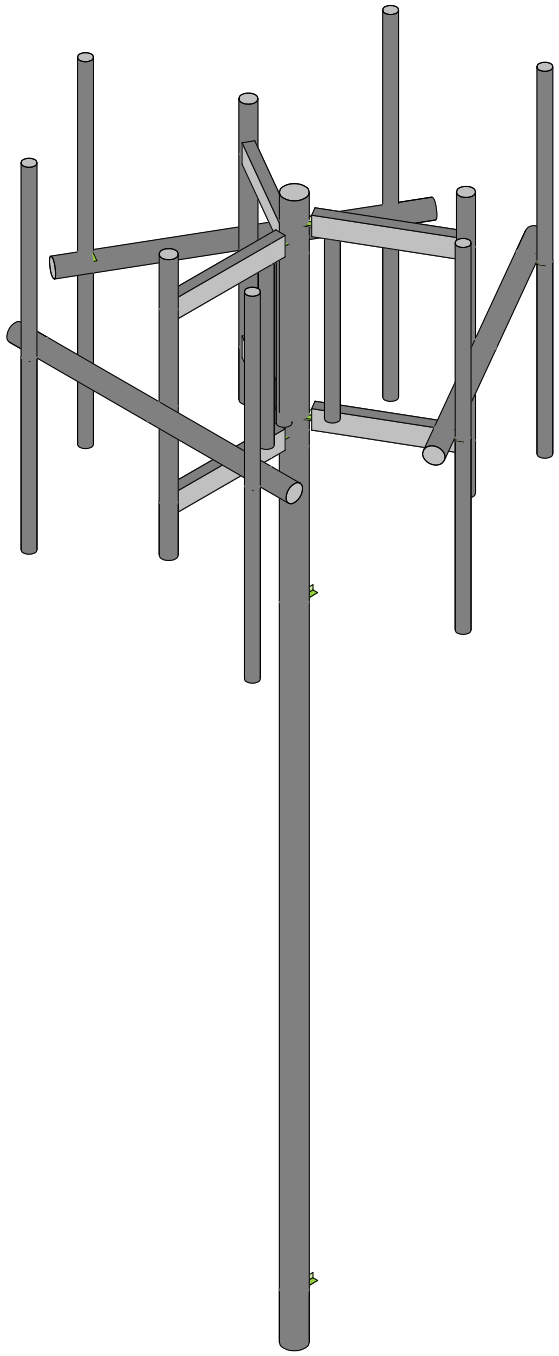

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APPENDIX B

SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION	
Client:	Crown Castle
Carrier:	T-Mobile
Engineer:	Alex Mercado

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	205.84	ft *Rev H

MOUNT INFORMATION		
Mount Type:	T-Arm (Multiple)	
Num Sectors:	3	
Centerline AGL:	100.00	ft
Tower Height AGL:	100.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.993	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-10	

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	125	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Flat Pressure:	95.473	psf
Round Pressure:	57.284	psf
Ice Wind Pressure:	9.165	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.185	g
1-Second Accel. (S_1):	0.063	g
Short-Period Design (S_{DS}):	0.197	
1-Second Design (S_{D1}):	0.101	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	3.000	

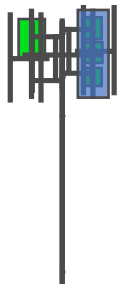
*Appurtenances fully shielded from wind and ice.
Not considered in the analysis.

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

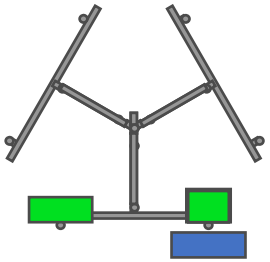
Infinigy Load Calculator V2.1.4

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Infinigy Load Calculator V2.1.4

APPURTENANCE INFORMATION

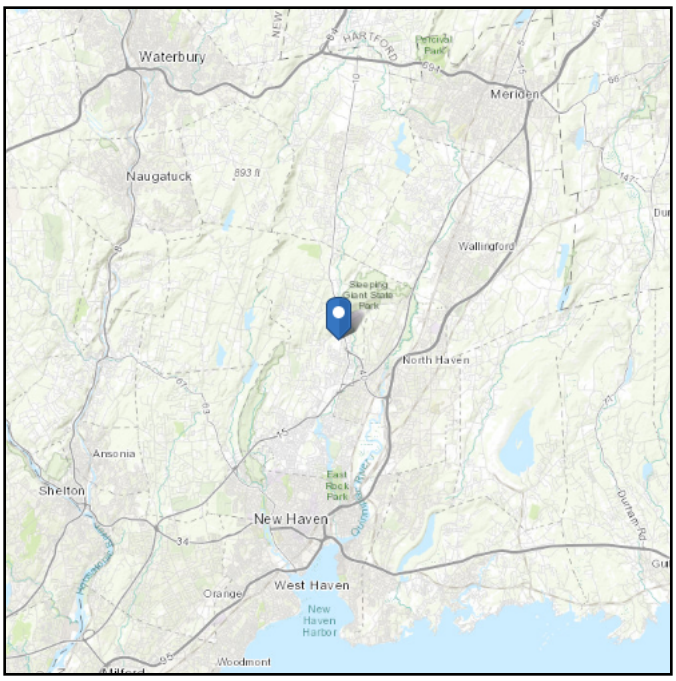
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
/CELWAVE APXVAA4L18_43-U-NA20_T	104.0	3	0.90	48.13	14.67	6.16	635.35	266.77	131.30	25.91	MP1
ERICSSON AIR6449 B41_T-MOBILE	104.0	3	0.90	48.13	5.66	2.48	245.14	107.28	114.63	22.62	MP2
ERICSSON RADIO 4415 B66A_CCIV3	104.0	3	0.90	48.13	1.64	0.68	71.00	29.32	46.30	9.14	MP1
ERICSSON RADIO 4424 B25_TMOV1	104.0	3	0.90	48.13	2.05	1.61	88.89	69.75	97.00	19.14	MP1
ICSSON RADIO 4449 B71 B85A_T-MOBI	104.0	3	0.90	48.13	1.97	1.59	85.34	68.73	73.21	14.45	MP1

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 205.84 ft (NAVD 88)
Latitude: 41.40664
Longitude: -72.90453



Wind

Results:

Wind Speed:	124 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	101 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Wed Mar 03 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

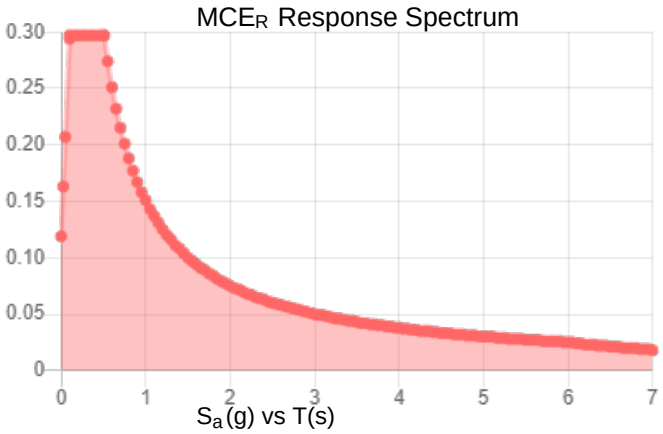
Seismic

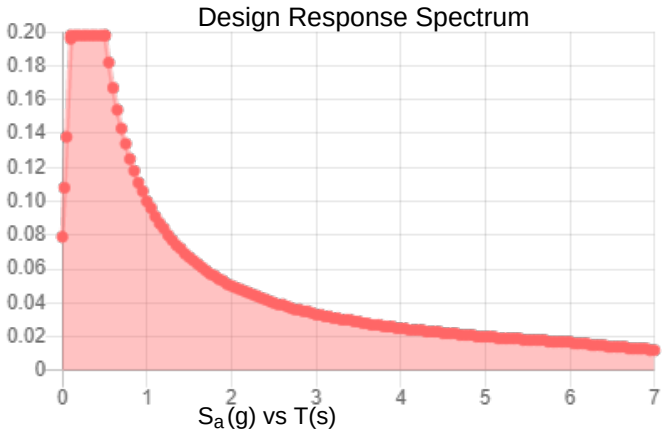
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.185	S_{DS} :	0.198
S_1 :	0.063	S_{D1} :	0.1
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.096
S_{MS} :	0.297	PGA_M :	0.154
S_{M1} :	0.151	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Mar 03 2021

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Mar 03 2021

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

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

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
1	SA1	N2	N4			Tube Standoff	Beam	Tube	Q235-GB	Typical
2	SA2	N1	N3			Tube Standoff	Beam	Tube	Q235-GB	Typical
3	SP1	N6	N5			Support Pipe	Column	Pipe	Q235-GB	Typical
4	M4	N7	N8			RIGID	None	None	RIGID	Typical
5	HOR1	N10	N11			Horizontal	Beam	Pipe	Q235-GB	Typical
6	M7	N12	N14			RIGID	None	None	RIGID	Typical
7	M8	N13	N15			RIGID	None	None	RIGID	Typical
8	MP1	N17	N19			Mount Pipe	Column	Pipe	Q235-GB	Typical
9	MP2	N16	N18			Mount Pipe	Column	Pipe	Q235-GB	Typical
10	BR1	N20	N19A			Pipe Bracing	Column	Pipe	Q235-GB	Typical
11	M50	N21	N22			Mast	Column	Pipe	Q235-GB	Typical
12	M12	N23	N25			RIGID	None	None	RIGID	Typical
13	M13	N24	N26			RIGID	None	None	RIGID	Typical
14	M14	N2	N28			RIGID	None	None	RIGID	Typical
15	M15	N1	N27			RIGID	None	None	RIGID	Typical
16	SA5	N30	N32			Tube Standoff	Beam	Tube	Q235-GB	Typical
17	SA6	N29	N31			Tube Standoff	Beam	Tube	Q235-GB	Typical
18	SP3	N34	N33			Support Pipe	Column	Pipe	Q235-GB	Typical
19	M19	N35	N36			RIGID	None	None	RIGID	Typical
20	HOR3	N37	N38			Horizontal	Beam	Pipe	Q235-GB	Typical
21	M21	N39	N41			RIGID	None	None	RIGID	Typical
22	M22	N40	N42			RIGID	None	None	RIGID	Typical
23	MP5	N44	N46			Mount Pipe	Column	Pipe	Q235-GB	Typical
24	MP6	N43	N45			Mount Pipe	Column	Pipe	Q235-GB	Typical
25	BR3	N48	N47			Pipe Bracing	Column	Pipe	Q235-GB	Typical
26	SA3	N51	N53			Tube Standoff	Beam	Tube	Q235-GB	Typical
27	SA4	N50	N52			Tube Standoff	Beam	Tube	Q235-GB	Typical
28	SP2	N55	N54			Support Pipe	Column	Pipe	Q235-GB	Typical
29	M30	N56	N57			RIGID	None	None	RIGID	Typical
30	HOR2	N58	N59			Horizontal	Beam	Pipe	Q235-GB	Typical
31	M32	N60	N62			RIGID	None	None	RIGID	Typical
32	M33	N61	N63			RIGID	None	None	RIGID	Typical
33	MP3	N65	N67			Mount Pipe	Column	Pipe	Q235-GB	Typical
34	MP4	N64	N66			Mount Pipe	Column	Pipe	Q235-GB	Typical
35	BR2	N69	N68			Pipe Bracing	Column	Pipe	Q235-GB	Typical
36	M37	N30	N70			RIGID	None	None	RIGID	Typical
37	M38	N51	N72			RIGID	None	None	RIGID	Typical
38	M39	N29	N69A			RIGID	None	None	RIGID	Typical
39	M40	N50	N71			RIGID	None	None	RIGID	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		2	8	0
3	Total General		2	8	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(Plate/Wall)
1	Self Weight	DL		-1			18			
2	Wind Load AZI 0	WLZ								
3	Wind Load AZI 30	None								
4	Wind Load AZI 60	None								
5	Wind Load AZI 90	WLX								

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(Plate/Wall)
6	Wind Load AZI 120	None								
7	Wind Load AZI 150	None								
8	Wind Load AZI 180	None								
9	Wind Load AZI 210	None								
10	Wind Load AZI 240	None								
11	Wind Load AZI 270	None								
12	Wind Load AZI 300	None								
13	Wind Load AZI 330	None								
14	Distr. Wind Load Z	WLZ								
15	Distr. Wind Load X	WLX								
16	Ice Weight	OL1								
17	Ice Wind Load AZI ...	OL2								
18	Ice Wind Load AZI ...	None								
19	Ice Wind Load AZI ...	None								
20	Ice Wind Load AZI ...	OL3								
21	Ice Wind Load AZI ...	None								
22	Ice Wind Load AZI ...	None								
23	Ice Wind Load AZI ...	None								
24	Ice Wind Load AZI ...	None								
25	Ice Wind Load AZI ...	None								
26	Ice Wind Load AZI ...	None								
27	Ice Wind Load AZI ...	None								
28	Ice Wind Load AZI ...	None								
29	Distr. Ice Wind Loa...	OL2								
30	Distr. Ice Wind Loa...	OL3								
31	Seismic Load Z	ELZ			-.197		18			
32	Seismic Load X	ELX	-.197				18			
33	Service Live Loads	LL				1				
34	Maintenance Load 1	LL				1				
35	Maintenance Load 2	LL				1				
36	Maintenance Load 3	LL				1				
37	Maintenance Load 4	LL				1				
38	Maintenance Load 5	LL				1				
39	Maintenance Load 6	LL				1				

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Yes	Y		1	1.4																		
2	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	1	32															
3	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.866	32	.5														
4	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.5	32	.866														
5	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31		32	1														
6	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.5	32	.866														
7	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.8...	32	.5														
8	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-1	32															
9	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.8...	32	-.5														
10	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.5	32	-.8...														
11	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31		32	-1														
12	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.5	32	-.8...														
13	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.866	32	-.5														
14	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	1	32															
15	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.866	32	.5														
16	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.5	32	.866														
17	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31		32	1														
18	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.5	32	.866														

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
19	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.8...	32	.5														
20	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-1	32															
21	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.8...	32	-.5														
22	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.5	32	-.8...														
23	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31		32	-1														
24	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.5	32	-.8...														
25	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.866	32	-.5														
26	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	2	.23	14	.23	15		33	1.5										
27	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	3	.23	14	.2	15	.115	33	1.5										
28	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	4	.23	14	.115	15	.2	33	1.5										
29	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	5	.23	14		15	.23	33	1.5										
30	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	6	.23	14	-.1...	15	.2	33	1.5										
31	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	7	.23	14	-.2	15	.115	33	1.5										
32	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	8	.23	14	-.23	15		33	1.5										
33	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	9	.23	14	-.2	15	-.1...	33	1.5										
34	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	10	.23	14	-.1...	15	-.2	33	1.5										
35	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	11	.23	14		15	-.23	33	1.5										
36	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	12	.23	14	.115	15	-.2	33	1.5										
37	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	13	.23	14	.2	15	-.1...	33	1.5										
38	1.2DL + 1.5LL	Yes	Y		1	1.2	33	1.5																
39	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	2	.058	14	.058	15											
40	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	3	.058	14	.05	15	.029										
41	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	4	.058	14	.029	15	.05										
42	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	5	.058	14		15	.058										
43	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	6	.058	14	-.0...	15	.05										
44	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	7	.058	14	-.05	15	.029										
45	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	8	.058	14	-.0...	15											
46	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	9	.058	14	-.05	15	-.0...										
47	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	10	.058	14	-.0...	15	-.05										
48	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	11	.058	14		15	-.0...										
49	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	12	.058	14	.029	15	-.05										
50	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	13	.058	14	.05	15	-.0...										
51	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	2	.058	14	.058	15											
52	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	3	.058	14	.05	15	.029										
53	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	4	.058	14	.029	15	.05										
54	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	5	.058	14		15	.058										
55	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	6	.058	14	-.0...	15	.05										
56	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	7	.058	14	-.05	15	.029										
57	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	8	.058	14	-.0...	15											
58	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	9	.058	14	-.05	15	-.0...										
59	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	10	.058	14	-.0...	15	-.05										
60	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	11	.058	14		15	-.0...										
61	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	12	.058	14	.029	15	-.05										
62	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	13	.058	14	.05	15	-.0...										
63	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	2	.058	14	.058	15											
64	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	3	.058	14	.05	15	.029										
65	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	4	.058	14	.029	15	.05										
66	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	5	.058	14		15	.058										
67	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	6	.058	14	-.0...	15	.05										
68	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	7	.058	14	-.05	15	.029										
69	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	8	.058	14	-.0...	15											
70	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	9	.058	14	-.05	15	-.0...										
71	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	10	.058	14	-.0...	15	-.05										
72	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	11	.058	14		15	-.0...										
73	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	12	.058	14	.029	15	-.05										
74	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	13	.058	14	.05	15	-.0...										
75	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	2	.058	14	.058	15											

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
76	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	3	.058	14	.05	15	.029												
77	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	4	.058	14	.029	15	.05												
78	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	5	.058	14		15	.058												
79	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	6	.058	14	-.0...	15	.05												
80	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	7	.058	14	-.05	15	.029												
81	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	8	.058	14	-.0...	15													
82	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	9	.058	14	-.05	15	-.0...												
83	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	10	.058	14	-.0...	15	-.05												
84	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	11	.058	14		15	-.0...												
85	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	12	.058	14	.029	15	-.05												
86	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	13	.058	14	.05	15	-.0...												
87	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	2	.058	14	.058	15													
88	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	3	.058	14	.05	15	.029												
89	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	4	.058	14	.029	15	.05												
90	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	5	.058	14		15	.058												
91	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	6	.058	14	-.0...	15	.05												
92	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	7	.058	14	-.05	15	.029												
93	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	8	.058	14	-.0...	15													
94	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	9	.058	14	-.05	15	-.0...												
95	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	10	.058	14	-.0...	15	-.05												
96	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	11	.058	14		15	-.0...												
97	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	12	.058	14	.029	15	-.05												
98	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	13	.058	14	.05	15	-.0...												
99	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	2	.058	14	.058	15													
100	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	3	.058	14	.05	15	.029												
101	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	4	.058	14	.029	15	.05												
102	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	5	.058	14		15	.058												
103	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	6	.058	14	-.0...	15	.05												
104	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	7	.058	14	-.05	15	.029												
105	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	8	.058	14	-.0...	15													
106	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	9	.058	14	-.05	15	-.0...												
107	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	10	.058	14	-.0...	15	-.05												
108	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	11	.058	14		15	-.0...												
109	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	12	.058	14	.029	15	-.05												

Envelope Joint Reactions

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
No Data to Print ...												

Envelope AISC 15th(360-16): LRFD Steel Code Checks

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
No Data to Print ...														

APPENDIX D

ADDITIONAL CALCUATIONS

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.4

PROJECT DATA	
Site Name:	CT HAMPDEN CAC
Site Number:	800529
Job Code:	1039-Z0001-B
Connection Description:	Standoff to Tower

APPLIED LOADS		
Bolt Tension:	6231.62	lbs
Bolt Shear:	381.61	lbs

BOLT PROPERTIES		
Bolt Type:	Threaded Rod	-
Bolt Diameter:	0.5	in
Bolt Grade:	Other	-
Yield Strength:	57	ksi
Ultimate Strength:	74	ksi
# of Threaded Rods:	4	-
Threads Excluded?	No	-

BOLT CHECK		
Tensile Strength	7875.37	
Shear Strength	5448.70	
Tensile Usage	79.1%	
Shear Usage	7.0%	
Interaction Check	0.63	***≤1.05***
Result	Pass	

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.4

PROJECT DATA	
Site Name:	CT HAMPDEN CAC
Site Number:	800529
Job Code:	1039-Z0001-B
Connection Description:	Mast to Channel

APPLIED LOADS		
Bolt Tension:	2178.69	lbs
Bolt Shear:	4842.84	lbs
Sliding Force:	2688.76	lbs
Torsion About Leg:	4.06	lbs-ft

BOLT PROPERTIES		
Bolt Type:	U-Bolt	-
Bolt Diameter:	0.75	in
Bolt Grade:	A307	-
# of U-Bolts:	1	-
Leg Diameter:	4.5	in
Threads Excluded?	No	-

BOLT CHECK		
Tensile Strength	15050.70	
Shear Strength	9940.20	
Tensile Usage	14.5%	
Shear Usage	48.7%	
Interaction Check	0.26	***≤1.05***
Result	Pass	

SLIP CHECK		
Torsional Resistance	1988.04	
Sliding Resistance	10602.87	
Torsional Usage	0.2%	
Sliding Usage	25.4%	
Interaction Check	0.06	***≤1.05***
Result	Pass	

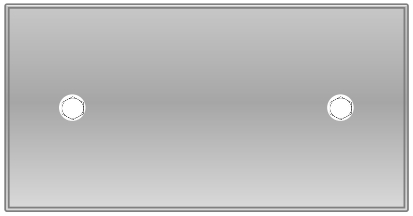


Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11686I

Crown Comm. -Hamden
890 Evergreen Avenue
Hamden, Connecticut 06518

March 23, 2021

EBI Project Number: 6221001357

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**73.00%**

March 23, 2021

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

Emissions Analysis for Site: CT11686I - Crown Comm. -Hamden

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **890 Evergreen Avenue** in **Hamden, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 890 Evergreen Avenue in Hamden, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

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

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

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

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

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

8) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

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

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

11) The antennas used in this modeling are the RFS APXVAA4L18_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAA4L18_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAA4L18_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antenna mounting height centerline of the proposed antennas is 104 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAA4L18_43-U-NA20	Make / Model:	RFS APXVAA4L18_43-U-NA20	Make / Model:	RFS APXVAA4L18_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.15 dBd / 12.15 dBd / 12.25 dBd / 15.85 dBd / 15.85 dBd / 16.75 dBd	Gain:	12.15 dBd / 12.15 dBd / 12.25 dBd / 15.85 dBd / 15.85 dBd / 16.75 dBd	Gain:	12.15 dBd / 12.15 dBd / 12.25 dBd / 15.85 dBd / 15.85 dBd / 16.75 dBd
Height (AGL):	104 feet	Height (AGL):	104 feet	Height (AGL):	104 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	18,212.13	ERP (W):	18,212.13	ERP (W):	18,212.13
Antenna A1 MPE %:	**8.54%**	Antenna B1 MPE %:	**8.54%**	Antenna C1 MPE %:	**8.54%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd
Height (AGL):	104 feet	Height (AGL):	104 feet	Height (AGL):	104 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	12,888.76	ERP (W):	12,888.76	ERP (W):	12,888.76
Antenna A2 MPE %:	**4.82%**	Antenna B2 MPE %:	**4.82%**	Antenna C2 MPE %:	**4.82%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	13.36%
AT&T	13.74%
Metro PCS	3.49%
Clearwire	0.4%
Sprint	5.89%
Verizon	36.12%
Site Total MPE % :	73.00%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	13.36%
T-Mobile Sector B Total:	13.36%
T-Mobile Sector C Total:	13.36%
Site Total MPE % :	73.00%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	492.18	104.0	3.68	600 MHz LTE	400	0.92%
T-Mobile 600 MHz NR	1	1312.47	104.0	4.91	600 MHz NR	400	1.23%
T-Mobile 700 MHz LTE	2	503.64	104.0	3.77	700 MHz LTE	467	0.81%
T-Mobile 1900 MHz GSM	4	1153.78	104.0	17.28	1900 MHz GSM	1000	1.73%
T-Mobile 1900 MHz LTE	2	2307.55	104.0	17.28	1900 MHz LTE	1000	1.73%
T-Mobile 2100 MHz LTE	2	2838.91	104.0	21.25	2100 MHz LTE	1000	2.13%
T-Mobile 2500 MHz LTE	1	6444.38	104.0	24.12	2500 MHz LTE	1000	2.41%
T-Mobile 2500 MHz NR	1	6444.38	104.0	24.12	2500 MHz NR	1000	2.41%
						Total:	**13.36%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	13.36%
Sector B:	13.36%
Sector C:	13.36%
T-Mobile Maximum MPE % (Sector A):	13.36%
Site Total:	73.00%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **73.00%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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