March 27, 2024

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

Re: Notice of Exempt Modification New Cingular Wireless PCS LLC ("AT&T") Site CT2035
975 Mix Avenue, Hamden, CT 06514 (the "Property")
Latitude: 41-22-42.6 N Longitude: 72-55-04.5 W

Dear Ms. Bachman:

AT&T currently maintains (12) antennas at the 61'± cl on the existing steel antenna pole, roof mounted on top of a 38'± building ("Structure") at 975 Mix Avenue, Hamden, CT. The Property and Structure are owned by the Chestnut Hill North LLC. AT&T intends to modify its facility by replacing (9) antennas with (3) AIR6419 B77G, (3) AIR 6449 B77, (2) QD6616-7 and (2) OPA65R-BU6DA antennas. AT&T also intends on replacing (8) RRUs with (4) 4449 B5/B66A RRUs. The height of AT&Ts existing and proposed antennas & RRUs is 61'±cl on the Structure. Also, at the property owner's request, the equipment room is being relocated from the existing first floor apartment to the a new equipment area in the basement.

This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

AT&T received CT Siting Council ("CSC") approval under Petition 316 on January 12, 1994, for use of the existing lattice tower and again under Petition 592 on October 23, 2002, to replace the existing lattice tower. The town of Hamden has no records showing the approval of the lattice tower. The CSC approvals contain no conditions that could feasibly be violated by this modification, including facility height or mounting restrictions. AT&Ts modification complies with the above-mentioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent to the Honorable Lauren Garrett, Mayor, Town of Hamden, as elected official, Mr. Eugene Livshits, Town Planner, Town of Hamden, and Chestnut Hill North LLC, the tower and property owner.

The planned modification of the facility falls squarely within those activities explicitly provided for in R.C.S.A §16-50j-72(b)(2). Specifically:

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

2. The proposed modifications will not require an 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 modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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

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

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

Sincerely,

Hollis M. Redding

Hollis M. Redding
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
Mobile: 860-834-6964
hredding@saigrp.com

Enclosures

Cc: Honorable Lauren Garrett, Mayor, Town of Hamden, elected official
Mr. Eugene Livshits, Town Planner, Town of Hamden
Chestnut Hill North LLC. tower & property owner

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions Report

CT2035

975 Mix Avenue, Hamden, CT 06514

March 18, 2024

Table of Contents

1. Introduction 2
2. FCC Guidelines for Evaluating RF Radiation Exposure Limits 2
3. RF Exposure Prediction Methods 3
4. Antenna Inventory 4
5. Calculation Results 5
6. Conclusion 7
7. Statement of Certification 7

Attachment A: References 8
Attachment B: FCC Limits for Maximum Permissible Exposure (MPE) 9
Attachment C: AT&T Mobility Antenna Model Data Sheets and Electrical Patterns 11

List of Figures

Figure 1: Graph of General Population % MPE vs. Distance 5
Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE) 10

List of Tables

Table 1: Proposed Antenna Inventory 4
Table 2: Maximum Percent of General Population Exposure Values 6
Table 3: FCC Limits for Maximum Permissible Exposure 9

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modification of AT&T antenna arrays with centerlines of 61'-8", 61'-0", 57'-11", and 52'-8" AGL on top of a rooftop located at 975 Mix Avenue in Hamden, CT. The coordinates of the rooftop are 41° 22' 42.6" N, 72° 55' 04.5" W.

AT&T is proposing the following:

1) Install ten (10) multi-band antennas and maintain three (3) existing multi-band antennas to support its commercial LTE/5G network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for AT&T[1] to derive the resulting % MPE of its proposed modification.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment C of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment C contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

[1] As referenced to AT&T's Radio Frequency Design Sheet, dated 11/27/2023 and TEP Northeast's Construction Drawing, rev 6, dated 1/25/2024.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{GRF^2 \times 1.64 \times \text{ERP}}{4\pi \times R^2}\right) \text{X Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{\left(H^2 + V^2\right)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Off Beam Loss is determined by the selected antenna patterns

GRF = Ground Reflection Factor of 1.6

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.

4. Antenna Inventory

Table 1 below outlines AT&T's proposed antenna configuration for the site. The associated data sheets and antenna patterns for these specific antenna models are included in Attachments C.

Operator	Sector / Azimuth	TX Freq (MHz)	Power at Antenna (Watts)	Ant Gain (dBi)	Power EIRP (Watts)	Antenna Model	Beam Width	Mech. Tilt	Length (ft)	Antenna Centerline Height (ft)
AT&T	Alpha / 20°	722	80	14.2	2104	QD6616-7	71	0	6.00	61.0
		763	160	14.2	4208		71			
		1900	160	17.2	8397		67			
		2100	240	17.7	14132		62			
		739	80	14.5	2255	OPA65R-BU6DA	73	0	5.93	
		850	80	15.1	2589		63			
		2300	100	18.0	6310		60			
		3500	54.22	25.5	19238	AIR6419-B77G	-	0	2.35	61.7
		3700	86.8	25.0	27449	AIR6449-B77	-	0	2.75	57.9
	Beta / 150°	722	80	16.4	3492	BSA-M65R-BUU-H6	34	0	6.00	61.0
		2300	100	18.1	6457		26			
		763	160	16.4	6984	BSA-M65R-BUU-H6	34			
		2100	240	18.4	16604		28			
		739	80	16.4	3492	BSA-M65R-BUU-H6	34			
		850	80	17.3	4296		32			
		1970	160	18.0	10095		31			
		3500	54.22	25.5	19238	AIR6419-B77G	-	0	2.35	52.7
		3700	86.8	25.0	27449	AIR6449-B77	-	0	2.75	52.7
	Gamma / 260°	722	80	14.2	2104	QD6616-7	71	0	6.00	61.0
		763	160	14.2	4208		71			
		1900	160	17.2	8397		67			
		2100	240	17.7	14132		62			
		739	80	14.5	2255	OPA65R-BU6DA	73	0	5.93	
		850	80	15.1	2589		63			
		2300	100	18.0	6310		60			
		3500	54.22	25.5	19238	AIR6419-B77G	-	0	2.35	61.7
		3700	86.8	25.0	27449	AIR6449-B77	-	0	2.75	57.9

Table 1: Proposed Antenna Inventory[2][3]

[2] Antenna heights are in reference to TEP Northeast's Construction Drawing, rev 6, dated 1/25/2024.

[3] Transmit power assumes 0 dB of cable loss.

5. Calculation Results

The calculated power density results are shown in Figure 1 below. For completeness, the calculations for this analysis range from 0 feet horizontal distance (directly below the antennas) to a value of 3,000 feet horizontal distance from the site. In addition to the other worst-case scenario considerations that were previously mentioned, the power density calculations to each horizontal distance point away from the antennas was completed using a local maximum off beam antenna gain (within ± 5 degrees of the true mathematical angle) to incorporate a realistic worst-case scenario.

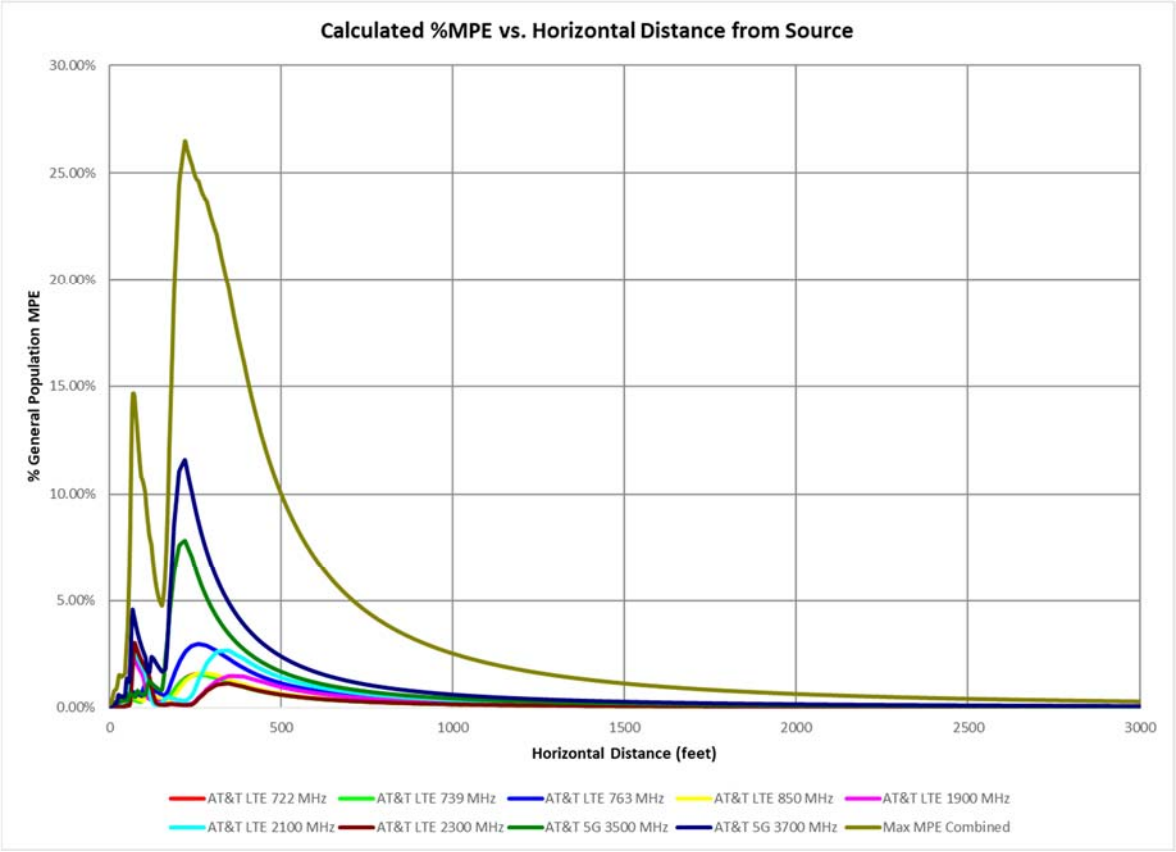


Figure 1: Graph of General Population % MPE vs. Distance

The highest percent of MPE (**26.47%** of the General Population limit) is calculated to occur at a horizontal distance of 220 feet from antennas. Please note that the percent of MPE calculations close to the site take into account off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 1500 feet and beyond, one would now be in the main beam of the antenna pattern and off beam loss is no longer considered. Beyond this point, RF levels become calculated solely on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 2 below lists percent of MPE values as well as the associated parameters that were included in the calculations. The highest percent of MPE value was calculated to occur at a horizontal distance of 220 feet from the site (reference Figure 1).

As stated in Section 3, all calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. In addition, a six-foot height offset was considered in this analysis to account for average human height. As a result, the predicted signal levels are significantly higher than the actual signal levels will be from the final configuration. The results presented in Figure 1 and Table 2 assume level ground elevation from the base of the tower out to the horizontal distances calculated.

Carrier	Number of Transmitters	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm^2)	Limit (mW/cm^2)	% MPE
AT&T 5G 3500 MHz	1	54.2	52.7	220	0.078272	1.000	7.83%
AT&T 5G 3700 MHz	1	86.8	52.7	220	0.115770	1.000	11.58%
AT&T LTE 1900 MHz	1	160.0	61.0	220	0.001297	1.000	0.13%
AT&T LTE 2100 MHz	1	240.0	61.0	220	0.003013	1.000	0.30%
AT&T LTE 2300 MHz	1	100.0	61.0	220	0.001104	1.000	0.11%
AT&T LTE 722 MHz	1	80.0	61.0	220	0.006594	0.481	1.37%
AT&T LTE 739 MHz	1	80.0	61.0	220	0.006594	0.493	1.34%
AT&T LTE 763 MHz	1	160.0	61.0	220	0.013187	0.509	2.59%
AT&T LTE 850 MHz	1	80.0	61.0	220	0.006910	0.567	1.22%
						Total	**26.47%**

Table 2: Maximum Percent of General Population Exposure Values [4,5]

[4] Frequencies listed are representative of the operating band and are not the specific operating frequency.

[5] The total % MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

6. Conclusion

The above analysis verifies that RF exposure levels from the site with AT&T's proposed antenna configuration will be well below the maximum permissible levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum cumulative percent of MPE in consideration of all transmitters is calculated to be **26.47% of the FCC limit (General Population/Uncontrolled)**. This maximum cumulative percent of MPE value is calculated to occur 220 feet away from the site.

7. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

Reviewed/Approved By: Martin J. Lavin
Senior RF Engineer
C Squared Systems, LLC

March 18, 2024
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[6]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[7]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 3: FCC Limits for Maximum Permissible Exposure

[6] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[7] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

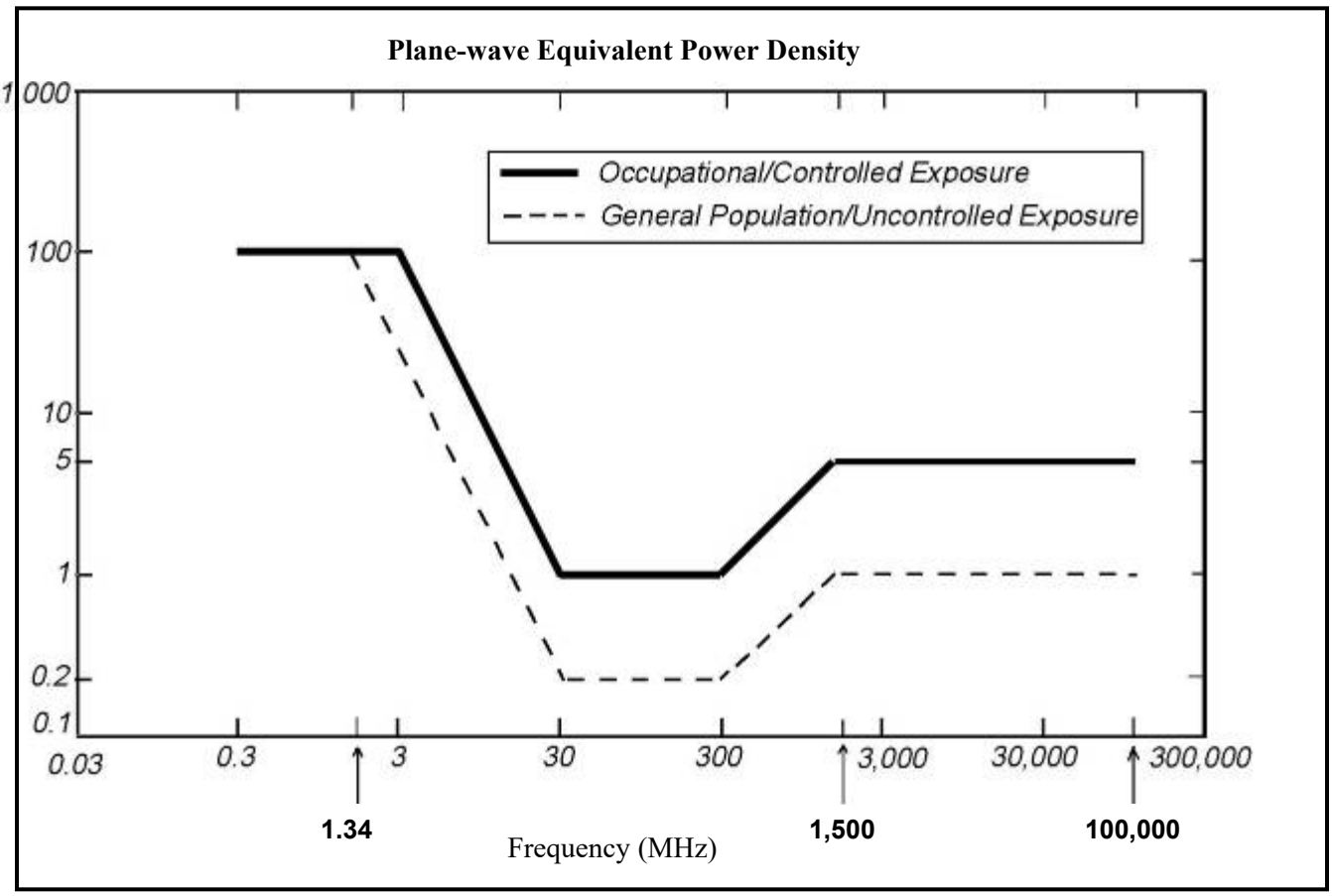
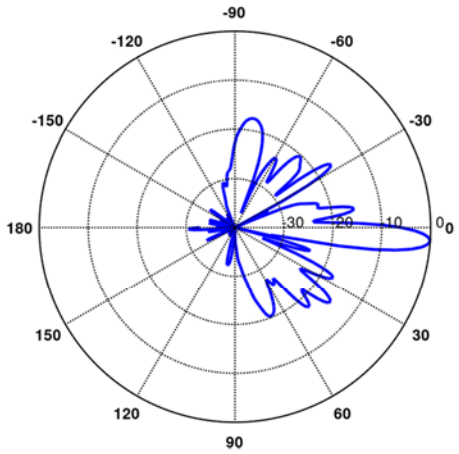


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

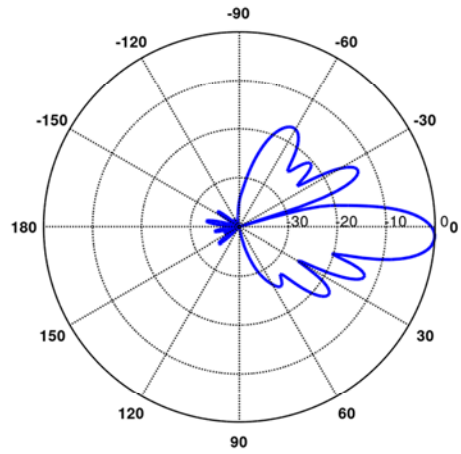
Attachment C: AT&T Mobility Antenna Model Data Sheets and Electrical Patterns

700 MHz

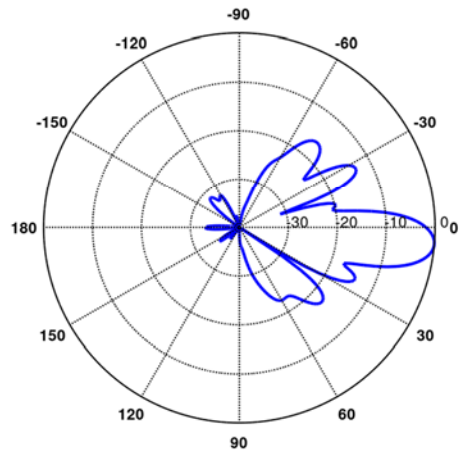
Manufacturer:	QUINTEL
Model #:	QD6616-7
Frequency Band:	698-728 MHz
Gain:	14.2 dBi
Vertical Beamwidth:	12.5°
Horizontal Beamwidth:	71°
Polarization:	±45°
Dimensions (L x W x D):	72” x 22” x 9.6”



Manufacturer:	CCI
Model #:	BSA-M65R-BUU-H6
Frequency Band:	698-806 MHz
Gain:	16.4 dBi
Vertical Beamwidth:	11.7°
Horizontal Beamwidth:	34°
Polarization:	±45°
Dimensions (L x W x D):	72" × 28.5" × 9.7"

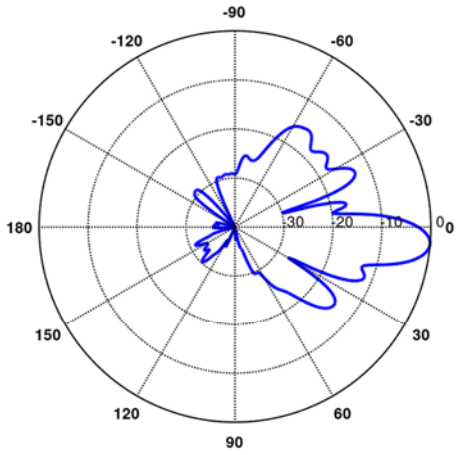


Manufacturer:	CCI
Model #:	OPA65R-BU6D
Frequency Band:	698-806 MHz
Gain:	14.3 dBi
Vertical Beamwidth:	12.9°
Horizontal Beamwidth:	73°
Polarization:	±45°
Dimensions (L x W x D):	71.2" × 20.7" × 7.7"

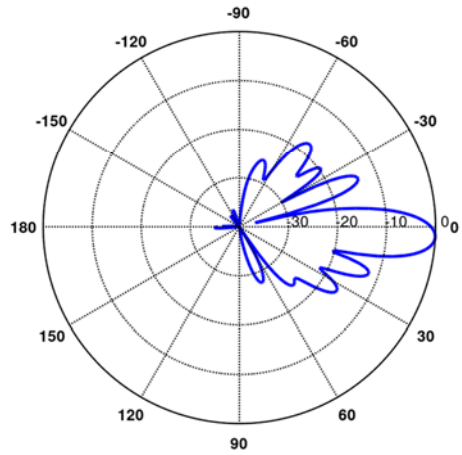


850 MHz

Manufacturer:	CCI
Model #:	OPA65R-BU6D
Frequency Band:	824-896 MHz
Gain:	15.2 dBi
Vertical Beamwidth:	11.1°
Horizontal Beamwidth:	64°
Polarization:	±45°
Dimensions (L x W x D):	71.2" × 20.7" × 7.7"

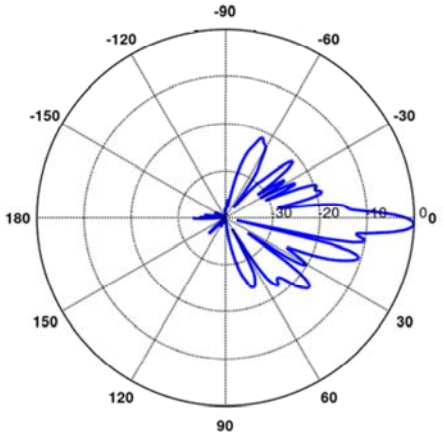


Manufacturer:	CCI
Model #:	BSA-M65R-BUU-H6
Frequency Band:	824-894 MHz
Gain:	17.3 dBi
Vertical Beamwidth:	10.3°
Horizontal Beamwidth:	32°
Polarization:	±45°
Dimensions (L x W x D):	72" × 28.5" × 9.7"

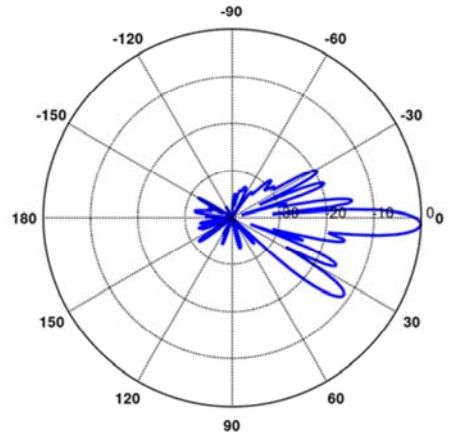


1900 MHz

Manufacturer:	QUINTEL
Model #:	QD6616-7
Frequency Band:	1850-1990 MHz
Gain:	17.2 dBi
Vertical Beamwidth:	6.5°
Horizontal Beamwidth:	67°
Polarization:	±45°
Dimensions (L x W x D):	72" x 22" x 9.6"

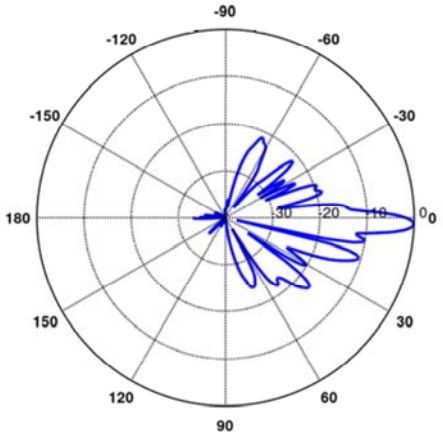


Manufacturer:	CCI
Model #:	BSA-M65R-BUU-H6
Frequency Band:	824-894 MHz
Gain:	18.0 dBi
Vertical Beamwidth:	6.4°
Horizontal Beamwidth:	31°
Polarization:	±45°
Dimensions (L x W x D):	72" × 28.5" × 9.7"

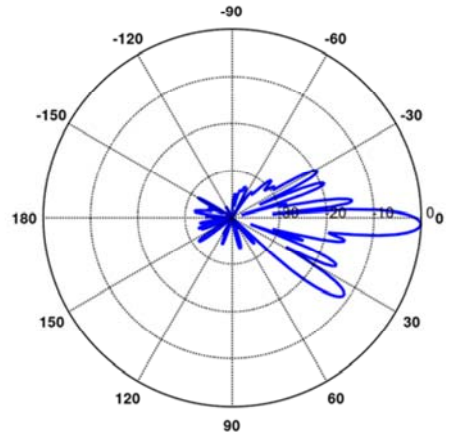


1900 MHz

Manufacturer:	QUINTEL
Model #:	QD6616-7
Frequency Band:	1850-1990 MHz
Gain:	17.2 dBi
Vertical Beamwidth:	6.5°
Horizontal Beamwidth:	67°
Polarization:	±45°
Dimensions (L x W x D):	72" x 22" x 9.6"

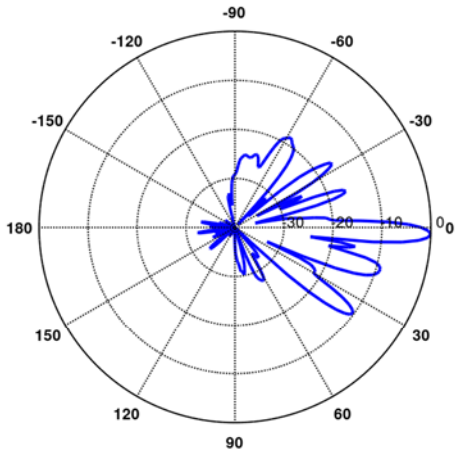


Manufacturer:	CCI
Model #:	BSA-M65R-BUU-H6
Frequency Band:	824-894 MHz
Gain:	18.0 dBi
Vertical Beamwidth:	6.4°
Horizontal Beamwidth:	31°
Polarization:	±45°
Dimensions (L x W x D):	72" × 28.5" × 9.7"

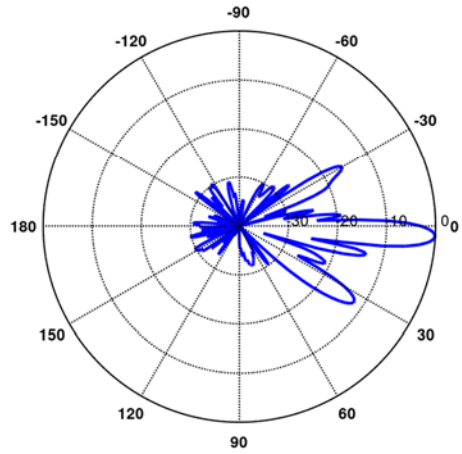


2100 MHz

Manufacturer:	QUINTEL
Model #:	QD6616-7
Frequency Band:	2110-2180 MHz
Gain:	17.7 dBi
Vertical Beamwidth:	5.7°
Horizontal Beamwidth:	62°
Polarization:	±45°
Dimensions (L x W x D):	72” x 22” x 9.6”

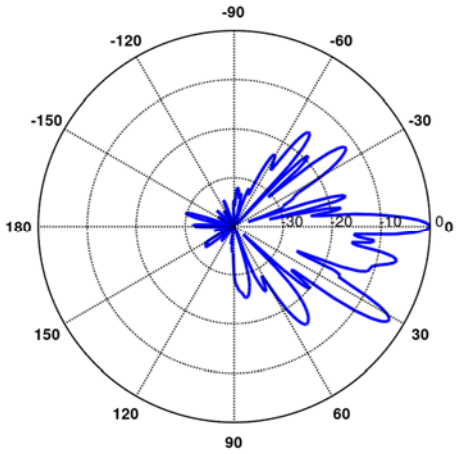


Manufacturer:	CCI
Model #:	BSA-M65R-BUU-H6
Frequency Band:	2110-2155 MHz
Gain:	18.4 dBi
Vertical Beamwidth:	5.9°
Horizontal Beamwidth:	28°
Polarization:	±45°
Dimensions (L x W x D):	72" × 28.5" × 9.7"

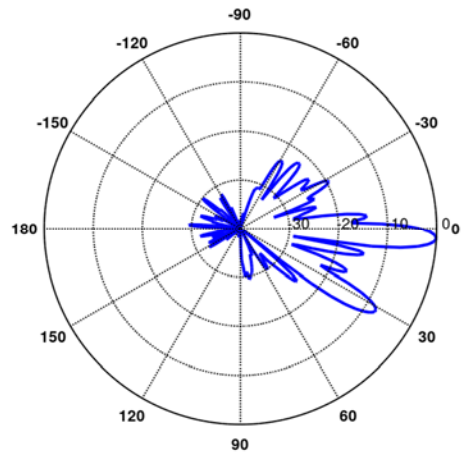


2300 MHz

Manufacturer:	CCI
Model #:	OPA65R-BU6D
Frequency Band:	2300-2400 MHz
Gain:	18.2 dBi
Vertical Beamwidth:	4.1°
Horizontal Beamwidth:	55°
Polarization:	±45°
Dimensions (L x W x D):	71.2" × 20.7" × 7.7"



Manufacturer:	CCI
Model #:	BSA-M65R-BUU-H6
Frequency Band:	2305-2360 MHz
Gain:	18.1 dBi
Vertical Beamwidth:	5.6°
Horizontal Beamwidth:	26°
Polarization:	±45°
Dimensions (L x W x D):	72" × 28.5" × 9.7"



PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON TOWER:
- NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: AIR6449 B77 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: QD6616-7 (TYP. OF 1 PER ALPHA & GAMMA SECTOR, TOTAL OF 2).
- NEW AT&T ANTENNAS: OPA65R-BU6DA (TYP. OF 1 PER ALPHA & GAMMA SECTOR, TOTAL OF 2).
- NEW AT&T RRUS: 4449 B5/B66A (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 4).
- EXISTING AT&T RRUS: 4426 B66 (AWS) (TOTAL OF 2 PER BETA & E SECTOR) (TO BE RELOCATED TO POS. 2).
- EXISTING AT&T RRUS: 4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 2).
- EXISTING AT&T RRUS: RRUS-32 B30 (WCS) (TYP. OF 1 PER ALPHA & GAMMA SECTOR, TOTAL OF 2) (TO BE RELOCATED TO POS. 4).
- EXISTING AT&T RRUS: RRUS-E2 B29 (TOTAL OF 1 PER E SECTOR) (TO BE RELOCATED TO POS. 2).
- EXISTING AT&T RRUS: RRUS-32 B30 (TOTAL OF 1 PER E SECTOR) (TO BE RELOCATED TO POS. 2).
- NEW AT&T SURGE ARRESTOR: DC9-48-60-24-8C-EV (TOTAL OF 3) WITH (11) NEW 6AWG DC POWER TRUNK (3 PER SECTOR AND 2 FOR DC ONLY ARRESTOR) AND (3) 24 PAIR FIBER TRUNKS.
- ADD (4) Y-CABLES.
- PROPOSED ANTENNA PLATFORM FRAME SITE PRO 1 PART# RMQLP-4120-H10

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- ADD 6673 FHG.
- ADD 6651 BB.
- ADD 6675.
- ADD 4 RECTIFIERS.
- ADD BATTERY RACK WITH 3 STRINGS BATTERIES.

ITEMS TO BE REMOVED:
- EXISTING AT&T ANTENNA: 800-10121 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNA: 80010965 (TYP. OF 1 PER ALPHA & GAMMA SECTOR, TOTAL OF 2).
- EXISTING AT&T ANTENNA: QS66512-2 (TYP. OF 1 PER ALPHA & GAMMA SECTOR, TOTAL OF 2).
- EXISTING AT&T ANTENNA: HPA-65R-BUU-H6 (TYP. OF 1 PER ALPHA & GAMMA SECTOR, TOTAL OF 2).
- EXISTING AT&T RRUS: RRUS-11 B12 (TYP. OF 1 PER SECTOR, TOTAL OF 4).
- EXISTING AT&T RRUS: 4478 B5 (TYP. OF 1 PER SECTOR, TOTAL OF 4).
- EXISTING AT&T (3) FIBER TRUNKS.
- EXISTING AT&T (10) DC TRUNKS.
- EXISTING UMTS CABINET.

ITEMS TO REMAIN:
- (3) ANTENNAS, (14) RRU'S, (1) SURGE ARRESTOR.

SITE ADDRESS:	975 MIX AVENUE HAMDEN, CT 06514
LATITUDE:	41.3785° N, 41° 22' 42.6" N
LONGITUDE:	72.91792° W, 72° 55' 04.5" W
TYPE OF SITE:	ROOF TOP / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	38'-0"±
RAD CENTER:	61'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

72 HOURS

CALL BEFORE YOU DIG

CALL TOLL FREE 1-800-922-4455

OR CALL 811

UNDERGROUND SERVICE ALERT

at&t

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.

SITE NUMBER: CT2035

SITE NAME: HAMDEN

FA CODE: 10035036

PACE ID: MRCTB052262, MRCTB050796, MRCTB050913, MRCTB050930

PROJECT: 5G NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT, ANTENNA MODIFICATION , 4TXRX ANTENNA RETROFIT UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING EAST ON ENTERPRISE DR TOWARD CAPITAL BLVD. TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. MERGE ONTO CT-15 S VIA EXIT 17 TOWARD E MAIN ST. TAKE THE WHITNEY AVE EXIT, EXIT 62, TOWARD HAMDEN. TURN RIGHT ONTO WHITNEY AVE. TURN LEFT ONTO DIXWELL AVE/CT-10. TURN RIGHT ONTO SHEPARD AVE. TURN LEFT ONTO MIX AVE. 975 MIX AVE, HAMDEN, CT 06514-5102, 975 MIX AVE IS ON THE LEFT.

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	5
GN-1	GENERAL NOTES	5
A-1	ROOFTOP & EQUIPMENT PLANS	5
A-2	PARTIAL BASEMENT FLOOR DEMOLITION PLAN	5
A-3	PARTIAL BASEMENT FLOOR	5
A-4	ROOM SECTION	5
A-5	WALL TYPES DETAILS	5
A-6	EQUIPMENT ROOM REFLECTED CEILING PLAN	5
A-7	ANTENNA LAYOUT PLANS	5
A-8	ELEVATION	5
A-9	DETAILS	5
A-10	DETAILS	5
A-11	DETAILS	5
A-12	DETAILS	5
A-13	PENETRATION DETAILS	5
E-1	GROUNDING/ELECTRICAL PLAN & NOTES	5
E-2	POWER & LIGHTING LAYOUT	5
G-1	GROUNDING DETAILS	5
G-2	GROUNDING DETAILS	5
G-3	GROUNDING DETAILS	5
M-1	MECHANICAL PLAN, DETAILS & NOTES	5
FM-1	FIRE SUPPRESSION DESIGN	5
RF-1	RF PLUMBING DIAGRAM	5
RF-2	RF PLUMBING DIAGRAM	5
RF-3	RF PLUMBING DIAGRAM	5

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
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SALEM, NH 03079

SITE NUMBER: CT2035
SITE NAME: HAMDEN

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HAMDEN, CT 06514
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
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1	02/23/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
0	02/11/22	ISSUED FOR REVIEW	GA	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
5G NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	T-1	5

GROUNDING NOTES

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

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

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

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

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

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

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

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

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

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

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

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – SAI
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

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

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

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

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

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

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

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

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

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

11. SUBCONTRACTOR 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.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

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

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

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

20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: IBC 2021 WITH 2022 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

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

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2035
SITE NAME: HAMDEN

975 MIX AVENUE
HAMDEN, CT 06514
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
5	12/11/23	CONSTRUCTION REVISED	TR	BB	DPH
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1	02/23/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
0	02/11/22	ISSUED FOR REVIEW	GA	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT · DANIEL P. HAM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	GN-1	5

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.

NOTE:

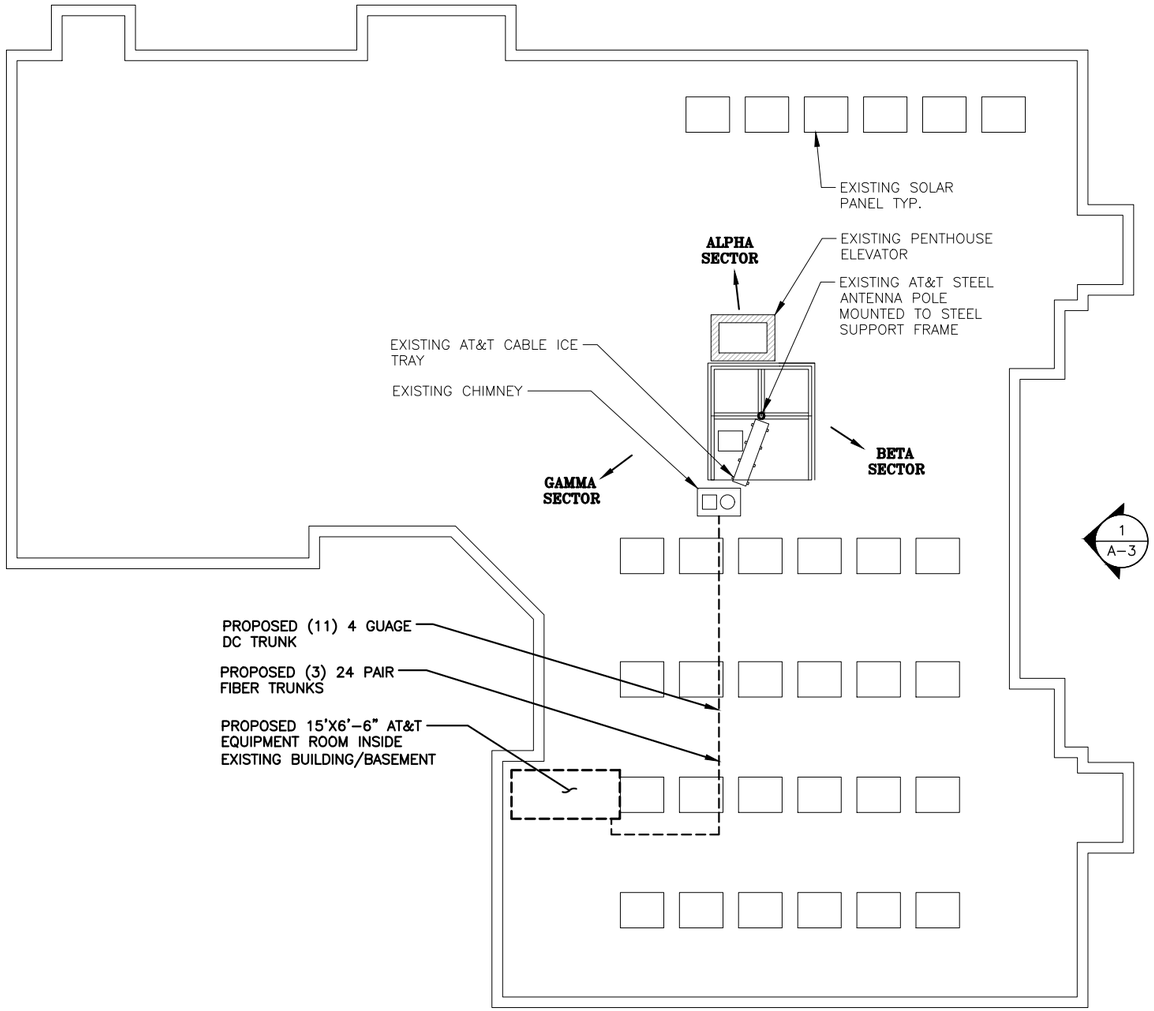
REFER TO **STRUCTURAL ANALYSIS** BY: CENTEK ENGINEERING
DATED: AUGUST 3, 2023 (REV.3)
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

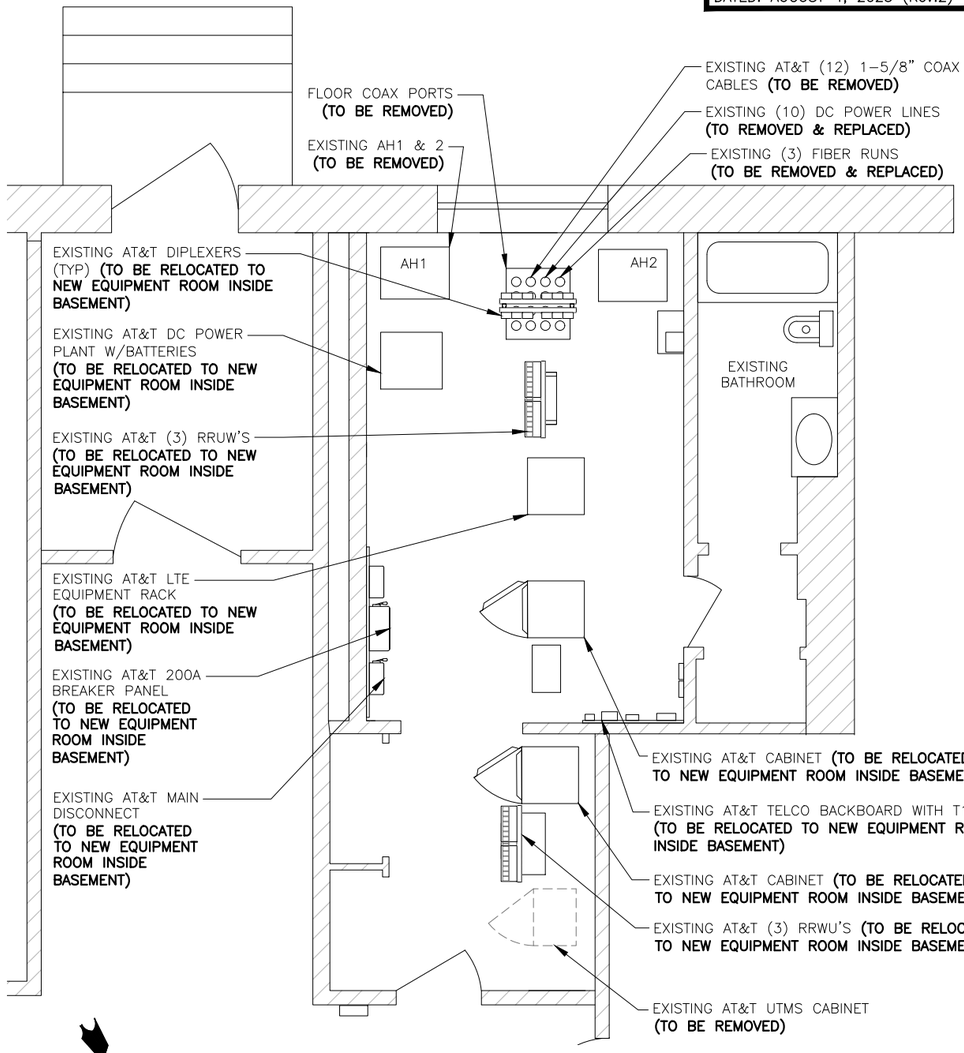
NOTE:

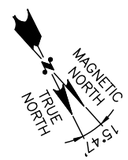
AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: TEP NORTHEAST (TEP OPCO, LLC)
DATED: AUGUST 4, 2023 (Rev.2)



ROOF PLAN (1 / A-1)
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"





EXISTING EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"

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STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

ROOF PLAN & EQUIPMENT PLAN
NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A-1	5

GENERAL NOTES:

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

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

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

4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) LESSEE'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.

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

6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.

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

8. THE CONTRACTOR SHALL MAINTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.

9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.

12. THE CONTRACTOR SHALL PROVIDE A DUMPSTER KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.

13. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE LOCAL BUILDING CODE CMR 780, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.

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

15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

16. MATERIALS AND EQUIPMENT INSTALLED SHALL BE NEW.

17. ANY DISTURBED EXISTING CONDITION SHALL BE CORRECTED AND REPAIRED.

18. THE FACILITY SHALL NOT REQUIRE ANY WATER SERVICE, SANITARY FACILITIES AND IS NOT DESIGNED FOR HABITATION.

19. SHOP DRAWING, CATALOGS, ETC., SHALL BE GIVEN TO THE PROJECT MANAGER AT THE JOB COMPLETION.

20. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH FIRE CODE (UL) APPROVED MATERIALS.

21. THE DOOR SHALL BE A STEEL DOOR. PROVIDE WEATHER STRIPPING, ALUMINUM THRESHOLD, HINGES AND LOCK SET. DOOR AND P.M. FRAME SHALL BE PAINTED AND HAVE A 1.5 HOUR (MIN.) FIRE RATING.

22. FINISH ALL DRYWALL SCREWS (FASTENERS) AND JOINTS, U.O.N. INSTALL 4x8 WHITE FIBERGLASS WALL PANELS.

23. ALL CABLE PORTS MUST BE WEATHER PROOFED DURING INSTALLATION USING SILICON SEALANT.

24. ALL GYPSUM WALL BOARD SHALL BE 5/8" FIRE-RATED GYPSUM PANEL TYPE "X".

25. AN AUTHORIZED APPLICATOR MUST PERFORM ALL WORK ON THE EXISTING WARRANTED ROOF THE MANUFACTURE SHALL BE NOTIFIED BY THE CONTRACTOR ONCE PENETRATIONS ARE COMPLETED TO ENABLE MANUFACTURE TO VALIDATE THE WARRANTY OF THE WORK.

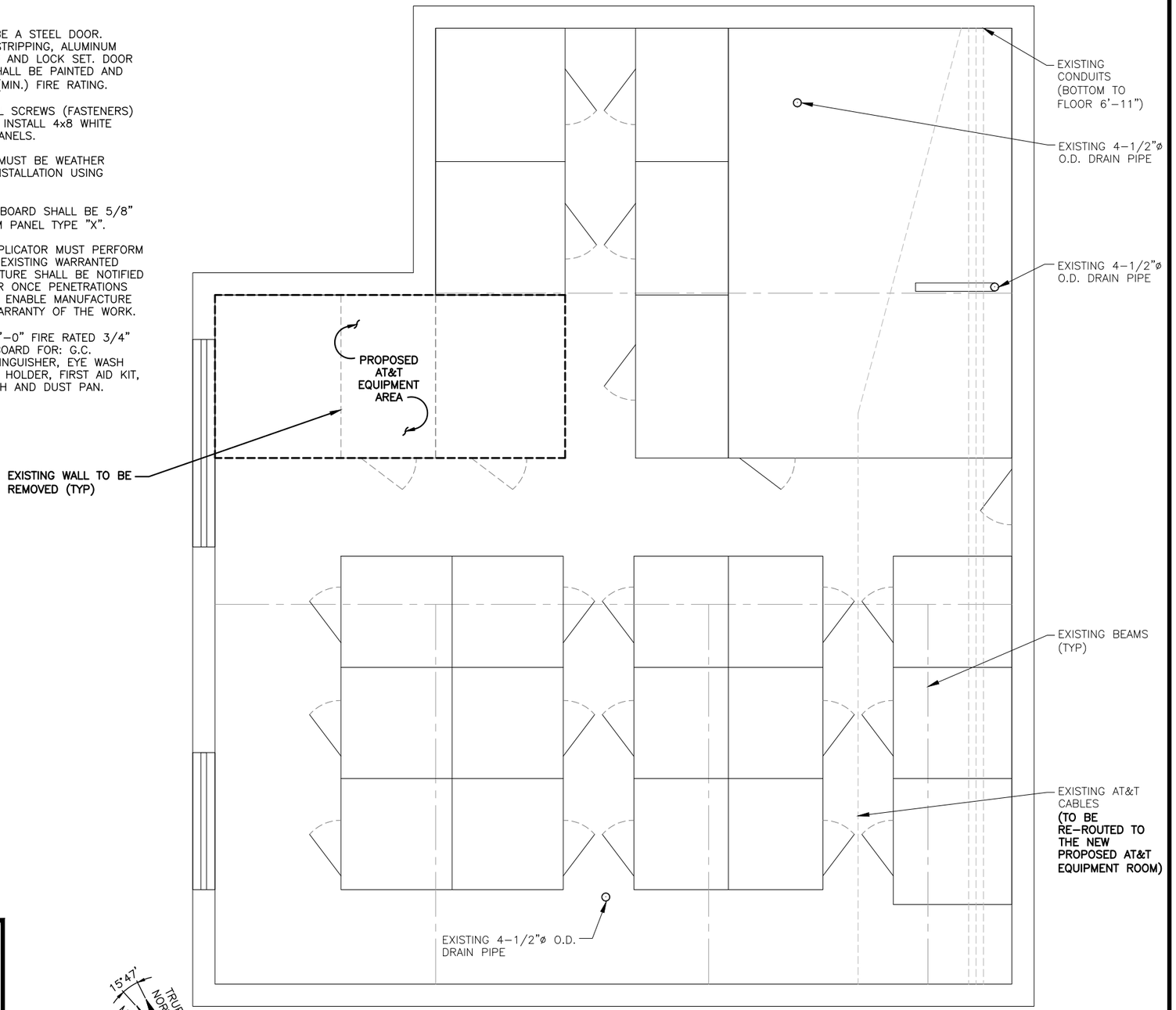
26. PROPOSED 4'-0"x8'-0" FIRE RATED 3/4" PLYWOOD BACKER BOARD FOR: G.C. SUPPLIER: FIRE EXTINGUISHER, EYE WASH STATION, DOCUMENT HOLDER, FIRST AID KIT, BROOM, DUST BRUSH AND DUST PAN.

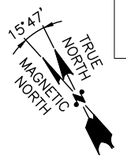
GENERAL NOTES:

1. VERIFY AZIMUTHS W/ RF ENGINEER.
2. PROPOSED UTILITY RUN TO BE DETERMINED IN FIELD.

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.





PARTIAL BASEMENT FLOOR DEMOLITION PLAN

1/A-2

22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"

TEP NORTHEAST
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45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2035
SITE NAME: HAMDEN

975 MIX AVENUE
HAMDEN, CT 06514
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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1	02/23/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
0	02/11/22	ISSUED FOR REVIEW	AA	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT DANIEL P. HAMM No. 24178 LICENSED PROFESSIONAL ENGINEER

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EQUIPMENT ROOM DEMOLITION PLAN
NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A-2	5

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

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LEGEND

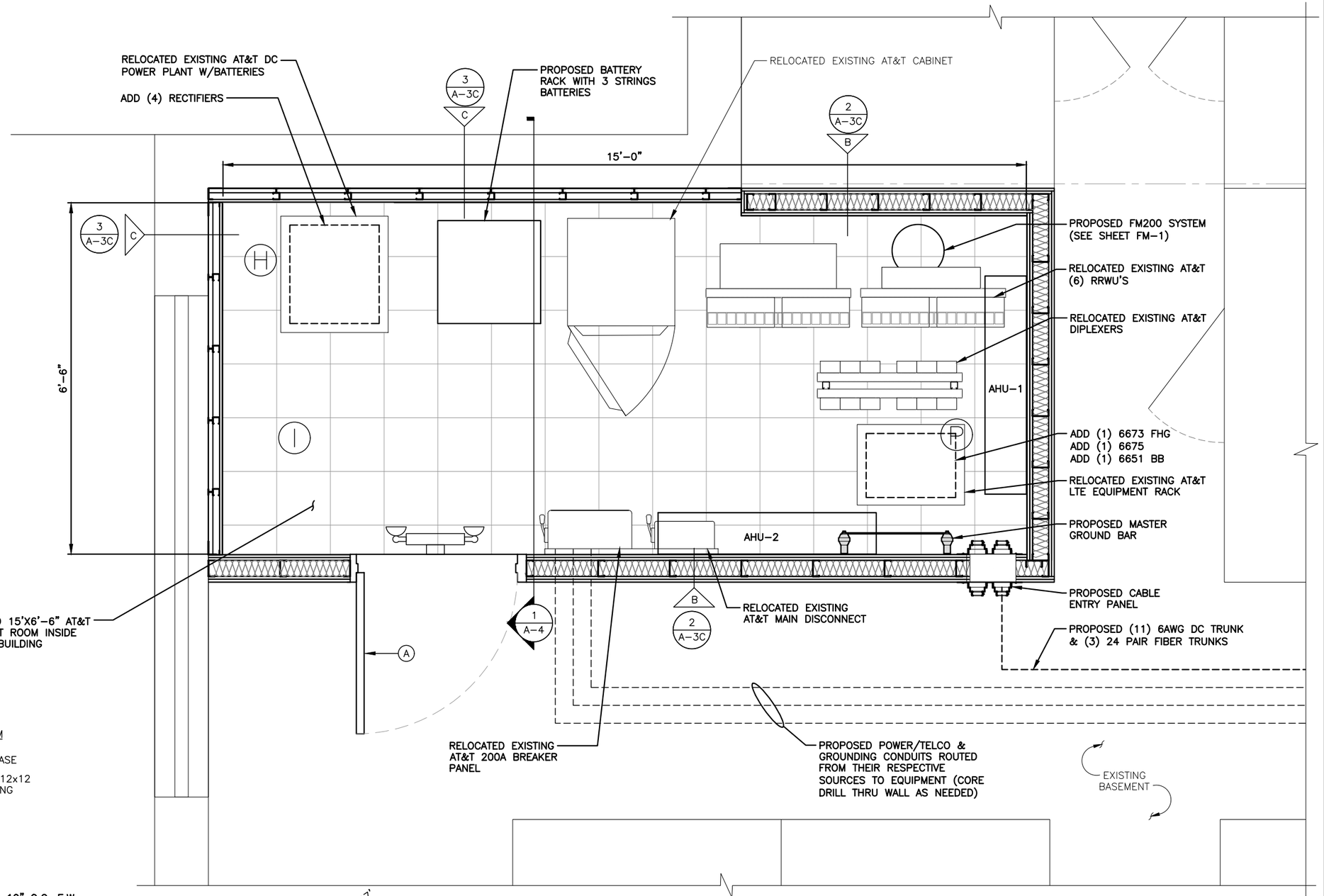
(P) PHOTO ELECTRIC SMOKE DETECTOR

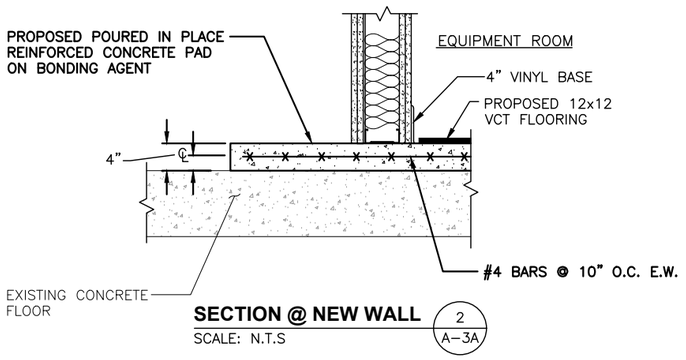
(I) IONIZATION SMOKE DETECTOR

(H) HYDROGEN DETECTOR

LEGEND (DOOR TYPE)

(A) DOOR TYPE: 3'–0"x7'–0" 18 GA. HM STEEL DOOR WITH PUSHBUTTON LOCKSET (1.5 HR FIRE RATED)





SECTION @ NEW WALL 2 A–3A
SCALE: N.T.S

15°47' TRUE NORTH MAGNETIC NORTH

PARTIAL BASEMENT FLOOR 1 A–3
22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"

0 0'–6" 1'–0" 2'–0" 3'–0"

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0	02/11/22	ISSUED FOR REVIEW	GA	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT DANIEL P. HAMM No. 24178 LICENSED PROFESSIONAL ENGINEER

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EQUIPMENT ROOM PLAN
5G NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A–3	5

NOTE TO GENERAL CONTRACTOR:
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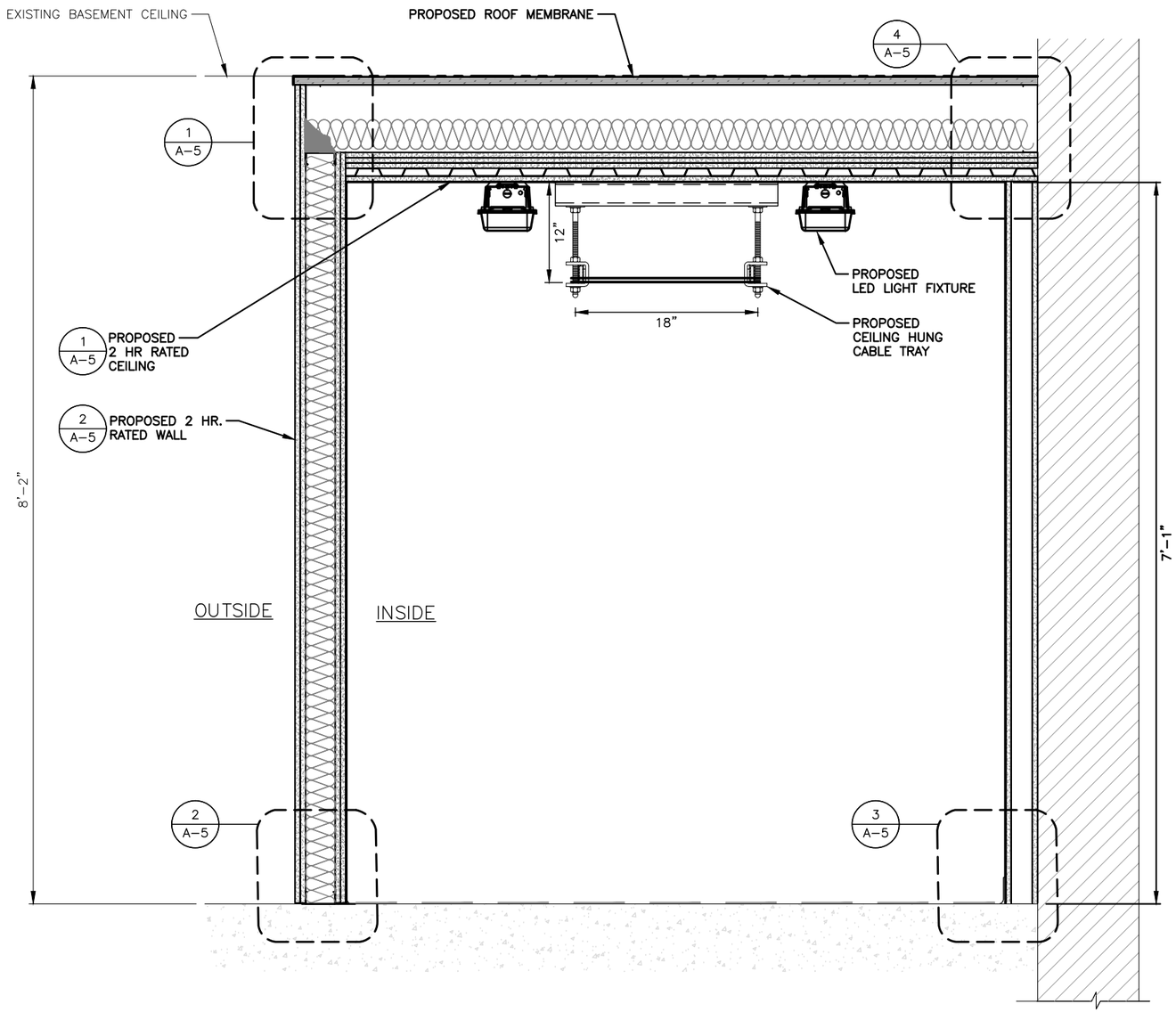

ROOM SECTION 1 A-4
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

0 0'-4" 0'-8" 1'-4" 2'-0"

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STATE OF CONNECTICUT
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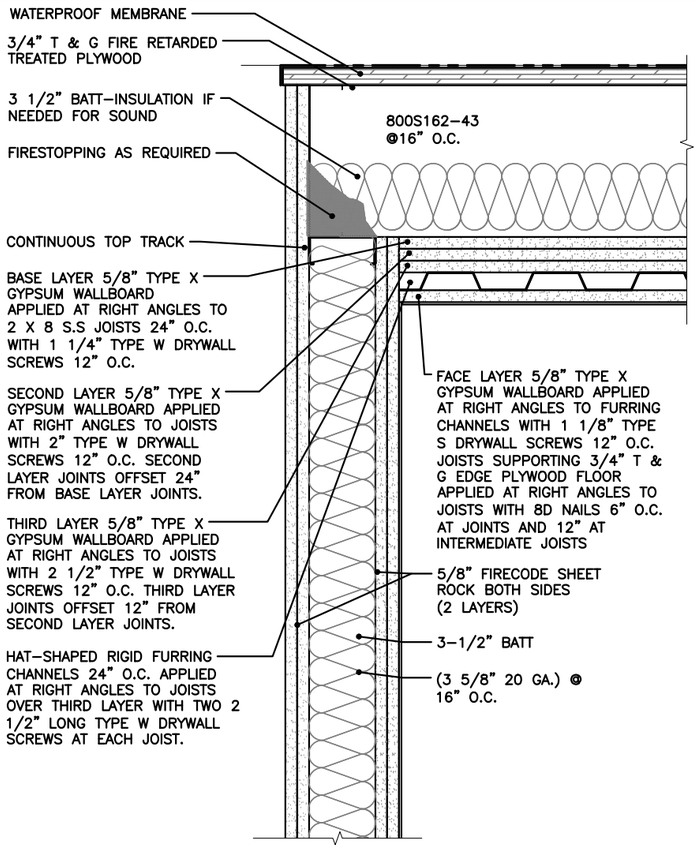
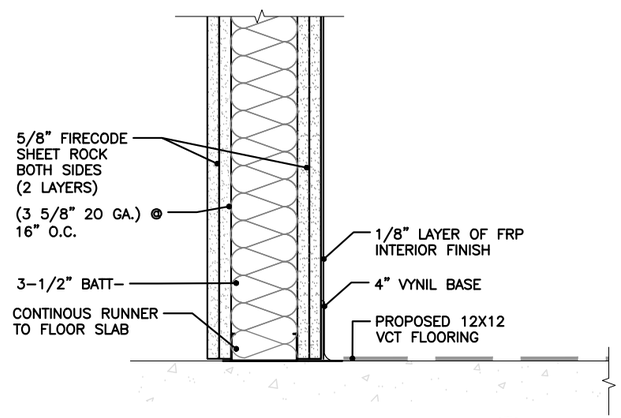
ROOM SECTION
5G NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A-4	5



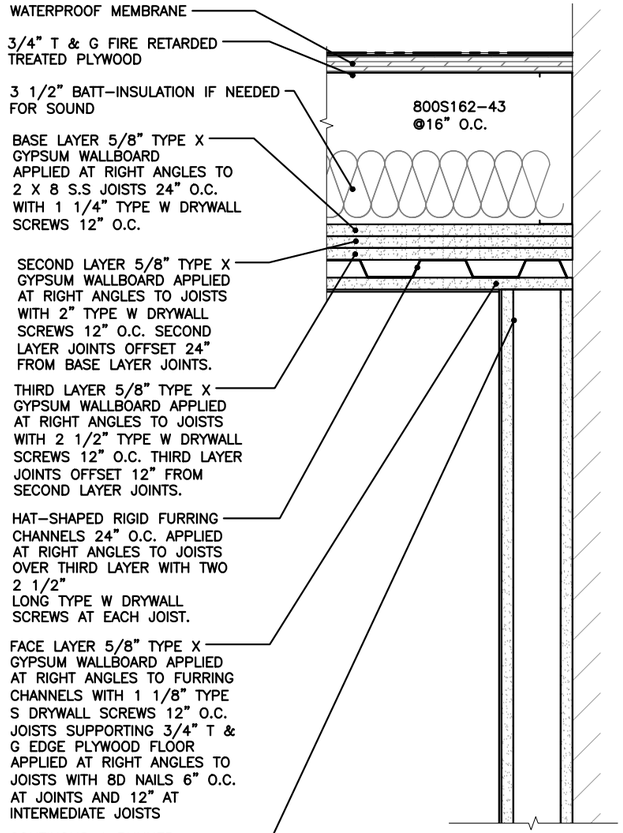
WALL TYPE "B": 2HR. RATED WALL (UL 419) — 1 / A–5

22x34 SCALE: 3"=1'–0"
11x17 SCALE: 1–1/2"=1'–0"



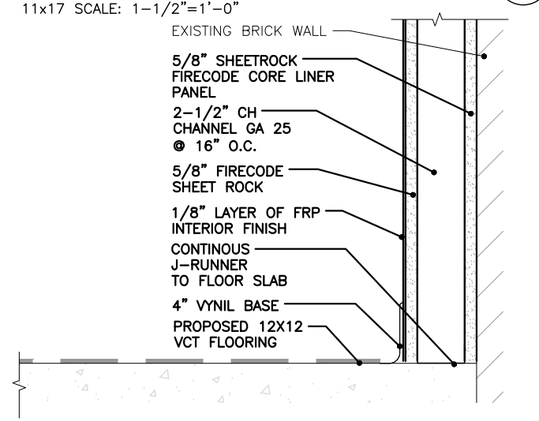
WALL TYPE "B": 2HR. RATED WALL (UL 419) — 2 / A–5

22x34 SCALE: 3"=1'–0"
11x17 SCALE: 1–1/2"=1'–0"



CEILING TYPE "A": 2HR. RATED WALL (UL L556) — 4 / A–5

22x34 SCALE: 3"=1'–0"
11x17 SCALE: 1–1/2"=1'–0"



WALL TYPE "C": 1HR. RATED WALL (UL 419) — 3 / A–5

22x34 SCALE: 3"=1'–0"
11x17 SCALE: 1–1/2"=1'–0"

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

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12 INDUSTRIAL WAY
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SITE NUMBER: CT2035
SITE NAME: HAMDEN

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NEW HAVEN COUNTY

at&t
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STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

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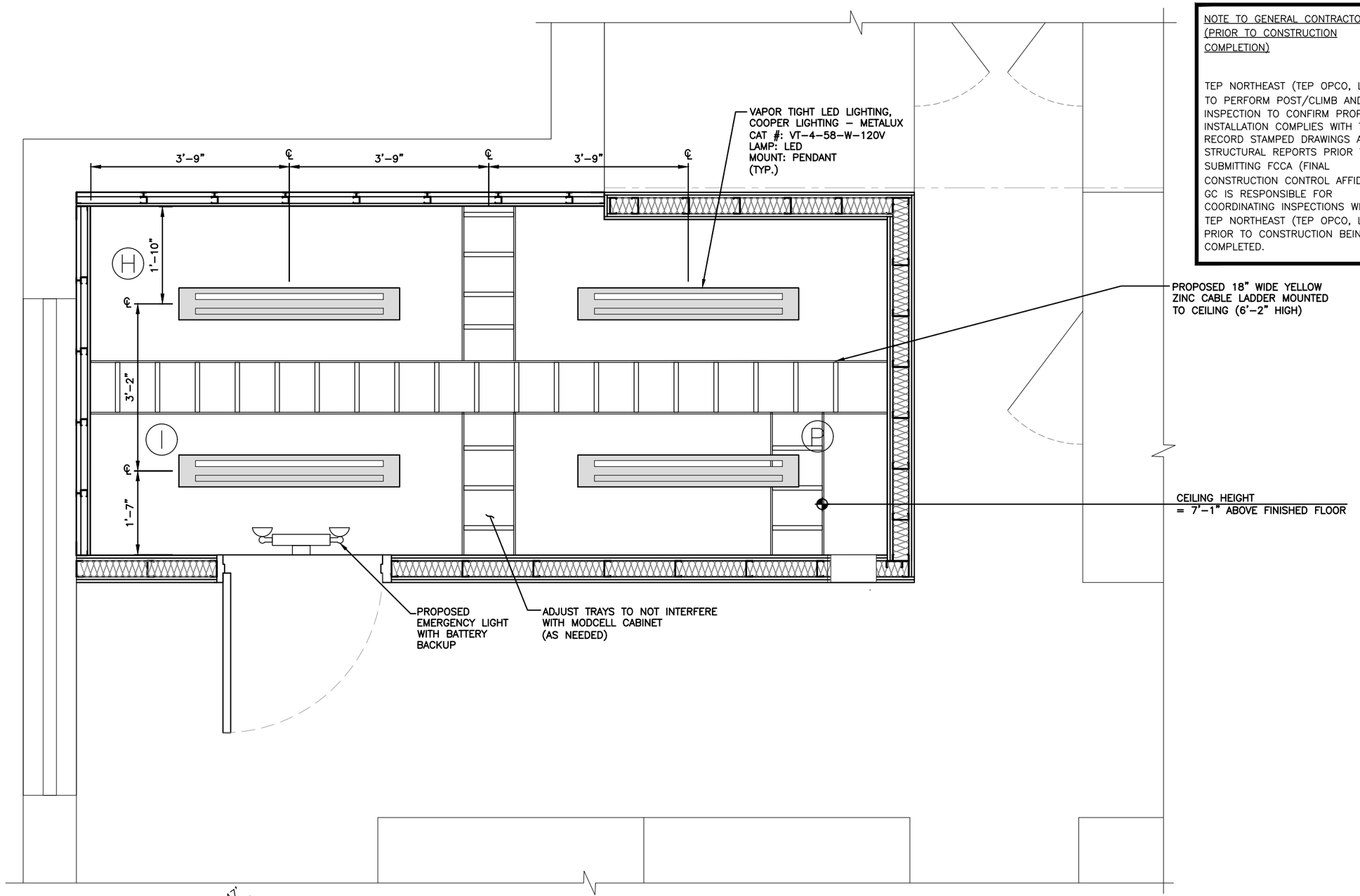
WALL TYPES DETAILS
5G NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A–5	5



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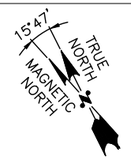

PARTIAL BASEMENT FLOOR CEILING PLAN

1 / A-6

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

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1	02/23/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
0	02/11/22	ISSUED FOR REVIEW	AA	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

EQUIPMENT ROOM REFLECTED CEILING PLAN
& NR 1SR C-BAND-BBU RECONFIGURATION,
ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A-6	5

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NOTE:

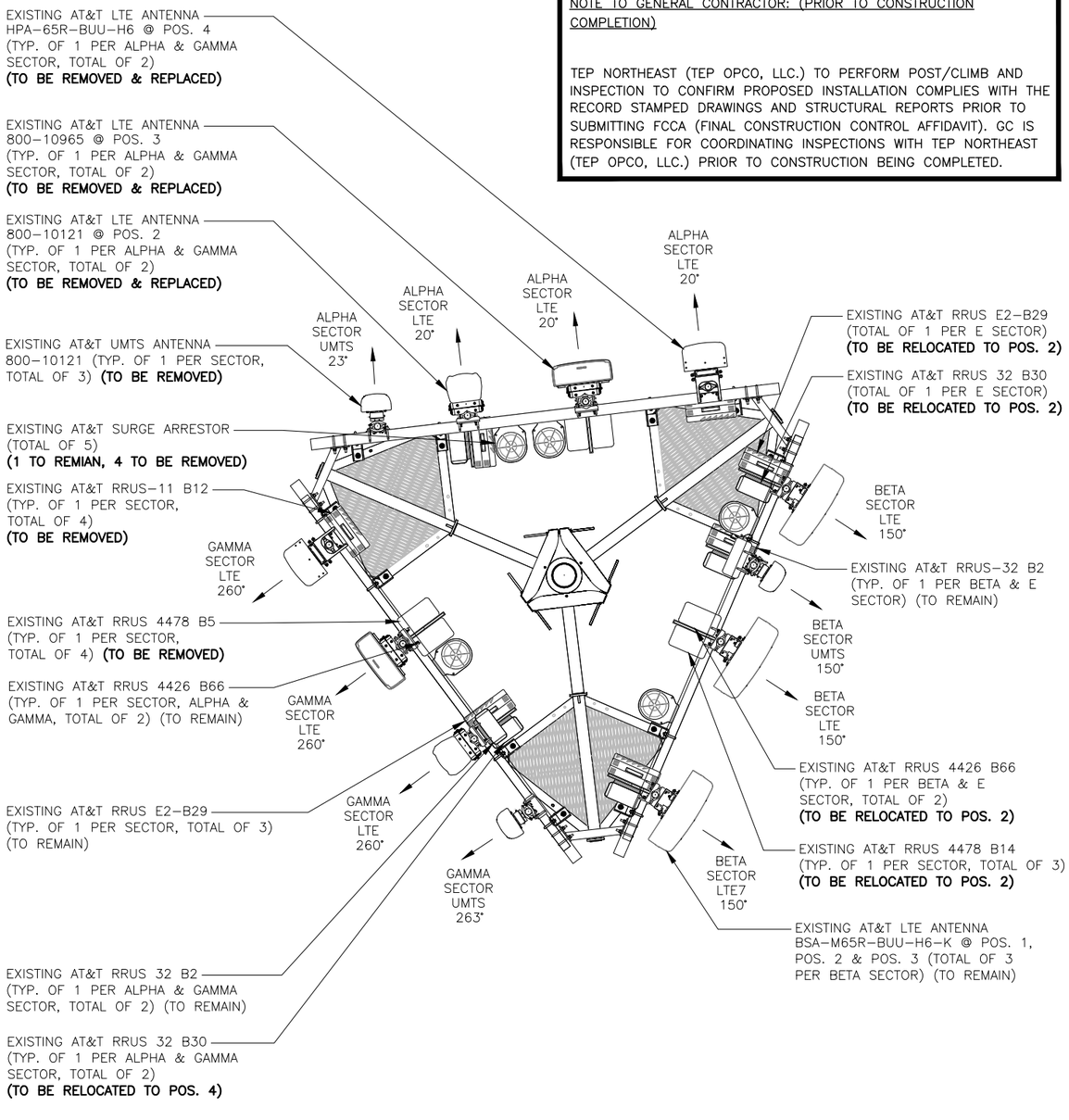
REFER TO **STRUCTURAL ANALYSIS** BY: CENTEK ENGINEERING DATED: AUGUST 3, 2023 (REV.3) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT

NOTE:

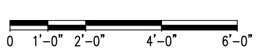
AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: TEP NORTHEAST (TEP OPCO, LLC) DATED: AUGUST 4, 2023 (Rev.2)

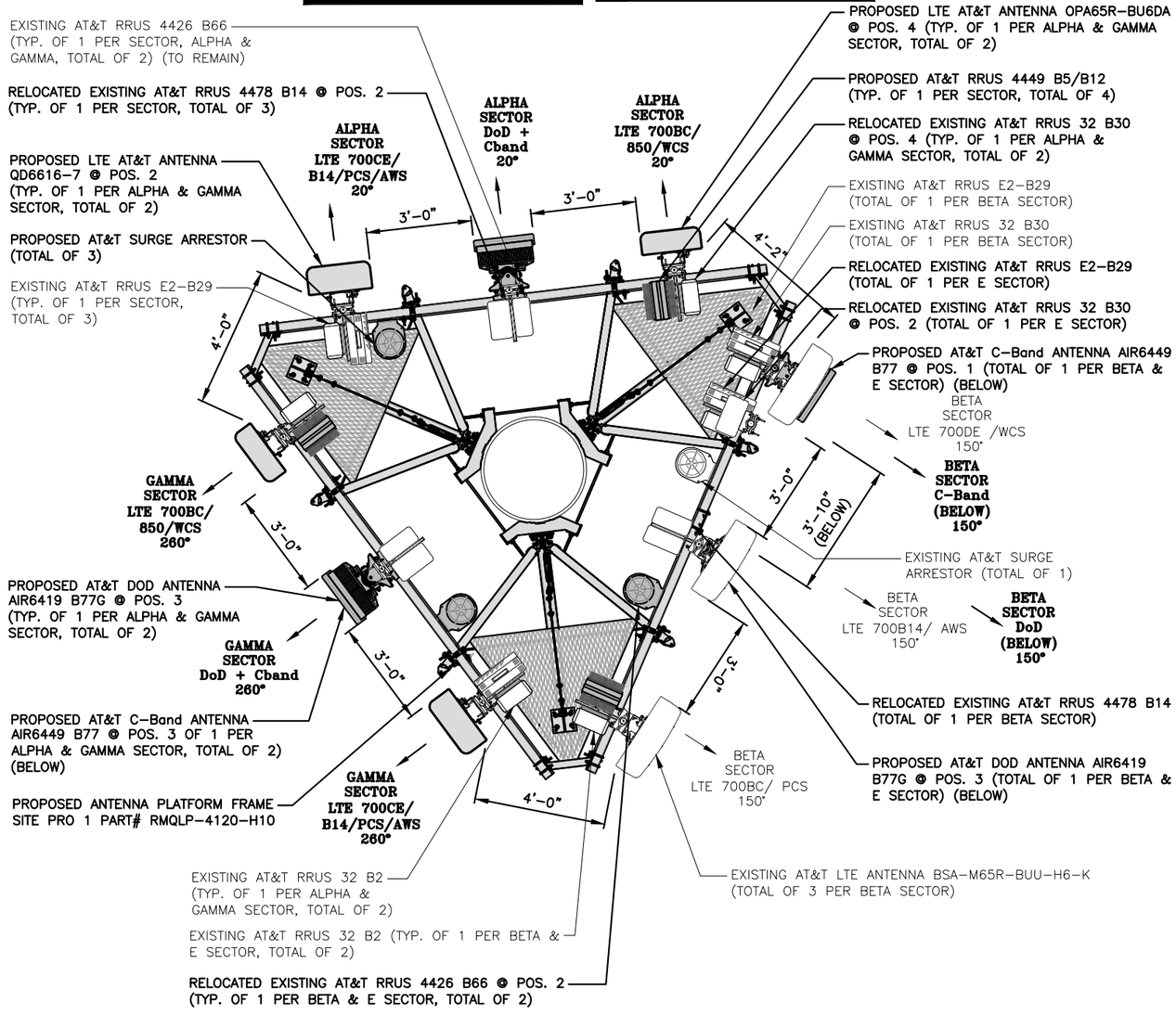
NOTE:

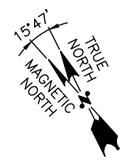
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



EXISTING ANTENNA PLAN (1 / A-7)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"







PROPOSED ANTENNA PLAN (2 / A-7)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

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0	02/11/22	ISSUED FOR REVIEW	AA	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

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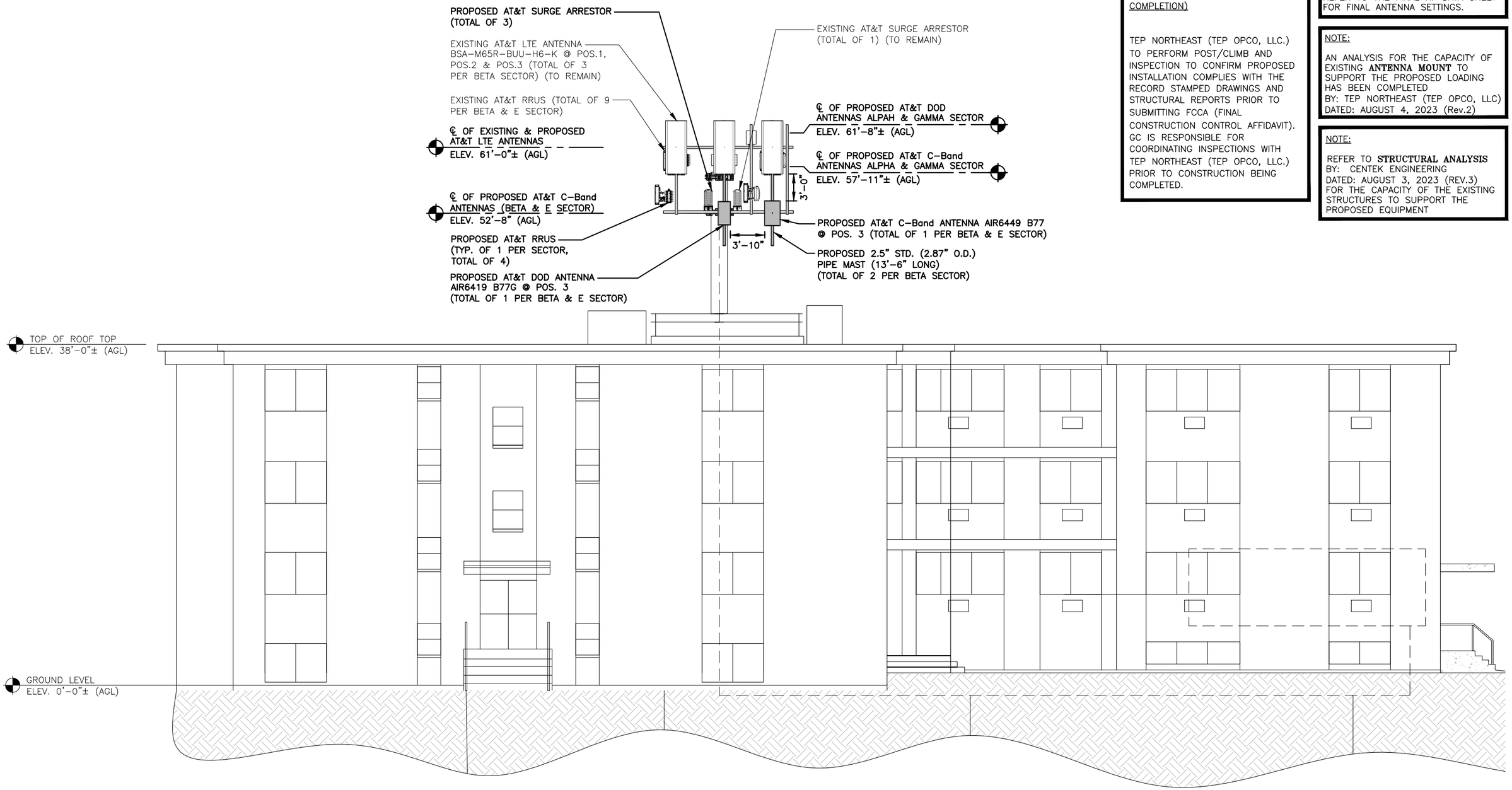
ANTENNA LAYOUT PLANS
NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A-7	5



ELEVATION
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

1 / A-8

0 2'-8" 5'-4" 10'-8" 16'-0"

NOTE TO GENERAL CONTRACTOR:
(PRIOR TO CONSTRUCTION COMPLETION)

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REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: TEP NORTHEAST (TEP OPCO, LLC)
DATED: AUGUST 4, 2023 (Rev.2)

NOTE:

REFER TO **STRUCTURAL ANALYSIS**
BY: CENTEK ENGINEERING
DATED: AUGUST 3, 2023 (REV.3)
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT

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at&t
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT
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No. 24178
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ELEVATION
5G NR 1SR C-BAND-BBU RECONFIGURATION,
ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A-8	5

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	–	(P) (1) RAYCAP DC9-48-60-24-8C-EV
A2	PROPOSED	LTE 700CE/ B14/PCS/AWS	QD6616-7	72x22x9.6	61'-0"±	20°	–	(1)(E)RRUS-E2 B29 (850) (1)(E)4478 B14 (700) (1)(E)RRUS-32 B2 (PCS) (1)(E)4426 B66 (AWS)	–	(P)(3) DC POWER & (P)(1) FIBER	
A3	PROPOSED	DOD + CBAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	61'-8"± 57'-11"±	20°	–	–	–	–	
A4	PROPOSED	LTE 700BC/ 850/WCS	OPA65R-BU6DA	71.2x20x7.7	61'-0"±	20°	–	(1)(P)4449 B5/B12 (850/700) (1)(E)RRUS-32 B30 (WCS)	17.9"x13.2"x10.4" –	(P)(1) Y-CABLE	
B1	EXISTING	LTE 700DE /WCS	BSA-M65R-BUU-H6-K	72x28.5x9.7	61'-0"±	150°	–	(1)(E)RRUS-E2 B29 (850) (1)(E)RRUS-32 B30 (WCS)	–	–	
E2	PROPOSED	C-BAND	AIR6449 B77 (BELOW EXISTING ANTENNA)	30.6X15.9X10.6	52'-8"	150°	–	–	–	–	(E) (1) RAYCAP DC6-48-60-0-8C-EC (P) (1) RAYCAP DC9-48-60-24-8C-EV
B3	EXISTING	LTE 700B14/ AWS	BSA-M65R-BUU-H6-K	72x28.5x9.7	61'-0"±	150°	–	(1)(E)4478 B14 (700) (1)(E)4426 B66 (AWS)	–	(P)(2) DC POWER, (P)(3) DC POWER & (P)(1) FIBER	
E4	PROPOSED	DOD	AIR6419 B77G (BELOW EXISTING ANTENNA)	31.1X16.1X7.3	52'-8"	150°	–	–	–	(P)(2) DC POWER, (P)(3) DC POWER & (P)(1) FIBER	
B5	EXISTING	LTE 700BC/ PCS	BSA-M65R-BUU-H6-K	72x28.5x9.7	61'-0"±	150°	–	(1)(P)4449 B5/B12 (850/700)	17.9"X13.2"X10.4" –	(P)(1) Y-CABLE	
C1	–	–	–	–	–	–	–	–	–	–	(P) (1) RAYCAP DC9-48-60-24-8C-EV
C2	PROPOSED	LTE 700CE/ B14/PCS/AWS	QD6616-7	72x22x9.6	61'-0"±	260°	–	(1)(E)RRUS-E2 B29 (850) (1)(E)4478 B14 (700) (1)(E)RRUS-32 B2 (PCS) (1)(E)4426 B66 (AWS)	–	(P)(3) DC POWER & (P)(1) FIBER	
C3	PROPOSED	DOD + CBAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	61'-8"± 57'-11"±	260°	–	–	–	–	
C4	PROPOSED	LTE 700BC/ 850/WCS	OPA65R-BU6DA	71.2x20x7.7	61'-0"±	260°	–	(1)(P)4449 B5/B12 (850/700) (1)(E)RRUS-32 B30 (WCS)	17.9"x13.2"x10.4" –	(P)(1) Y-CABLE	

FINAL ANTENNA SCHEDULE (1 / A-9)
SCALE: N.T.S

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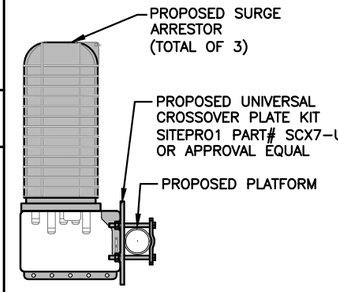
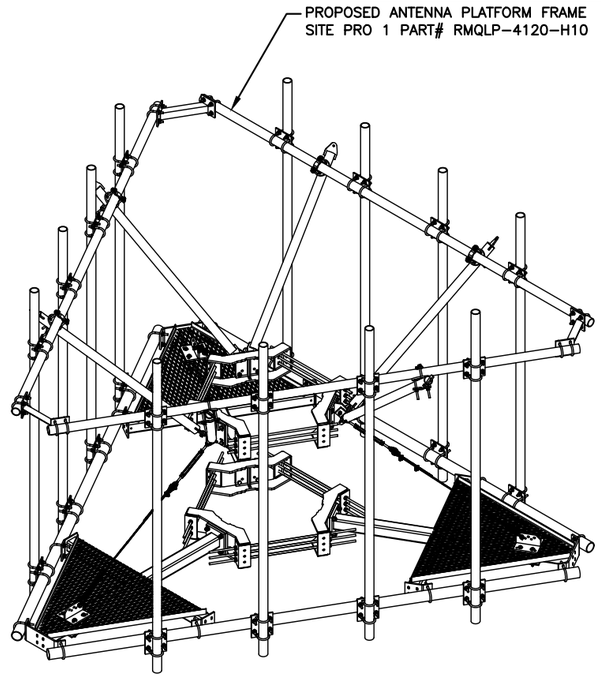
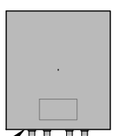


SURGE SUPPRESSOR MOUNTING DETAIL (4 / A-9)
SCALE: N.T.S



NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

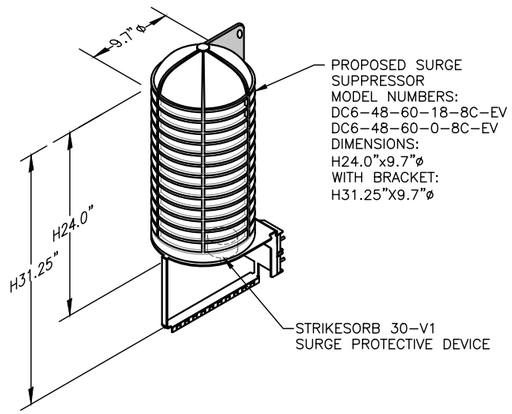
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (2 / A-9)
SCALE: N.T.S

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
4(P)	4449 (700)	17.9"x13.2"x10.4"
3(E)	4478 B14 (700)	18.1"x13.4"x8.3"
4(E)	4426 B66 (AWS)	14.9"x13.2"x5.8"
4(E)	RRUS-32 B2 (PCS)	27.2"x12.1"x7.0"
4(E)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"
4(E)	RRUS-E2 B29 (700)	20.4"x18.5"x7.5"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (3 / A-9)
SCALE: N.T.S

PROPOSED MOUNT DETAIL (5 / A-9)
SCALE: N.T.S

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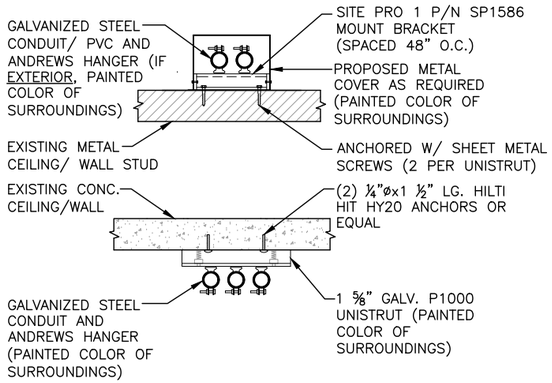
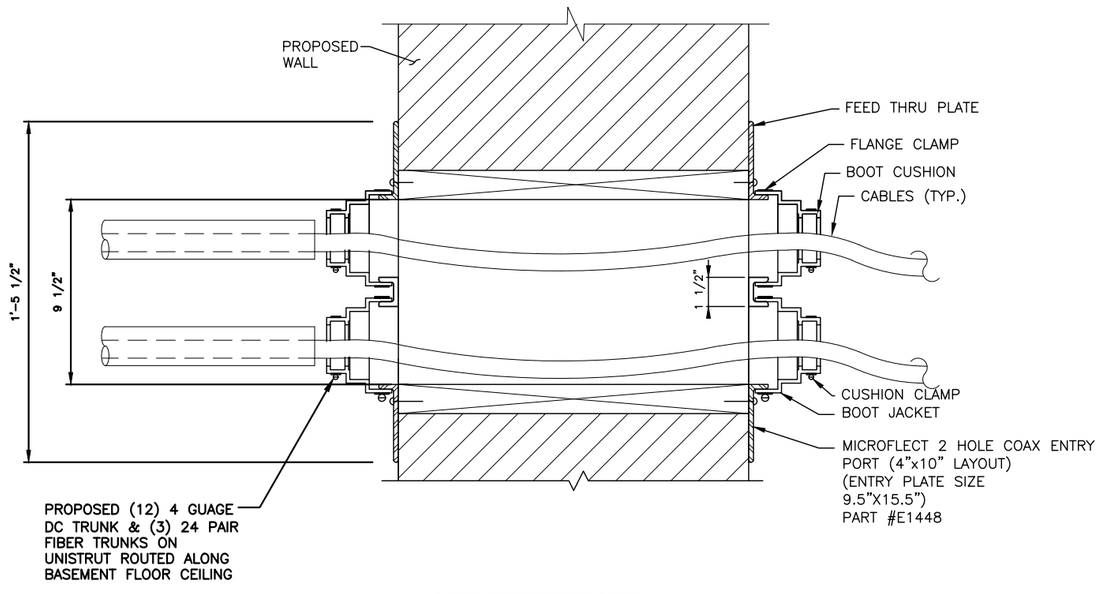
DETAILS
5G NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A-9	5



CONDUIT RUN DETAIL (1 / A–10)
SCALE: N.T.S



CABLE ENTRY PORT (THRU EQUIPMENT ROOM WALL) (2 / A–10)
SCALE: N.T.S

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DETAILS
CT NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

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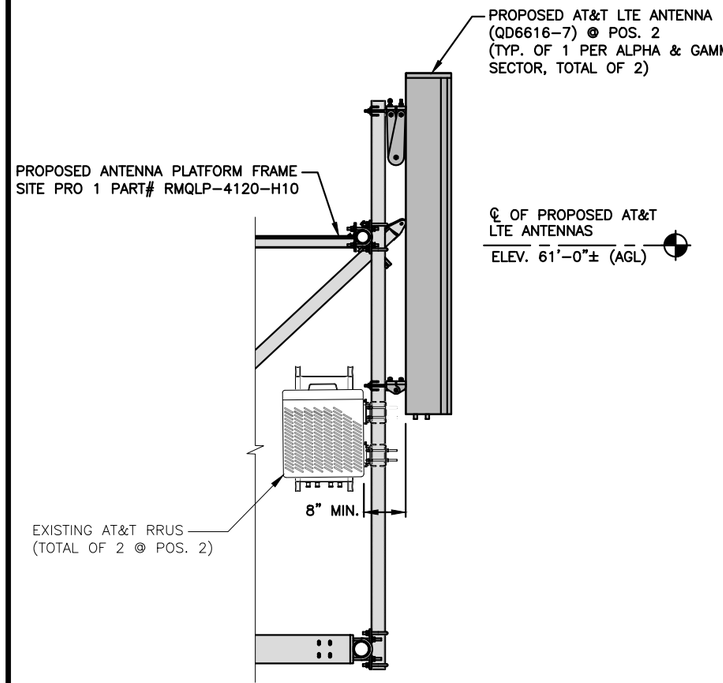
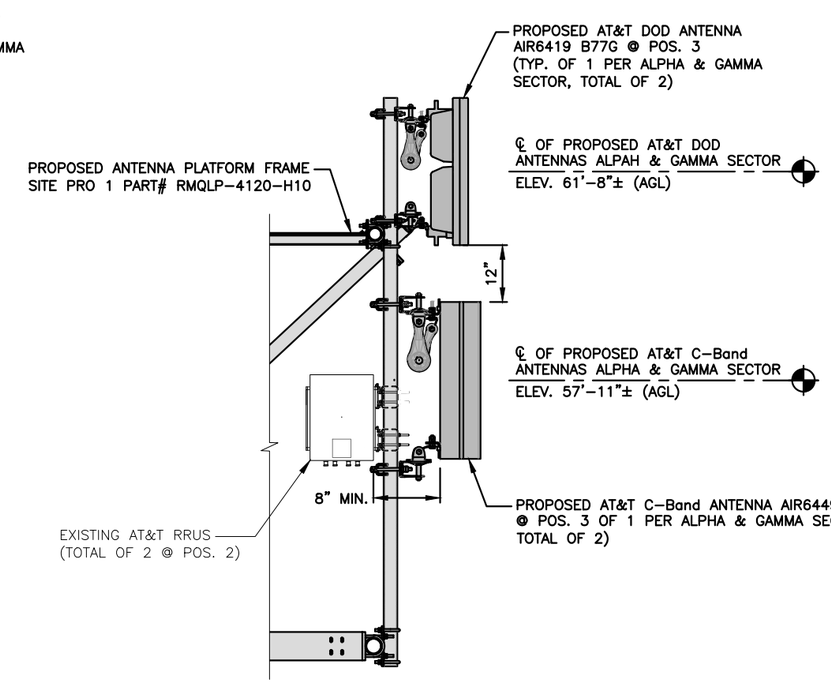


PROPOSED LTE ANTENNA MOUNTING DETAIL (ALPHA & GAMMA SECTOR)

1 / A-11

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"

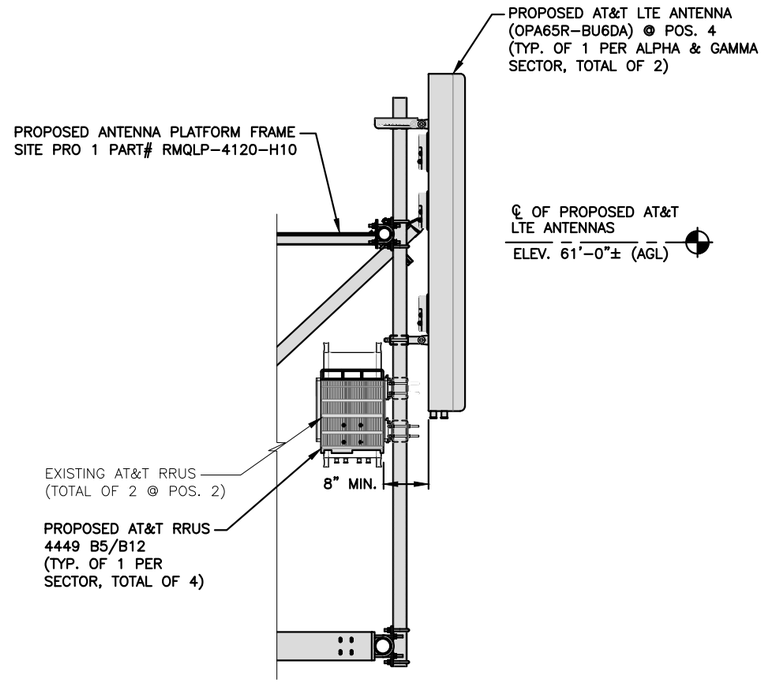


PROPOSED C-BAND ANTENNA MOUNTING DETAIL (ALPHA & GAMMA)

2 / A-11

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED LTE ANTENNA MOUNTING DETAIL (ALPHA & GAMMA SECTOR)

2 / A-11

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"

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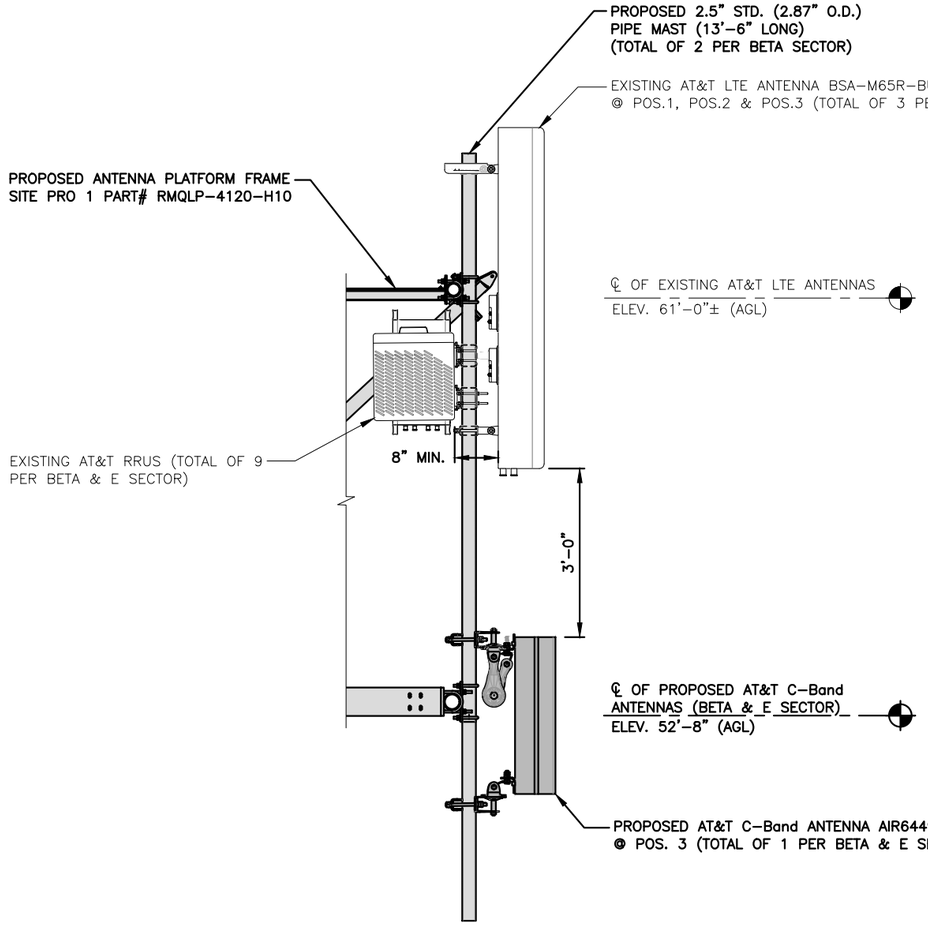
DETAILS
5G NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

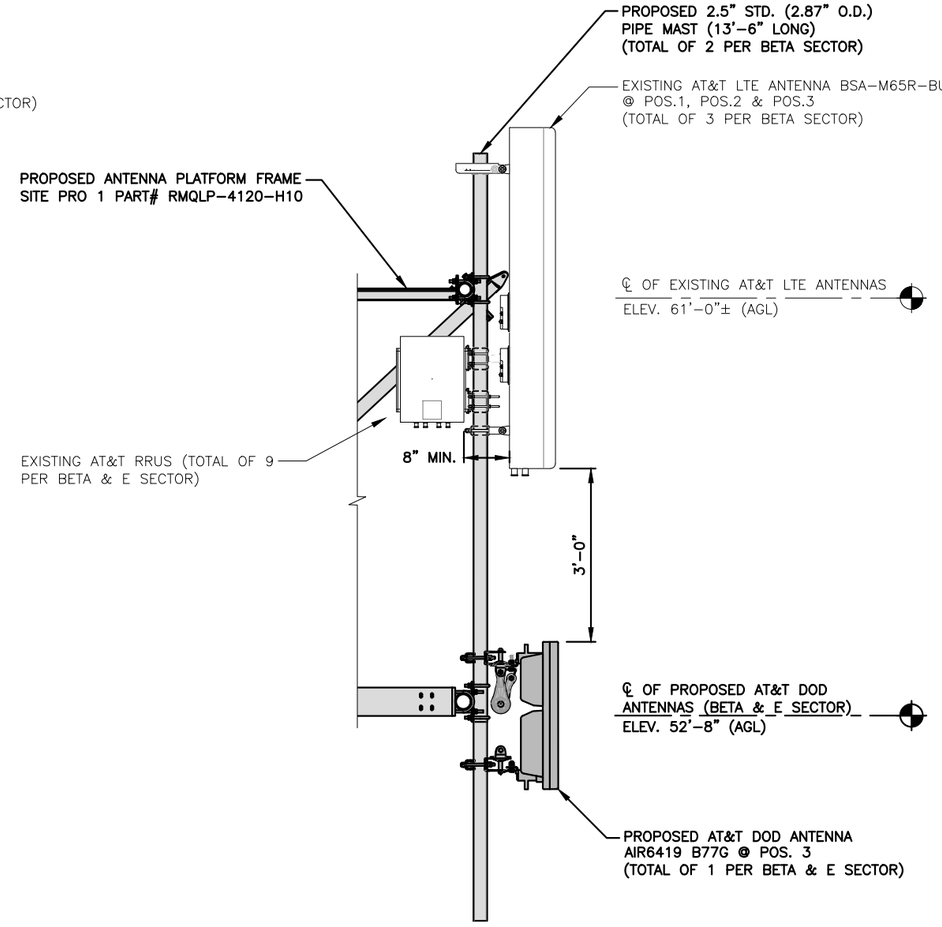
SITE NUMBER	DRAWING NUMBER	REV
CT2035	A-11	5



PROPOSED LTE/C-BAND ANTENNA MOUNTING DETAIL (BETA & E SECTOR) 1 / A-12

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED LTE/C-BAND ANTENNA MOUNTING DETAIL (BETA & E SECTOR) 2 / A-12

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"

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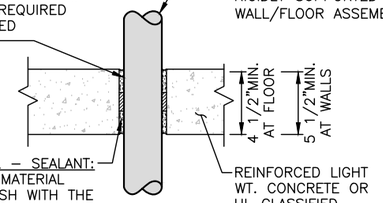
DETAILS
5G NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A-12	5

PACKING MATERIAL: MIN 1–1/2 in. THICKNESS OF MIN 6 pcf MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

ONE 2"ø (OR SMALLER) SCHEDULE 40 PVC PIPE TO BE CENTERED WITHIN FIRESTOP SYSTEM. A NOM. ANNULAR SPACE OF 5/16" IS REQUIRED WITHIN THE FIRESTOP SYSTEM PIPE SHALL BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL/FLOOR ASSEMBLY



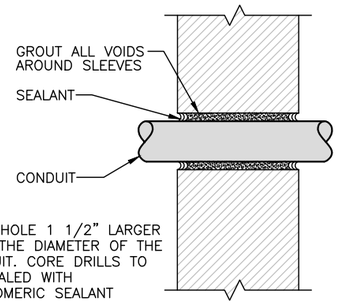
FILL, VOID OR CAVITY MATERIAL – SEALANT: MIN 2 in. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH THE TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL.

REINFORCED LIGHT WT. CONCRETE OR UL CLASSIFIED CMU.

SPECIFIED TECHNOLOGIES INC:
SPECSEAL SERIES SSS SEALANT OR SPECSEAL LCI SEALANT.

UL SYSTEM NUMBER: C–AJ–2057
F RATING – 2 HR.

PVC CONDUIT PENETRATION
DETAIL IN CONCRETE OR MASONRY



NOTE:
CORE HOLE 1 1/2" LARGER THAN THE DIAMETER OF THE CONDUIT. CORE DRILLS TO BE SEALED WITH ELASTOMERIC SEALANT

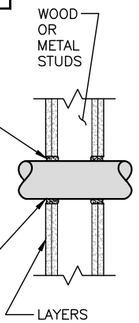
PIPE AND CONDUIT PENETRATION
DETAIL IN NON-RATED PARTITION

FLOOR OR WALL	MIN FLOOR OR WALL THKNS. (in.)	MAX DIAM OF STEEL PIPE OR CONDUIT (in.)	MIN ANNULAR SPACE (in.)	MAX ANNULAR SPACE (in.)	MIN FILL MTL THKNS (in.)	MIN FORMING MTL THKNS (in.)	F RATING (HOURS)	T RATING (HOURS)
FLOOR	3–3/4	1–1/2	3/8	2–1/8	1	2–3/4	2	0
FLOOR	3–3/4	6	3/8	3/4	1	2–3/4	2	0
FLOOR	3–3/4	6	3/8	1	2	1–3/4	2	0
FLOOR	4–1/2	1–1/2	3/8	2–1/8	1	3–1/2	3	3/4
FLOOR	4–1/2	6	3/8	3/4	1	3–1/2	3	0
FLOOR	4–1/2	6	3/8	1	2	2–1/2	3	0
WALL	5–1/2	1–1/2	3/8	2–1/8	1	3–1/2	3	3/4
WALL	5–1/2	6	3/8	3/4	1	3–1/2	3	0
WALL	6–1/2	1–1/2	3/8	2–1/8	2	2–1/2	3	1
WALL	6–1/2	6	3/8	1	2	2–1/2	3	0

WALL HR	MAX DIAM OF THROUGH PENETRANT in.	T RATING HR
1	2	1
1	1–1/4	1
2	2	1
2	1–1/4	1 1/2

THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.

THROUGH PENETRANTS: ONE 2"ø NONMETALLIC PIPE, CONDUIT OR RACEWAY TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. A NOM ANNULAR SPACE OF 5/16 in. IS REQUIRED WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR RACEWAY TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY.



FILL, VOID OR CAVITY MATERIAL – SEALANT: MIN 5/8 in. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. ADDITIONAL FILL MATERIAL TO BE INSTALLED SUCH THAT A MIN 1/4 in. THICK CROWN IS FORMED AROUND THE PENETRATING ITEM AND LAPPING 1 in. BEYOND THE PERIPHERY OF THE OPENING.

SPECIFIED TECHNOLOGIES INC:
SPECSEAL SERIES SSS SEALANT, SPECSEAL LCI SEALANT.

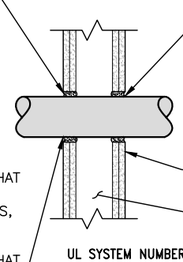
UL SYSTEM NUMBER: W–L–2093
F RATING – 1 & 2 HR.

PVC CONDUIT PENETRATION
DETAIL IN GYPSUM WALLBOARD

PACKING MATERIAL: MIN. 1 in. THICKNESS OF MIN. 3.5 pcf FIBERGLASS INSULATION SHALL BE WRAPPED AROUND THE THROUGH–PENETRANT AND SECURED TOGETHER BY MEANS OF NO. 24 AWG STEEL TIE WIRE. PACKING MATERIAL SHALL BE CENTERED AT MID–DEPTH OF OPENING AND RECESSED FROM BOTH SURFACES OF WALL ASSEMBLY REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

FILL, VOID OR CAVITY MATERIAL – CAULK OR PUTTY: IN 2 HR FIRE RATED ASSEMBLIES MIN 3/4 IN. THICKNESS FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH BOTH SURFACES OF WALL. ADDITIONAL FILL MATERIAL TO BE INSTALLED SUCH THAT A MIN 1/4 in. CROWN IS FORMED AROUND THE PENETRATING ITEM. IN 1 HR FIRE RATED ASSEMBLIES, MIN 5/8 in. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS ON BOTH SURFACES OF WALL. ADDITIONAL FILL MATERIAL TO BE INSTALLED SUCH THAT A MIN 3/8 in. CROWN IS FORMED AROUND THE PENETRATING ITEM AND LAPPING 1 in. BEYOND THE PERIPHERY OF THE OPENING.

SPECIFIED TECHNOLOGIES INC:
SPECSEAL SERIES SSS SEALANT, SPECSEAL LCI SEALANT OR SPECSEAL PUTTY.



UL SYSTEM NUMBER: W–L–1029
F RATING – 1 & 2 HR.

ALL CORES THROUGH ELECTRIC ROOMS TO BE FIRE-STOPPED.

USE FULL CONDUIT RUNS THROUGH PENETRATIONS

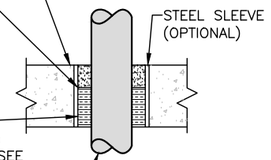
PIPE AND CONDUIT PENETRATION
DETAIL IN GYPSUM WALLBOARD

CONCRETE FLOOR OR WALL ASSEMBLY, MINIMUM 3–3/4 in. THICKNESS FLOOR/ MINIMUM 6–1/2 in. WALL

TYPE AS OR TYPE SS: MINIMUM THICKNESS OF SEALANT AS SPECIFIED IN THE TABLE ABOVE, APPLIED WITHIN THE OPENING, FLUSH WITH THE TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF THE WALL.

FORMING MATERIAL: MINERAL WOOL BATT INSULATION (MINIMUM 4.0 pcf) FIRMLY PACKED INTO THE OPENING AS A PERMANENT FORM; SEE TABLE FOR MINIMUM REQUIRED THICKNESS

METALLIC PIPE: STEEL PIPE: 6"ø (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
CONDUIT: 4"ø (OR SMALLER) ELECTRICAL METALLIC TUBING (EMT) OR 6"ø RIGID STEEL CONDUIT.



UL SYSTEM NUMBER: C–AJ–1020
F RATING – 3 HR. (FOR PIPES GREATER THAN 4")
F RATING – 2 HR. (FOR PIPES LESS THAN 4")

PIPE AND CONDUIT PENETRATION
DETAIL IN CONCRETE OR MASONRY

NOTE:

CABLES IN VERTICAL RUNS. CABLES INSTALLED IN VERTICAL RUNS AND PENETRATING MORE THAN ONE FLOOR, OR CABLES INSTALLED IN VERTICAL RUNS IN A SHAFT, SHALL BE TYPE CMR. FLOOR PENETRATIONS REQUIRING TYPE CMR SHALL CONTAIN ONLY CABLES SUITABLE FOR RISER OR PLENUM USE. LISTED RISER COMMUNICATIONS RACEWAYS AND LISTED PLENUM COMMUNICATIONS RACEWAYS SHALL BE PERMITTED TO BE INSTALLED IN VERTICAL RISER RUNS IN A SHAFT FROM FLOOR TO FLOOR. **ONLY TYPE CMR CABLES SHALL BE PERMITTED TO BE INSTALLED IN THESE RISERS. ONLY CMP CABLES SHALL BE PERMITTED TO BE INSTALLED IN PLENUMS.**

METAL RACEWAYS OR FIREPROOF SHAFTS. LISTED COMMUNICATIONS CABLES SHALL BE ENCASED IN A METAL RACEWAY OR LOCATED IN A FIREPROOF SHAFT HAVING FIRESTOPS AT EACH FLOOR.

PENETRATION DETAILS 1 / A–13
22x34 SCALE: N.T.S

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

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at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

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PENETRATION DETAILS
SC NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	A–13	5

GROUNDING NOTES

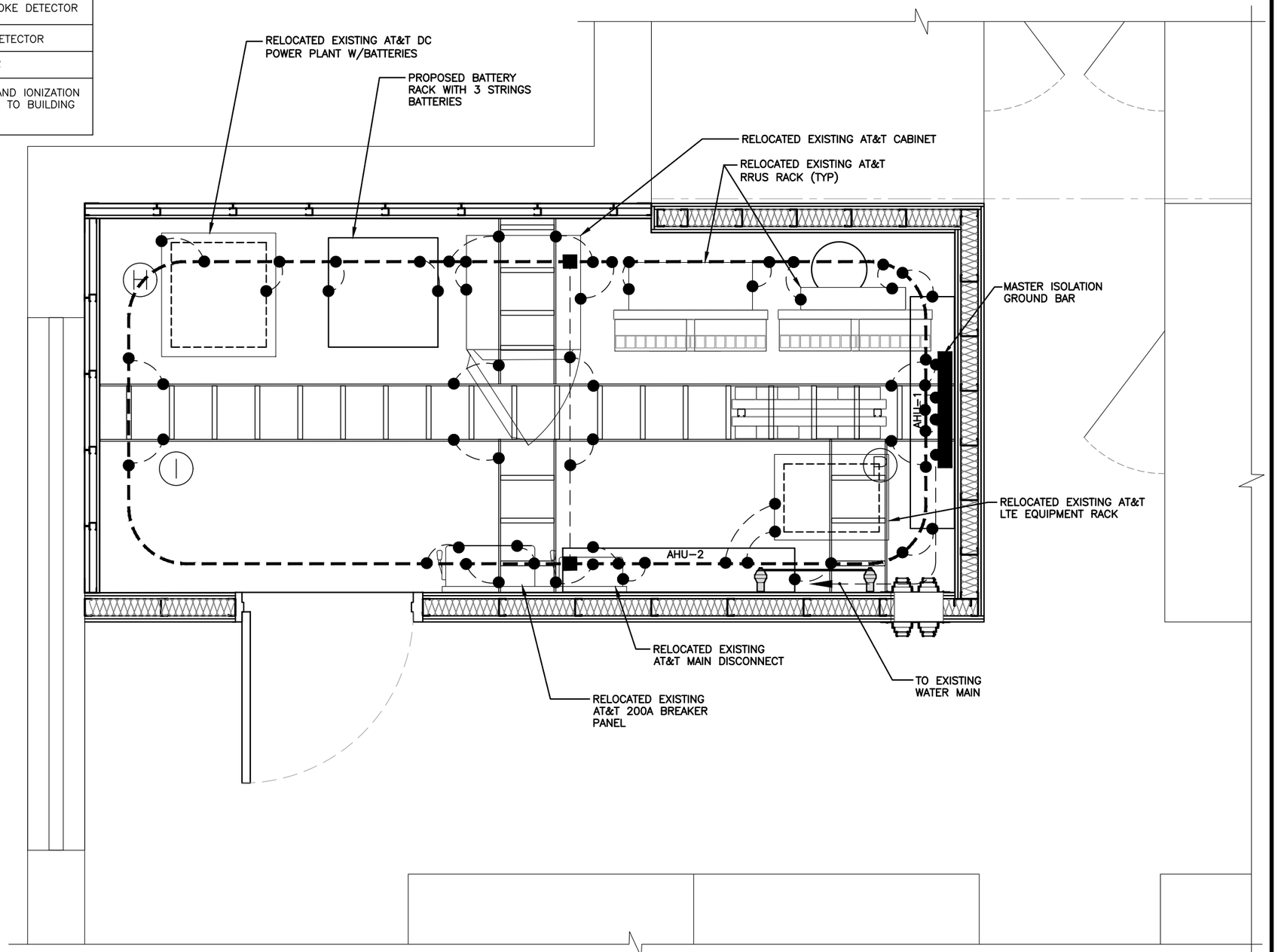
1. ALL GROUND WIRE SHALL BE BARE COPPER #2 AWG UNLESS OTHERWISE NOTED.
2. ALL GROUND WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF GROUND RODS AND GROUND RING WITH FOUNDATION AND UNDERGROUND CONDUIT.
4. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MIGB) WITH #2 AWG INSULATED STRANDED COPPER WIRE. EQUIPMENT CABINETS SHALL EACH HAVE (2) CONNECTIONS.
5. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE (TYPICAL FOR FOUR MOUNTING PIPES PER SECTOR).
6. ANTENNA GROUND KITS SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
7. COORDINATE NEW LICENSEE GROUND SYSTEM WITH EXISTING SITE GROUND SYSTEM.
8. EACH SECTION OF CABLE TRAY, ICE BRIDGE AND ICE SHIELD SHALL BE CONNECTED IN A FASHION TO PROVIDE A CONTINUOUS GROUND.
9. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANELS AND FRAMES OF EQUIPMENT, AND WHERE EXPOSED FOR GROUNDING, CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE WITH STAINLESS STEEL SELF-TAPPING SCREWS.
10. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
11. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH LICENSEE PROJECT MANAGER.
12. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
13. INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANELBOARD.
14. GROUND ANTENNA BASES, FRAMES, CABLE RACKS AND OTHER METALLIC COMPONENTS WITH #2 GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
15. GROUND CABLEIAL SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.
16. REINFORCEMENT IN EQUIPMENT SLAB TO BE WELDED AND REINFORCEMENT TO BE BONDED TO GROUNDING RING.
17. CONCRETE-ENCASED ELECTRODES GREATER THAN 20 S.F. OF SURFACE AREA & 1/2" OR GREATER REINFORCING STEEL MUST BE BONDED TO THE GROUNDING RING PER NEC 250.50.

GROUNDING LEGEND

■	EXOTHERMIC TYPE CONNECTION
●	COMPRESSION TYPE CONNECTION
- - -	#2 SOLID TINNED COPPER WIRE UNLESS OTHERWISE NOTED
⊗	XIT GROUND ROD
⊠	GROUND WELL
Ⓗ	HEAT DETECTOR

SYMBOL	DESCRIPTION
Ⓟ	PHOTO ELECTRIC SMOKE DETECTOR
Ⓘ	IONIZATION SMOKE DETECTOR
Ⓗ	HYDROGEN DETECTOR

PROPOSED PHOTOELECTRIC AND IONIZATION SMOKE DETECTORS ARE TIED TO BUILDING FIRE ALARM SYSTEM



15°47' TRUE NORTH MAGNETIC NORTH

EQUIPMENT ROOM GROUNDING PLAN (1 / E-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0"

TEP NORTHEAST
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT — DANIEL P. HAMM — No. 24178 — LICENSED PROFESSIONAL ENGINEER

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GROUNDING/ELECTRICAL PLAN & NOTES
NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	E-1	5

ELECTRICAL LEGEND

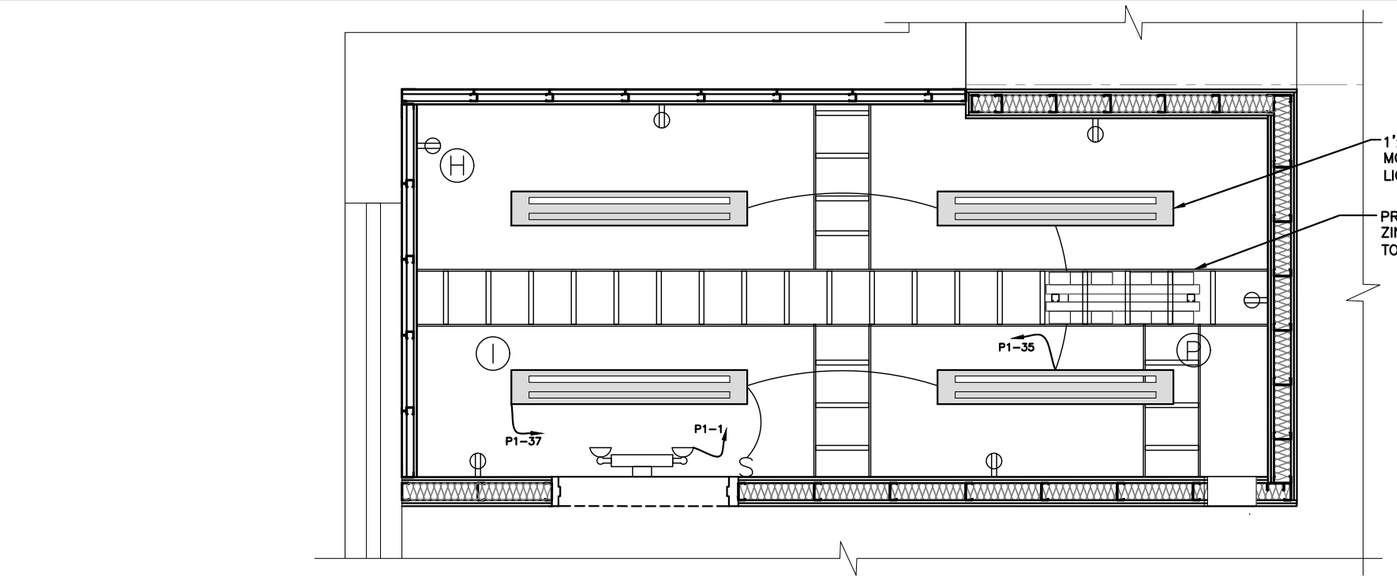
	DISCONNECT SWITCH (UNFUSED)
	DISCONNECT SWITCH (FUSED)
P–2	HOMERUN TO PANEL "P", CIRCUIT #2 (VIA 20A–1P C/B) 2 #12 AWG & 1 #8 AWG GND – 1"C
P–8 50A; 2P	HOMERUN TO PANEL "P", CIRCUIT #8 VIA 50A–3P CIRCUIT BREAKER. REFER TO "BRANCH CIRCUITS SCHEDULE" FOR CONDUCTOR QUANTITIES AND CONDUIT SIZES.
	CONDUIT STUB
	CONDUIT/WIRE TURNING UP
	CONDUIT/WIRE TURNING DOWN
3	125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE. "3" DENOTES CIRCUIT NUMBER.
GFI	125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE EQUIPPED WITH INTEGRAL GROUND FAULT INTERRUPTER.
S	SINGLE POLE TOGGLE SWITCH
(S)	SMOKE DETECTOR
(H)	HEAT DETECTOR
(F)	PULL STATION
	EMERGENCY LIGHT WITH BATTERY BACKUP

NOTES:

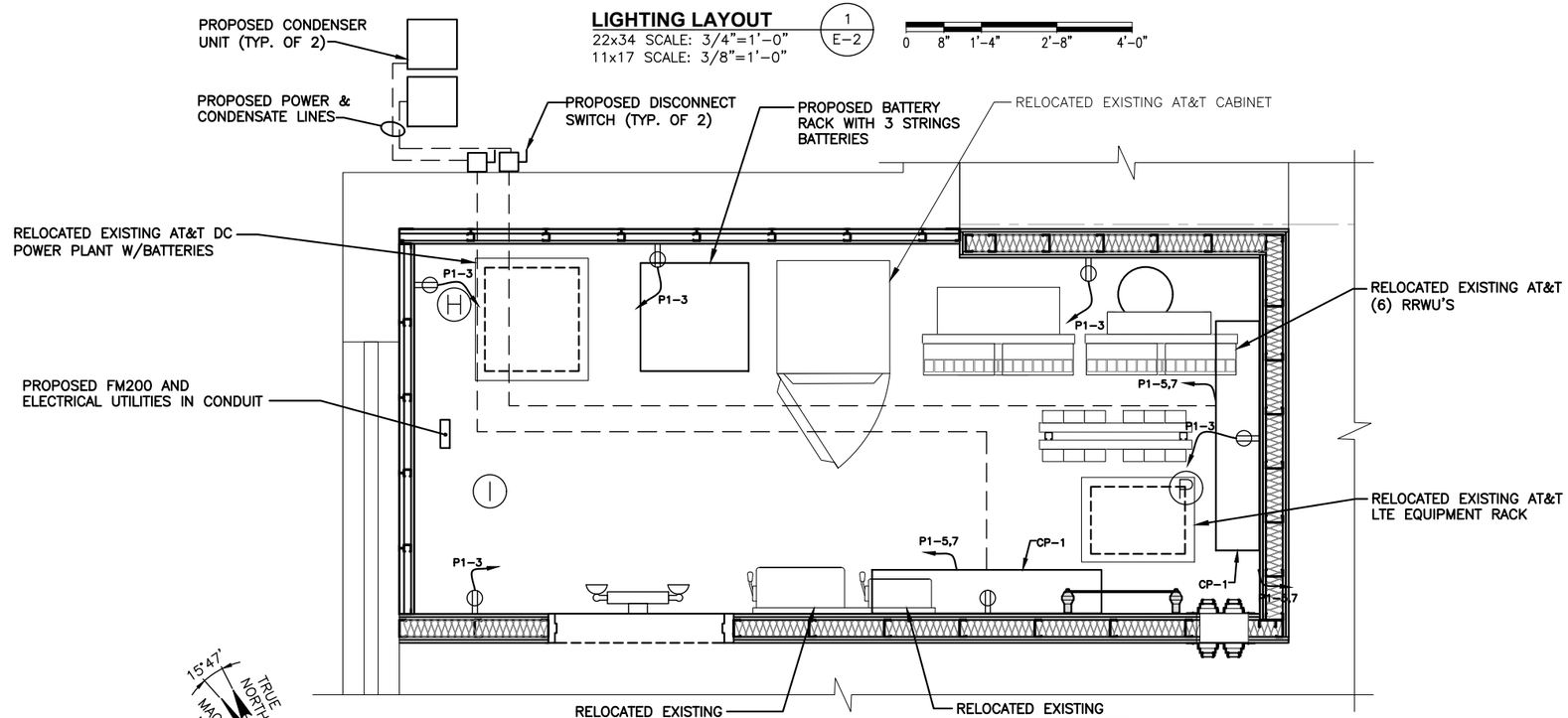
1. EMERGENCY LIGHTING – WALL MOUNTED LIGHTING BATTERY UNIT, MAINTENANCE FREE, AUTOMATIC SOLID STATE CHARGER, TEST SWITCH AND 2–25W SEALED BEAM LAMPS – LIGHTALARMS CAT# 2PQ2/L25 OR EQUAL. UNIT SHALL BE WIRED TO UNSWITCHED HOT LEG OF LIGHTING CIRCUIT.
2. LIGHT FIXTURE – SURFACE MOUNTED 1X4', 2 LAMP FLUORESCENT LIGHT FIXTURE – LITHONIA CAT# LB240A120ES OR EQUAL. FIXTURES TO BE COORDINATED WITH CABLE TRAYS AND DUCTS.
3. GENERAL CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE ENTIRE SHELTER AND WILL SUPPLY ALL ITEMS, INCLUDING LOUVERS, INTERIOR CABLE TRAY, SMOKE & HEAT DETECTORS.
4. FOR PANEL WIRING LAYOUT AND ELECTRICAL DESIGN OF FIRE SUPPRESSION DESIGN, SEE SHEET FM–1.

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.



LIGHTING LAYOUT (1 / E–2)
22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"
0 8" 1'–4" 2'–8" 4'–0"



POWER LAYOUT (2 / E–2)
22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"
0 8" 1'–4" 2'–8" 4'–0"

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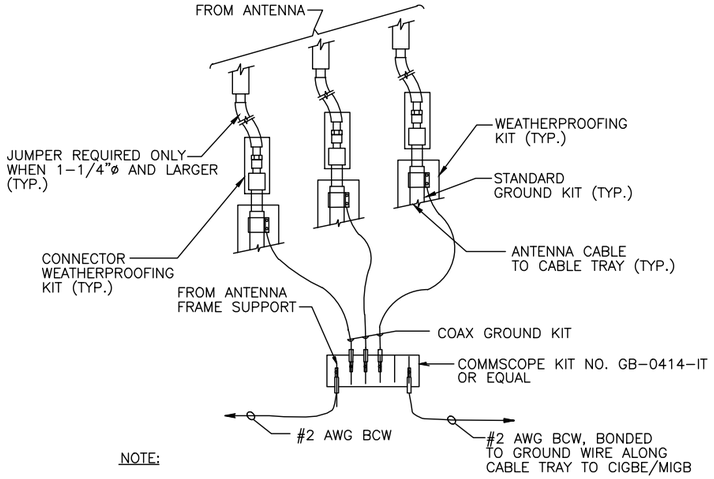
POWER & LIGHTING LAYOUT
NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	E–2	5



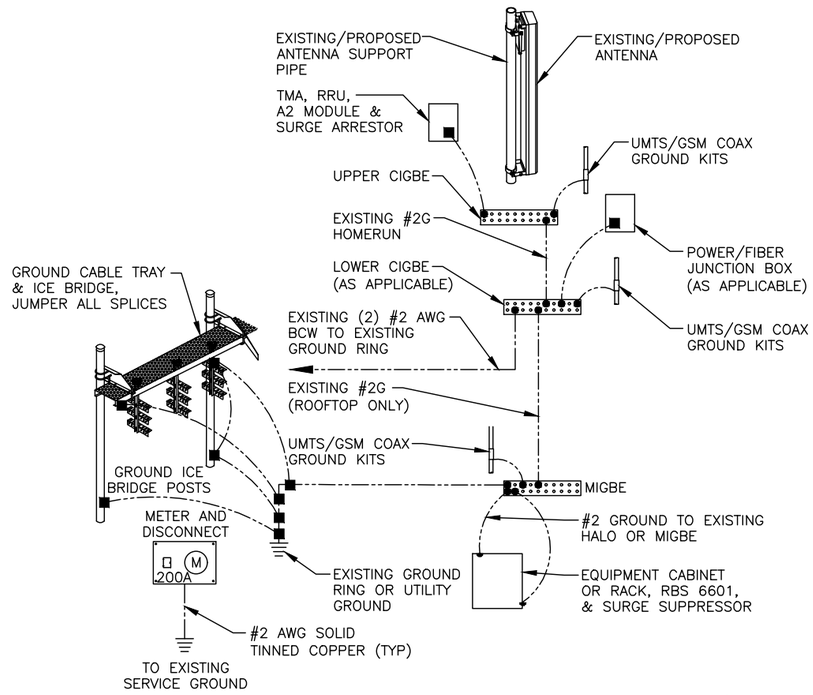
NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

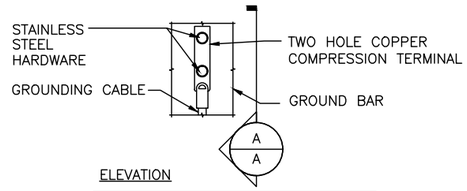
1 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

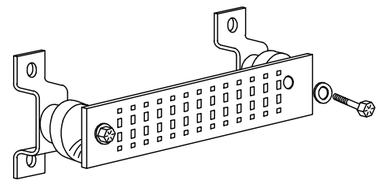
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
-48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

4 / G-1

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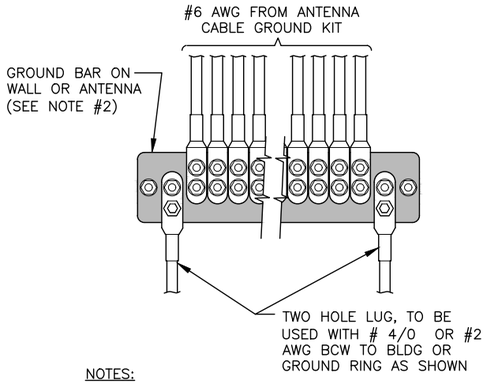
GROUNDING DETAILS
NR 1SR C-BAND-BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

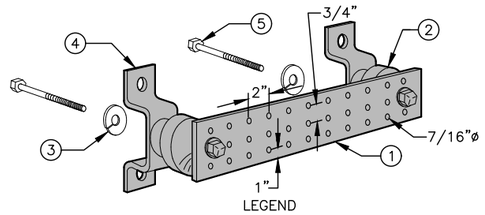
SITE NUMBER	DRAWING NUMBER	REV
CT2035	G-1	5



NOTES:

1. CONTRACTOR TO UTILIZE KOPR–SHIELD (THOMAS & BETTS) ON ALL LUG CONNECTIONS.
2. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI–THEFT HARDWARE.

GROUNDING - STANDARD
DETAIL INSTALLATION OF
GROUNDWIRE TO GROUND BAR (1 / G–2)
SCALE: N.T.S



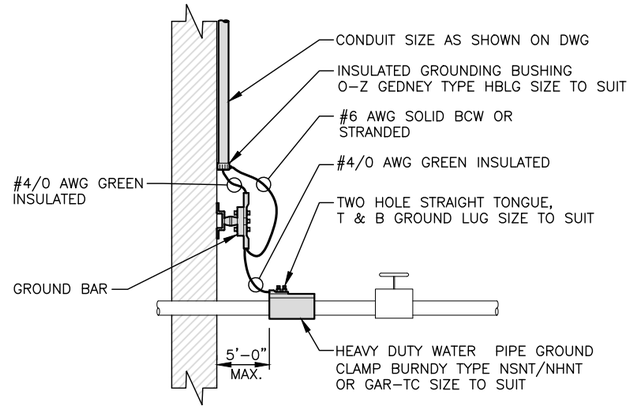
LEGEND

1. GALVANIZED STEEL GROUND BAR, 1/4"x4"x20", OR OTHER LENGTH AS REQUIRED, HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061–4 OR EQUAL.
3. 5/8" LOCKWASHERS OR EQUAL.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A–8056 OR EQUAL.
5. 5/8–11 x 1" H.H.C.S. BOLTS

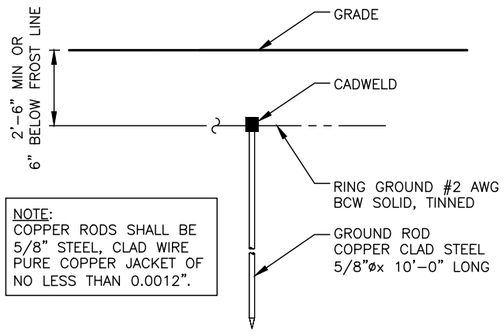
NOTES:

1. ALL BOLTS, NUTS, WASHERS, AND LOCK WASHERS SHALL BE 18–8 STAINLESS STEEL.
2. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI–THEFT HARDWARE.

GROUNDING - STANDARD
DETAIL GROUND BAR (2 / G–2)
SCALE: N.T.S



WATER MAIN GROUND (3 / G–2)
SCALE: N.T.S



NOTE:
COPPER RODS SHALL BE 5/8" STEEL, CLAD WIRE PURE COPPER JACKET OF NO LESS THAN 0.0012".

TYPICAL GROUND ROD DETAIL (4 / G–2)
SCALE: N.T.S

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

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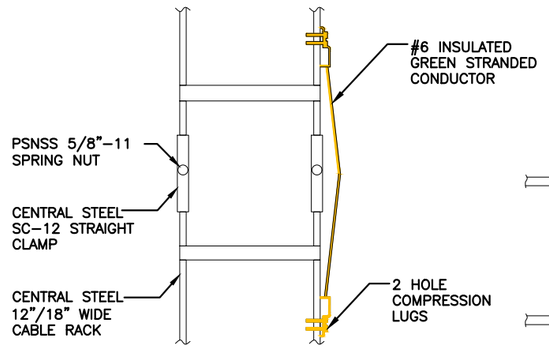
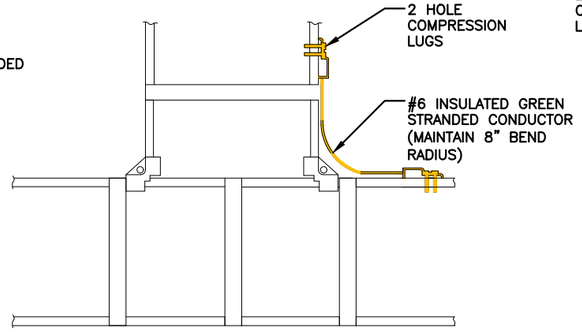
GROUNDING DETAILS
56 NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

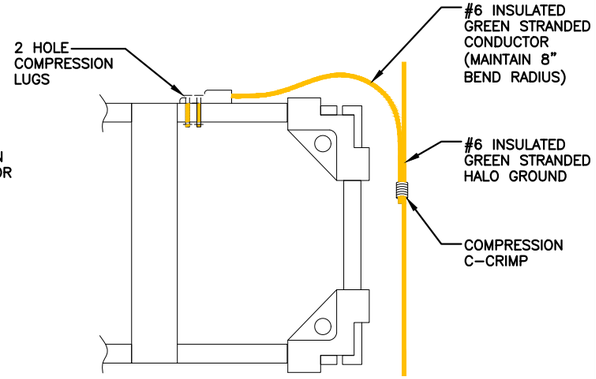
SITE NUMBER	DRAWING NUMBER	REV
CT2035	G–2	5



CABLE RACK GROUNDING - SPLICE 1 G–3
22x34 SCALE: N.T.S



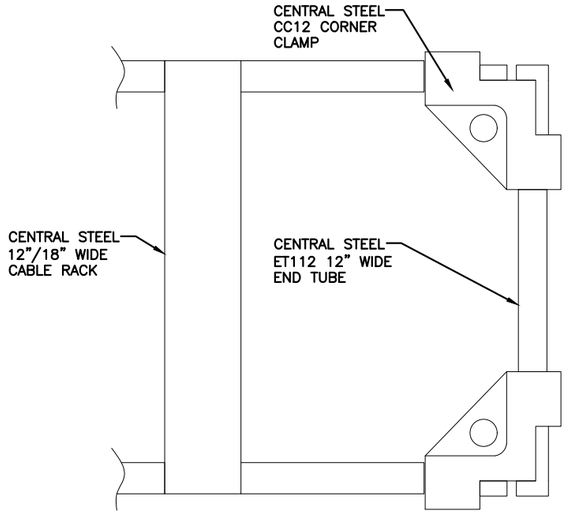
CABLE RACK GROUNDING - CORNER 2 G–3
22x34 SCALE: N.T.S



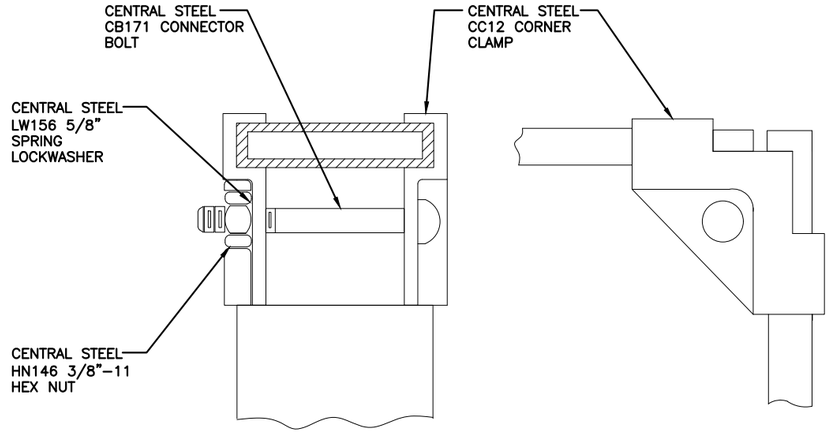
CABLE RACK GROUNDING - END 3 G–3
22x34 SCALE: N.T.S

CABLE TRAY AND GROUNDING PARTS – BOM

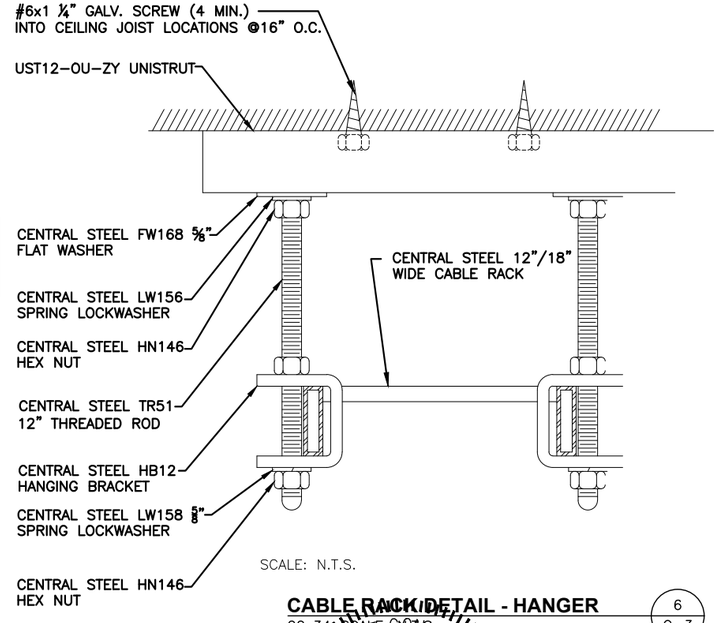
DESCRIPTION
CENTRAL STEEL 10012ZY 12" WIDE CABLE RACK
CENTRAL STEEL 10018ZY 18" WIDE CABLE RACK
CENTRAL STEEL HB12 HANGING BRACKET
CENTRAL STEEL SC–12 STRAIGHT CLAMP
CENTRAL STEEL CC12 CORNER CLAMP
CENTRAL STEEL HN148 5/8–11 HEX NUT
CENTRAL STEEL LW158 5/8" SPRING LOCKWASHER
CENTRAL STEEL FW168 5/8" FLAT WASHER
CENTRAL STEEL LW156 5/8" SPRING LOCKWASHER
CENTRAL STEEL TR51 12" THREADED ROD
PSNSS 5/8" SPRING NUT, 5/8–11
CENTRAL STEEL ET112 12" WIDE END TUBE
UST12–OU–ZY UNISTRUT
#6 INSULATED GREEN STRANDED CONDUCTOR
2 HOLE COMPRESSION LUGS
CENTRAL STEEL CB171 CONNECTOR BOLT
COMPRESSION C–CRIMP
#6x1 1/4" GALV. SCREW (4 MIN.) INTO CEILING JOIST LOCATIONS @16" O.C.



CABLE RACK DETAILS - END 4 G–3
22x34 SCALE: N.T.S



CABLE RACK DETAIL - CORNER 5 G–3
22x34 SCALE: N.T.S



SCALE: N.T.S.

CABLE RACK DETAIL - HANGER 6 G–3
22x34 SCALE: N.T.S

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

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CABLE TRAY GROUNDING & DETAILS
6 NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	G–3	5

MECHANICAL NOTES

DESIGN CRITERIA:

SUMMER:	OUTSIDE TEMPERATURE:	88	FDB 74% FWB
	INSIDE TEMPERATURE:	78	FDB 50% RH
WINTER:	OUTSIDE TEMPERATURE:	9	FDB
	INSIDE TEMPERATURE:	65	FDB

1. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH THE CURRENT ASHRAE AND INDUSTRIAL STANDARDS.
2. ALL HVAC WORK SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL BUILDING CODES AND FEDERAL CODES HAVING JURISDICTION OVER THE CONSTRUCTION.
3. CONTRACTOR SHALL EXAMINE THE PROJECT SITE AND DISCUSS GENERAL REQUIREMENTS OF BUILDING AND WORK PERFORMANCE WITH THE PROJECT MANAGER. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF OTHERS ON THE PROJECT. CONTRACTOR SHALL CONFIRM EXISTING CONDITIONS AND PROVIDE ALL LABOR AND MATERIALS TO MAKE A WORKABLE AND USABLE SYSTEM.
4. CONTRACTOR IS TO REPORT TO CONSTRUCTION MANAGER ANY OBSERVATIONS OR CONDITIONS WHICH ARE DISCOVERED IN THE BUILDING WHICH WOULD PREVENT THE FULLEST USE OF THE HVAC SYSTEM.
5. CONTRACTOR SHALL ARRANGE AND PAY FOR ALL FEES, PERMITS, AND INSPECTIONS CONCERNING THE WORK.
6. A MAINTENANCE LABEL MUST BE AFFIXED TO MECHANICAL EQUIPMENT. TWO COPIES OF A MAINTENANCE MANUAL FOR THE EQUIPMENT ITEMS SHALL BE PROVIDED TO THE OWNER BY THE CONTRACTOR.
7. CONDENSATE DRAINS TO BE COPPER TUBING. DRAINS SHALL BE INDIRECT. DRAINS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR. DRAINS SHALL NOT BE RUN ABOVE ELECTRICAL OR ELECTRONIC EQUIPMENT. DRAINS SHALL BE INSULATED WITH 1/2" FIBERGLASS.
8. ALL DUCTWORK SHALL BE CONSTRUCTED PER SMACNA STANDARDS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUISITION AND PAYMENT OF ALL PERMITS AND INSPECTIONS REQUIRED AND RELATED FEES FOR THIS INSTALLATION. ALL WORK SHALL COMPLY WITH APPLICABLE STATE AND LOCAL CODES.
10. ALL CONNECTIONS BETWEEN A.C. UNITS/FANS AND DUCTWORK SHALL HAVE FIREPROOF, HEAVY DUTY FLEX–CONNECTIONS (LOCAL JURISDICTION APPROVED) WITH 3" MIN. CLEARANCE. ISOLATE ALL H.V.A.C. UNITS/FANS AND EQUIPMENT FROM STRUCTURE WITH APPROVED ISOLATION MOUNTS.
11. ALL WEATHER EXPOSED EQUIPMENT, DUCTS, ETC., SHALL BE COMPLETELY WEATHERPROOFED.
12. ALL SUPPLY AND RETURN DUCTS SHALL BE LINED WITH 1", 1–1/2# DENSITY FIBERGLASS WITH VINYL FACE TO AIR STREAM. SEAL ALL RAW EDGES. INCREASE DUCT SIZES TO PROVIDE SPECIFIED FREE AREA.
13. EER RATING OF EACH HVAC UNIT SHALL COMPLY WITH STATE REQUIREMENTS.
14. INSTALL CONDENSATE DRAIN LINES AWAY FROM ALL ELECTRICAL, RADIO, AND TELEPHONE EQUIPMENT.
15. ALL H.V.A.C. EQUIPMENT SHALL BE SEISMICALLY BRACED PER LOCAL REQUIREMENTS.
16. PROVIDE FULL OPERATING CHARGE OF R–22 REFRIGERANT FOR AC SYSTEMS.
17. CONDENSER AIR INTAKE AND EXHAUST DUCTWORK AND LOUVER PLENUM SHALL BE INSULATED WITH 1", 3 LB DENSITY FIBERGLASS WITH FOIL FACING.
18. PROVIDE INTERCONNECTING REFRIGERANT PIPING BETWEEN EVAPORATOR AND CONDENSING UNIT. PIPING TO BE SIZED PER MANUFACTURERS RECOMMENDATIONS. PROVIDE 1/2" ARMOFLEX INSULATION FOR ALL REFRIGERANT PIPING.
19. ALL HVAC EQUIPMENT SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.

HVAC EQUIPMENT SCHEDULE

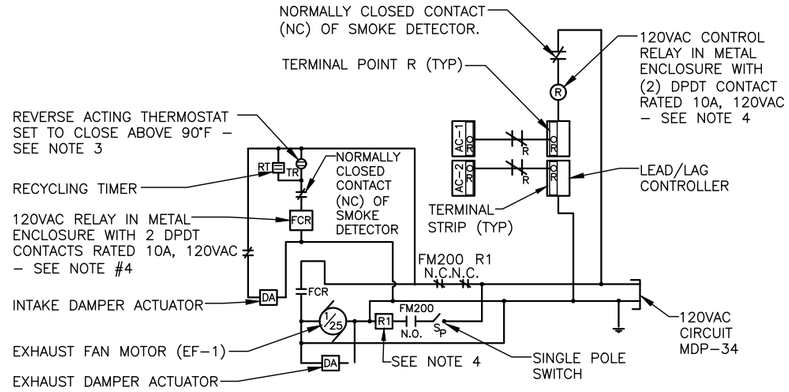
AHU 1,2

CARRIER MODEL#:	40MAQ–01PD
COOLING:	35,600 BTU/HR
VOLTAGE:	PER 'E' DWGS
NOMINAL TONS:	3

CU 1,2

CARRIER MODEL#:	40QNC–Q–3PD
COOLING:	35,600 BTU/HR
VOLTAGE:	PER 'E' DWGS
NOMINAL TONS:	3

CONDENSATE PUMP: 53DS–900–––118



NOTES:

1. MINIMUM WIRE SIZE #12 AWG. INSTALL CIRCUITS IN WIREWAY AND 3/4 EMT.
2. INSTALL SEPARATE GROUND WIRE WITH EACH 120V AC CIRCUIT.
3. PROVIDE A REVERSE ACTING THERMOSTAT, ADJUSTABLE FROM 70°F TO 120°F, HEAVY DUTY, SINGLE POLE, SINGLE THROW CONTACT, CLOSE ON RISE, RATED FOR 1/25 HP @ 120VAC. ON A RISE IN TEMPERATURE ABOVE THE SET POINT THE EXHAUST FAN SHALL RUN AND THE MOTORIZED AIR INTAKE DAMPER SHALL SPRING OPEN WHEN THE SPACE TEMPERATURE DROPS BELOW A PRESET TEMPERATURE. THE EXHAUST FAN SHALL BE SHUT OFF AND THE AIR INTAKE DAMPER (NORMALLY CLOSED) SHALL BE MOTOR CLOSED).
4. PROVIDE HVAC INTERLOCK RELAY AND FAN CONTROL RELAY EACH CLASS 8501, TYPE "C" 120 VOLTS AC OPERATED COIL MODEL #C016, DPDT CONTACT ARRANGEMENT 2 (N.O.) AND 2 (N.C.) 10A CONTACT RATING IN NEMA TYPE 1 SHEET STEEL ENCLOSURE AS MANUFACTURED BY SQUARE D OR APPROVED EQUAL.
5. PROVIDE RECYCLING DIGITAL TIMER RELAY (RT) MODEL #368, DPDT CONTACT 120VAC OPERATED COIL, SOLID STATE HIGH ACCURACY, SHALL BE UL, RECOGNIZED AND CSA/NRTL CERTIFIED AS MANUFACTURED BY THE TIME MARK CORPORATION OR APPROVED EQUAL. THE EXHAUST FAN AND DAMPER SHALL CYCLE ON AUTOMATIC RECYCLING TIMER (RT) TO RUN FOR 5 MINUTES EVERY HALF HOUR TO EXHAUST HYDROGEN VAPOR EMITTED BY STORAGE BATTERIES.

ABBREVIATIONS

DPDT	DOUBLE POLE, DOUBLE THROW
SPST	SINGLE POLE, SINGLE THROW
NC	NORMALLY CLOSED
NO	NORMALLY OPEN

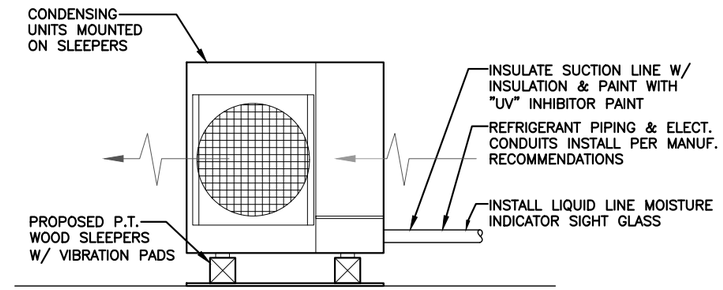
HVAC DIAGRAM 1 / M–1
SCALE: N.T.S

ENVIRONMENTAL CONTROL NOTES

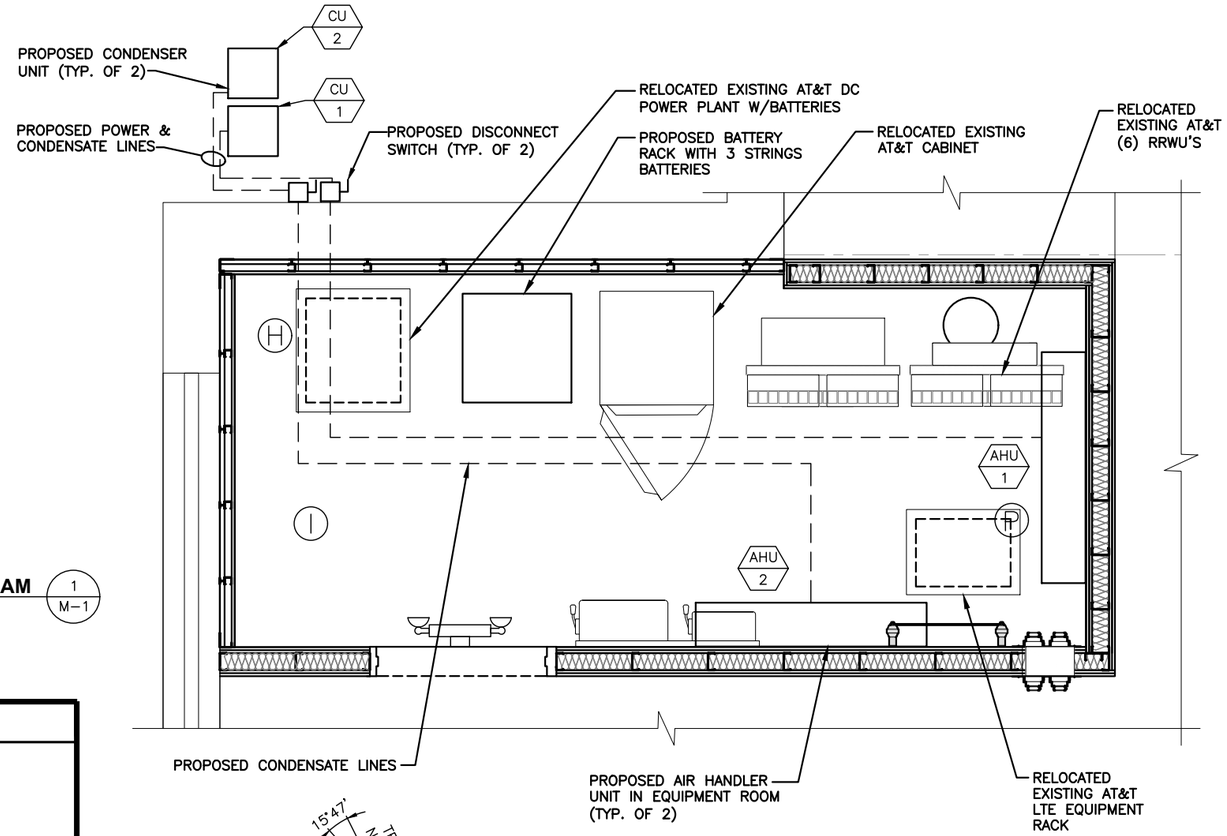
SPACE–ENVIRONMENTAL CONTROL SEQUENCE

SITE TEMPERATURE CONTROL IS TO BE PROVIDED BY AIR CONDITIONING UNIT(S) EQUIPPED WITH 1 OR 2–STAGE. COOL/WARM WALL THERMOSTAT PROVIDED BY CONTRACTOR. SYSTEM IS TO OPERATE 24 HOURS A DAY, 7 DAYS A WEEK, 365 DAYS A YEAR AND SHALL MAINTAIN SPACE @ 78 DEG. F. (+/– 2 DEG.).

THERMOSTATS SHALL BE LOCATED FIVE FEET (5'–0") ABOVE THE FINISHED FLOOR OR AT THE SAME HEIGHT OF ANY ADJACENT ELECTRICAL SWITCHES.



CONDENSER UNIT 2 / M–1
SCALE: N.T.S



MECHANICAL PLAN 3 / M–1
22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

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TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
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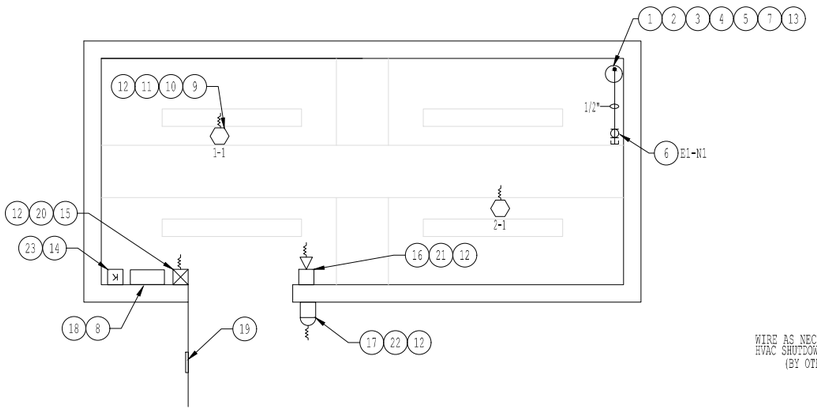
MECHANICAL PLAN, DETAILS & NOTES
5G NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	M–1	5

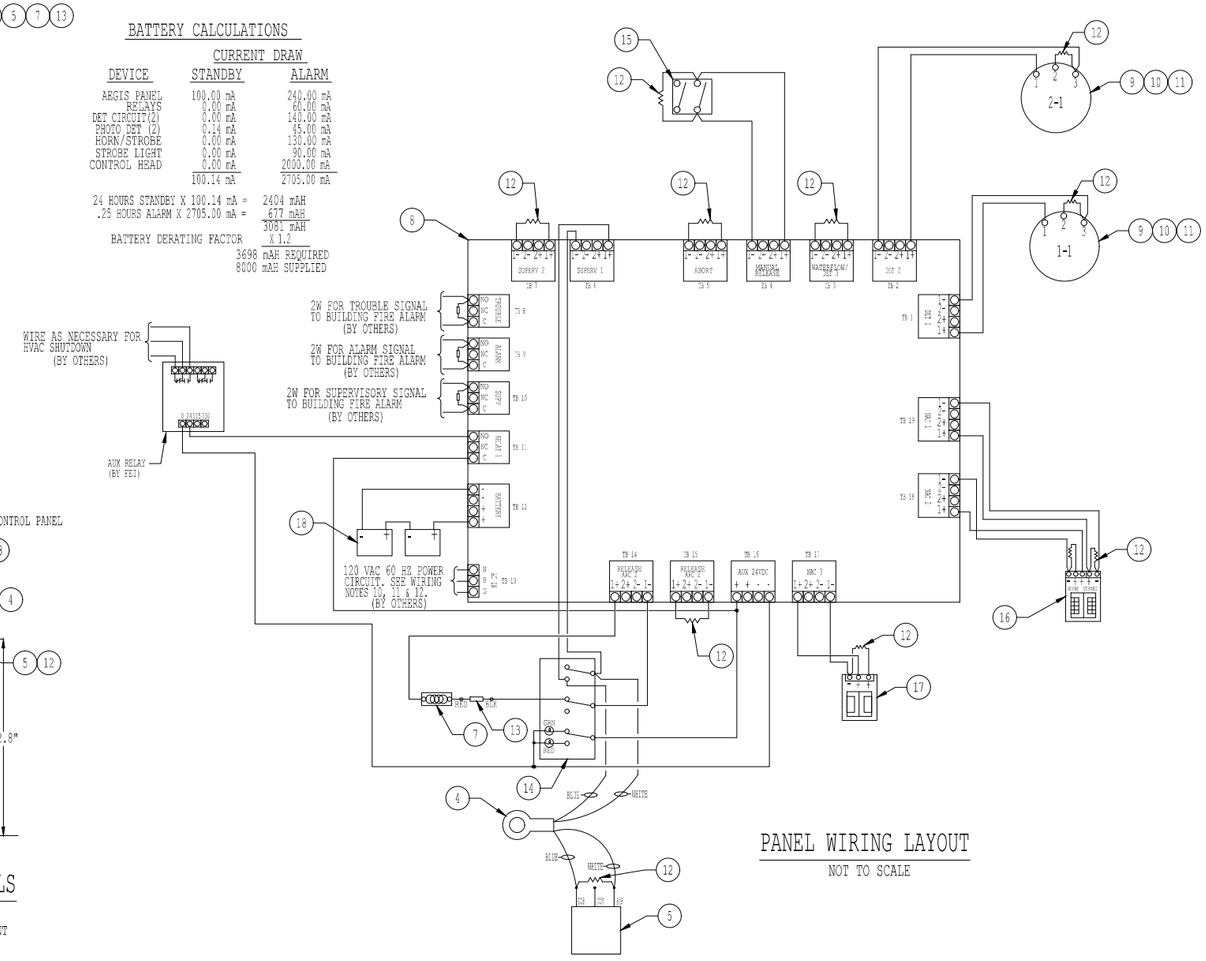


BATTERY CALCULATIONS

CURRENT DRAW

DEVICE	STANDBY	ALARM
AEGIS PANEL	100.00 mA	240.00 mA
RELAYS	0.00 mA	60.00 mA
DET CIRCUIT (2)	0.00 mA	140.00 mA
PHOTO DET (2)	0.14 mA	45.00 mA
HORN/STROBE	0.00 mA	130.00 mA
STROBE LIGHT	0.00 mA	90.00 mA
CONTROL HEAD	0.00 mA	2000.00 mA
	100.14 mA	2705.00 mA

24 HOURS STANDBY X 100.14 mA = 2404 mAH
.25 HOURS ALARM X 2705.00 mA = 677 mAH
3081 mAH
BATTERY DERATING FACTOR X 1.2
3698 mAH REQUIRED
8000 mAH SUPPLIED



PANEL WIRING LAYOUT

NOT TO SCALE

EQUIPMENT LIST

MANUFACTUR.	PC.	DESCRIPTION	QTY.	PART NO.
KIDDE	1	40 LB CYL'D W/31 LBS NOVEC	1	45-550040-001
	2	40 LB STRAP	1	MK-283934-000
	3	1 1/2" VALVE OUTLET ADAPTOR	1	MK-283904-000
	4	CONTROL HEAD MONITOR	1	85-100000-100
	5	LOW PRESSURE SWITCH	1	45-118500-001
	6	180° NOZZLE 1/2"	1	45-194713-129
	7	ELECTRIC CONTROL HEAD	1	85-486500-020
	8	AEGIS CONTROL PANEL	1	84-732001-901
	9	PHOTOELECTRIC DETECTOR	2	KC2-OS-CD
	10	DETECTOR BASE, 4"	2	KC2-SB
	11	TRIM SKIRT, 6"	2	GSA-TS
	12	50L RESISTOR, 5.1KOHM	11	06-129025-002
	13	INLINE RELEASING CIRCUIT DEVICE	1	06-220023-001
	14	KEY DISABLE SWITCH	1	76-600000-200
	15	ELECTRIC RELEASE STATION	1	84-330001-001
SYSTEM SENSOR	16	HORN/STROBE, RED LENS	1	P4RL/LENSR
	17	STROBE LIGHT, RED LENS	1	SRL/LENSR
INTERSTATE	18	BATTERY , 8 AH, 12 VDC	2	PS1280
GEMCOM	19	NAMEPLATE - CAUTION	1	-------
	20	NAMEPLATE - ELECTRIC RELEASE	1	------
	21	NAMEPLATE - HORN / STROBE	1	-------
	22	NAMEPLATE - STROBE LIGHT	1	------
	23	NAMEPLATE - DISABLE SWITCH	1	------

NOVEC QUANTITY CALCULATIONS

TELCO ROOM: 15' x 6.5' x 7.08' = 690 CU.FT.
4.7% NOVEC 1230 CONCENTRATION FACTOR @ 70 DEG F: x .0427
30 LBS REQUIRED
31 LBS SUPPLIED

SEQUENCE OF OPERATIONS

I. ACTIVATION OF A SMOKE DETECTOR WILL CAUSE THE FOLLOWING TO OCCUR:

1. THE ALARM LED WILL BE ANNUNCIATED ON THE CONTROL PANEL.
2. THE ALARMED DETECTOR'S RED STATUS LAMP WILL LIGHT.
3. THE HORN/STROBE(S) WILL OPERATE HORN SLOW PULSE, STROBE STEADY.
4. AN ALARM SIGNAL WILL BE SENT TO THE BUILDING FIRE ALARM.

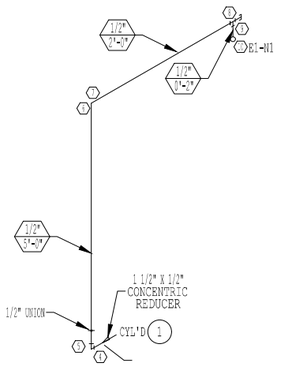
II. ACTIVATION OF A SECOND SMOKE DETECTOR, NOT ON THE SAME ZONE, WILL CAUSE THE FOLLOWING TO OCCUR:

1. THE PRE-DISCHARGE LED WILL BE ANNUNCIATED ON THE CONTROL PANEL.
2. THE ALARMED DETECTOR'S RED STATUS LAMP WILL LIGHT.
3. THE HORN/STROBE(S) WILL OPERATE HORN FAST PULSE, STROBE STEADY.
4. THE HVAC SYSTEM WILL SHUTDOWN.
5. THE 30 SECOND PRE-DISCHARGE TIME DELAY WILL BEGIN.
6. UPON EXPIRATION OF THE TIME DELAY, THE FOLLOWING WILL OCCUR:
   A. THE NOVEC SYSTEM WILL DISCHARGE INTO THE ROOM.
   B. THE STROBE LIGHT(S) OUTSIDE THE DOORWAY(S) WILL ILLUMINATE.
   C. THE RELEASE LED WILL BE ANNUNCIATED ON THE CONTROL PANEL.
   D. THE HORN/STROBE(S) WILL OPERATE HORN STEADY, STROBE STEADY.

III. ACTIVATION OF AN ELECTRIC RELEASE STATION WILL CAUSE THE SAME AS I, & II TO OCCUR, EXCEPT THE TIME DELAY WILL BE BYPASSED.

NOTE:

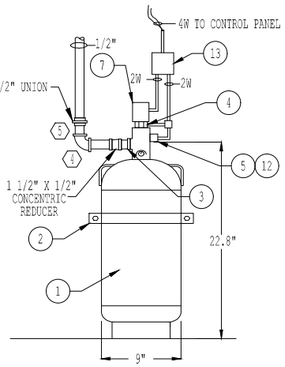
1. THE KEY DISABLE SWITCH, LOCATED NEXT TO THE PANEL, CAN BE OPERATED TO DISABLE THE NOVEC DISCHARGE CIRCUIT FOR MAINTENANCE. OPERATION OF THE SWITCH WILL CAUSE BOTH A TROUBLE & SUPERVISORY CONDITION TO OCCUR ON THE CONTROL PANEL.
2. SHOULD A TROUBLE CONDITION OCCUR ON THE CONTROL PANEL, A TROUBLE SIGNAL WILL BE SENT TO THE BUILDING FIRE ALARM.
3. SHOULD A SUPERVISORY CONDITION OCCUR ON THE CONTROL PANEL, A SUPERVISORY SIGNAL WILL BE SENT TO THE BUILDING FIRE ALARM.



ISOMETRIC PIPING LAYOUT

NOT TO SCALE

Ⓧ DENOTES HYDRAULIC CALCULATION NODE POINT



CYLINDER DETAILS

NOT TO SCALE

Ⓧ DENOTES HYDRAULIC NODE POINT

SUPPRESSION WIRING NOTES

1.- ALL WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NFPA 70) ARTICLE 760 .ALL SUPERVISED CIRCUITS ARE CLASSIFIED AS POWER LIMITED.

2.- ALL WIRING SHALL BE RUN IN THIN WALL STEEL TUBING USING METALLIC CABLE WHERE FLEXIBLE RUNS ARE REQUIRED. WHEN USING MC CABLE DO NOT USE THE GREEN WIRE FOR FIELD WIRING.

3.- ALL WIRING, JUNCTION BOXES, CONDUIT, ETC. IS TO BE SUPPLIED AND INSTALLED BY THE FIRE SUPPRESSION SYSTEMS ELECTRICAL CONTRACTOR.

4.- THE FIRE SUPPRESSION SYSTEMS ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR MOUNTING AND MAKING ALL FINAL CONNECTIONS TO ALL SUPPLIED DETECTORS, CONTROL PANELS, SIGNALING DEVICES, MANUAL STATIONS, ETC.

5.- UNLESS OTHERWISE SPECIFIED, MINIMUM WIRE SIZES SHALL BE AS FOLLOWS:
   Nº18.- GAUGE FOR DETECTION CIRCUITS
   Nº16.- GAUGE FOR RELEASE AND ALARM CIRCUITS
   Nº12.- FOR A.C. POWER AND GROUND

6.- NO PARALLEL BRANCHING OF WIRING ON SUPERVISED CIRCUITS IS PERMISSIBLE AND POLARITY MUST BE OBSERVED.

7.- ALL FIELD WIRING MUST BE CHECKED FOR SHORTS, OR GROUNDS, BEFORE CONNECTIONS TO THE CONTROL PANEL. DO NOT MEGGER THE WIRING WITH THE DEVICES ATTACHED.

8.- BEFORE TERMINATING WIRING TO THE CONTROL PANEL, A VOLTAGE READING SHALL BE DONE TO DETERMINE THAT THERE IS NO A.C. INDUCTIVE VOLTAGES ON THE WIRING.

9.- INPUT CIRCUIT WIRING AND OUTPUT CIRCUIT WIRING SHALL NOT BE RUN IN THE SAME CONDUIT UNLESS SHIELDED FROM EACH OTHER.

10.- A.C. POWER WIRING SHALL NOT BE RUN IN THE SAME CONDUIT AS D.C. WIRING UNLESS SHIELDED FROM EACH OTHER. THIS INCLUDED LOW VOLTAGE A.C. (HVAC CONTROLS),AND SHUNT TRIP CIRCUITS.

11.- THE A.C. POWER CIRCUIT FOR THE FIRE SUPPRESSION SYSTEM CONTROL PANEL SHALL BE A SEPARATE DEDICATED CIRCUIT FOR THE CONTROL PANEL ONLY. DO NOT CONNECT THIS CIRCUIT TO A SHUNT TRIP OPERATED CIRCUIT BREAKER PANEL OR USE IT TO POWER OTHER EQUIPMENT.(PER NFPA 2001-4-7.4.3).

12.- NO POWER, INCLUDING EMERGENCY BATTERIES, SHALL BE APPLIED TO THE CONTROL PANEL UNTIL THE FIRE EQUIPMENT TECHNICIAN IS ON THE JOB SITE AND HAS CHECKED OUT THE WIRING TO THE PANEL. IF UPON ARRIVAL TO THE JOB SITE THE FIRE EQUIPMENT TECHNICIAN FIND THE CONTROL PANEL POWERED UP, FIRE EQUIPMENT, INC.WILL ASSUME NO LIABILITY FOR THE SYSTEM.

13.- THE SMOKE DETECTORS MOUNT ON A STANDARD 4" OCTAGON BOX. SMOKE DETECTORS MUST BE MOUNTED AT LEAST 3 FEET AWAY FROM A SUPPLY AIR VENT.

14.- NO CONDUITS ARE ALLOWED TO BE INSTALLED IN THE BOTTOM OF THE CONTROL PANEL. THAT SPACE IS RESERVED FOR THE BATTERIES.

15.- SUPPRESSION CYLINDER SOLENOIDS ARE TO BE WIRED WITH LIQUID TIGHT CABLE FROM A JUNCTION BOX ON THE WALL DIRECTLY BEHIND THE CYLINDER. DO NOT INSTALL THE ACTUATOR ON THE CYLINDER, AS FALSE SYSTEM DISCHARGE COULD OCCUR.

16.- IF THERE ARE ANY QUESTIONS IN REGARD TO THE WIRING OR EQUIPMENT, CALL FIRE EQUIPMENT, INC.AT 781-391-8050. ANY CHANGES IN EQUIPMENT LOCATIONS REQUIRE APPROVAL FROM FIRE EQUIPMENT,INC. PRIOR TO BEING MADE.

PIPING NOTES

1. All dimensions are to be field checked. If piping shown interferes with any object, Fire Equipment, Inc. approval for changes SHALL BE secured PRIOR to installation.

2. MATERIALS:
   A. PIPING
      ACCEPTABLE
      Schedule 40 black or galvanized steel pipe conforming to ASTM A-53 seamless or ERW Grade A or B or ASTM A-106 Grade B, C or D. Dual stenciled A120/A53 conforming to ASTM A-53 Furnace weld Class F. Schedule 40 may be used;
      on threaded connections 1/4" - 1 1/2" NPS
      on cut groove connections 1/4" - 3 1/2" NPS
      on welded or rolled groove connections 1/4" - 6" NPS

      NON ACCEPTABLE
      ASTM A-120 butt welded or steel pipe and ordinary cast iron pipe shall not be used.

   B. FITTINGS
      ACCEPTABLE
      Malleable iron 300 lb. class fittings shall be used up to and including 3" IPS & 1,000 lb.ductile iron or formed steel fittings shall be used on 4" or larger sizes. Victaulic fittings are acceptable.

      ALL REDUCING FITTINGS MUST BE CONCENTRIC REDUCERS

      NON ACCEPTABLE:
      150 lb. class and ordinary cast iron fittings shall not be used.

   C. HANGERS:
      1. The hangers shall be UL listed and rigidly supported. No clevis hangers are allowed.
      2. A hanger should be installec between fittings when the fittings are more than 7 ft. apart.
      3. A hanger should be installed at a maximum of 1 ft. from nozzles..
      4. The maximum spacing between hangers shall not exceed those listed in the hanger spacing table below.

PIPE SIZE IN NPS	MAXIMUM SPACING BETWEEN HANGERS
1/4"	6 FT.
1/2"	6 FT.
3/4"	6 FT.
1"	12 FT.
1 1/4"	12 FT.
1 1/2" or larger	15 FT.

3. CLEANING PIPE:
   Pipe is to be reamed, blown clear, and swabbed with appropriate solvent to remove mill varnish and cutting oil before assembly.

4. Teflon pipe tape is the only acceptable pipe sealant and must be applied to male threads only. Pipe joint compound Shall NOT be used.

5. Installing contractor shall pressure test pipe in accordance with NFPA 2001,in a closed circuit for 2 minutes at 40 PSI and supply written documentation of results.

IMPORTANT NOTE

FIRE EQUIPMENT, INC., IS NOT RESPONSIBLE FOR THE LOSS OF NOVEC FIRE EXTINGUISHING AGENT DUE TO LEAKS IN THE PROTECTED AREA. PRIOR TO ACCEPTANCE, ALL HOLES AND CRACKS SHOULD BE SEALED. ANY FLOOR DRAINS SHOULD BE CHECKED FOR TIGHTNESS.EMPTY CONDUITS MUST BE SEALED AND ALL DUCTS AND DAMPERS SHOULD BE TIGHT FITTING.

SHEET 1 OF 1 JOB NO.CP002721

REV.	DESCRIPTION	DATE	BY
3			
2			
1			
0	ISSUED FOR APPROVAL	16-MAY-2023	J BLOUNT

CONSULTANTS - ENGINEERING - CONTRACTORS

APPROVED: _____

NICET CERTIFIED ENGINEERING TECHNICIAN LEVEL _____

MASSACHUSETTS ELECTRICAL LICENSE: 763C

AUTOMATIC NOVEC FIRE SUPPRESSION SYSTEM

FOR THE TELCO ROOM AT

AT&T HAMDEN

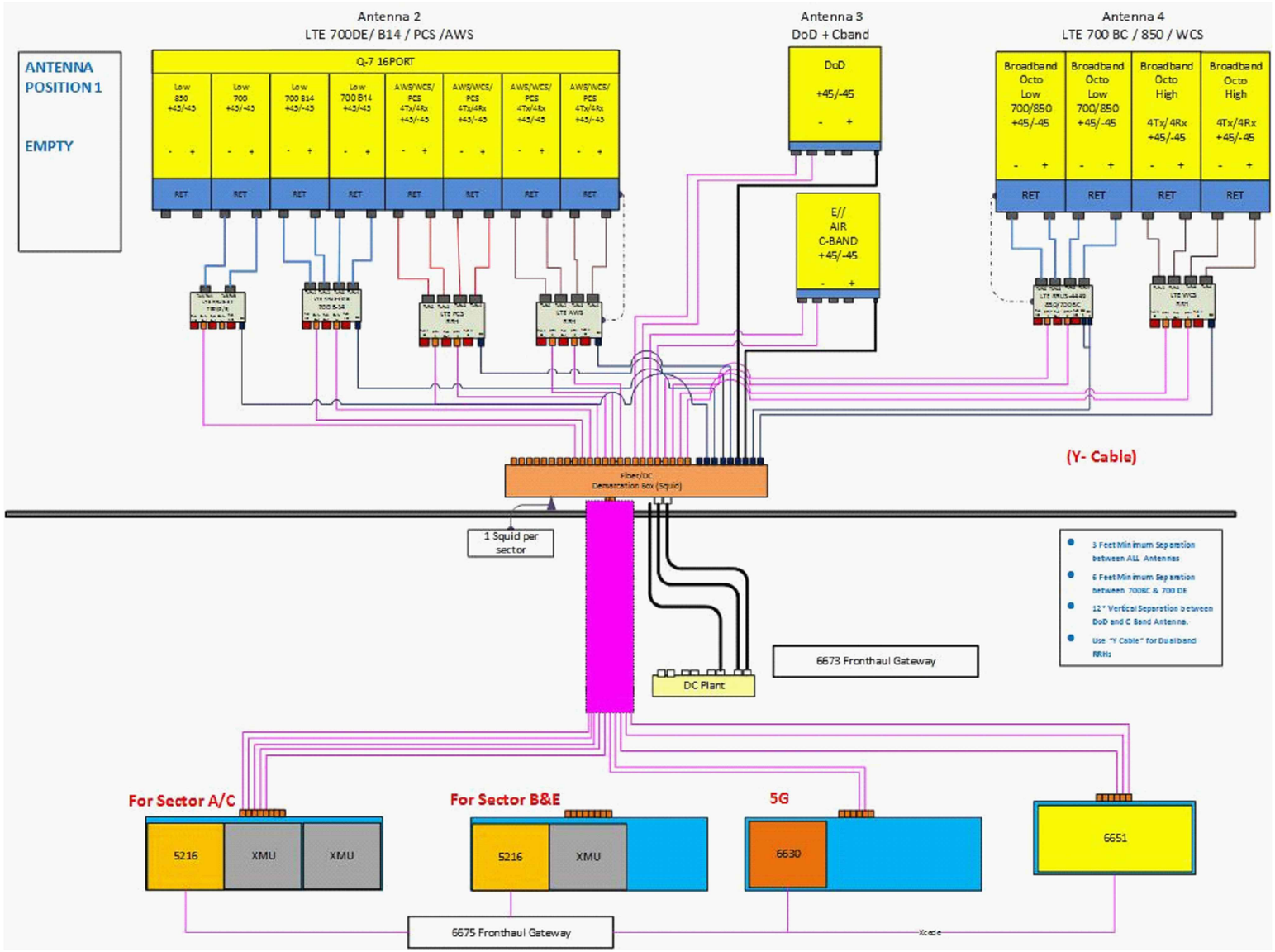
975 MIX AVENUE HAMDEN, CT

SCALE: AS NOTED DATE
DRAWN : J BLOUNT 15-MAY-2023
ENGINEERED :
CHECKED :

FIRE EQUIPMENT INC
Experts In Life Safety System Design and Service
20 Hall Street
Medford, MA. 02155
MA CR # 000075
Tel. (888) 296-1381
Fax. (888) 296-1384
ENGINEERING@firefire.com
WWW.firefire.com

SIZE	DRAWING NUMBER	REV. NO.
D	D-CP002721-1	0

ALPHA & GAMMA SECTOR



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2035
SITE NAME: HAMDEN

975 MIX AVENUE
HAMDEN, CT 06514
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
5	12/11/23	CONSTRUCTION REVISED	TR	BB	DPH
4	08/09/23	CONSTRUCTION REVISED	GA	BB	DPH
3	06/28/23	ISSUED FOR CONSTRUCTION	GA	HC	DPH
2	02/17/23	ISSUED FOR REVIEW	GA	HC	DPH
1	02/23/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
0	02/11/22	ISSUED FOR REVIEW	GA	HC	DPH

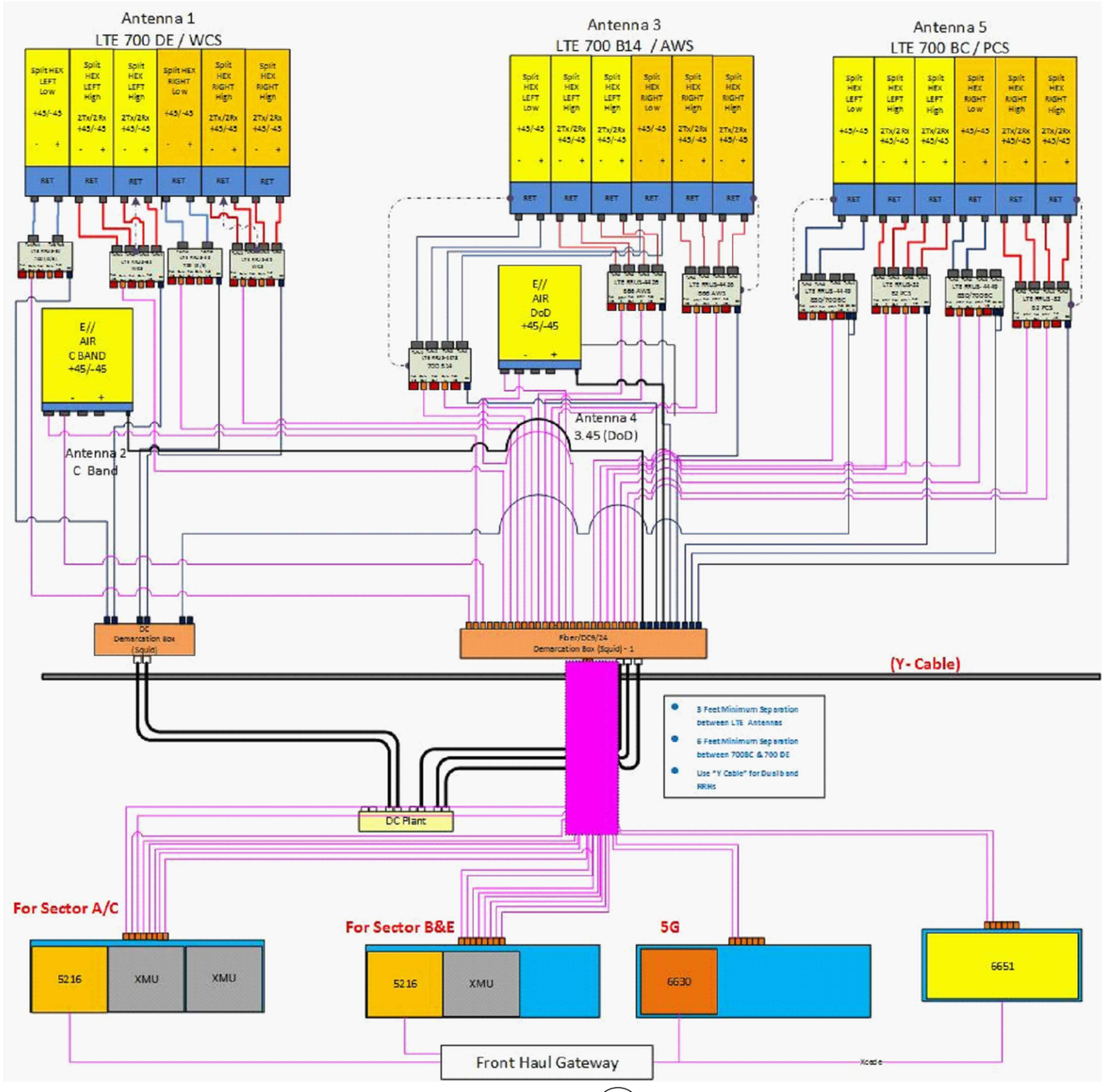
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

AT&T

RF PLUMBING DIAGRAM
5G NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	RF–1	5

BETA SECTOR



RF PLUMBING DIAGRAM (1 / RF–2)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2035
SITE NAME: HAMDEN

975 MIX AVENUE
HAMDEN, CT 06514
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
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3	06/28/23	ISSUED FOR CONSTRUCTION	GA	HC	DPH
2	02/17/23	ISSUED FOR REVIEW	GA	HC	DPH
1	02/23/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
0	02/11/22	ISSUED FOR REVIEW	GA	HC	DPH

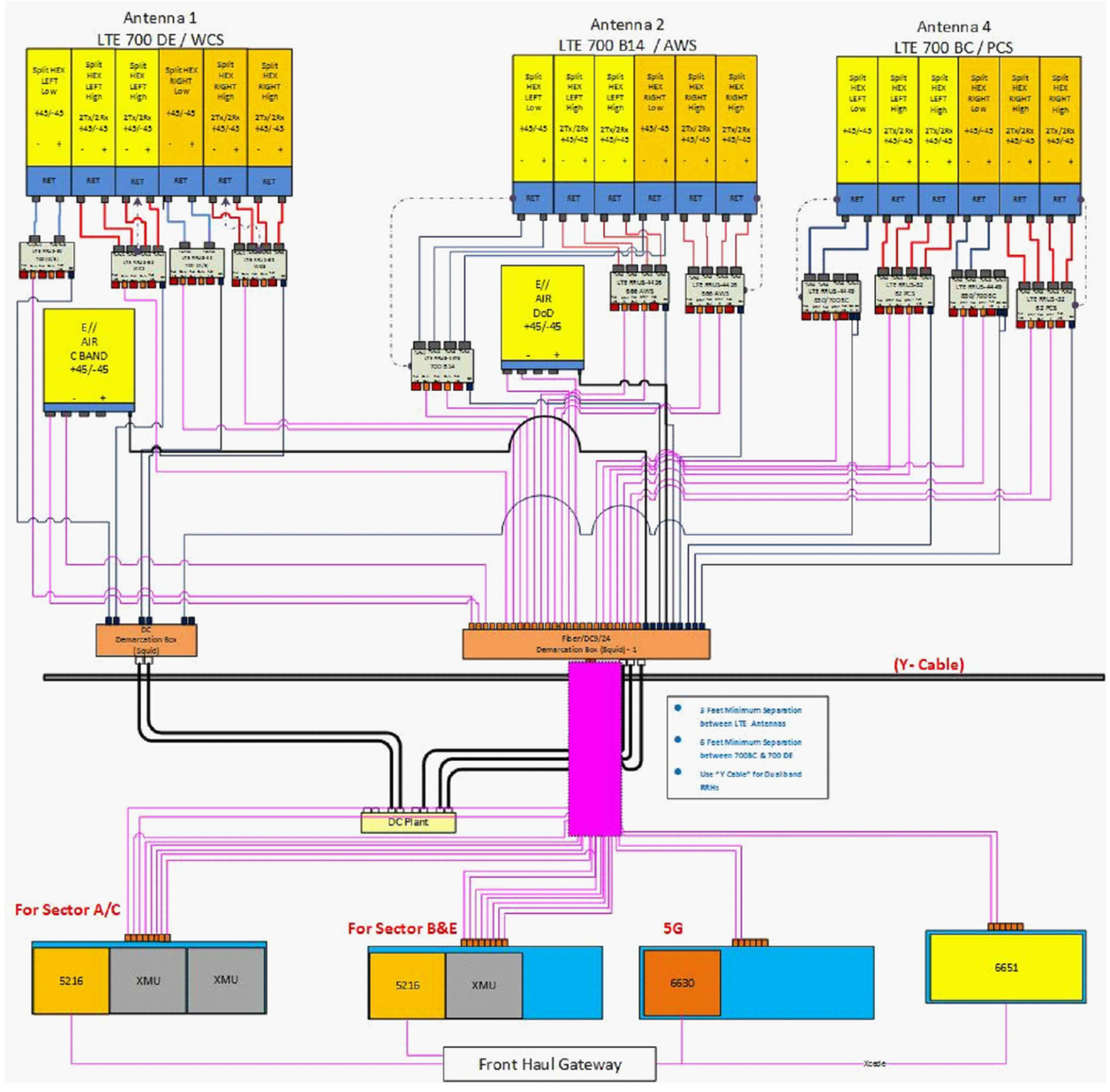
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

AT&T

RF PLUMBING DIAGRAM
5G NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	RF–2	5

E SECTOR



RF PLUMBING DIAGRAM (1 / RF–2)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

TEP NORTHEAST
TEP OPCO, LLC.
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SITE NUMBER: CT2035
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975 MIX AVENUE
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500 ENTERPRISE DRIVE, SUITE 3A
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3	06/28/23	ISSUED FOR CONSTRUCTION	GA	HC	DPH
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1	02/23/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
0	02/11/22	ISSUED FOR REVIEW	GA	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

AT&T

RF PLUMBING DIAGRAM
5G NR 1SR C–BAND–BBU RECONFIGURATION, ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2035	RF–3	5

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

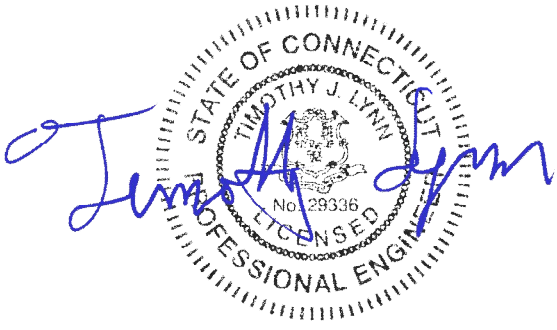
Antenna Pipe Mast & Support Platform

AT&T Site #: CT2035

975 Mix Avenue
Hamden, CT 06514

Centek Project No. 21139.00

~~Date: December 21, 2021~~
Rev 3: August 3, 2023



Prepared for:

AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

Table of Contents

SECTION 1 - REPORT

- INTRODUCTION
- ANTENNA AND APPURTENANCE SUMMARY
- PRIMARY ASSUMPTIONS USED IN THE ANALYSIS
- ANALYSIS
- TOWER LOADING
- RESULTS
- CONCLUSION

SECTION 2 – CONDITIONS & SOFTWARE

- STANDARD ENGINEERING CONDITIONS
- GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

SECTION 3 – CALCULATIONS

- TNXTOWER INPUT/OUTPUT SUMMARY
- TNXTOWER DETAILED OUTPUT
- ANCHOR BOLT AND BASEPLATE ANALYSIS
- RISA3D – MEMBER FRAMING
- RISA3D – REPORT
- RISA3D – UNITY CHECK
- CMU BEARING WALL CHECK

SECTION 4 – REFERENCE MATERIAL

- RF DATA SHEET

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna upgrade proposed by AT&T on the existing roof mounted antenna mast and support platform located in Hamden, Connecticut.

The antenna support structure is a 25.5' tall pipe mast supported on a structural steel dunnage platform bearing directly over (2) CMU bearing walls in the host building.

Antenna and Appurtenance Summary

- **AT&T (Existing to Relocate):**
  Antennas: Three (3) CCI BSA-M65R-BUU-H6 panel antennas, four (4) Ericsson RRUS-E2, four (4) Ericsson RRUS-32 B30, four (4) Ericsson RRUS-32 B2, three (3) Ericsson 4478-B14 remote radio heads, four (4) Ericsson 4426 B66 remote radio heads and one (1) Raycap DC6-48-60-18-8F surge arrestors relocated to new mount (SitePro p/n RMQP-4120-H10) on the existing antenna mast with a RAD center elevation of 61-ft above grade level.
  Coax Cables: Ten (10) dc control cables running on the interior of the pipe mast.
- **AT&T (Existing to Remove):**
  Antennas: Three (3) Kathrein 800-10121 panel antennas, two (2) Qunitel QS66512-2 panel antennas, two (2) CCI HPA-65R-BUU-H6 panel antennas, two (2) Kathrein 800-10965 panel antennas, three (3) Powerwave TT19-08BP111-001 TMAs, eight (8) Kaelus DBC0061F1V51-2 diplexers, four (4) Ericsson RRUS-11, four (4) Ericsson 4478-B5 remote radio heads and three (3) Raycap DC6-48-60-18-8F surge arrestors mounted on the antenna mast on a 13-ft platform with handrails with a RAD center elevation of 61-ft above grade level.
  Coax Cables: Six (6) 1-5/8" ∅ coax cables and three (3) fiber cables running on the interior of the pipe mast.
- **AT&T (Proposed):**
  Antennas: Three (3) Ericsson AIR6449 panel antennas, three (3) Ericsson AIR6419 panel antennas, two (2) Qunitel QD6616-7 panel antennas, two (2) CCI OPA65R-BU6D panel antennas, four (4) Ericsson 4449 B5/B12 remote radio heads and three (3) Raycap DC9 surge arrestors mounted to new mount (SitePro p/n RMQP-4120-H10) on the existing antenna mast with a RAD center elevation of 61-ft above grade level.
  Coax Cables: Three (3) fiber cables and one (1) 4AWG DC cable running on the interior of the pipe mast.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents or reinforcement drawings.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables to be installed as indicated in this report.

Analysis

The antenna mast was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower, and the model assumes that the tower members are subjected to bending, axial, and shear forces.

The MAST was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-H entitled "Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix P of the CSBC[1] and the wind speed data available in the TIA-222-H Standard.

The existing antenna mast support platform was analyzed using a comprehensive computer program titled Risa3D. The program analyzes the antenna mounts, considering the worst case loading condition. The antenna support mounts were considered to be loaded by concentric forces along the pipe masts, and the model assumes that the members are subjected to bending, axial, and shear forces.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-H, gravity loads of the tower structure and its components, and the application of 1.00" radial ice on the tower structure and its components.

Load Cases:	Load Case 1; 120 mph (Ultimate) wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Appendix P of the 2022 CT Building Code]*
	Load Case 2; 50 mph wind speed w/ 1.00" radial ice plus gravity load – used in calculation of tower stresses.	*[Annex B of TIA-222-H]*
	Load Case 3; 60 mph (Nominal) wind speed used for deflection calculation.	

[1] The 2021 International Building Code as amended by the 2022 Connecticut State Building Code (CSBC).

Results

- Calculated stresses were found to be within allowable limits.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
P18x0.375	0.00’	47.2%	**PASS**

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	26.4%	**PASS**
Base Plate	Bending	33.5%	**PASS**

Support Frame Component	Stress Ratio (percentage of capacity)	Result
W10x100	30.4%	**PASS**
HSS4x4x5/16	37.2%	**PASS**

Host Building	Stress Ratio (percentage of capacity)	Result
8” CMU Bearing Wall	62.0%	**PASS**

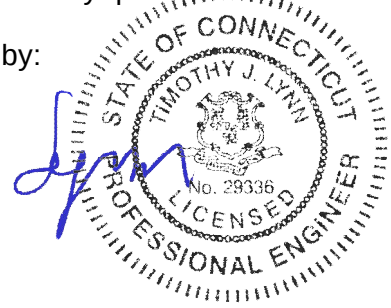
Conclusion

This analysis shows that the antenna mast, equipment frame and CMU bearing wall **are adequate** to support the proposed antenna configuration loading.

The analysis is based, in part, on the information provided to this office by AT&T. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

tnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, tnxTower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

tnxTower Features:

- tnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-H standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- tnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

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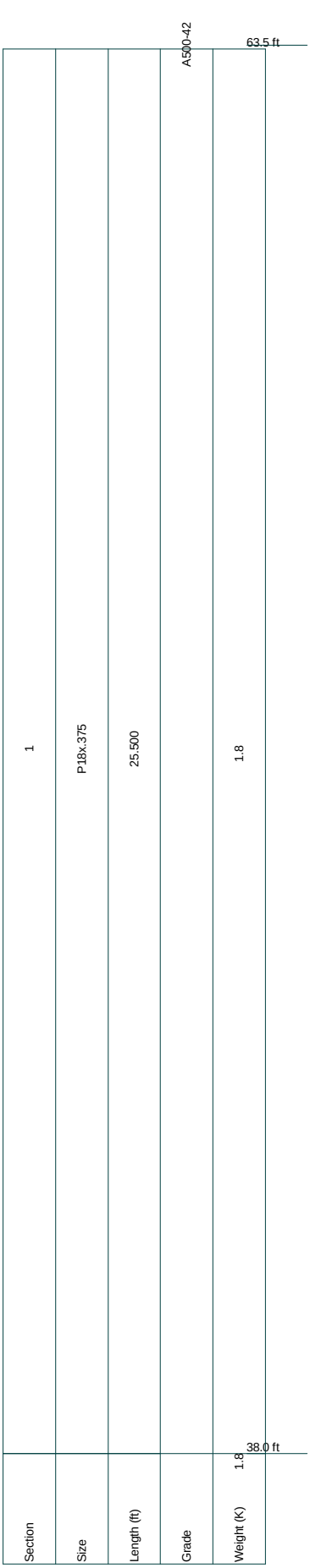
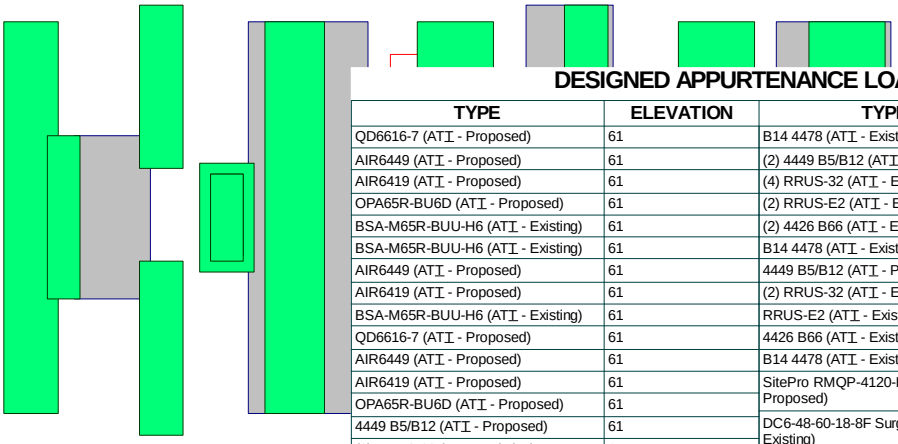




DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
QD6616-7 (ATI - Proposed)	61	B14 4478 (ATI - Existing)	61
AIR6449 (ATI - Proposed)	61	(2) 4449 B5/B12 (ATI - Proposed)	61
AIR6419 (ATI - Proposed)	61	(4) RRUS-32 (ATI - Existing)	61
OPA65R-BU6D (ATI - Proposed)	61	(2) RRUS-E2 (ATI - Existing)	61
BSA-M65R-BUU-H6 (ATI - Existing)	61	(2) 4426 B66 (ATI - Existing)	61
BSA-M65R-BUU-H6 (ATI - Existing)	61	B14 4478 (ATI - Existing)	61
AIR6449 (ATI - Proposed)	61	4449 B5/B12 (ATI - Proposed)	61
AIR6419 (ATI - Proposed)	61	(2) RRUS-32 (ATI - Existing)	61
BSA-M65R-BUU-H6 (ATI - Existing)	61	RRUS-E2 (ATI - Existing)	61
QD6616-7 (ATI - Proposed)	61	4426 B66 (ATI - Existing)	61
AIR6449 (ATI - Proposed)	61	B14 4478 (ATI - Existing)	61
AIR6419 (ATI - Proposed)	61	SitePro RMQP-4120-H10 (ATI - Proposed)	61
OPA65R-BU6D (ATI - Proposed)	61	DC6-48-60-18-8F Surge Arrestor (ATI - Existing)	61
4449 B5/B12 (ATI - Proposed)	61	(2) DC9 (ATI - Proposed)	61
(2) RRUS-32 (ATI - Existing)	61	DC9 (ATI - Proposed)	61
RRUS-E2 (ATI - Existing)	61		
4426 B66 (ATI - Existing)	61		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-42	42 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.000 ft
7. TOWER RATING: 47.2%

ALL REACTIONS ARE FACTORED

AXIAL
12 K

SHEAR
2 K

MOMENT
42 kip-ft

TORQUE 1 kip-ft
50 mph WIND - 1.000 in ICE

AXIAL
9 K

SHEAR
8 K

MOMENT
169 kip-ft

TORQUE 3 kip-ft
REACTIONS - 120 mph WIND

Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job:	***21139.00 - CT2035***		
Project:	***25.5-ft Monopole - 975 Mix Ave Hamden, CT***		
Client: AT&T	Drawn by: TJL		App'd:
Code: TIA-222-H	Date: 07/26/23		Scale: NTS
Path: J:\Jobs\21139\00.WI05_Structural\Backup Documentation\Rev 2\ERI Files\25.5' Pole_Hamden CT.eri			Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower base elevation above sea level: 38.000 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56 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 pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification		Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz		Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-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

Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Pole Size*	*Pole Grade*	*Socket Length* *ft*

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	63.500-38.000	25.500	P18x.375	A500-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 63.500-38.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
Fiber Trunk (AT&T Proposed)	C	No	No	Inside Pole	60.000 - 38.000	3	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
DC Trunk	C	No	No	Inside Pole	60.000 - 38.000	10	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
DC Trunk (AT&T Proposed)	C	No	No	Inside Pole	60.000 - 38.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	63.500-38.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.093

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	63.500-38.000	A	1.044	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.093

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	63.500-38.000	0.000	0.000	0.000	0.000

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
QD6616-7	A	From Leg	3.000	0.000	61.000	No Ice	13.578	6.800	0.130
(AT&T - Proposed)			-2.000			1/2" Ice	14.085	7.267	0.214
			0.000			1" Ice	14.599	7.723	0.305
AIR6449	A	From Leg	3.000	0.000	61.000	No Ice	4.055	2.742	0.096
(AT&T - Proposed)			2.000			1/2" Ice	4.317	2.966	0.130
			2.000			1" Ice	4.586	3.196	0.167
AIR6419	A	From Leg	3.000	0.000	61.000	No Ice	4.173	2.015	0.056
(AT&T - Proposed)			2.000			1/2" Ice	4.439	2.225	0.085
			-2.000			1" Ice	4.712	2.442	0.118
OPA65R-BU6D	A	From Leg	3.000	0.000	61.000	No Ice	12.871	5.673	0.070
(AT&T - Proposed)			6.000			1/2" Ice	13.369	6.125	0.145
			0.000			1" Ice	13.873	6.585	0.227
BSA-M65R-BUU-H6	B	From Leg	3.000	0.000	61.000	No Ice	17.117	6.858	0.101
(AT&T - Existing)			-6.000			1/2" Ice	17.662	7.326	0.203
			0.000			1" Ice	18.231	7.778	0.312
BSA-M65R-BUU-H6	B	From Leg	3.000	0.000	61.000	No Ice	17.117	6.858	0.101
(AT&T - Existing)			-2.000			1/2" Ice	17.662	7.326	0.203
			0.000			1" Ice	18.231	7.778	0.312
AIR6449	B	From Leg	3.000	0.000	61.000	No Ice	4.055	2.742	0.096
(AT&T - Proposed)			2.000			1/2" Ice	4.317	2.966	0.130
			2.000			1" Ice	4.586	3.196	0.167
AIR6419	B	From Leg	3.000	0.000	61.000	No Ice	4.173	2.015	0.056
(AT&T - Proposed)			2.000			1/2" Ice	4.439	2.225	0.085
			-2.000			1" Ice	4.712	2.442	0.118
BSA-M65R-BUU-H6	B	From Leg	3.000	0.000	61.000	No Ice	17.117	6.858	0.101
(AT&T - Existing)			6.000			1/2" Ice	17.662	7.326	0.203
			0.000			1" Ice	18.231	7.778	0.312
QD6616-7	C	From Leg	3.000	0.000	61.000	No Ice	13.578	6.800	0.130
(AT&T - Proposed)			-2.000			1/2" Ice	14.085	7.267	0.214
			0.000			1" Ice	14.599	7.723	0.305
AIR6449	C	From Leg	3.000	0.000	61.000	No Ice	4.055	2.742	0.096
(AT&T - Proposed)			2.000			1/2" Ice	4.317	2.966	0.130
			2.000			1" Ice	4.586	3.196	0.167
AIR6419	C	From Leg	3.000	0.000	61.000	No Ice	4.173	2.015	0.056
(AT&T - Proposed)			2.000			1/2" Ice	4.439	2.225	0.085
			-2.000			1" Ice	4.712	2.442	0.118

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
OPA65R-BU6D	C	From Leg	3.000	0.000	61.000	No Ice	12.871	5.673	0.070
(AT&T - Proposed)			6.000			1/2" Ice	13.369	6.125	0.145
			0.000			1" Ice	13.873	6.585	0.227
4449 B5/B12	A	From Leg	3.000	0.000	61.000	No Ice	1.968	1.408	0.071
(AT&T - Proposed)			0.000			1/2" Ice	2.144	1.564	0.090
			0.000			1" Ice	2.328	1.727	0.111
(2) RRUS-32	A	From Leg	3.000	0.000	61.000	No Ice	3.314	2.424	0.077
(AT&T - Existing)			0.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
RRUS-E2	A	From Leg	3.000	0.000	61.000	No Ice	3.145	1.285	0.058
(AT&T - Existing)			0.000			1/2" Ice	3.365	1.438	0.081
			0.000			1" Ice	3.592	1.600	0.108
4426 B66	A	From Leg	3.000	0.000	61.000	No Ice	1.650	0.727	0.049
(AT&T - Existing)			0.000			1/2" Ice	1.810	0.844	0.062
			0.000			1" Ice	1.978	0.971	0.077
B14 4478	A	From Leg	3.000	0.000	61.000	No Ice	1.843	1.059	0.060
(AT&T - Existing)			0.000			1/2" Ice	2.012	1.197	0.076
			0.000			1" Ice	2.190	1.342	0.094
(2) 4449 B5/B12	B	From Leg	3.000	0.000	61.000	No Ice	1.968	1.408	0.071
(AT&T - Proposed)			0.000			1/2" Ice	2.144	1.564	0.090
			0.000			1" Ice	2.328	1.727	0.111
(4) RRUS-32	B	From Leg	3.000	0.000	61.000	No Ice	3.314	2.424	0.077
(AT&T - Existing)			0.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
(2) RRUS-E2	B	From Leg	3.000	0.000	61.000	No Ice	3.145	1.285	0.058
(AT&T - Existing)			0.000			1/2" Ice	3.365	1.438	0.081
			0.000			1" Ice	3.592	1.600	0.108
(2) 4426 B66	B	From Leg	3.000	0.000	61.000	No Ice	1.650	0.727	0.049
(AT&T - Existing)			0.000			1/2" Ice	1.810	0.844	0.062
			0.000			1" Ice	1.978	0.971	0.077
B14 4478	B	From Leg	3.000	0.000	61.000	No Ice	1.843	1.059	0.060
(AT&T - Existing)			0.000			1/2" Ice	2.012	1.197	0.076
			0.000			1" Ice	2.190	1.342	0.094
4449 B5/B12	C	From Leg	3.000	0.000	61.000	No Ice	1.968	1.408	0.071
(AT&T - Proposed)			0.000			1/2" Ice	2.144	1.564	0.090
			0.000			1" Ice	2.328	1.727	0.111
(2) RRUS-32	C	From Leg	3.000	0.000	61.000	No Ice	3.314	2.424	0.077
(AT&T - Existing)			0.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
RRUS-E2	C	From Leg	3.000	0.000	61.000	No Ice	3.145	1.285	0.058
(AT&T - Existing)			0.000			1/2" Ice	3.365	1.438	0.081
			0.000			1" Ice	3.592	1.600	0.108
4426 B66	C	From Leg	3.000	0.000	61.000	No Ice	1.650	0.727	0.049
(AT&T - Existing)			0.000			1/2" Ice	1.810	0.844	0.062
			0.000			1" Ice	1.978	0.971	0.077
B14 4478	C	From Leg	3.000	0.000	61.000	No Ice	1.843	1.059	0.060
(AT&T - Existing)			0.000			1/2" Ice	2.012	1.197	0.076
			0.000			1" Ice	2.190	1.342	0.094
SitePro RMQP-4120-H10	A	None		0.000	61.000	No Ice	30.000	30.000	3.000
(AT&T - Proposed)						1/2" Ice	38.000	38.000	2.750
						1" Ice	46.000	46.000	2.500
DC6-48-60-18-8F Surge	A	From Leg	3.000	0.000	61.000	No Ice	1.909	1.909	0.026
Arrestor			6.000			1/2" Ice	2.098	2.098	0.045
(AT&T - Existing)			0.000			1" Ice	2.294	2.294	0.068
(2) DC9	B	From Leg	3.000	0.000	61.000	No Ice	1.909	1.909	0.020
(AT&T - Proposed)			6.000			1/2" Ice	2.098	2.098	0.039
			0.000			1" Ice	2.294	2.294	0.062

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DC9	C	From Leg	3.000	0.000	61.000	No Ice	1.909	1.909	0.020
(AT&T - Proposed)			6.000			1/2" Ice	2.098	2.098	0.039
			0.000			1" Ice	2.294	2.294	0.062

Tower Pressures - No Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1	50.750	1.097	0.038	38.250	A	0.000	38.250	38.250	100.00	0.000	0.000
63.500-38.000					B	0.000	38.250		100.00	0.000	0.000
					C	0.000	38.250		100.00	0.000	0.000

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1	50.750	1.097	0.007	1.044	42.687	A	0.000	42.687	42.687	100.00	0.000	0.000
63.500-38.000						B	0.000	42.687		100.00	0.000	0.000
						C	0.000	42.687		100.00	0.000	0.000

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1	50.750	1.097	0.009	38.250	A	0.000	38.250	38.250	100.00	0.000	0.000
63.500-38.000					B	0.000	38.250		100.00	0.000	0.000
					C	0.000	38.250		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	1.802	A	1	0.6	0.038	1	1	38.250	0.970	0.038	C
63.500-38.000			B	1	0.6		1	1	38.250			
			C	1	0.6		1	1	38.250			
Sum Weight:	0.093	1.802						OTM	12.368 kip-ft	0.970		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	1.802	A	1	0.6	0.038	1	1	38.250	0.970	0.038	C
63.500-38.000			B	1	0.6		1	1	38.250			
			C	1	0.6		1	1	38.250			
Sum Weight:	0.093	1.802						OTM	12.368 kip-ft	0.970		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	1.802	A	1	0.6	0.038	1	1	38.250	0.970	0.038	C
63.500-38.000			B	1	0.6		1	1	38.250			
			C	1	0.6		1	1	38.250			
Sum Weight:	0.093	1.802						OTM	12.368 kip-ft	0.970		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	1.802	A	1	0.6	0.038	1	1	38.250	0.970	0.038	C
63.500-38.000			B	1	0.6		1	1	38.250			
			C	1	0.6		1	1	38.250			
Sum Weight:	0.093	1.802						OTM	12.368	0.970		

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
									kip-ft			

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	2.421	A	1	1.2	0.007	1	1	42.687	0.376	0.015	C
63.500-38.000			B	1	1.2		1	1	42.687			
			C	1	1.2		1	1	42.687			
Sum Weight:	0.093	2.421						OTM	4.793 kip-ft	0.376		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	2.421	A	1	1.2	0.007	1	1	42.687	0.376	0.015	C
63.500-38.000			B	1	1.2		1	1	42.687			
			C	1	1.2		1	1	42.687			
Sum Weight:	0.093	2.421						OTM	4.793 kip-ft	0.376		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	2.421	A	1	1.2	0.007	1	1	42.687	0.376	0.015	C
63.500-38.000			B	1	1.2		1	1	42.687			
			C	1	1.2		1	1	42.687			
Sum Weight:	0.093	2.421						OTM	4.793 kip-ft	0.376		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	2.421	A	1	1.2	0.007	1	1	42.687	0.376	0.015	C
63.500-38.000			B	1	1.2		1	1	42.687			
			C	1	1.2		1	1	42.687			
Sum Weight:	0.093	2.421						OTM	4.793 kip-ft	0.376		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	1.802	A	1	0.6	0.009	1	1	38.250	0.217	0.009	C
63.500-38.000			B	1	0.6		1	1	38.250			
			C	1	0.6		1	1	38.250			
Sum Weight:	0.093	1.802						OTM	2.767 kip-ft	0.217		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	1.802	A	1	0.6	0.009	1	1	38.250	0.217	0.009	C
63.500-38.000			B	1	0.6		1	1	38.250			
			C	1	0.6		1	1	38.250			
Sum Weight:	0.093	1.802						OTM	2.767 kip-ft	0.217		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	1.802	A	1	0.6	0.009	1	1	38.250	0.217	0.009	C
63.500-38.000			B	1	0.6		1	1	38.250			
			C	1	0.6		1	1	38.250			
Sum Weight:	0.093	1.802						OTM	2.767	0.217		

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
									kip-ft			

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.093	1.802	A	1	0.6	0.009	1	1	38.250	0.217	0.009	C
63.500-38.000			B	1	0.6		1	1	38.250			
			C	1	0.6		1	1	38.250			
Sum Weight:	0.093	1.802						OTM	2.767 kip-ft	0.217		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	1.802					
Bracing Weight	0.000					
Total Member Self-Weight	1.802			0.621	-1.635	
Total Weight	7.647			0.621	-1.635	
Wind 0 deg - No Ice		-0.334	-7.027	-151.128	6.039	3.367
Wind 30 deg - No Ice		3.417	-5.919	-126.960	-75.294	2.409
Wind 45 deg - No Ice		5.005	-4.733	-101.255	-109.777	1.665
Wind 60 deg - No Ice		6.252	-3.224	-68.608	-136.890	0.806
Wind 90 deg - No Ice		7.412	0.334	8.295	-162.244	-1.013
Wind 120 deg - No Ice		6.586	3.802	83.141	-144.563	-2.561
Wind 135 deg - No Ice		5.477	5.205	113.350	-120.629	-3.097
Wind 150 deg - No Ice		3.995	6.252	135.876	-88.585	-3.422
Wind 180 deg - No Ice		0.334	7.027	152.370	-9.308	-3.367
Wind 210 deg - No Ice		-3.417	5.919	128.202	72.024	-2.409
Wind 225 deg - No Ice		-5.005	4.733	102.497	106.507	-1.665
Wind 240 deg - No Ice		-6.252	3.224	69.850	133.620	-0.806
Wind 270 deg - No Ice		-7.412	-0.334	-7.053	158.975	1.013
Wind 300 deg - No Ice		-6.586	-3.802	-81.899	141.294	2.561
Wind 315 deg - No Ice		-5.477	-5.205	-112.108	117.360	3.097
Wind 330 deg - No Ice		-3.995	-6.252	-134.634	85.316	3.422
Member Ice	0.619					
Total Weight Ice	10.872			1.082	-4.065	
Wind 0 deg - Ice		-0.060	-1.654	-33.125	-2.682	0.662
Wind 30 deg - Ice		0.810	-1.402	-27.851	-20.769	0.493
Wind 45 deg - Ice		1.176	-1.127	-22.128	-28.404	0.355
Wind 60 deg - Ice		1.463	-0.775	-14.824	-34.380	0.192
Wind 90 deg - Ice		1.724	0.060	2.464	-39.868	-0.160
Wind 120 deg - Ice		1.523	0.879	19.382	-35.762	-0.470
Wind 135 deg - Ice		1.261	1.212	26.247	-30.359	-0.581

Load Case	*Vertical Forces* *K*	*Sum of Forces X* *K*	*Sum of Forces Z* *K*	*Sum of Overturning Moments, M_x* *kip-ft*	*Sum of Overturning Moments, M_z* *kip-ft*	*Sum of Torques* *kip-ft*
Wind 150 deg - Ice		0.914	1.463	31.397	-23.164	-0.653
Wind 180 deg - Ice		0.060	1.654	35.288	-5.448	-0.662
Wind 210 deg - Ice		-0.810	1.402	30.014	12.639	-0.493
Wind 225 deg - Ice		-1.176	1.127	24.292	20.274	-0.355
Wind 240 deg - Ice		-1.463	0.775	16.988	26.250	-0.192
Wind 270 deg - Ice		-1.724	-0.060	-0.301	31.738	0.160
Wind 300 deg - Ice		-1.523	-0.879	-17.219	27.632	0.470
Wind 315 deg - Ice		-1.261	-1.212	-24.083	22.229	0.581
Wind 330 deg - Ice		-0.914	-1.463	-29.233	15.034	0.653
Total Weight	7.647			0.621	-1.635	
Wind 0 deg - Service		-0.075	-1.572	-33.323	0.082	0.753
Wind 30 deg - Service		0.764	-1.324	-27.917	-18.111	0.539
Wind 45 deg - Service		1.120	-1.059	-22.167	-25.824	0.372
Wind 60 deg - Service		1.399	-0.721	-14.864	-31.889	0.180
Wind 90 deg - Service		1.658	0.075	2.338	-37.560	-0.227
Wind 120 deg - Service		1.473	0.851	19.079	-33.606	-0.573
Wind 135 deg - Service		1.225	1.164	25.837	-28.252	-0.693
Wind 150 deg - Service		0.894	1.399	30.875	-21.084	-0.765
Wind 180 deg - Service		0.075	1.572	34.565	-3.351	-0.753
Wind 210 deg - Service		-0.764	1.324	29.159	14.842	-0.539
Wind 225 deg - Service		-1.120	1.059	23.409	22.555	-0.372
Wind 240 deg - Service		-1.399	0.721	16.106	28.620	-0.180
Wind 270 deg - Service		-1.658	-0.075	-1.095	34.291	0.227
Wind 300 deg - Service		-1.473	-0.851	-17.837	30.336	0.573
Wind 315 deg - Service		-1.225	-1.164	-24.595	24.982	0.693
Wind 330 deg - Service		-0.894	-1.399	-29.633	17.815	0.765

Load Combinations

Comb. No.	*Description*
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 45 deg - No Ice
7	0.9 Dead+1.0 Wind 45 deg - No Ice
8	1.2 Dead+1.0 Wind 60 deg - No Ice
9	0.9 Dead+1.0 Wind 60 deg - No Ice
10	1.2 Dead+1.0 Wind 90 deg - No Ice
11	0.9 Dead+1.0 Wind 90 deg - No Ice
12	1.2 Dead+1.0 Wind 120 deg - No Ice
13	0.9 Dead+1.0 Wind 120 deg - No Ice
14	1.2 Dead+1.0 Wind 135 deg - No Ice
15	0.9 Dead+1.0 Wind 135 deg - No Ice
16	1.2 Dead+1.0 Wind 150 deg - No Ice
17	0.9 Dead+1.0 Wind 150 deg - No Ice
18	1.2 Dead+1.0 Wind 180 deg - No Ice
19	0.9 Dead+1.0 Wind 180 deg - No Ice
20	1.2 Dead+1.0 Wind 210 deg - No Ice
21	0.9 Dead+1.0 Wind 210 deg - No Ice
22	1.2 Dead+1.0 Wind 225 deg - No Ice
23	0.9 Dead+1.0 Wind 225 deg - No Ice
24	1.2 Dead+1.0 Wind 240 deg - No Ice
25	0.9 Dead+1.0 Wind 240 deg - No Ice

Comb. No.	Description
26	1.2 Dead+1.0 Wind 270 deg - No Ice
27	0.9 Dead+1.0 Wind 270 deg - No Ice
28	1.2 Dead+1.0 Wind 300 deg - No Ice
29	0.9 Dead+1.0 Wind 300 deg - No Ice
30	1.2 Dead+1.0 Wind 315 deg - No Ice
31	0.9 Dead+1.0 Wind 315 deg - No Ice
32	1.2 Dead+1.0 Wind 330 deg - No Ice
33	0.9 Dead+1.0 Wind 330 deg - No Ice
34	1.2 Dead+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
39	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
40	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
41	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
42	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
43	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
44	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
45	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
46	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
47	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
48	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
49	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
50	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
51	Dead+Wind 0 deg - Service
52	Dead+Wind 30 deg - Service
53	Dead+Wind 45 deg - Service
54	Dead+Wind 60 deg - Service
55	Dead+Wind 90 deg - Service
56	Dead+Wind 120 deg - Service
57	Dead+Wind 135 deg - Service
58	Dead+Wind 150 deg - Service
59	Dead+Wind 180 deg - Service
60	Dead+Wind 210 deg - Service
61	Dead+Wind 225 deg - Service
62	Dead+Wind 240 deg - Service
63	Dead+Wind 270 deg - Service
64	Dead+Wind 300 deg - Service
65	Dead+Wind 315 deg - Service
66	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	63.5 - 38	Pole	Max Tension	34	0.000	0.000	0.000
			Max. Compression	34	-12.401	-4.467	-1.227
			Max. Mx	10	-9.172	-163.964	-8.495
			Max. My	18	-9.173	-9.727	-153.795
			Max. Vy	10	7.418	-163.964	-8.495
			Max. Vx	18	7.032	-9.727	-153.795
			Max. Torque	32			-3.433

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	40	12.401	-1.523	-0.879
	Max. H_x	27	6.883	7.412	0.334
	Max. H_z	2	9.177	0.334	7.027
	Max. M_x	2	152.286	0.334	7.027
	Max. M_z	10	163.964	-7.412	-0.334
	Max. Torsion	16	3.432	-3.995	-6.252
	Min. Vert	21	6.883	3.417	-5.919
	Min. H_x	10	9.177	-7.412	-0.334
	Min. H_z	18	9.177	-0.334	-7.027
	Min. M_x	18	-153.795	-0.334	-7.027
	Min. M_z	27	-160.146	7.412	0.334
	Min. Torsion	32	-3.432	3.995	6.252

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	7.647	0.000	0.000	0.627	-1.649	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	9.177	-0.334	-7.027	-152.286	5.754	3.382
0.9 Dead+1.0 Wind 0 deg - No Ice	6.883	-0.334	-7.027	-152.150	6.238	3.378
1.2 Dead+1.0 Wind 30 deg - No Ice	9.177	3.417	-5.919	-127.912	-76.272	2.426
0.9 Dead+1.0 Wind 30 deg - No Ice	6.883	3.417	-5.919	-127.829	-75.613	2.421
1.2 Dead+1.0 Wind 45 deg - No Ice	9.177	5.005	-4.733	-101.988	-111.049	1.679
0.9 Dead+1.0 Wind 45 deg - No Ice	6.883	5.005	-4.733	-101.960	-110.315	1.676
1.2 Dead+1.0 Wind 60 deg - No Ice	9.177	6.252	-3.224	-69.062	-138.394	0.819
0.9 Dead+1.0 Wind 60 deg - No Ice	6.883	6.252	-3.224	-69.104	-137.601	0.816
1.2 Dead+1.0 Wind 90 deg - No Ice	9.177	7.412	0.334	8.495	-163.964	-1.007
0.9 Dead+1.0 Wind 90 deg - No Ice	6.883	7.412	0.334	8.288	-163.117	-1.008
1.2 Dead+1.0 Wind 120 deg - No Ice	9.177	6.586	3.802	83.978	-146.133	-2.563
0.9 Dead+1.0 Wind 120 deg - No Ice	6.883	6.586	3.802	83.610	-145.323	-2.562
1.2 Dead+1.0 Wind 135 deg - No Ice	9.177	5.477	5.205	114.444	-121.994	-3.103
0.9 Dead+1.0 Wind 135 deg - No Ice	6.883	5.477	5.205	114.010	-121.237	-3.102
1.2 Dead+1.0 Wind 150 deg - No Ice	9.177	3.995	6.252	137.162	-89.678	-3.432
0.9 Dead+1.0 Wind 150 deg - No Ice	6.883	3.995	6.252	136.680	-88.989	-3.430
1.2 Dead+1.0 Wind 180 deg - No Ice	9.177	0.334	7.027	153.795	-9.726	-3.382
0.9 Dead+1.0 Wind 180 deg -	6.883	0.334	7.027	153.278	-9.208	-3.378

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
No Ice						
1.2 Dead+1.0 Wind 210 deg - No Ice	9.177	-3.417	5.919	129.422	72.300	-2.426
0.9 Dead+1.0 Wind 210 deg - No Ice	6.883	-3.417	5.919	128.957	72.643	-2.421
1.2 Dead+1.0 Wind 225 deg - No Ice	9.177	-5.005	4.733	103.498	107.076	-1.680
0.9 Dead+1.0 Wind 225 deg - No Ice	6.883	-5.005	4.733	103.088	107.345	-1.676
1.2 Dead+1.0 Wind 240 deg - No Ice	9.177	-6.252	3.224	70.572	134.420	-0.819
0.9 Dead+1.0 Wind 240 deg - No Ice	6.883	-6.252	3.224	70.233	134.631	-0.816
1.2 Dead+1.0 Wind 270 deg - No Ice	9.177	-7.412	-0.334	-6.985	159.991	1.007
0.9 Dead+1.0 Wind 270 deg - No Ice	6.883	-7.412	-0.334	-7.159	160.146	1.008
1.2 Dead+1.0 Wind 300 deg - No Ice	9.177	-6.586	-3.802	-82.468	142.160	2.563
0.9 Dead+1.0 Wind 300 deg - No Ice	6.883	-6.586	-3.802	-82.481	142.353	2.562
1.2 Dead+1.0 Wind 315 deg - No Ice	9.177	-5.477	-5.205	-112.933	118.022	3.103
0.9 Dead+1.0 Wind 315 deg - No Ice	6.883	-5.477	-5.205	-112.881	118.267	3.102
1.2 Dead+1.0 Wind 330 deg - No Ice	9.177	-3.995	-6.252	-135.651	85.706	3.432
0.9 Dead+1.0 Wind 330 deg - No Ice	6.883	-3.995	-6.252	-135.551	86.019	3.430
1.2 Dead+1.0 Ice+1.0 Temp	12.401	0.000	0.000	1.227	-4.467	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	12.401	-0.060	-1.654	-33.374	-3.070	0.670
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	12.401	0.810	-1.402	-28.039	-21.366	0.501
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp	12.401	1.176	-1.127	-22.251	-29.090	0.362
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	12.401	1.463	-0.775	-14.862	-35.135	0.198
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	12.401	1.724	0.060	2.626	-40.687	-0.158
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	12.401	1.523	0.879	19.740	-36.534	-0.472
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	12.401	1.261	1.212	26.684	-31.068	-0.586
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	12.401	0.914	1.463	31.893	-23.790	-0.659
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	12.401	0.060	1.654	35.829	-5.868	-0.670
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	12.401	-0.810	1.402	30.494	12.428	-0.501
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	12.401	-1.176	1.127	24.705	20.151	-0.362
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	12.401	-1.463	0.775	17.317	26.196	-0.198
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	12.401	-1.724	-0.060	-0.172	31.748	0.158
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	12.401	-1.523	-0.879	-17.285	27.595	0.472
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	12.401	-1.261	-1.212	-24.229	22.129	0.586
1.2 Dead+1.0 Wind 330	12.401	-0.914	-1.463	-29.438	14.851	0.659

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	7.647	-0.075	-1.572	-33.557	0.077	0.756
Dead+Wind 30 deg - Service	7.647	0.764	-1.324	-28.113	-18.246	0.542
Dead+Wind 45 deg - Service	7.647	1.120	-1.059	-22.322	-26.014	0.375
Dead+Wind 60 deg - Service	7.647	1.399	-0.721	-14.968	-32.122	0.183
Dead+Wind 90 deg - Service	7.647	1.658	0.075	2.357	-37.833	-0.225
Dead+Wind 120 deg - Service	7.647	1.473	0.851	19.217	-33.851	-0.573
Dead+Wind 135 deg - Service	7.647	1.225	1.164	26.023	-28.459	-0.694
Dead+Wind 150 deg - Service	7.647	0.894	1.399	31.097	-21.240	-0.768
Dead+Wind 180 deg - Service	7.647	0.075	1.572	34.813	-3.381	-0.756
Dead+Wind 210 deg - Service	7.647	-0.764	1.324	29.368	14.941	-0.542
Dead+Wind 225 deg - Service	7.647	-1.120	1.059	23.578	22.709	-0.375
Dead+Wind 240 deg - Service	7.647	-1.399	0.721	16.223	28.817	-0.183
Dead+Wind 270 deg - Service	7.647	-1.658	-0.075	-1.101	34.529	0.225
Dead+Wind 300 deg - Service	7.647	-1.473	-0.851	-17.962	30.546	0.573
Dead+Wind 315 deg - Service	7.647	-1.225	-1.164	-24.767	25.154	0.694
Dead+Wind 330 deg - Service	7.647	-0.894	-1.399	-29.842	17.936	0.768

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-7.647	0.000	0.000	7.647	0.000	0.000%
2	-0.334	-9.177	-7.027	0.334	9.177	7.027	0.000%
3	-0.334	-6.883	-7.027	0.334	6.883	7.027	0.000%
4	3.417	-9.177	-5.919	-3.417	9.177	5.919	0.000%
5	3.417	-6.883	-5.919	-3.417	6.883	5.919	0.000%
6	5.005	-9.177	-4.733	-5.005	9.177	4.733	0.000%
7	5.005	-6.883	-4.733	-5.005	6.883	4.733	0.000%
8	6.252	-9.177	-3.224	-6.252	9.177	3.224	0.000%
9	6.252	-6.883	-3.224	-6.252	6.883	3.224	0.000%
10	7.412	-9.177	0.334	-7.412	9.177	-0.334	0.000%
11	7.412	-6.883	0.334	-7.412	6.883	-0.334	0.000%
12	6.586	-9.177	3.802	-6.586	9.177	-3.802	0.000%
13	6.586	-6.883	3.802	-6.586	6.883	-3.802	0.000%
14	5.477	-9.177	5.205	-5.477	9.177	-5.205	0.000%
15	5.477	-6.883	5.205	-5.477	6.883	-5.205	0.000%
16	3.995	-9.177	6.252	-3.995	9.177	-6.252	0.000%
17	3.995	-6.883	6.252	-3.995	6.883	-6.252	0.000%
18	0.334	-9.177	7.027	-0.334	9.177	-7.027	0.000%
19	0.334	-6.883	7.027	-0.334	6.883	-7.027	0.000%
20	-3.417	-9.177	5.919	3.417	9.177	-5.919	0.000%
21	-3.417	-6.883	5.919	3.417	6.883	-5.919	0.000%
22	-5.005	-9.177	4.733	5.005	9.177	-4.733	0.000%
23	-5.005	-6.883	4.733	5.005	6.883	-4.733	0.000%
24	-6.252	-9.177	3.224	6.252	9.177	-3.224	0.000%
25	-6.252	-6.883	3.224	6.252	6.883	-3.224	0.000%
26	-7.412	-9.177	-0.334	7.412	9.177	0.334	0.000%
27	-7.412	-6.883	-0.334	7.412	6.883	0.334	0.000%
28	-6.586	-9.177	-3.802	6.586	9.177	3.802	0.000%
29	-6.586	-6.883	-3.802	6.586	6.883	3.802	0.000%
30	-5.477	-9.177	-5.205	5.477	9.177	5.205	0.000%
31	-5.477	-6.883	-5.205	5.477	6.883	5.205	0.000%
32	-3.995	-9.177	-6.252	3.995	9.177	6.252	0.000%
33	-3.995	-6.883	-6.252	3.995	6.883	6.252	0.000%
34	0.000	-12.401	0.000	-0.000	12.401	0.000	0.000%
35	-0.060	-12.401	-1.654	0.060	12.401	1.654	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
36	0.810	-12.401	-1.402	-0.810	12.401	1.402	0.000%
37	1.176	-12.401	-1.127	-1.176	12.401	1.127	0.000%
38	1.463	-12.401	-0.775	-1.463	12.401	0.775	0.000%
39	1.724	-12.401	0.060	-1.724	12.401	-0.060	0.000%
40	1.523	-12.401	0.879	-1.523	12.401	-0.879	0.000%
41	1.261	-12.401	1.212	-1.261	12.401	-1.212	0.000%
42	0.914	-12.401	1.463	-0.914	12.401	-1.463	0.000%
43	0.060	-12.401	1.654	-0.060	12.401	-1.654	0.000%
44	-0.810	-12.401	1.402	0.810	12.401	-1.402	0.000%
45	-1.176	-12.401	1.127	1.176	12.401	-1.127	0.000%
46	-1.463	-12.401	0.775	1.463	12.401	-0.775	0.000%
47	-1.724	-12.401	-0.060	1.724	12.401	0.060	0.000%
48	-1.523	-12.401	-0.879	1.523	12.401	0.879	0.000%
49	-1.261	-12.401	-1.212	1.261	12.401	1.212	0.000%
50	-0.914	-12.401	-1.463	0.914	12.401	1.463	0.000%
51	-0.075	-7.647	-1.572	0.075	7.647	1.572	0.000%
52	0.764	-7.647	-1.324	-0.764	7.647	1.324	0.000%
53	1.120	-7.647	-1.059	-1.120	7.647	1.059	0.000%
54	1.399	-7.647	-0.721	-1.399	7.647	0.721	0.000%
55	1.658	-7.647	0.075	-1.658	7.647	-0.075	0.000%
56	1.473	-7.647	0.851	-1.473	7.647	-0.851	0.000%
57	1.225	-7.647	1.164	-1.225	7.647	-1.164	0.000%
58	0.894	-7.647	1.399	-0.894	7.647	-1.399	0.000%
59	0.075	-7.647	1.572	-0.075	7.647	-1.572	0.000%
60	-0.764	-7.647	1.324	0.764	7.647	-1.324	0.000%
61	-1.120	-7.647	1.059	1.120	7.647	-1.059	0.000%
62	-1.399	-7.647	0.721	1.399	7.647	-0.721	0.000%
63	-1.658	-7.647	-0.075	1.658	7.647	0.075	0.000%
64	-1.473	-7.647	-0.851	1.473	7.647	0.851	0.000%
65	-1.225	-7.647	-1.164	1.225	7.647	1.164	0.000%
66	-0.894	-7.647	-1.399	0.894	7.647	1.399	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00004735
3	Yes	4	0.00000001	0.00003108
4	Yes	4	0.00000001	0.00003613
5	Yes	4	0.00000001	0.00002379
6	Yes	4	0.00000001	0.00002400
7	Yes	4	0.00000001	0.00000001
8	Yes	4	0.00000001	0.00000001
9	Yes	4	0.00000001	0.00000001
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000001
12	Yes	4	0.00000001	0.00003695
13	Yes	4	0.00000001	0.00002391
14	Yes	4	0.00000001	0.00004750
15	Yes	4	0.00000001	0.00003077
16	Yes	4	0.00000001	0.00005404
17	Yes	4	0.00000001	0.00003507
18	Yes	4	0.00000001	0.00004915
19	Yes	4	0.00000001	0.00003212
20	Yes	4	0.00000001	0.00003211

21	Yes	4	0.00000001	0.00002121
22	Yes	4	0.00000001	0.00002402
23	Yes	4	0.00000001	0.00000001
24	Yes	4	0.00000001	0.00000001
25	Yes	4	0.00000001	0.00000001
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00004035
29	Yes	4	0.00000001	0.00002634
30	Yes	4	0.00000001	0.00004628
31	Yes	4	0.00000001	0.00003027
32	Yes	4	0.00000001	0.00004821
33	Yes	4	0.00000001	0.00003159
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000001
39	Yes	4	0.00000001	0.00001540
40	Yes	4	0.00000001	0.00001604
41	Yes	4	0.00000001	0.00001599
42	Yes	4	0.00000001	0.00001558
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.00000001	0.00000001
51	Yes	4	0.00000001	0.00000001
52	Yes	4	0.00000001	0.00000001
53	Yes	4	0.00000001	0.00000001
54	Yes	4	0.00000001	0.00000001
55	Yes	4	0.00000001	0.00000001
56	Yes	4	0.00000001	0.00000001
57	Yes	4	0.00000001	0.00000001
58	Yes	4	0.00000001	0.00000001
59	Yes	4	0.00000001	0.00000001
60	Yes	4	0.00000001	0.00000001
61	Yes	4	0.00000001	0.00000001
62	Yes	4	0.00000001	0.00000001
63	Yes	4	0.00000001	0.00000001
64	Yes	4	0.00000001	0.00000001
65	Yes	4	0.00000001	0.00000001
66	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	63.5 - 38	0.597	56	0.162	0.008

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
61.000	QD6616-7	56	0.538	0.146	0.007	Inf

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	63.5 - 38	2.537	12	0.681	0.036

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
61.000	QD6616-7	12	2.288	0.614	0.032	Inf

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
L1	63.5 - 62.225	P18x.375	25.500	0.000	0.0	20.764	-0.113	784.878	0.000 [1]
	62.225 - 60.95					20.764	-9.793	784.878	0.012
	60.95 - 59.675					20.764	-7.164	784.878	0.009
	59.675 - 58.4					20.764	-7.277	784.878	0.009
	58.4 - 57.125					20.764	-7.392	784.878	0.009
	57.125 - 55.85					20.764	-7.506	784.878	0.010
	55.85 - 54.575					20.764	-7.621	784.878	0.010
	54.575 - 53.3					20.764	-7.737	784.878	0.010
	53.3 - 52.025					20.764	-7.853	784.878	0.010
	52.025 - 50.75					20.764	-7.970	784.878	0.010
	50.75 - 49.475					20.764	-8.088	784.878	0.010
	49.475 - 48.2					20.764	-8.206	784.878	0.010
	48.2 - 46.925					20.764	-8.324	784.878	0.011
	46.925 - 45.65					20.764	-8.443	784.878	0.011
	45.65 - 44.375					20.764	-8.563	784.878	0.011
	44.375 - 43.1					20.764	-8.684	784.878	0.011
	43.1 - 41.825					20.764	-8.805	784.878	0.011
	41.825 - 40.55					20.764	-8.926	784.878	0.011
	40.55 - 39.275					20.764	-9.049	784.878	0.012
	39.275 - 38					20.764	-9.172	784.878	0.012

[1] P_u / ϕP_n controls

Pole Bending Design Data

Section No.	Elevation	Size	M_{ux}	ϕM_{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy}	ϕM_{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	63.5 - 62.225	P18x.375	0.032	367.000	0.000	0.000	367.000	0.000
	62.225 - 60.95		4.683	367.000	0.013	0.000	367.000	0.000
	60.95 - 59.675		11.334	367.000	0.031	0.000	367.000	0.000
	59.675 - 58.4		20.117	367.000	0.055	0.000	367.000	0.000
	58.4 - 57.125		28.963	367.000	0.079	0.000	367.000	0.000
	57.125 - 55.85		37.871	367.000	0.103	0.000	367.000	0.000
	55.85 - 54.575		46.839	367.000	0.128	0.000	367.000	0.000
	54.575 - 53.3		55.867	367.000	0.152	0.000	367.000	0.000
	53.3 - 52.025		64.955	367.000	0.177	0.000	367.000	0.000
	52.025 - 50.75		74.100	367.000	0.202	0.000	367.000	0.000
	50.75 - 49.475		83.303	367.000	0.227	0.000	367.000	0.000
	49.475 - 48.2		92.563	367.000	0.252	0.000	367.000	0.000
	48.2 - 46.925		101.878	367.000	0.278	0.000	367.000	0.000
	46.925 - 45.65		111.247	367.000	0.303	0.000	367.000	0.000
	45.65 - 44.375		120.669	367.000	0.329	0.000	367.000	0.000
	44.375 - 43.1		130.144	367.000	0.355	0.000	367.000	0.000
	43.1 - 41.825		139.670	367.000	0.381	0.000	367.000	0.000
	41.825 - 40.55		149.247	367.000	0.407	0.000	367.000	0.000
	40.55 - 39.275		158.872	367.000	0.433	0.000	367.000	0.000
	39.275 - 38		168.544	367.000	0.459	0.000	367.000	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V_u	ϕV_n	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u	ϕT_n	Ratio $\frac{T_u}{\phi T_n}$
	ft		K	K		kip-ft	kip-ft	
L1	63.5 - 62.225	P18x.375	0.050	235.463	0.000	0.000	364.865	0.000
	62.225 - 60.95		1.451	235.463	0.006	0.472	364.865	0.001
	60.95 - 59.675		6.866	235.463	0.029	2.563	364.865	0.007
	59.675 - 58.4		6.915	235.463	0.029	2.563	364.865	0.007
	58.4 - 57.125		6.963	235.463	0.030	2.563	364.865	0.007
	57.125 - 55.85		7.012	235.463	0.030	2.563	364.865	0.007
	55.85 - 54.575		7.059	235.463	0.030	2.563	364.865	0.007
	54.575 - 53.3		7.106	235.463	0.030	2.563	364.865	0.007
	53.3 - 52.025		7.152	235.463	0.030	2.563	364.865	0.007
	52.025 - 50.75		7.198	235.463	0.031	2.563	364.865	0.007
	50.75 - 49.475		7.243	235.463	0.031	2.563	364.865	0.007
	49.475 - 48.2		7.287	235.463	0.031	2.563	364.865	0.007
	48.2 - 46.925		7.330	235.463	0.031	2.563	364.865	0.007
	46.925 - 45.65		7.373	235.463	0.031	2.563	364.865	0.007
	45.65 - 44.375		7.415	235.463	0.031	2.563	364.865	0.007
	44.375 - 43.1		7.456	235.463	0.032	2.563	364.865	0.007
	43.1 - 41.825		7.496	235.463	0.032	2.563	364.865	0.007
	41.825 - 40.55		7.535	235.463	0.032	2.563	364.865	0.007
	40.55 - 39.275		7.573	235.463	0.032	2.563	364.865	0.007
	39.275 - 38		7.611	235.463	0.032	2.563	364.865	0.007

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	63.5 - 62.225	0.000	0.000	0.000	0.000	0.000	0.000 [1] ✔	1.000	4.8.2 ✔
	62.225 - 60.95	0.012	0.013	0.000	0.006	0.001	0.025 ✔	1.000	4.8.2 ✔
	60.95 - 59.675	0.009	0.031	0.000	0.029	0.007	0.041 ✔	1.000	4.8.2 ✔
	59.675 - 58.4	0.009	0.055	0.000	0.029	0.007	0.065 ✔	1.000	4.8.2 ✔
	58.4 - 57.125	0.009	0.079	0.000	0.030	0.007	0.090 ✔	1.000	4.8.2 ✔
	57.125 - 55.85	0.010	0.103	0.000	0.030	0.007	0.114 ✔	1.000	4.8.2 ✔
	55.85 - 54.575	0.010	0.128	0.000	0.030	0.007	0.139 ✔	1.000	4.8.2 ✔
	54.575 - 53.3	0.010	0.152	0.000	0.030	0.007	0.163 ✔	1.000	4.8.2 ✔
	53.3 - 52.025	0.010	0.177	0.000	0.030	0.007	0.188 ✔	1.000	4.8.2 ✔
	52.025 - 50.75	0.010	0.202	0.000	0.031	0.007	0.213 ✔	1.000	4.8.2 ✔
	50.75 - 49.475	0.010	0.227	0.000	0.031	0.007	0.239 ✔	1.000	4.8.2 ✔
	49.475 - 48.2	0.010	0.252	0.000	0.031	0.007	0.264 ✔	1.000	4.8.2 ✔
	48.2 - 46.925	0.011	0.278	0.000	0.031	0.007	0.290 ✔	1.000	4.8.2 ✔
	46.925 - 45.65	0.011	0.303	0.000	0.031	0.007	0.315 ✔	1.000	4.8.2 ✔
	45.65 - 44.375	0.011	0.329	0.000	0.031	0.007	0.341 ✔	1.000	4.8.2 ✔
	44.375 - 43.1	0.011	0.355	0.000	0.032	0.007	0.367 ✔	1.000	4.8.2 ✔
	43.1 - 41.825	0.011	0.381	0.000	0.032	0.007	0.393 ✔	1.000	4.8.2 ✔
	41.825 - 40.55	0.011	0.407	0.000	0.032	0.007	0.420 ✔	1.000	4.8.2 ✔
	40.55 - 39.275	0.012	0.433	0.000	0.032	0.007	0.446 ✔	1.000	4.8.2 ✔
	39.275 - 38	0.012	0.459	0.000	0.032	0.007	0.472 ✔	1.000	4.8.2 ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	63.5 - 38	Pole	P18x.375	1	-9.172	784.878	47.2	Pass
						Summary		
						Pole (L1)	47.2	Pass
						RATING =	**47.2**	**Pass**

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	Anchor Bolt and Baseplate Analysis
Location:	25.5-FT Monopole Hamden, CT
Rev. 2: 7/26/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21139.00

Anchor Bolt and Base Plate Analysis:

Input Data:

Tower Reactions:

Overturning Moment =	$M_u := 169 \cdot ft \cdot kips$	(Input From tnxTower)
Shear Force =	$Shear := 8 \cdot kips$	(Input From tnxTower)
Axial Force =	$Axial := 9 \cdot kips$	(Input From tnxTower)

Anchor Bolt Data:

ASTMA325

Number of Anchor Bolts =	$N := 16$	(User Input)
Nominal Tensile Stress =	$F_{nt} := 90 \cdot ksi$	(User Input)
Nominal Shear Stress =	$F_{nv} := 54 \cdot ksi$	(User Input)
Bolt Modulus =	$E := 29000 \cdot ksi$	(User Input)
Diameter of Anchor Bolts =	$D := 1 \cdot in$	(User Input)
Threads per Inch =	$n := 8$	(User Input)
Distance to Bolts 1 =	$D_1 := 3 \cdot in$	(User Input)
Distance to Bolts 2 =	$D_2 := 6 \cdot in$	(User Input)
Distance to Bolts 3 =	$D_3 := 16 \cdot in$	(User Input)
Number of Bolts 1 =	$N_1 := 4$	(User Input)
Number of Bolts 2 =	$N_2 := 4$	(User Input)
Number of Bolts 3 =	$N_3 := 8$	(User Input)

Base Plate Data:

Use AST MA572 Grade 50

Plate Yield Strength =	$F_{ybp} := 50 \cdot ksi$	(User Input)
Base Plate Thickness =	$t_{BP} := 2 \cdot in$	(User Input)
Base Plate Effective Bend Width =	$B_{eff} := 26 \cdot in$	(User Input)
Outer Pole Diameter =	$D_T := 18 \cdot in$	(User Input)

Anchor Bolt Analysis:

Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 0.785 \cdot in^2$

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n} \right)^2 = 0.606 \cdot in^2$

Bolt Polar Moment of Inertia = $I_p := D_1^2 \cdot N_1 + D_2^2 \cdot N_2 + D_3^2 \cdot N_3 = 2228 \cdot in^2$

Maximum Tension Force = $T_u := M_u \cdot \frac{D_3}{I_p} - \frac{Axial}{N} = 14 \cdot kips$

Maximum Shear Force = $V_u := \frac{Shear}{N} = 0.5 \cdot kips$

Strength Resistance Factor = $\phi := 0.75$

Design Shear Strength = $\Phi R_{nv} := \phi \cdot F_{nv} \cdot A_g = 31.8 \cdot k$

$\frac{V_u}{\Phi R_{nv}} = 1.57 \cdot \%$

Check Bolt Shear = $Bolt\_Shear := if\left(\frac{V_u}{\Phi R_{nv}} \le 1.00, "OK", "Overstressed" \right)$

Bolt_Shear = "OK"

Design Tensile Strength = $\Phi R_{nt} := \phi \cdot F_{nt} \cdot A_g = 53.0 \cdot k$

Required Shaer Stress = $f_{rv} := \frac{V_u}{A_g} = 0.6 \cdot ksi$

Nominal Tensile Stress Modified to Include Shear Stress = $F'_{nt} := \min\left[\left(1.3 \cdot F_{nt} - \frac{F_{nt}}{\phi \cdot F_{nv}} \cdot f_{rv} \right), F_{nt} \right] = 90.0 \cdot ksi$

Design Tensile Strength Reduced for Shear Effects = $\Phi R_{nt} := \phi \cdot F'_{nt} \cdot A_g = 53.0 \cdot k$

$\frac{T_u}{\Phi R_{nt}} = 26.41 \cdot \%$

Check Bolt Tension = $Bolt\_Tension := if\left(\frac{T_u}{\Phi R_{nt}} \le 1.00, "OK", "Overstressed" \right)$

Bolt_Tension = "OK"

Base Plate Analysis:

Strength Resistance Factor Yielding due to Bending = $\phi_b := 0.9$

Bending Moment in Plate = $M_{pl} := T_u \cdot \left(D_3 - \frac{D_T}{2} \right) \cdot \frac{N_3}{2} = 32.67\,ft \cdot kips$

Plate Plastic Section Modulus = $Z_{bp} := B_{eff} \frac{t_{BP}^2}{4} = 26 \cdot in^3$

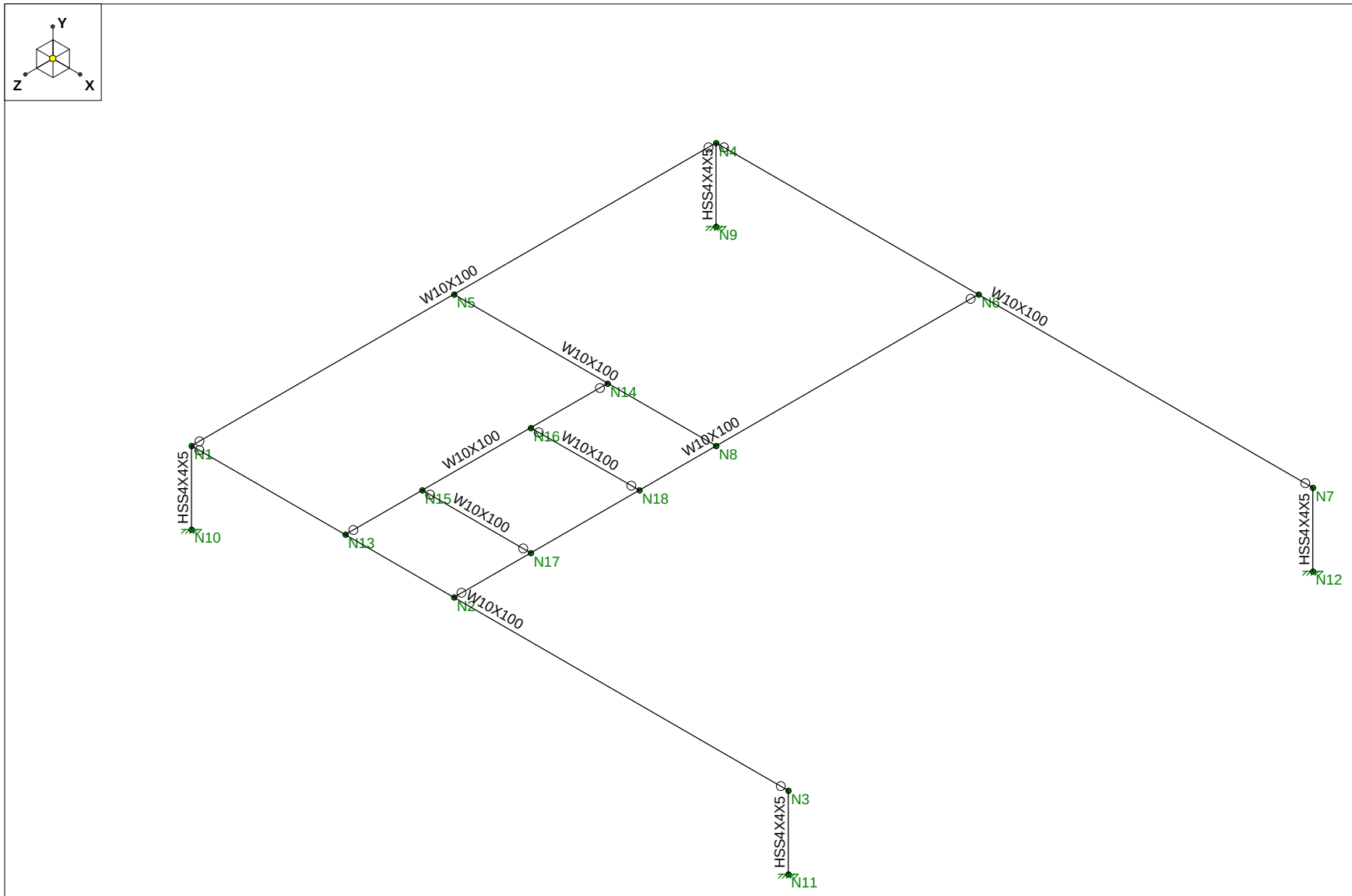
Applied Bending Stress in Plate = $f_{bp} := \frac{M_{pl}}{Z_{bp}} = 15.08 \cdot ksi$

Allowable Bending Stress in Plate = $F_{bp} := 0.9 \cdot F_{ybp} = 45 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 33.5 \cdot \%$

Base Plate Bending = $Plate\_Bending := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed" \right)$

Plate_Bending = "Ok"



Envelope Only Solution

Centek Engineering, Inc.		
TJL	CT2035	July 26, 2023 at 1:36 PM
21139.00	Member Framing	Steel Platform.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
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	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-12: ASD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
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?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
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
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	.145
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#6
Footing Top Bar Cover (in)	1.5
Footing Bottom Bar	#6
Footing Bottom Bar Cover (in)	3
Pedestal Bar	#6
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#4

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	W10X100	W10X100	Beam	Wide Flange	A992	Typical	29.3	207	623	10.9
2	HSS4X4X5/16	HSS4X4X5	Column	Tube	A500 Gr.B Rect	Typical	4.1	9.14	9.14	15.3

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	W10X100	16.5			Segment	Segment					Lateral
2	M2	W10X100	16.5			Segment	Segment					Lateral
3	M3	W10X100	14.5			Segment	Segment					Lateral
4	M4	W10X100	14.5			Segment	Segment					Lateral
5	M5	W10X100	7.25			Segment	Segment					Lateral
6	M6	HSS4X4X5/16	2									Lateral
7	M7	HSS4X4X5/16	2									Lateral
8	M8	HSS4X4X5/16	2									Lateral
9	M9	HSS4X4X5/16	2									Lateral
10	M10	W10X100	7.25			Segment	Segment					Lateral
11	M11	W10X100	3			Lbyy						Lateral
12	M12	W10X100	3			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N1	N3			W10X100	Beam	Wide Flan...	A992	Typical
2	M2	N4	N7			W10X100	Beam	Wide Flan...	A992	Typical
3	M3	N2	N6			W10X100	Beam	Wide Flan...	A992	Typical
4	M4	N1	N4			W10X100	Beam	Wide Flan...	A992	Typical
5	M5	N5	N8			W10X100	Beam	Wide Flan...	A992	Typical
6	M6	N12	N7		90	HSS4X4X5/16	Column	Tube	A500 Gr.B Rect	Typical
7	M7	N11	N3		90	HSS4X4X5/16	Column	Tube	A500 Gr.B Rect	Typical
8	M8	N10	N1		90	HSS4X4X5/16	Column	Tube	A500 Gr.B Rect	Typical
9	M9	N9	N4		90	HSS4X4X5/16	Column	Tube	A500 Gr.B Rect	Typical
10	M10	N13	N14			W10X100	Beam	Wide Flan...	A992	Typical
11	M11	N16	N18			W10X100	Beam	Wide Flan...	A992	Typical
12	M12	N15	N17			W10X100	Beam	Wide Flan...	A992	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	-7.25	3	7.25	0	
2	N2	0.	3	7.25	0	
3	N3	9.25	3	7.25	0	
4	N4	-7.25	3	-7.25	0	
5	N5	-7.25	3	0.	0	
6	N6	-0.	3	-7.25	0	
7	N7	9.25	3	-7.25	0	
8	N8	0	3	0	0	
9	N9	-7.25	1	-7.25	0	Yes
10	N10	-7.25	1	7.25	0	
11	N11	9.25	1	7.25	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
12	N12	9.25	1	-7.25	0	
13	N13	-3	3	7.25	0	
14	N14	-3	3	0	0	
15	N15	-3	3	5.125	0	
16	N16	-3	3	2.125	0	
17	N17	0.	3	5.125	0	
18	N18	0.	3	2.125	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N9	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N10	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N11	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N12	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Point Loads (BLC 2 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M10	Y	-2.25	%50
2	M11	Y	-2.25	%50
3	M12	Y	-2.25	%50
4	M3	Y	-2.25	%25

Member Point Loads (BLC 3 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M10	X	2	%50
2	M11	X	2	%50
3	M12	X	2	%50
4	M3	X	2	%25
5	M10	Y	56.5	%50
6	M3	Y	-56.5	%25

Member Point Loads (BLC 4 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M12	Z	2	%50
2	M10	Z	2	%50
3	M11	Z	2	%50
4	M3	Z	2	%25
5	M11	Y	56.5	%50
6	M12	Y	-56.5	%50

Member Distributed Loads

Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
No Data to Print ...					

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib...	Area(...	Surfa...
1	Self	DL		-1						
2	Dead Load	DL					4			
3	Wind X	WLX					6			
4	Wind Z	WLZ					6			

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	IBC 16-8	Yes	Y		DL	1																				
2	IBC 16-9	Yes	Y		DL	1	LL	1	LLS	1																
3	IBC 16-12 (a) (a)	Yes	Y		DL	1	W...	.6																		
4	IBC 16-12 (a) (b)	Yes	Y		DL	1	W...	.6																		
5	IBC 16-12 (a) (c)	Yes	Y		DL	1	W...	-.6																		
6	IBC 16-12 (a) (d)	Yes	Y		DL	1	W...	-.6																		
7	IBC 16-13 (a) (a)	Yes	Y		DL	1	W...	.45	LL	.75	LLS	.75														
8	IBC 16-13 (a) (b)	Yes	Y		DL	1	W...	.45	LL	.75	LLS	.75														
9	IBC 16-13 (a) (c)	Yes	Y		DL	1	W...	-.45	LL	.75	LLS	.75														
10	IBC 16-13 (a) (d)	Yes	Y		DL	1	W...	-.45	LL	.75	LLS	.75														
11	IBC 16-15 (a)	Yes	Y		DL	.6	W...	.6																		
12	IBC 16-15 (b)	Yes	Y		DL	.6	W...	.6																		
13	IBC 16-15 (c)	Yes	Y		DL	.6	W...	-.6																		
14	IBC 16-15 (d)	Yes	Y		DL	.6	W...	-.6																		

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	N9	max	.69	5	8.557	6	1.795	6	3.559	6	0	14	1.463	3
2		min	-.62	11	-2.212	12	-1.819	4	-3.559	4	0	1	-1.399	13
3	N10	max	1.755	5	11.987	5	1.809	14	3.555	6	0	14	3.493	3
4		min	-1.706	11	-.196	11	-1.784	12	-3.555	4	0	1	-3.421	13
5	N11	max	1.686	13	8.503	3	.622	6	1.319	6	0	14	3.52	3
6		min	-1.737	3	-2.289	13	-.621	4	-1.328	4	0	1	-3.36	13
7	N12	max	.704	13	4.548	6	.577	6	1.239	6	0	14	1.56	3
8		min	-.776	3	-1.145	12	-.578	4	-1.23	4	0	1	-1.408	13
9	Totals:	max	4.8	13	17.345	10	4.8	14						
10		min	-4.8	3	10.407	11	-4.8	4						

Envelope Joint Displacements

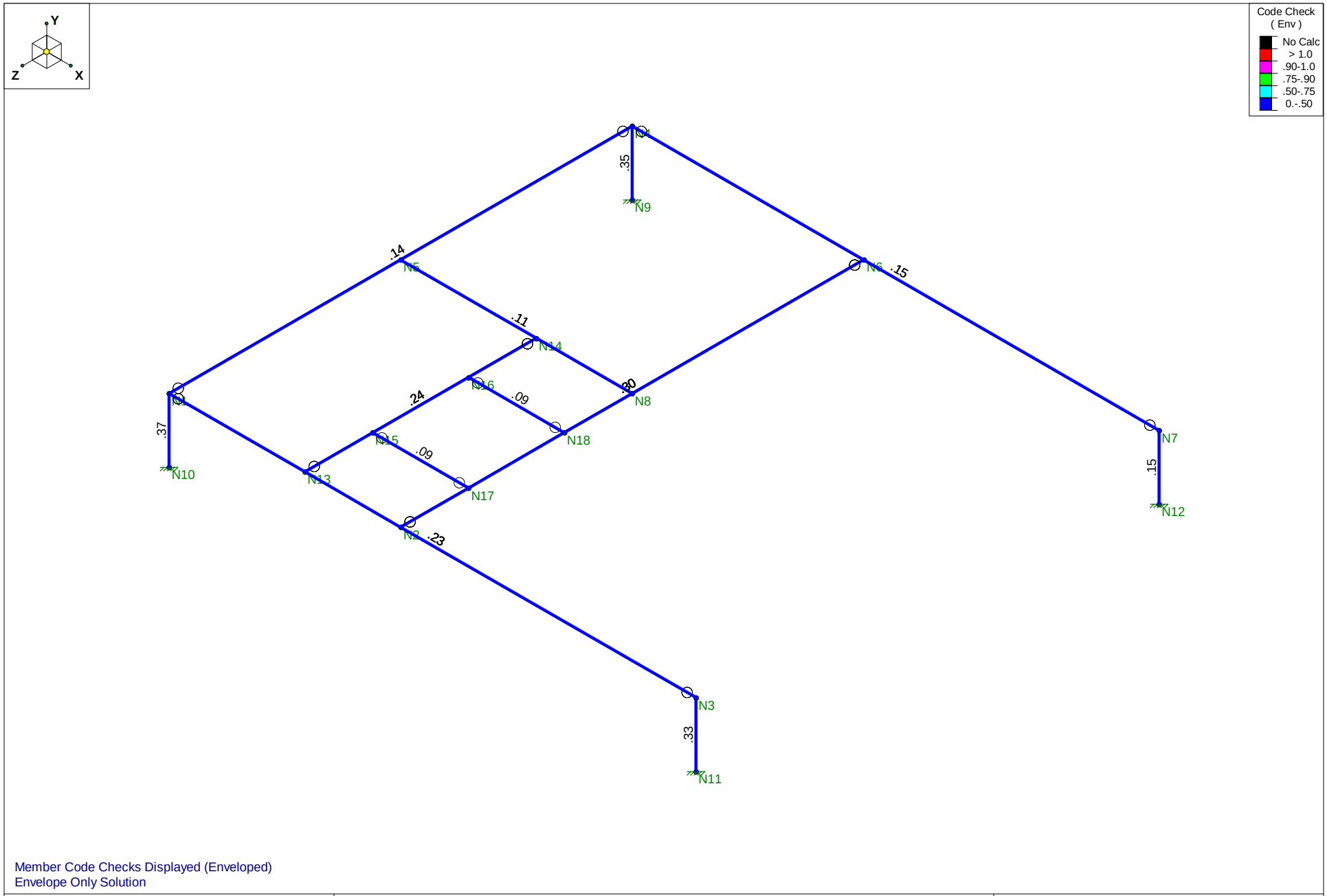
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	.04	3	0	11	.04	4	2.365e-03	4	0	14	2.254e-03	13
2		min	-.039	13	-.003	5	-.04	6	-2.365e-03	6	0	1	-2.444e-03	3
3	N2	max	.04	3	.035	13	.072	4	1.744e-03	4	5.251e-05	3	4.442e-04	13
4		min	-.039	13	-.191	3	-.072	6	-1.741e-03	6	-5.249e-05	5	-7.274e-04	3
5	N3	max	.04	3	0	13	.016	4	9.509e-04	4	0	14	2.282e-03	13
6		min	-.038	13	-.002	3	-.015	6	-9.448e-04	6	0	1	-2.39e-03	3
7	N4	max	.018	3	0	12	.04	4	2.366e-03	4	0	14	9.817e-04	13
8		min	-.016	13	-.002	6	-.04	6	-2.366e-03	6	0	1	-1.167e-03	3
9	N5	max	.06	3	.044	11	.04	4	2.341e-05	4	2.842e-04	14	1.383e-03	13

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
10		min	-.058	13	-.079	5	-.04	6	-1.279e-05	14	-2.842e-04	12	-3.357e-03	3
11	N6	max	.018	3	.037	12	.072	4	1.716e-03	4	2.725e-05	3	7.979e-05	12
12		min	-.016	13	-.111	6	-.072	6	-1.719e-03	6	-2.729e-05	5	-2.577e-04	6
13	N7	max	.018	3	0	12	.014	4	8.869e-04	4	0	14	9.563e-04	13
14		min	-.016	13	-.001	6	-.015	6	-8.926e-04	6	0	1	-1.059e-03	3
15	N8	max	.06	3	.098	13	.072	4	1.219e-03	3	1.346e-04	3	2.558e-03	13
16		min	-.058	13	-.292	3	-.072	6	-6.349e-04	13	-1.346e-04	5	-4.202e-03	3
17	N9	max	0	14	0	14	0	14	0	14	0	14	0	14
18		min	0	1	0	1	0	1	0	1	0	1	0	1
19	N10	max	0	14	0	14	0	14	0	14	0	14	0	14
20		min	0	1	0	1	0	1	0	1	0	1	0	1
21	N11	max	0	14	0	14	0	14	0	14	0	14	0	14
22		min	0	1	0	1	0	1	0	1	0	1	0	1
23	N12	max	0	14	0	14	0	14	0	14	0	14	0	14
24		min	0	1	0	1	0	1	0	1	0	1	0	1
25	N13	max	.04	3	.018	14	.064	4	2.001e-03	4	3.747e-04	14	5.083e-04	13
26		min	-.039	13	-.138	4	-.064	6	-1.999e-03	6	-3.747e-04	12	-2.114e-03	3
27	N14	max	.06	3	.021	12	.064	4	7.17e-04	3	3.965e-04	14	2.075e-03	13
28		min	-.058	13	-.155	6	-.064	6	-3.704e-04	13	-3.965e-04	12	-3.86e-03	3
29	N15	max	.052	3	-.021	14	.064	4	1.457e-03	12	3.993e-04	13	9.675e-04	13
30		min	-.051	13	-.11	4	-.064	6	-1.786e-03	6	-3.993e-04	11	-2.625e-03	3
31	N16	max	.061	3	-.015	12	.064	4	1.572e-03	12	8.598e-05	6	1.616e-03	13
32		min	-.059	13	-.122	6	-.064	6	-1.586e-03	6	-8.608e-05	4	-3.348e-03	3
33	N17	max	.052	3	.086	13	.072	4	1.933e-03	12	3.976e-04	13	1.064e-03	13
34		min	-.051	13	-.268	3	-.072	6	-2.717e-03	6	-3.977e-04	11	-1.746e-03	3
35	N18	max	.061	3	.113	13	.072	4	1.615e-03	12	8.138e-05	6	1.938e-03	13
36		min	-.059	13	-.314	3	-.072	6	-1.653e-03	6	-8.146e-05	4	-3.184e-03	3

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

	Mem...	Shape	Code Check	L...	LC	Sh...	Loc[ft]	Dir	...Pnc/o...	Pnt/o...	Mnyy/om [k-ft]	Mn...	Cb	Eqn
1	M1	W10X100	.232	7....	3	.123	4.297	y	3 584.67	877.2...	152.196	324..	1....	H1...
2	M2	W10X100	.150	7....	6	.041	0	y	6 584.67	877.2...	152.196	324..	1....	H1...
3	M3	W10X100	.304	3....	3	.195	0	y	3 641.2...	877.2...	152.196	324..	1....	H1...
4	M4	W10X100	.137	7....	5	.042	0	y	5 641.2...	877.2...	152.196	324..	1....	H1...
5	M5	W10X100	.109	4....	5	.082	4.531	y	5 811.1...	877.2...	152.196	324..	1....	H1...
6	M6	HSS4X4X5	.148	0	3	.026	0	z	3 110.9...	112.9...	12.831	12....	1....	H1...
7	M7	HSS4X4X5	.326	0	3	.059	0	z	3 110.9...	112.9...	12.831	12....	1....	H1...
8	M8	HSS4X4X5	.372	0	4	.060	0	y	6 110.9...	112.9...	12.831	12....	1....	H1...
9	M9	HSS4X4X5	.352	0	6	.060	0	y	4 110.9...	112.9...	12.831	12....	1....	H1...
10	M10	W10X100	.239	3....	5	.142	0	y	5 811.1...	877.2...	152.196	324..	1.1	H1...
11	M11	W10X100	.090	1.5	6	.122	0	y	6 865.5...	877.2...	152.196	324..	1....	H1...
12	M12	W10X100	.090	1.5	4	.127	0	y	4 865.5...	877.2...	152.196	324..	1....	H1...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering, Inc.		
TJL	CT2035	July 26, 2023 at 1:36 PM
21139.00	Unity Check	Steel Platform.r3d

8-in CMU Bearing Wall Check:

Tributray Widths:

Dead/Snow	17	ft
Snow Drift	8.5	ft
Corridor	3	ft
Living Area	14	ft

Bearing Wall Properties:

Wall Width	8	in
WallWeight	39	psf
Wall Height	9	ft
Net Area	48	in^2
r	2.8	in
h'	8	ft
f'm	1500	psi
Sx	81	in^3

h'/r	34.3	<99	
Fa	352.5	psi	(Eq. 2-12) - 1/4*(f'm)*[1-(h/140r)^2]
Fb	495	psi	(Eq. 2-14) - 1/3*f'm
e	0.5	in	

Roof:

Dead Load	15	psf
Snow Load	30	psf
Snow Drift	24	psf

Floor :

Dead Load (Typ. Floor)	15	psf
Dead Load (1st Floor)	65	psf
Live Load (Corridor)	100	psf
Live Load (Living Area)	40	psf
Partition	20	psf
Reaction/ Sleeper Beam	21	kips
Sleeper Beam Length	16.83	ft

Check Wall Below Roof:

Dead Load	255	plf	
Wall Load	351	plf	
Snow Load	510	plf	
Snow Drift Load	204	plf	
Frame Load	1248	plf	
Total Load	2568	plf	
Actual Axial Stress	53.5	psi	
Actual Bending Stress	15.9	psi	
Check Combined Stress	0.18		OK < 1.0
Check Tension on Mortar	37.64	psi	OK - No Tension

Check Wall 3rd Floor:			
Dead Load	255	plf	
Wall Load	351	plf	
Live Load - Corridor	300	plf	
Live Load - Living Area	840	plf	
Load From Floors Above	2568	plf	
Total Load	4314	plf	
Actual Axial Stress	89.9	psi	
Actual Bending Stress	26.6	psi	
Check Combined Stress	0.31		OK < 1.0
Check Tension on Mortar	63.24	psi	OK - No Tension
Check Wall 2nd Floor:			
Dead Load	255	plf	
Wall Load	351	plf	
Live Load - Corridor	300	plf	
Live Load - Living Area	840	plf	
Load From Floors Above	4314	plf	
Total Load	6060	plf	
Actual Axial Stress	126.2	psi	
Actual Bending Stress	37.4	psi	
Check Combined Stress	0.43		OK < 1.0
Check Tension on Mortar	88.84	psi	OK - No Tension
Check Wall 1st Floor:			
Dead Load	1105	plf	
Wall Load	351	plf	
Live Load - Corridor	300	plf	
Live Load - Living Area	840	plf	
Load From Floors Above	6060	plf	
Total Load	8656	plf	
Actual Axial Stress	180.3	psi	
Actual Bending Stress	53.4	psi	
Check Combined Stress	0.62		OK < 1.0
Check Tension on Mortar	126.90	psi	OK - No Tension

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CTL02035	DATE:	4/26/2021	RF DESIGN ENG:	Mateen Mohammed	RF PERF ENG:	Folarin Ayo
ISSUE:	Bronze Standard	Approved? (Y/N):	Yes	RF DESIGN PHONE:	5107767382	RF PERF PHONE:	
REVISION:	Preliminary	RF MANAGER:	John Benedetto	RF DESIGN EMAIL:	mm093q@att.com	RF PERF EMAIL:	
INITIATIVE PROJECT	700 MHz LOWER_B+C (10 MHz) E-UTRA Band 17, CBAND 4 GHz Band n77, PCS MHz A3 (5Mhz) E-UTRA Band 2					ADDITIONAL WORKFLOW NOTIFICATIONS:	
						RFDS VERSION:	3.00
						UMTS FREQUENCY:	
						LTE FREQUENCY:	700,850,1900,WCS
						5G FREQUENCY:	850,1900,AWS,CBAND,DoD
						IPLAN JOB # 1:	ER_-RCTB-21-01882
						IPLAN JOB # 2:	ER_-RCTB-21-01364
						IPLAN JOB # 3:	ER_-RCTB-21-00727
						IPLAN JOB # 4:	ER_-RCTB-21-00990
						IPLAN JOB # 5:	ER_-RCTB-22-00980
						IPLAN JOB # 6:	
						IPLAN JOB # 7:	
						IPLAN JOB # 8:	
						IPLAN JOB # 9:	
						IPLAN JOB #10:	
						IPLAN JOB # 11:	
						IPLAN JOB # 12:	
						IPLAN JOB # 13:	
						IPLAN JOB # 14:	
						IPLAN JOB # 15:	
						IPLAN JOB # 16:	

RFDS PROGRAM TYPE:	2021 5G NR Radio		
RFDS TECHNOLOGY:	5G NR 1SR CBAND		
STATE/STATUS:	Final/Approved		
RFDS ID:	4397209		
Created By:	mm093q	Updated By:	sp656b
Created:	3/4/2021	Updated:	7/17/2023
Estimated SQIN:	29,459	Expiration:	
RER Initiative:		Calculation ID:	202307171002157862
PRD || SUB GRP #1	5G NR Radio || 5G NR 1SR CBAND		
PRD || SUB GRP #2	Cell Site RF Modifications || BBU reconfiguration with new IDs		
PRD || SUB GRP #3	5G NR Radio || 5G NR 1SR CBAND		
PRD || SUB GRP #4	Antenna Modifications || 41XRX Antenna Retrofit		
PRD || SUB GRP #5	Antenna Modifications || 41XRX Software Retrofit		
PRD || SUB GRP #6			
PRD || SUB GRP #7			
PRD || SUB GRP #8			
PRD || SUB GRP #9			
PRD || SUB GRP #10			
PRD || SUB GRP #11			
PRD || SUB GRP #12			
PRD || SUB GRP #13			
PRD || SUB GRP #14			
PRD || SUB GRP #15			
PRD || SUB GRP #16			

Section 2 - LOCATION INFORMATION

USID:	61166	FA LOCATION CODE:	10035036	LOCATION NAME:	HAMDEN	ORACLE PRJT # 1:	2051A10278
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PRJT # 2:	2051A0Z7F8
ADDRESS:	975 MIX AVENUE	CITY:	HAMDEN	STATE:	CT	ORACLE PRJT # 3:	2051A0Z86C
ZIP CODE:	06514	COUNTY:	NEW HAVEN	LONG (DEC. DEG.):	-72.9179161	ORACLE PRJT # 4:	2051A0Z75D
LATITUDE (D-M-S):	41d 22m 42.672s	LONGITUDE (D-M-S):	-72d -55m -4.49796s	LAT (DEC. DEG.):	41.3785200	ORACLE PRJT # 5:	2051A1A9J4
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	2035 HAMDEN APARTMENTS RT 15 TO EXIT 60 TURN NORTH ONTO DIXWELL AVE & PROCEED APPROX 1/2 MILE TURN LEFT ONTO SKIFF STREET GO TO THE TOP OF THE HILL & TURN RIGHT AT LIGHT ONTO MIX AVE GO TO 975 MIX AVE ON RIGHT SITE IS IN APT 1KE YOU NEED A BUILDING KEY FOR ACCESS LOCKBOX WITH KEY IS NEXT TO SIDE DOOR 0043CONTACT: BUILDING MNGR PAT MARCHITTO 2034102042DEMARC LOCATED INSIDE SHELTER					ORACLE PRJT # 6:	
						ORACLE PRJT # 7:	
						ORACLE PRJT # 8:	
						ORACLE PRJT # 9:	
						ORACLE PRJT # 10:	
						ORACLE PRJT # 11:	
						ORACLE PRJT # 12:	
						ORACLE PRJT # 13:	
						ORACLE PRJT # 14:	
						ORACLE PRJT # 15:	
						ORACLE PRJT # 16:	
						BORDER CELL WITH CONTOUR COORD:	
						AM STUDY REQ'D (Y/N):	No
						FREQ COORD:	
						RF DISTRICT:	TBD
						RF ZONE:	TBD
						PARENT NAME(UMTS):	BRPTCT04CRBR07

PACE JOB #1:	MRCTB052262		
PACE JOB #2:	MRCTB050796		
PACE JOB #3:	MRCTB050930		
PACE JOB #4:	MRCTB050913		
PACE JOB #5:	MRCTB062564		
PACE JOB #6:			
PACE JOB #7:			
PACE JOB #8:			
PACE JOB #9:			
PACE JOB #10:			
PACE JOB #11:			
PACE JOB #12:			
PACE JOB #13:			
PACE JOB #14:			
PACE JOB #15:			
PACE JOB #16:			
SEARCH RING NAME:			
SEARCH RING ID:			
BTA:		MSA / RSA:	
LAC(UMTS):	05988		
RNC(UMTS):	BRIDGEPORT RNC07 ERICSSON 3820		
MME POOL ID(LTE):	FF01		

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:		CGSA CALL SIGNS:	
CGSA - MINOR FILING NEEDED (Yes/No):	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:			
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:					

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	GROUND ELEVATION (ft):		STRUCTURE TYPE:	ROOFTOP	MARKET LOCATION 700 MHz Band:	
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):	0.00	FCC ASR NUMBER:		MARKET LOCATION 850 MHz Band:	
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	65.60			MARKET LOCATION 1900 MHz Band:	
LIGHTING TYPE:	NOT REQUIRED					MARKET LOCATION AWS Band:	
						MARKET LOCATION WCS Band:	
						MARKET LOCATION Future Band:	

Section 5 - E-911 INFORMATION - existing

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A E-911				INTRADO		0		
SECTOR B				INTRADO		0		
SECTOR C				INTRADO		0		
SECTOR D								
SECTOR E				INTRADO		0		
SECTOR F								
OMNI								

Section 5 - E-911 INFORMATION - final

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A E-911				INTRADO		0		
SECTOR B				INTRADO		0		
SECTOR C				INTRADO		0		
SECTOR D								
SECTOR E				INTRADO		0		
SECTOR F								
OMNI								

Section 6/7 - BBU INFORMATION - existing

	BBU 1	BBU 2	BBU 3	BBU 4	BBU 5	BBU 6
BBU ID:	250427	210601	366807	745833	602625	681954
TECHNOLOGY:	UMTS	UMTS	LTE	LTE	LTE	5G
BBU NAME:	CTU2035	CTV2035	CTL02035	CTL02935R	CTL06035R	CTCN002035
BBU USID:	61166	61166	61166	61166	61166	61166
CELL ID / BCF:	CTV2035	CTV2035	CTL02035	CTL02935R	CTL06035R	CTCN002035
BTA/TID:	318V	318U	318L	318L	318L	318N
4-9 DIGIT SITE ID:	2035	2035	2035	52935	6035	2035
COW OR TOY?:	No	No	No	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL
BASE STATION TYPE:	OVERLAY	BASE	BASE	BASE	BASE	BASE
EQUIPMENT NAME:	HAMDEN	HAMDEN	HAMDEN	HAMDEN	HAMDEN	HAMDEN
DISASTER PRIORITY:	0	0	3	3	3	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):			6601 INDOOR MU	6601 RADIONODE 5216	6601 INDOOR MU	BASEBAND 6630
BASEBAND CONFIGURATION :				1x6601 / 1x5216 / 1xXMU		xxxxx / 1x6630 / xxxxx
MARKET STATE CODE:			CT	CT	CT	CTC
NODE B NUMBER:	0	0	2035	2935	6035	2035
SIDEHAUL SWITCH VENDOR:						
SIDEHAUL SWITCH MODEL:						
SIDEHAUL SWITCH NAME:						
SIDEHAUL SWITCH ADDITIONAL CARDS:						
UL-CoMP:						
CSS - CTS COMMON ID:	CTU2035	CTV2035	CTL02035	CTL02935R	CTL06035R	CTCN002035
CSS - SECONDARY FUNCTION ID:						CTL08035R

Section 6/7 - BBU INFORMATION - final

	BBU 1	BBU 2	BBU 3	BBU 4
BBU ID:	366807	745833	0	681954
TECHNOLOGY:	LTE	LTE	5G	LTE,5G
BBU NAME:	CTL02035	CTL02935R	CTCN032035	CTL08035R,CTCN002035
BBU USID:	61166	61166	61166	61166
CELL ID / BCF:	CTL02035	CTL02935R	CTCN032035	CTCN002035
BTA/TID:	318L	318L		318N
4-9 DIGIT SITE ID:	2035	52935	14032035	2035
COW OR TOY?:	No	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL	INTERNAL
BASE STATION TYPE:	BASE	BASE	OVERLAY	BASE
EQUIPMENT NAME:	HAMDEN	HAMDEN	CTCN032035	HAMDEN
DISASTER PRIORITY:	3	3	0	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):	6601 RADIONODE 5216	6601 RADIONODE 5216	BASEBAND 6648	BASEBAND 6630
BASEBAND CONFIGURATION :	1x6601 / 1x5216 / 1xXMU + 6675	1x6601 / 1x5216 / 1xXMU + 6675	xxxxx / 1x6648 / xxxxx + IDLe	xxxxx / 1x6630 / xxxxx + 6675
MARKET STATE CODE:	CT	CT	CTC	CT,CTC
NODE B NUMBER:	2035	2935	32035	8035,2035
SIDEHAUL SWITCH VENDOR:				ERICSSON
SIDEHAUL SWITCH MODEL:				6675
SIDEHAUL SWITCH NAME:				CTCH061166_H003
SIDEHAUL SWITCH ADDITIONAL CARDS:				
UL-CoMP:				
CSS - CTS COMMON ID:	CTL02035	CTL02935R		CTCN002035
CSS - SECONDARY FUNCTION ID:				CTL08035R

Section 7b - Radio INFORMATION - existing

Section 7b - Radio INFORMATION - final

Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1	BBU 2	BBU 3	BBU 4	BBU 5	BBU 6
CTS Common ID	CTU2035	CTV2035	CTL02035	CTL02935R	CTL06035R	CTCN002035
Soft Sector IDs	CTU20354	CTV20351	CTL02035_2A_2	CTL02935_2E_2	CTL06035_2A_2	CTCN002035_N005A_1
	CTU20355	CTV20352	CTL02035_2B_2	CTL02935_3E_1	CTL06035_2B_2	CTCN002035_N005B_1
	CTU20356	CTV20353	CTL02035_3A_1	CTL02935_7E_1	CTL06035_2C_2	CTCN002035_N005C_1
	CTU20357	CTV2035A	CTL02035_3B_1	CTL02935_7E_2_E	CTL06035_3C_1	CTCN002035_N005E_1
	CTU20358	CTV2035B	CTL02035_3C_1	CTL02935_7E_3_F	CTL06035_7A_2_E	
	CTU20359	CTV2035C	CTL02035_7A_1	CTL02935_8E_1	CTL06035_7A_3_F	
			CTL02035_7A_2_E	CTL02935_9E_1	CTL06035_7B_2_E	
			CTL02035_7A_3_F	CTL02935_9E_2	CTL06035_7B_3_F	
			CTL02035_7B_1		CTL06035_7C_1	
			CTL02035_7B_2_E		CTL06035_7C_2_E	
			CTL02035_7B_3_F		CTL06035_7C_3_F	
			CTL02035_7C_1		CTL06035_8A_1	
			CTL02035_7C_2_E		CTL06035_8B_1	
			CTL02035_7E_3_F		CTL06035_8C_1	
			CTL02035_8A_1		CTL06035_9A_1	
			CTL02035_8B_1		CTL06035_9A_2	
			CTL02035_8C_1		CTL06035_9B_1	
			CTL02035_9A_1		CTL06035_9B_2	
			CTL02035_9A_2		CTL06035_9C_1	
			CTL02035_9B_1		CTL06035_9C_2	
			CTL02035_9B_2			
			CTL02035_9C_1			
			CTL02035_9C_2			

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2	BBU 3	BBU 4
CTS Common ID	CTL02035	CTL02935R	CTCN032035	CTL08035R,CTCN002035
Soft Sector IDs	CTL02035_3A_1		CTCN032035_N077A_1	CTCN002035_N002A_1
	CTL02035_3B_1		CTCN032035_N077A_2	CTCN002035_N002B_1
	CTL02035_3C_1		CTCN032035_N077B_1	CTCN002035_N002C_1
	CTL02035_3E_1		CTCN032035_N077B_2	CTCN002035_N002E_1
	CTL02035_7A_1		CTCN032035_N077C_1	CTCN002035_N005A_1
	CTL02035_7A_2_E		CTCN032035_N077C_2	CTCN002035_N005B_1
	CTL02035_7A_3_F			CTCN002035_N005C_1
	CTL02035_7B_1			CTCN002035_N005E_1
	CTL02035_7B_2_E			CTCN002035_N066A_1
	CTL02035_7B_3_F			CTCN002035_N066B_1
	CTL02035_7C_1			CTCN002035_N066C_1
	CTL02035_7C_2_E			CTCN002035_N066E_1
	CTL02035_7C_3_F			CTL08035_2A_2
	CTL02035_7E_1			CTL08035_2B_2
	CTL02035_7E_2_E			CTL08035_2C_2
	CTL02035_7E_3_F			CTL08035_2E_2
				CTL08035_9A_1
				CTL08035_9A_2
				CTL08035_9B_1
				CTL08035_9B_2
				CTL08035_9C_1
				CTL08035_9C_2
				CTL08035_9E_1
				CTL08035_9E_2

Section 9 - SOFT SECTOR ID - existing (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 850	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 6TH 700	5G 1ST 850	5G 1ST 1900
USEID (excluding Hard Sector)	61166.850.3G.1	61166.1900.3G.1	61166.850.3G.2	61166.1900.3G.2	61166.850.3G.3																			
SECTOR A SOFT SECTOR ID	CTV20351	CTU20357		CTU20354	CTV2035A	CTL02035_7A_1	CTL02035_9A_1	CTL06035_2A_2	CTL02035_3A_1	CTL06035_7A_2_E	CTL06035_8A_1	CTL06035_9A_2	CTL02035_2A_2		CTL06035_7A_3_F	CTL02035_8A_1	CTL02035_9A_2	CTL02035_7A_2_E	CTL06035_9A_1		CTL02035_7A_3_F		CTCN002035_N005A_1	
SECTOR B	CTV20352	CTU20358	CTV2035B	CTU20355		CTL02035_7B_1	CTL02035_9B_1	CTL06035_2B_2	CTL02035_3B_1	CTL06035_7B_2_E	CTL06035_8B_1	CTL06035_9B_2	CTL02035_2B_2		CTL06035_7B_3_F	CTL02035_8B_1	CTL02035_9B_2	CTL02035_7B_2_E	CTL06035_9B_1		CTL02035_7B_3_F		CTCN002035_N005B_1	
SECTOR C	CTV20353	CTU20359	CTV2035C	CTU20356		CTL02035_7C_1	CTL02035_9C_1	CTL06035_2C_2	CTL02035_3C_1	CTL06035_7C_2_E	CTL06035_8C_1	CTL06035_9C_2		CTL06035_3C_1	CTL06035_7C_3_F	CTL02035_8C_1	CTL02035_9C_2	CTL02035_7C_2_E	CTL06035_9C_1			CTL06035_7C_1	CTCN002035_N005C_1	
SECTOR D																								
SECTOR E						CTL02935_7E_1	CTL02935_9E_1	CTL02935_2E_2	CTL02935_3E_1	CTL02935_7E_2_E		CTL02935_9E_2				CTL02935_8E_1					CTL02035_7E_3_F		CTCN002035_N005E_1	
SECTOR F																								
OMNI																								

Section 9 - SOFT SECTOR ID - existing (2 of 2)

	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)			
SECTOR A SOFT SECTOR ID			
SECTOR B			
SECTOR C			
SECTOR D			
SECTOR E			
SECTOR F			
OMNI			

Section 9 - SOFT SECTOR ID - final (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 850	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 6TH 700	5G 1ST 850	5G 1ST 1900
USEID (excluding Hard Sector)																								
SECTOR A SOFT SECTOR ID						CTL02035_7A_1	CTL08035_9A_1		CTL02035_3A_1									CTL02035_7A_2_E	CTL08035_9A_2	CTL08035_2A_2	CTL02035_7A_3_F		CTCN002035_N005	CTCN002035_N002
SECTOR B						CTL02035_7B_1	CTL08035_9B_1		CTL02035_3B_1									CTL02035_7B_2_E	CTL08035_9B_2	CTL08035_2B_2	CTL02035_7B_3_F		CTCN002035_N005	CTCN002035_N002
SECTOR C						CTL02035_7C_1	CTL08035_9C_1		CTL02035_3C_1									CTL02035_7C_2_E	CTL08035_9C_2	CTL08035_2C_2	CTL02035_7C_3_F		CTCN002035_N005	CTCN002035_N002
SECTOR D																								
SECTOR E						CTL02035_7E_1	CTL08035_9E_1		CTL02035_3E_1									CTL02035_7E_2_E	CTL08035_9E_2	CTL08035_2E_2	CTL02035_7E_3_F		CTCN002035_N005	CTCN002035_N002
SECTOR F																								
OMNI																								

Section 9 - SOFT SECTOR ID - final (2 of 2)

	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)			
SECTOR A SOFT SECTOR ID	CTCN002035_N066A_1	CTCN032035_N077A_1	CTCN032035_N077A_2
SECTOR B	CTCN002035_N066B_1	CTCN032035_N077B_1	CTCN032035_N077B_2
SECTOR C	CTCN002035_N066C_1	CTCN032035_N077C_1	CTCN032035_N077C_2
SECTOR D			
SECTOR E	CTCN002035_N066E_1		
SECTOR F			
OMNI			

Section 9 - Cell Number - existing (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 850	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 6TH 700	5G 1ST 850	5G 1ST 1900
USEID (excluding Hard Sector)	61166.850.3G.1	61166.1900.3G.1	61166.850.3G.2	61166.1900.3G.2	61166.850.3G.3																			
SECTOR A CELL NUMBER						15	8	192	149	185	1	178	192		171	1	178	185	8		171		25	
SECTOR B						16	9	193	150	186	2	179	193		172	2	179	186	9		172		49	
SECTOR C						17	10	194	151	187	3	180		151	173	3	180	187	10			17	73	
SECTOR D																								
SECTOR E						19	12	196	153	189		182				5					175		121	
SECTOR F																								
OMNI																								

Section 9 - Cell Number - existing (2 of 2)

	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)			
SECTOR A CELL NUMBER			
SECTOR B			
SECTOR C			
SECTOR D			
SECTOR E			
SECTOR F			
OMNI			

Section 9 - Cell Number - final (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 850	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 6TH 700	5G 1ST 850	5G 1ST 1900
USEID (excluding Hard Sector)																								
SECTOR A CELL NUMBER						15	8		149									185	178	192	171		25	26
SECTOR B						16	9		150									186	179	193	172		49	50
SECTOR C						17	10		151									187	180	194	173		73	74
SECTOR D																								
SECTOR E						19	12		153									189	182	196	175		121	122
SECTOR F																								
OMNI																								

Section 9 - Cell Number - final (2 of 2)

	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)			
SECTOR A CELL NUMBER	27	36	37
SECTOR B	51	60	61
SECTOR C	75	84	85
SECTOR D			
SECTOR E	122		
SECTOR F			
OMNI			

Section 10 - CID/SAC - existing (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 850	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 6TH 700	5G 1ST 850	5G 1ST 1900
SECTOR A CID/SAC	20351	20357		20354	60351																			
SECTOR B	20352	20358	60352	20355																				
SECTOR C	20353	20359	60353	20356																				
SECTOR D																								
SECTOR E																								

SECTOR F																								
OMNI																								

Section 10 - CID/SAC - existing (2 of 2)

	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND																					
SECTOR A CID/SAC																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 10 - CID/SAC - final (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 850	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 6TH 700	5G 1ST 850	5G 1ST 1900
SECTOR A CID/SAC																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 10 - CID/SAC - final (2 of 2)

	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND																					
SECTOR A CID/SAC																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 11 - CURRENT RADIO COUNTS existing

Section 12 - CURRENT T1 COUNTS existing

Section 13 - NEW/PROPOSED RADIO COUNTS

Section 14 - NEW/PROPOSED T1 COUNTS

Section 15A - CURRENT TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	800-10121		QS66512-2		800-10965		HPA-65R-BUU-H6							
ANTENNA VENDOR	Kathrein		Quintel		Kathrein		CCI Products							
ANTENNA SIZE (H x W x D)	54.5X10.3X5.9		72X12X9.6		78.7X20X6.9		72X14.8X9							
ANTENNA WEIGHT	44.1		111		108.6		51							
AZIMUTH	23		20		20		20							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	61		61		61		61							
ANTENNA TIP HEIGHT	63		64		64		64							
MECHANICAL DOWNTILT	1		0		0		0							
FEEDER AMOUNT	4													
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)	2	Kathrein / 860-10025		Internal		Internal		Internal						
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)	2	LGP21901			2	DBC0061F1V51-2								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)	1	860-10006		RRH CONTROLLED		RRH CONTROLLED		RRH CONTROLLED						
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	1	TT19-08BP111-001												
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	1000860												
PDU FOR TMAS (QTY/MODEL)	1	LGP12104												
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)			1	DC6-48-60-18-8F	1	DC6-48-60-0-8C-EC								
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	RRUS-E2 B29	1	4478 B14	1	RRUS-11 B12						
RRH - 850 band (QTY/MODEL)					1	4478 B5								
RRH - 1900 band (QTY/MODEL)			1	RRUS-32 B2										
RRH - AWS band (QTY/MODEL)					1	4426 B66								
RRH - WCS band (QTY/MODEL)			1	RRUS-32 B30										
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2	Sector B & E will share the same LTE B14 radio.													
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		61166.C.850.3G.1	CTV20353	CTV20353		UMTS 850	800 10121 @850_Xpol 6dt	13.42	23	6	None	Andrew 1-5/8	120.030726						293.76		1	
ANTENNA POSITION 2	PORT 1		61166.A.700.4G.4	CTL02035_7A_2_E	CTL02035_7A_2_E		LTE 700	2_722MHz_03DT	13.5	20	3	TOP	FIBER	0						1475.7065		3	
	PORT 3		61166.A.1900.4G.1	CTL02035_9A_1	CTL02035_9A_1		LTE 1900	2_1930MHz_03DT	15.9	20	3	TOP	FIBER	0						4842.058		4	
	PORT 4		61166.A.1900.4G.4	CTL02035_9A_2	CTL02035_9A_2		LTE 1900	2_1930MHz_03DT	15.9	20	3	TOP	FIBER	0						4842.058		4	
	PORT 7		61166.A.WCS.4G.1	CTL02035_3A_1	CTL02035_3A_1		LTE WCS	2_2355MHz_03DT	16.7	20	3	TOP	FIBER	0						1285.2866		4	
ANTENNA POSITION 3	PORT 1		61166.A.850.4G.1	CTL02035_8A_1	CTL02035_8A_1		LTE 850	80010965_849MHz_05DT	15.4	20	5	TOP	FIBER	0						1000		5	
	PORT 2		61166.A.700.4G.5	CTL02035_7A_3_F	CTL02035_7A_3_F		LTE 700	80010965_777MHz_05DT	15.4	20	5	TOP	FIBER	0						2951.413		5	
	PORT 3		61166.A.AWS.4G.4	CTL02035_2A_2	CTL02035_2A_2		LTE AWS	80010965_2133MHz_03DT	15.4	20	3	TOP	FIBER	0						5070.2572		6	
	PORT 5		61166.A.850.5G.1	CTCN002035_N005A_1	CTCN002035_N005A_1		5G 850	80010965_849MHz_05DT	15.4	20	5	TOP	FIBER	0						1000		5	
ANTENNA POSITION 4	PORT 1		61166.A.700.4G.1	CTL02035_7A_1	CTL02035_7A_1		LTE 700	H6_719MHz_05DT	14.11	20	5	TOP	FIBER	0						1475.7065		7	

Section 15B - CURRENT TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	BSA-M65R-BUU-H6-K		800-10121		BSA-M65R-BUU-H6-K		BSA-M65R-BUU-H6-K							
ANTENNA VENDOR	CCI		Kathrein		CCI		CCI							
ANTENNA SIZE (H x W x D)	72X28.5X9.7		54.5X10.3X5.9		72X28.5X9.7		72X28.5X9.7							
ANTENNA WEIGHT	101		44.1		101		101							
AZIMUTH	150		150		150		150							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	61		61		61		61							
ANTENNA TIP HEIGHT	64		63		64		64							
MECHANICAL DOWNTILT	0		1		0		0							
FEEDER AMOUNT			4											
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Internal	2	Kathrein / 860-10025		Internal		Internal						
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)			2	LGP21901	1	DBCT108F1V92-1								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED				RRH CONTROLLED		RRH CONTROLLED						
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)			1	TT19-08BP111-001										
CURRENT INJECTORS FOR TMA (QTY/MODEL)			2	1000860										
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)	1	DC6-48-60-18-8F			1	DC6-48-60-0-8C-EC								
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	RRUS-E2 B29			1	4478 B14	1	RRUS-11 B12						
RRH - 850 band (QTY/MODEL)					1	4478 B5								
RRH - 1900 band (QTY/MODEL)							1	RRUS-32 B2						
RRH - AWS band (QTY/MODEL)					1	4426 B66								
RRH - WCS band (QTY/MODEL)	1	RRUS-32 B30												
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2	Sector B & E will share the same LTE B14 radio.													
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		61166.B.700.4G.4	CTL02035_7B_2_E	CTL02035_7B_2_E		LTE 700	H6_725MHz_03DT_AZ+28deg	13.5	150	3	TOP	FIBER	0						1475.7065		11	
	PORT 3		61166.B.WCS.4G.1	CTL02035_3B_1	CTL02035_3B_1		LTE WCS	H6_2360MHz_03DT_AZ+22deg	16.7	150	3	TOP	FIBER	0						1285.2866		12	
ANTENNA POSITION 2	PORT 1		61166.A.850.3G.1	CTV20351	CTV20351		UMTS 850	800 10121 @850_Xpol_6dt	13.42	150	6	None	Andrew 1-5/8	120.030726						293.76		9	
ANTENNA POSITION 3	PORT 1		61166.B.850.4G.1	CTL02035_8B_1	CTL02035_8B_1		LTE 850	H6_849MHz_02DT_AZ+25deg	15.4	150	2	TOP	FIBER	0						1000		13	
	PORT 2		61166.B.700.4G.5	CTL02035_7B_3_F	CTL02035_7B_3_F		LTE 700	H6_776MHz_02DT_AZ+28deg	15.3	150	2	TOP	FIBER	0						2951.413		13	
	PORT 3		61166.B.AWS.4G.4	CTL02035_2B_2	CTL02035_2B_2		LTE AWS	H6_2133MHz_03DT_AZ+25deg	15.4	150	3	TOP	FIBER	0						5070.2572		14	
	PORT 5		61166.B.850.5G.1	CTCN002035_N005B_1	CTCN002035_N005B_1		5G 850	H6_849MHz_02DT_AZ+25deg	15.4	150	2	TOP	FIBER	0						1000		13	
ANTENNA POSITION 4	PORT 1		61166.B.700.4G.1	CTL02035_7B_1	CTL02035_7B_1		LTE 700	H6_725MHz_02DT_AZ+28deg	14.28	150	2	TOP	FIBER	0						1475.7065		15	
	PORT 2		61166.B.1900.4G.1	CTL02035_9B_1	CTL02035_9B_1		LTE 1900	H6_1930MHz_05DT_AZ+25deg	16	150	2	TOP	FIBER	0						4842.058		16	
	PORT 3		61166.B.1900.4G.4	CTL02035_9B_2	CTL02035_9B_2		LTE 1900	H6_1930MHz_05DT_AZ+25deg	16	150	2	TOP	FIBER	0						4842.058		16	

Section 15C - CURRENT TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	800-10121		QS66512-2		800-10965		HPA-65R-BUU-H6							
ANTENNA VENDOR	Kathrein		Quintel		Kathrein		CCI Products							
ANTENNA SIZE (H x W x D)	54.5X10.3X5.9		72X12X9.6		78.7X20X6.9		72X14.8X9							
ANTENNA WEIGHT	44.1		111		108.6		51							
AZIMUTH	263		260		260		260							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	61		61		61		61							
ANTENNA TIP HEIGHT	63		64		64		64							
MECHANICAL DOWNTILT	1		0		0		0							
FEEDER AMOUNT	4													
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)	2	Kathrein / 860-10025		Internal		Internal		Internal						
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)	2	LGP21901			2	DBC0061F1V51-2								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)				RRH CONTROLLED		RRH CONTROLLED		RRH CONTROLLED						
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	1	TT19-08BP111-001												
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	1000860												
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)			1	DC6-48-60-18-8F	1	DC6-48-60-0-8C-EC								
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	RRUS-E2 B29	1	4478 B14	1	RRUS-11 B12						
RRH - 850 band (QTY/MODEL)					1	4478 B5								
RRH - 1900 band (QTY/MODEL)			1	RRUS-32 B2										
RRH - AWS band (QTY/MODEL)					1	4426 B66								
RRH - WCS band (QTY/MODEL)			1	RRUS-32 B30										
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2	Sector B & E will share the same LTE B14 radio.													
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		61166.B.850.3G.1	CTV20352	CTV20352		UMTS 850	800 10121 @850 Xpol 6dt	13.42	263	6	None	Andrew 1-5/8	120.030726						293.76		17	
ANTENNA POSITION 2	PORT 1		61166.C.700.4G.4	CTL06035_7C_2_E	CTL06035_7C_2_E		LTE 700	2_722MHz_03DT	13.5	260	3	TOP	FIBER	0						1475.7065		19	
	PORT 3		61166.C.1900.4G.1	CTL06035_9C_1	CTL06035_9C_1		LTE 1900	2_1930MHz_02DT	16	260	2	TOP	FIBER	0						4842.058		20	
	PORT 4		61166.C.1900.4G.4	CTL06035_9C_2	CTL06035_9C_2		LTE 1900	2_1930MHz_02DT	16	260	2	TOP	FIBER	0						4842.058		20	
	PORT 7		61166.C.WCS.4G.1	CTL06035_3C_1	CTL06035_3C_1		LTE WCS	2_2355MHz_02DT	16.8	260	2	TOP	FIBER	0						1285.2866		20	
ANTENNA POSITION 3	PORT 1		61166.C.850.4G.1	CTL06035_8C_1	CTL06035_8C_1		LTE 850	80010965_849MHz_10DT	15.4	260	10	TOP	FIBER	0						1000		21	
	PORT 2		61166.C.700.4G.5	CTL06035_7C_3_F	CTL06035_7C_3_F		LTE 700	80010965_777MHz_10DT	15.2	260	10	TOP	FIBER	0						2951.413		21	
	PORT 3		61166.C.AWS.4G.4	CTL06035_2C_2	CTL06035_2C_2		LTE AWS	80010965_2170MHz_06DT	18.5	260	6	TOP	FIBER	0						5070.2572		22	
	PORT 5		61166.C.850.5G.1	CTCN002035_N005C_1	CTCN002035_N005C_1		5G 850	80010965_849MHz_10DT	15.4	260	10	TOP	FIBER	0						1000		21	
ANTENNA POSITION 4	PORT 1		61166.C.700.4G.1	CTL06035_7C_1	CTL06035_7C_1		LTE 700	H6_719MHz_10DT	13.9	260	10	TOP	FIBER	0						1475.7065		23	

Section 15E - CURRENT TOWER CONFIGURATION - SECTOR E

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	BSA-M65R-BUU-H6-K		BSA-M65R-BUU-H6-K	BSA-M65R-BUU-H6-K			
ANTENNA VENDOR	CCI		CCI	CCI			
ANTENNA SIZE (H x W x D)	72X28.5X9.7		72X28.5X9.7	72X28.5X9.7			
ANTENNA WEIGHT	101		101	101			
AZIMUTH	150		150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	61		61	61			
ANTENNA TIP HEIGHT	64		64	64			
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Internal		Internal	Internal			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)	RRH CONTROLLED		RRH CONTROLLED	RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)	1 DC6-48-60-18-8F						
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1 RRUS-E2 B29		with another sector	1 RRUS-11 B12			
RRH - 850 band (QTY/MODEL)			1 4478 B5				
RRH - 1900 band (QTY/MODEL)				1 RRUS-32 B2			
RRH - AWS band (QTY/MODEL)			1 4426 B66				
RRH - WCS band (QTY/MODEL)	1 RRUS-32 B30						
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2	Sector B & E will share the same LTE B14 radio.						
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		61166.E.700.4G.4	CTL02935_7E_2E	CTL02935_7E_2E		LTE 700	H6_725MHz_03DT_AZ-28deg	13.5	150	3	TOP	FIBER	0						1475.7065		11	
	PORT 3		61166.E.WCS.4G.1	CTL02935_3E_1	CTL02935_3E_1		LTE WCS	H6_2360MHz_03DT_AZ-22deg	16.7	150	3	TOP	FIBER	0						1285.2866		12	
ANTENNA POSITION 3	PORT 1		61166.E.850.4G.1	CTL02935_8E_1	CTL02935_8E_1		LTE 850	H6_849MHz_02DT_AZ-25deg	15.4	150	2	TOP	FIBER	0						1000		13	
	PORT 2		61166.E.700.4G.5	CTL02935_7E_3F	CTL02935_7E_3F		LTE 700	H6_776MHz_02DT_AZ-28deg	15.3	150	2	TOP	FIBER	0						2951.413		13	
	PORT 3		61166.E.AWS.4G.4	CTL02935_2E_2	CTL02935_2E_2		LTE AWS	H6_2133MHz_03DT_AZ-25deg	15.4	150	3	TOP	FIBER	0						5070.2572		14	
	PORT 5		61166.E.850.5G.1	CTCN002035_N005E_1	CTCN002035_N005E_1		5G 850	H6_849MHz_02DT_AZ-25deg	15.4	150	2	TOP	FIBER	0						1000		13	
ANTENNA POSITION 4	PORT 1		61166.E.700.4G.1	CTL02935_7E_1	CTL02935_7E_1		LTE 700	H6_725MHz_02DT_AZ-28deg	14.28	150	2	TOP	FIBER	0						1475.7065		15	
	PORT 2		61166.E.1900.4G.1	CTL02935_9E_1	CTL02935_9E_1		LTE 1900	H6_1930MHz_05DT_AZ-25deg	16	150	2	TOP	FIBER	0						4842.058		16	
	PORT 4		61166.E.1900.4G.4	CTL02935_9E_2	CTL02935_9E_2		LTE 1900	H6_1930MHz_05DT_AZ-25deg	16	150	2	TOP	FIBER	0						4842.058		16	

Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		QD6616-7	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU6DA			
ANTENNA VENDOR		Quintel	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		72X22X9.6	30.4X15.9X8.1	71.2X21X7.8			
ANTENNA WEIGHT		59.1	81.6	60.2			
AZIMUTH		20	20	20			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		61	61	61			
ANTENNA TIP HEIGHT		64	64	64			
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built-In	Internal			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)		1 DC9-48-60-24-PC16-EV					
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	Sector B & E will share the same LTE B14 radio.						
Local Market Note 3	1x6601 / 1x5216 / 2x9MJ03 / 1x6630 + 6675/ 1x6601 / 1x5216 / 1x9MJ03/6651+Xcede						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 11		61166.A.1900.4G.4	CTCN002035_N002A_1	CTCN002035_N002A_1		5G 1900	QD6616-7	15.9	20	3	TOP	FIBER	0									
	PORT 12		61166.A.AWS.4G.4	CTCN002035_N066A_1	CTCN002035_N066A_1		5G AWS	QD6616-7	15.4	20	3	TOP	FIBER	0									
ANTENNA POSITION 3	PORT 1			CTCN032035_N077A_1	CTCN032035_N077A_1		5G CBAND	N77D+AIR6419 N77G STACKED			0	Integrated	FIBER	0									
	PORT 2			CTCN032035_N077A_2	CTCN032035_N077A_2		5G DoD	N77D+AIR6419 N77G STACKED			0	Integrated	FIBER	0									
ANTENNA POSITION 4	PORT 5		61166.A.850.5G.1	CTCN002035_N005A_1	CTCN002035_N005A_1		5G 850	OPA65R-BU6DA	15.4	20	5	TOP	FIBER	0									

Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?		Yes		Yes			
ANTENNA MAKE - MODEL	AIR6449 B77D+AIR6419 B77G STACKED		AIR6449 B77D+AIR6419 B77G STACKED				
ANTENNA VENDOR	Ericsson		Ericsson				
ANTENNA SIZE (H x W x D)	30.4X15.9X8.1		30.4X15.9X8.1				
ANTENNA WEIGHT	81.6		81.6				
AZIMUTH	150		150				
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	55		55				
ANTENNA TIP HEIGHT	57		57				
MECHANICAL DOWNTILT	0		0				
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In	Built-In	Internal				
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1	4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)	1 integrated within: AIR6449 B77D		1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)	1 integrated within: AIR6419 B77G		1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	Sector B & E will share the same LTE B14 radio. AIR antennas will be mounted below pos 1 & 2 antennas due to space constrains only on Beta sector.						
Local Market Note 3	1x6601 / 1x5216 / 2x9MUO3 / 1x6630 + 6675/ 1x6601 / 1x5216 / 1x9MUO3/6651+Xcede						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1						5G CBAND	N77D+AIR6419 N77G STACKED				Integrated	FIBER	0									
ANTENNA POSITION 2	PORT 12			CTCN002035_N 066B_1	CTCN002035_N 066B_1		5G AWS	BSA-M65R-BUU-H6-K	15.4	150	3	TOP	FIBER	0						5070.2572			
ANTENNA POSITION 3	PORT 1			CTCN032035_N 077B_1	CTCN032035_N 077B_1		5G CBAND	N77D+AIR6419 N77G STACKED				Integrated	FIBER	0									
	PORT 2			CTCN032035_N 077B_2	CTCN032035_N 077B_2		5G DoD	N77D+AIR6419 N77G STACKED				Integrated	FIBER	0									
ANTENNA POSITION 4	PORT 1		61166.B.700.4G.1	CTL02935_7B_1	CTL02935_7B_1		LTE 700	BSA-M65R-BUU-H6-K	14.28	150	2	TOP	FIBER	0						1475.71			
	PORT 5		61166.B.850.5G.1	CTCN002035_N 005B_1	CTCN002035_N 005B_1		5G 850	BSA-M65R-BUU-H6-K	15.4	150	2	TOP	FIBER	0						1000			
	PORT 11		61166.B.1900.4G.4	CTCN002035_N 002B_1	CTCN002035_N 002B_1		5G 1900	BSA-M65R-BUU-H6-K	16	150	2	TOP	FIBER	0						4842.06			

Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		QD6616-7	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU6DA			
ANTENNA VENDOR		Quintel	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		72X22X9.6	30.4X15.9X8.1	71.2X21X7.8			
ANTENNA WEIGHT		59.1	81.6	60.2			
AZIMUTH		260	260	260			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		61	61	61			
ANTENNA TIP HEIGHT		64	64	64			
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built-In	Internal			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)		1 DC9-48-60-24-PC16-EV					
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	Sector B & E will share the same LTE B14 radio.						
Local Market Note 3	1x6601 / 1x5216 / 2xMUO3 / 1x6630 + 6675/ 1x6601 / 1x5216 / 1xMUO3/6651+Xcede						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 11		61166.C.1900.4G.4	CTCN002035_N002C_1	CTCN002035_N002C_1		5G 1900	QD6616-7	16	260	2	TOP	FIBER	0									
	PORT 12		61166.C.AWS.4G.4	CTCN002035_N066C_1	CTCN002035_N066C_1		5G AWS	QD6616-7	18.5	260	6	TOP	FIBER	0									
ANTENNA POSITION 3	PORT 1			CTCN032035_N077C_1	CTCN032035_N077C_1		5G CBAND	N77D+AIR6419 N77G STACKED			0	Integrated	FIBER	0									
	PORT 2			CTCN032035_N077C_2	CTCN032035_N077C_2		5G DoD	N77D+AIR6419 N77G STACKED			0	Integrated	FIBER	0									
ANTENNA POSITION 4	PORT 5		61166.C.850.5G.1	CTCN002035_N005C_1	CTCN002035_N005C_1		5G 850	OPA65R-BU6DA	15.4	260	10	TOP	FIBER	0									

Section 16E - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR E

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?		Yes		Yes			
ANTENNA MAKE - MODEL							
ANTENNA VENDOR							
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH							
MAGNETIC DECLINATION							
RADIATION CENTER (feet)							
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT							
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	Sector B & E will share the same LTE B14 radio.						
Local Market Note 3	1x6601 / 1x5216 / 2xMUO3 / 1x6630 + 6675/ 1x6601 / 1x5216 / 1xMUO3/6651+Xcede						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 12			CTCN002035_N066E_1	CTCN002035_N066E_1		5G AWS	BSA-M65R-BUU-H6-K	15.4	150	3	TOP	FIBER	0						5070.2572			
ANTENNA POSITION 4	PORT 1		61166.E.700.4G.1	CTL02935_7E_1	CTL02935_7E_1		LTE 700	BSA-M65R-BUU-H6-K	14.28	150	2	TOP	FIBER	0						1475.71			
	PORT 5		61166.E.850.5G.1	CTCN002035_N005E_1	CTCN002035_N005E_1		5G 850	BSA-M65R-BUU-H6-K	15.4	150	2	TOP	FIBER	0						1000			
	PORT 11		61166.E.1900.4G.4	CTCN002035_N002E_1	CTCN002035_N002E_1		5G 1900	BSA-M65R-BUU-H6-K	16	150	2	TOP	FIBER	0						4842.06			

Section 16.5A - SCOPING TOWER CONFIGURATION - SECTOR A (OR OMNI)

Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		QD6616-7	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU6DA			
ANTENNA VENDOR		Quintel	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		72X22X9.6	30.4X15.9X8.1	71.2X21X7.8			
ANTENNA WEIGHT		59.1	81.6	60.2			
AZIMUTH		20	20	20			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		61	61	61			
ANTENNA TIP HEIGHT		64	64	64			
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built-In	Internal			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)		DC9-48-60-24-PC16-EV					
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		4478 B14		4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		RRUS-32 B2					
RRH - AWS band (QTY/MODEL)		4426 B66					
RRH - WCS band (QTY/MODEL)				RRUS-32 B30			
Additional RRH #1 - any band (QTY/MODEL)		RRUS-E2 B29	integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	Sector B & E will share the same LTE B14 radio.						
Local Market Note 3	1x6601 / 1x5216 / 2xMUO3 / 1x6630 + 6675/ 1x6601 / 1x5216 / 1xMUO3/6651+Xcede						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	61166.A.700.4G.2	61166.A.700.4G_E	CTL02035_7A_2_E	CTL02035_7A_2_E		LTE 700	QD6616-7	13.5	20	3	TOP	FIBER	0						1475.7065			
	PORT 2	61166.A.700.4G.6	61166.A.700.4G.5	CTL02035_7A_3_F	CTL02035_7A_3_F		LTE 700	QD6616-7	15.4	20	5	TOP	FIBER	0						2951.413			
	PORT 3	61166.A.1900.4G.1	61166.A.1900.4G.1	CTL08035_9A_1	CTL08035_9A_1		LTE 1900	QD6616-7	15.9	20	3	TOP	FIBER	0						4842.058			
	PORT 4	61166.A.1900.4G.8	61166.A.1900.4G.4	CTL08035_9A_2	CTL08035_9A_2		LTE 1900	QD6616-7	15.9	20	3	TOP	FIBER	0						4842.058			
	PORT 8	61166.A.AWS.4G.6	61166.A.AWS.4G.4	CTL08035_2A_2	CTL08035_2A_2		LTE AWS	QD6616-7	15.4	20	3	TOP	FIBER	0						5070.2572			
	PORT 11	61166.A.1900.5G.1	61166.A.1900.4G.4	CTCN002035_N002A_1	CTCN002035_N002A_1		5G 1900	QD6616-7	15.9	20	3	TOP	FIBER	0						4842.058			
	PORT 12	61166.A.AWS.5G.1	61166.A.AWS.4G.4	CTCN002035_N066A_1	CTCN002035_N066A_1		5G AWS	QD6616-7	15.4	20	3	TOP	FIBER	0						5070.2572			
ANTENNA POSITION 3	PORT 1	61166.A.CBAND.5G.tmp1		CTCN032035_N077A_1	CTCN032035_N077A_1		5G CBAND	N77D+AIR6419 N77G STACKED			0	Integrated	FIBER	0						1475.7065			
	PORT 2	61166.A.CBAND.5G.tmp2		CTCN032035_N077A_2	CTCN032035_N077A_2		5G DoD	N77D+AIR6419 N77G STACKED			0	Integrated	FIBER	0						1475.7065			
ANTENNA POSITION 4	PORT 1	61166.A.700.4G.1	61166.A.700.4G.1	CTL02035_7A_1	CTL02035_7A_1		LTE 700	OPA65R-BU6DA	14.11	20	5	TOP	FIBER	0						1475.7065			
	PORT 5	61166.A.850.5G.1	61166.A.850.5G.1	CTCN002035_N005A_1	CTCN002035_N005A_1		5G 850	OPA65R-BU6DA	15.4	20	5	TOP	FIBER	0						1000			
	PORT 7	61166.A.WCS.4G.1	61166.A.WCS.4G.1	CTL02035_3A_1	CTL02035_3A_1		LTE WCS	OPA65R-BU6DA	16.7	20	3	TOP	FIBER	0						1285.2866			

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	BSA-M65R-BUU-H6-K	BSA-M65R-BUU-H6-K	AIR6449 B77D+AIR6419 B77G STACKED	BSA-M65R-BUU-H6-K			
ANTENNA VENDOR	CCI	CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)	72X28.5X9.7	72X28.5X9.7	30.4X15.9X8.1	72X28.5X9.7			
ANTENNA WEIGHT	101	101	81.6	101			
AZIMUTH	150	150	150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	61	61	55	61			
ANTENNA TIP HEIGHT	64	64	57	64			
MECHANICAL DOWNTILT	0	0	0	0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Internal	Internal	Built-in	Internal			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)	RRH CONTROLLED	RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)	1 DC6-48-60-0-8C-EC	1 DC9-48-60-24-PC16-EV					
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1 RRUS-E2 B29	1 4478 B14		1 4449 B5/B12 with another band			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)				1 RRUS-32 B2			
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)	1 RRUS-32 B30						
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	Sector B & E will share the same LTE B14 radio. AIR antennas will be mounted below pos 1 & 2 antennas due to space constrains only on Beta sector.						
Local Market Note 3	1x6601 / 1x5216 / 2x4MU03 / 1x6630 + 6675/ 1x6601 / 1x5216 / 1x4MU03/6651+Xcede						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1	61166.B.700.4G.2	61166.B.700.4G.4	CTL02035_7B_2E	CTL02035_7B_2E		LTE 700	BSA-M65R-BUU-H6-K	13.5	150	3	TOP	FIBER	0						1475.7065			
	PORT 3	61166.B.WCS.4G.1	61166.B.WCS.4G.1	CTL02035_3B_1	CTL02035_3B_1		LTE WCS	BSA-M65R-BUU-H6-K	16.7	150	3	TOP	FIBER	0						1285.2866			
ANTENNA POSITION 2	PORT 7	61166.B.700.4G.5	61166.B.700.4G.F	CTL02035_7B_3F	CTL02035_7B_3F		LTE 700	BSA-M65R-BUU-H6-K	15.3	150	2	TOP	FIBER	0						2951.413			
	PORT 8	61166.B.AWS.4G.6	61166.B.AWS.4G.4	CTL08035_2B_2	CTL08035_2B_2		LTE AWS	BSA-M65R-BUU-H6-K	15.4	150	3	TOP	FIBER	0						5070.2572			
	PORT 12	61166.B.AWS.5G.1	61166.B.AWS.4G.4	CTCN002035_N066B_1	CTCN002035_N066B_1		5G AWS	BSA-M65R-BUU-H6-K	15.4	150	3	TOP	FIBER	0						5070.2572			
ANTENNA POSITION 3	PORT 1	61166.B.CBAND.5G.tmp1		CTCN032035_N077B_1	CTCN032035_N077B_1		5G CBAND	N77D+AIR6419 N77G STACKED				Integrated	FIBER	0						1475.7065			
	PORT 2	61166.B.CBAND.5G.tmp2		CTCN032035_N077B_2	CTCN032035_N077B_2		5G DoD	N77D+AIR6419 N77G STACKED				Integrated	FIBER	0						1475.7065			
ANTENNA POSITION 4	PORT 1	61166.B.700.4G.1	61166.B.700.4G.1	CTL02035_7B_1	CTL02035_7B_1		LTE 700	BSA-M65R-BUU-H6-K	14.28	150	2	TOP	FIBER	0						1475.7065			
	PORT 3	61166.B.1900.4G.7	61166.B.1900.4G.1	CTL08035_9B_1	CTL08035_9B_1		LTE 1900	BSA-M65R-BUU-H6-K	16	150	2	TOP	FIBER	0						4842.058			
	PORT 4	61166.B.1900.4G.8	61166.B.1900.4G.4	CTL08035_9B_2	CTL08035_9B_2		LTE 1900	BSA-M65R-BUU-H6-K	16	150	2	TOP	FIBER	0						4842.058			
	PORT 5	61166.B.850.5G.1	61166.B.850.5G.1	CTCN002035_N005B_1	CTCN002035_N005B_1		5G 850	BSA-M65R-BUU-H6-K	15.4	150	2	TOP	FIBER	0						1000			
	PORT 11	61166.B.1900.5G.1	61166.B.1900.4G.4	CTCN002035_N002B_1	CTCN002035_N002B_1		5G 1900	BSA-M65R-BUU-H6-K	16	150	2	TOP	FIBER	0						4842.058			

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		QD6616-7	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU6DA			
ANTENNA VENDOR		Quintel	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		72X22X9.6	30.4X15.9X8.1	71.2X21X7.8			
ANTENNA WEIGHT		59.1	81.6	60.2			
AZIMUTH		260	260	260			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		61	61	61			
ANTENNA TIP HEIGHT		64	64	64			
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built-in	Internal			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)		DC9-48-60-24-PC16-EV					
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4478 B14		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		1 RRUS-32 B2					
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)				1 RRUS-32 B30			
Additional RRH #1 - any band (QTY/MODEL)		1 RRUS-E2 B29	1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	Sector B & E will share the same LTE B14 radio.						
Local Market Note 3	1x6601 / 1x5216 / 2x0MU03 / 1x6630 + 6675/ 1x6601 / 1x5216 / 1x0MU03/6651+Xcede						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	61166.C.700.4G.2	61166.C.700.4G.4	CTL02035_7C_2_E	CTL02035_7C_2_E		LTE 700	QD6616-7	13.5	260	3	TOP	FIBER	0						1475.7065			
	PORT 2	61166.C.700.4G.5	61166.C.700.4G.3	CTL02035_7C_3_F	CTL02035_7C_3_F		LTE 700	QD6616-7	15.2	260	10	TOP	FIBER	0						2951.413			
	PORT 3	61166.C.1900.4G.7	61166.C.1900.4G.1	CTL08035_9C_1	CTL08035_9C_1		LTE 1900	QD6616-7	16	260	2	TOP	FIBER	0						4842.058			
	PORT 4	61166.C.1900.4G.8	61166.C.1900.4G.4	CTL08035_9C_2	CTL08035_9C_2		LTE 1900	QD6616-7	16	260	2	TOP	FIBER	0						4842.058			
	PORT 8	61166.C.AWS.4G.5	61166.C.AWS.4G.4	CTL08035_2C_2	CTL08035_2C_2		LTE AWS	QD6616-7	18.5	260	6	TOP	FIBER	0						5070.2572			
	PORT 11	61166.C.1900.5G.1	61166.C.1900.4G.4	CTCN002035_N002C_1	CTCN002035_N002C_1		5G 1900	QD6616-7	16	260	2	TOP	FIBER	0						4842.058			
	PORT 12	61166.C.AWS.5G.1	61166.C.AWS.4G.4	CTCN002035_N066C_1	CTCN002035_N066C_1		5G AWS	QD6616-7	18.5	260	6	TOP	FIBER	0						5070.2572			
ANTENNA POSITION 3	PORT 1	61166.C.CBAND.5G.tmp1		CTCN032035_N077C_1	CTCN032035_N077C_1		5G CBAND	N77D+AIR6419 N77G STACKED			0	Integrated	FIBER	0						1475.7065			
	PORT 2	61166.C.CBAND.5G.tmp2		CTCN032035_N077C_2	CTCN032035_N077C_2		5G DoD	N77D+AIR6419 N77G STACKED			0	Integrated	FIBER	0						1475.7065			
ANTENNA POSITION 4	PORT 1	61166.C.700.4G.1	61166.C.700.4G.1	CTL02035_7C_1	CTL02035_7C_1		LTE 700	OPA65R-BU6DA	13.9	260	10	TOP	FIBER	0						1475.7065			
	PORT 5	61166.C.850.5G.1	61166.C.850.5G.1	CTCN002035_N005C_1	CTCN002035_N005C_1		5G 850	OPA65R-BU6DA	15.4	260	10	TOP	FIBER	0						1000			
	PORT 7	61166.C.WCS.4G.1	61166.C.WCS.4G.1	CTL02035_3C_1	CTL02035_3C_1		LTE WCS	OPA65R-BU6DA	16.8	260	2	TOP	FIBER	0						1285.2866			

Section 17E - FINAL TOWER CONFIGURATION - SECTOR E

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	BSA-M65R-BUU-H6-K	BSA-M65R-BUU-H6-K		BSA-M65R-BUU-H6-K			
ANTENNA VENDOR	CCI	CCI		CCI			
ANTENNA SIZE (H x W x D)	72X28.5X9.7	72X28.5X9.7		72X28.5X9.7			
ANTENNA WEIGHT	101	101		101			
AZIMUTH	150	150		150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	61	61		61			
ANTENNA TIP HEIGHT	64	64		64			
MECHANICAL DOWNTILT	0	0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Internal	Internal		Internal			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)	RRH CONTROLLED	RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1 RRUS-E2 B29	with another sector		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)				1 RRUS-32 B2			
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)	1 RRUS-32 B30						
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	Sector B & E will share the same LTE B14 radio.						
Local Market Note 3	1x6601 / 1x5216 / 2x0MU03 / 1x6630 + 6675/ 1x6601 / 1x5216 / 1x0MU03/6651+Xcede						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1	61166.E.700.4G.tmp2	61166.E.700.4G.4	CTL02035_7E_2_E	CTL02035_7E_2_E		LTE 700	BSA-M65R-BUU-H6-K	13.5	150	3	TOP	FIBER	0						1475.7065			
	PORT 3	61166.E.WCS.4G.tmp1	61166.E.WCS.4G.1	CTL02035_3E_1	CTL02035_3E_1		LTE WCS	BSA-M65R-BUU-H6-K	16.7	150	3	TOP	FIBER	0						1285.2866			
ANTENNA POSITION 2	PORT 7	61166.E.700.4G.5	61166.E.700.4G.5	CTL02035_7E_3_F	CTL02035_7E_3_F		LTE 700	BSA-M65R-BUU-H6-K	15.3	150	2	TOP	FIBER	0						2951.413			
	PORT 8	61166.E.AWS.4G.tmp6	61166.E.AWS.4G.4	CTL08035_2E_2	CTL08035_2E_2		LTE AWS	BSA-M65R-BUU-H6-K	15.4	150	3	TOP	FIBER	0						5070.2572			
	PORT 12	61166.E.AWS.5G.1	61166.E.AWS.4G.4	CTCN002035_N066E_1	CTCN002035_N066E_1		5G AWS	BSA-M65R-BUU-H6-K	15.4	150	3	TOP	FIBER	0						5070.2572			
ANTENNA POSITION 4	PORT 1	61166.E.700.4G.tmp1	61166.E.700.4G.1	CTL02035_7E_1	CTL02035_7E_1		LTE 700	BSA-M65R-BUU-H6-K	14.28	150	2	TOP	FIBER	0						1475.7065			
	PORT 3	61166.E.1900.4G.tmp7	61166.E.1900.4G.1	CTL08035_9E_1	CTL08035_9E_1		LTE 1900	BSA-M65R-BUU-H6-K	16	150	2	TOP	FIBER	0						4842.058			
	PORT 4	61166.E.1900.4G.tmp8	61166.E.1900.4G.4	CTL08035_9E_2	CTL08035_9E_2		LTE 1900	BSA-M65R-BUU-H6-K	16	150	2	TOP	FIBER	0						4842.058			
	PORT 5	61166.E.850.5G.1	61166.E.850.5G.1	CTCN002035_N005E_1	CTCN002035_N005E_1		5G 850	BSA-M65R-BUU-H6-K	15.4	150	2	TOP	FIBER	0						1000			
	PORT 11	61166.E.1900.5G.tmp7	61166.E.1900.4G.4	CTCN002035_N002E_1	CTCN002035_N002E_1		5G 1900	BSA-M65R-BUU-H6-K	16	150	2	TOP	FIBER	0						4842.058			

November 3, 2021
February 15, 2022 (Rev.1)
August 4, 2023 (Rev.2)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:	AT&T Site Number:	CT2035 (C-BAND)
	FA Number:	10035036
	PACE Number:	MRCTB062564
	PT Number:	2051A149J4
	TEP Project Number:	317118.870227
	AT&T Site Name:	HAMDEN
	Site Address:	975 Mix Avenue Hamden, CT 06514

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by SAI Communications to perform a mount analysis on the proposed AT&T antenna/RRH mount to determine its capability of supporting the following additional loading:

- (3) BSA-M65R-BUU-H6-K Antennas (72.0"x28.5"x9.7" – Wt. = 101 lbs. /each)
- (3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (4) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (4) 4426 B66 RRH's (14.9"x13.2"x5.8" – Wt. = 49 lbs. /each)
- (4) RRUS-E2 B29 RRH's (20.4"x18.5"x7.5" – Wt. = 53 lbs. /each)
- (4) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (1) DC6-48-60-0-0-8C-EC Surge Arrestor (31.4"x10.2"Ø – Wt. = 29 lbs. /each)
- **(2) QD6616-7 Antennas (72.0"x22.0"x9.6" – Wt. = 130 lbs. /each)**
- **(3) AIR6419 Antennas (31.2"x16.1"x9.1" – Wt. = 66 lbs. /each)**
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. 84 lbs. /each)**
- **(2) OPA65R-BU6DA Antennas (71.2.0"x20.7"x7.7"– Wt. = 64 lbs. /each)**
- **(4) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**
- **(3) DC9-48-60-24-PC16-EV Surge Arrestors (19.0"x15.9"x8.2" – Wt. = 35 lbs. /each)**

**Proposed equipment shown in bold*

Mount fabrication drawings prepared by SitePro1 P/N RMQLP-4120-H10, dated October 18, 2019 were used to perform this analysis. TEP NE conducted a ground audit of the existing AT&T antenna mounts on April 8, 2021.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2021 with 2022 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix P of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.06 in was used for this analysis.
- TEP NE considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- TEP NE considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.202 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.054.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 1.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mount will be secured to the existing monopole with ring mounts and threaded rods. TEP NE considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the Proposed SitePro1 P/N RMQLP-4120-H10 mount **IS CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed (C-BAND) Mount Rating	36	LC3	41%	**PASS**

Reference Documents:

- Mount fabrication drawings prepared by SitePro1 P/N RMQLP-4120-H10, dated October 18, 2019.

This determination was based on the following limitations and assumptions:

1. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The proposed mount will be been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mount must be tightened and re-plumbed prior to the installation of new appurtenances.
6. TEP NE performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
TEP Northeast

Michael Cabral
Director

Daniel P. Hamm, PE
Vice President

FIELD PHOTOS:
**Note: Existing mount to be removed and replaced.*






Wind & Ice
Calculations

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\,(z/z_g)^{2/\alpha}$

z=	61.67	(ft)
z_g=	1200	(ft)
α=	7.0	

K_z= 0.861

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c K_t/K_h)]^2$ $K_h = e^{(f*z/H)}$

K_{zt}= 1

(If Category 1 then K_{zt}=1.0)

Category= **1**

K_h=	1	
K_c=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	61.67	
z_s=	185	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.99	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i = 1.00 in
Importance Factor = I= 1.00 (from Table 2-3)
K_{iz} = 1.06 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.06 in

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	64	G_h=	0.85
2.6.9.2 Guyed Masts		G_h=	0.85
2.6.9.3 Pole Structures		G_h=	1.1
2.6.9 Appurtenances		G_h=	1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

q_z= $0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	0.861	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**29.94**	K_e=	0.99	(from 2.6.8)
$q_{z\ (ice)}$=	**5.20**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**1.87**	V_{max}=	120	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM Checked By: MSC

Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 1.06 in | **Angle =** 0 (deg) | **Equivalent Angle =** 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	2.53	1.20	513	98	32
QD6616-7 Antenna	72.0	22.0	9.6	11.00	3.27	1.23	407	80	25
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.94	1.20	125	26	8
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	121	26	8
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	381	75	24
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	50	12	3
RRUS-32 RRH (Shielded)	27.2	3.5	12.1	0.66	7.77	1.43	28	8	2
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.72	1.21	38	9	2
RRUS-E2 B29 RRH (Shielded)	20.4	3.8	18.5	0.53	5.44	1.33	21	6	1
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	37	9	2
4478 B14 RRH (Shielded)	18.1	4.2	13.4	0.52	4.36	1.28	20	6	1
4426 B66 RRH	14.9	13.2	5.8	1.37	1.13	1.20	49	11	3
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	2.57	1.20	22	6	1
4426 B66 RRH (Shielded)	14.9	2.9	13.2	0.30	5.14	1.32	12	4	1
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	42	10	3
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	3.81	1.26	22	6	1
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.19	1.20	75	17	5
DC9 Surge Arrestor (Side)	19.0	8.2	15.9	1.08	2.32	1.20	39	9	2
DC6 Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	47	10	3
PL 6x3/8	0.4	12.0	-	0.03	0.03	2.00	2		
L2-1/2x2-1/2 Angle	2.5	12.0	-	0.21	0.21	2.00	12		
L2x2 Angle	2.0	12.0	-	0.17	0.17	2.00	10		
HSS 4x4	4.0	12.0	-	0.33	0.33	1.25	12		
2-1/2" Pipe	2.9	12.0	-	0.24	0.24	1.20	9		
3" Pipe	3.5	12.0	-	0.29	0.29	1.20	10		

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM Checked By: MSC

WIND LOADS

Angle = 30 (deg) | Ice Thickness = 1.06 in. | Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	4.85	2.53	7.42	1.20	1.41	513	205	436
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	407	204	356
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	125	73	112
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	121	82	112
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	381	168	327
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	58
RRUS-32 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	28	82	42
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	38	94	52
RRUS-E2 B29 RRH (Shielded)	20.4	3.8	18.5	0.53	2.62	5.44	1.10	1.33	1.20	21	94	39
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	37	61	43
4478 B14 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	20	61	30
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	49	22	42
4426 B66 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	25	49	31
4426 B66 RRH (Shielded)	14.9	3.3	13.2	0.34	1.37	4.52	1.13	1.29	1.20	13	49	22
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	42	59	46
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	22	59	31
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.08	1.19	2.32	1.20	1.20	75	39	66
DC9 Surge Arrestor (Side)	19.0	8.0	15.9	1.05	2.10	2.39	1.19	1.20	1.20	38	75	47

WIND LOADS WITH ICE:

BSA-M65R-BUU-H6-K Antenna	74.1	30.6	11.8	15.77	6.09	2.42	6.27	1.20	1.37	98	43	85
QD6616-7 Antenna	74.1	24.1	11.7	12.42	6.04	3.07	6.32	1.23	1.37	79	43	70
AIR6419 Antenna	33.3	18.2	11.2	4.22	2.60	1.83	2.97	1.20	1.22	26	16	24
AIR6449 Antenna	32.7	18.0	12.7	4.10	2.89	1.82	2.57	1.20	1.20	26	18	24
OPA65R-BU6DA Antenna	73.3	22.8	9.8	11.63	5.01	3.21	7.46	1.23	1.42	74	37	65
RRUS-32 RRH (Side)	29.3	9.1	14.2	1.86	2.90	3.21	2.06	1.23	1.20	12	18	13
RRUS-32 RRH (Shielded)	29.3	4.6	14.2	0.93	2.90	6.43	2.06	1.37	1.20	7	18	10
RRUS-E2 B29 RRH (Side)	22.5	9.6	20.6	1.51	3.23	2.34	1.09	1.20	1.20	9	20	12
RRUS-E2 B29 RRH (Shielded)	22.5	4.8	20.6	0.75	3.23	4.68	1.09	1.30	1.20	5	20	9
4478 B14 RRH (Side)	20.2	10.4	15.5	1.47	2.18	1.94	1.30	1.20	1.20	9	14	10
4478 B14 RRH (Shielded)	20.2	5.2	15.5	0.73	2.18	3.88	1.30	1.26	1.20	5	14	7
4426 B66 RRH	17.0	15.3	7.9	1.81	0.94	1.11	2.15	1.20	1.20	11	6	10
4426 B66 RRH (Side)	17.0	7.7	15.3	0.91	1.81	2.22	1.11	1.20	1.20	6	11	7
4426 B66 RRH (Shielded)	17.0	3.8	15.3	0.45	1.81	4.44	1.11	1.29	1.20	3	11	5
4449 B5/B12 RRH (Side)	20.0	11.5	15.3	1.60	2.13	1.74	1.31	1.20	1.20	10	13	11
4449 B5/B12 RRH (Shielded)	20.0	5.8	15.3	0.80	2.13	3.47	1.31	1.24	1.20	5	13	7
DC9 Surge Arrestor	21.1	18.0	10.3	2.65	1.52	1.17	2.05	1.20	1.20	17	9	15
DC9 Surge Arrestor (Side)	21.1	9.0	18.0	1.32	2.65	2.34	1.17	1.20	1.20	8	17	10

WIND LOADS AT 30 MPH:

BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	4.85	2.53	7.42	1.20	1.41	32	13	27
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	25	13	22
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	8	5	7
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	8	5	7
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	24	11	20
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	4
RRUS-32 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	2	5	3
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	2	6	3
RRUS-E2 B29 RRH (Shielded)	20.4	3.8	18.5	0.53	2.62	5.44	1.10	1.33	1.20	1	6	2
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4478 B14 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	1	4	2
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	3	1	3
4426 B66 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	3	2
4426 B66 RRH (Shielded)	14.9	3.3	13.2	0.34	1.37	4.52	1.13	1.29	1.20	1	3	1
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	3
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	1	4	2
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.08	1.19	2.32	1.20	1.20	5	2	4
DC9 Surge Arrestor (Side)	19.0	8.0	15.9	1.05	2.10	2.39	1.19	1.20	1.20	2	5	3

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM Checked By: MSC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.06 in. | Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	4.85	2.53	7.42	1.20	1.41	513	205	282
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	407	204	254
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	125	73	86
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	121	82	92
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	381	168	221
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	74
RRUS-32 RRH (Shielded)	27.2	5.3	12.1	0.99	2.29	5.18	2.25	1.32	1.20	39	82	71
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	38	94	80
RRUS-E2 B29 RRH (Shielded)	20.4	5.6	18.5	0.80	2.62	3.63	1.10	1.25	1.20	30	94	78
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	37	61	55
4478 B14 RRH (Shielded)	18.1	6.2	13.4	0.78	1.68	2.91	1.35	1.22	1.20	29	61	53
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	49	22	28
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	22	49	42
4426 B66 RRH (Shielded)	14.9	2.9	13.2	0.30	1.37	5.14	1.13	1.32	1.20	12	49	40
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	42	59	55
4449 B5/B12 RRH (Shielded)	17.9	7.1	13.2	0.88	1.64	2.54	1.36	1.20	1.20	32	59	52
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.08	1.19	2.32	1.20	1.20	75	39	48
DC9 Surge Arrestor (Side)	19.0	11.9	15.9	1.57	2.10	1.59	1.19	1.20	1.20	57	75	71

WIND LOADS WITH ICE:

BSA-M65R-BUU-H6-K Antenna	74.1	30.6	11.8	15.77	6.09	2.42	6.27	1.20	1.37	98	43	57
QD6616-7 Antenna	74.1	24.1	11.7	12.42	6.04	3.07	6.32	1.23	1.37	79	43	52
AIR6419 Antenna	33.3	18.2	11.2	4.22	2.60	1.83	2.97	1.20	1.22	26	16	19
AIR6449 Antenna	32.7	18.0	12.7	4.10	2.89	1.82	2.57	1.20	1.20	26	18	20
OPA65R-BU6DA Antenna	73.3	22.8	9.8	11.63	5.01	3.21	7.46	1.23	1.42	74	37	46
RRUS-32 RRH (Side)	29.3	9.1	14.2	1.86	2.90	3.21	2.06	1.23	1.20	12	18	17
RRUS-32 RRH (Shielded)	29.3	6.8	14.2	1.39	2.90	4.28	2.06	1.28	1.20	9	18	16
RRUS-E2 B29 RRH (Side)	22.5	9.6	20.6	1.51	3.23	2.34	1.09	1.20	1.20	9	20	17
RRUS-E2 B29 RRH (Shielded)	22.5	7.2	20.6	1.13	3.23	3.12	1.09	1.23	1.20	7	20	17
4478 B14 RRH (Side)	20.2	10.4	15.5	1.47	2.18	1.94	1.30	1.20	1.20	9	14	12
4478 B14 RRH (Shielded)	20.2	7.8	15.5	1.10	2.18	2.59	1.30	1.20	1.20	7	14	12
4426 B66 RRH	17.0	15.3	7.9	1.81	0.94	1.11	2.15	1.20	1.20	11	6	7
4426 B66 RRH (Side)	17.0	7.9	15.3	0.94	1.81	2.15	1.11	1.20	1.20	6	11	10
4426 B66 RRH (Shielded)	17.0	5.0	15.3	0.59	1.81	3.39	1.11	1.24	1.20	4	11	9
4449 B5/B12 RRH (Side)	20.0	11.5	15.3	1.60	2.13	1.74	1.31	1.20	1.20	10	13	12
4449 B5/B12 RRH (Shielded)	20.0	8.6	15.3	1.20	2.13	2.32	1.31	1.20	1.20	8	13	12
DC9 Surge Arrestor	21.1	18.0	10.3	2.65	1.52	1.17	2.05	1.20	1.20	17	9	11
DC9 Surge Arrestor (Side)	21.1	13.5	18.0	1.98	2.65	1.56	1.17	1.20	1.20	12	17	15

WIND LOADS AT 30 MPH:

BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	4.85	2.53	7.42	1.20	1.41	32	13	18
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	25	13	16
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	8	5	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	8	5	6
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	24	11	14
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	5
RRUS-32 RRH (Shielded)	27.2	5.3	12.1	0.99	2.29	5.18	2.25	1.32	1.20	2	5	4
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	2	6	5
RRUS-E2 B29 RRH (Shielded)	20.4	5.6	18.5	0.80	2.62	3.63	1.10	1.25	1.20	2	6	5
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4478 B14 RRH (Shielded)	18.1	6.2	13.4	0.78	1.68	2.91	1.35	1.22	1.20	2	4	3
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	3	1	2
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	1	3	3
4426 B66 RRH (Shielded)	14.9	2.9	13.2	0.30	1.37	5.14	1.13	1.32	1.20	1	3	2
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	3
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	1	4	3
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.08	1.19	2.32	1.20	1.20	5	2	3
DC9 Surge Arrestor (Side)	19.0	8.2	15.9	1.08	2.10	2.32	1.19	1.20	1.20	2	5	4

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM Checked By: MSC

WIND LOADS

Angle = 90 (deg) | Ice Thickness = 1.06 in. | Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	4.85	2.53	7.42	1.20	1.41	513	205	205
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	407	204	204
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	125	73	73
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	121	82	82
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	381	168	168
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	82
RRUS-32 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	28	82	82
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	38	94	94
RRUS-E2 B29 RRH (Shielded)	20.4	3.8	18.5	0.53	2.62	5.44	1.10	1.33	1.20	21	94	94
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	37	61	61
4478 B14 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	20	61	61
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	49	22	22
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	22	49	49
4426 B66 RRH (Shielded)	14.9	2.9	13.2	0.30	1.37	5.14	1.13	1.32	1.20	12	49	49
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	42	59	59
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	22	59	59
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.08	1.19	2.32	1.20	1.20	75	39	39
DC9 Surge Arrestor (Side)	19.0	8.2	15.9	1.08	2.10	2.32	1.19	1.20	1.20	39	75	75

WIND LOADS WITH ICE:

BSA-M65R-BUU-H6-K Antenna	74.1	30.6	11.8	15.77	6.09	2.42	6.27	1.20	1.37	98	43	43
QD6616-7 Antenna	74.1	24.1	11.7	12.42	6.04	3.07	6.32	1.23	1.37	79	43	43
AIR6419 Antenna	33.3	18.2	11.2	4.22	2.60	1.83	2.97	1.20	1.22	26	16	16
AIR6449 Antenna	32.7	18.0	12.7	4.10	2.89	1.82	2.57	1.20	1.20	26	18	18
OPA65R-BU6DA Antenna	73.3	22.8	9.8	11.63	5.01	3.21	7.46	1.23	1.42	74	37	37
RRUS-32 RRH (Side)	29.3	9.1	14.2	1.86	2.90	3.21	2.06	1.23	1.20	12	18	18
RRUS-32 RRH (Shielded)	29.3	5.6	14.2	1.15	2.90	5.21	2.06	1.32	1.20	8	18	18
RRUS-E2 B29 RRH (Side)	22.5	9.6	20.6	1.51	3.23	2.34	1.09	1.20	1.20	9	20	20
RRUS-E2 B29 RRH (Shielded)	22.5	5.9	20.6	0.92	3.23	3.83	1.09	1.26	1.20	6	20	20
4478 B14 RRH (Side)	20.2	10.4	15.5	1.47	2.18	1.94	1.30	1.20	1.20	9	14	14
4478 B14 RRH (Shielded)	20.2	6.3	15.5	0.88	2.18	3.22	1.30	1.23	1.20	6	14	14
4426 B66 RRH	17.0	15.3	7.9	1.81	0.94	1.11	2.15	1.20	1.20	11	6	6
4426 B66 RRH (Side)	17.0	7.9	15.3	0.94	1.81	2.15	1.11	1.20	1.20	6	11	11
4426 B66 RRH (Shielded)	17.0	5.0	15.3	0.59	1.81	3.39	1.11	1.24	1.20	4	11	11
4449 B5/B12 RRH (Side)	20.0	11.5	15.3	1.60	2.13	1.74	1.31	1.20	1.20	10	13	13
4449 B5/B12 RRH (Shielded)	20.0	6.8	15.3	0.95	2.13	2.93	1.31	1.22	1.20	6	13	13
DC9 Surge Arrestor	21.1	18.0	10.3	2.65	1.52	1.17	2.05	1.20	1.20	17	9	9
DC9 Surge Arrestor (Side)	21.1	10.3	18.0	1.52	2.65	2.05	1.17	1.20	1.20	9	17	17

WIND LOADS AT 30 MPH:

BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	4.85	2.53	7.42	1.20	1.41	32	13	13
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	25	13	13
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	8	5	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	8	5	5
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	24	11	11
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	5
RRUS-32 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	2	5	5
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	2	6	6
RRUS-E2 B29 RRH (Shielded)	20.4	3.8	18.5	0.53	2.62	5.44	1.10	1.33	1.20	1	6	6
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	4
4478 B14 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	1	4	4
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	3	1	1
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	1	3	3
4426 B66 RRH (Shielded)	14.9	2.9	13.2	0.30	1.37	5.14	1.13	1.32	1.20	1	3	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	4
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	1	4	4
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.08	1.19	2.32	1.20	1.20	5	2	2
DC9 Surge Arrestor (Side)	19.0	8.2	15.9	1.08	2.10	2.32	1.19	1.20	1.20	2	5	5

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM Checked By: MSC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.06	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	4.85	2.53	7.42	1.20	1.41	513	205	282
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	407	204	254
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	125	73	86
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	121	82	92
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	381	168	221
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	74
RRUS-32 RRH (Shielded)	27.2	5.3	12.1	0.99	2.29	5.18	2.25	1.32	1.20	39	82	71
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	38	94	80
RRUS-E2 B29 RRH (Shielded)	20.4	5.6	18.5	0.80	2.62	3.63	1.10	1.25	1.20	30	94	78
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	37	61	55
4478 B14 RRH (Shielded)	18.1	6.2	13.4	0.78	1.68	2.91	1.35	1.22	1.20	29	61	53
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	49	22	28
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	22	49	42
4426 B66 RRH (Shielded)	14.9	2.9	13.2	0.30	1.37	5.14	1.13	1.32	1.20	12	49	40
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	42	59	55
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	22	59	50
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.08	1.19	2.32	1.20	1.20	75	39	48
DC9 Surge Arrestor (Side)	19.0	8.2	15.9	1.08	2.10	2.32	1.19	1.20	1.20	39	75	66

WIND LOADS WITH ICE:

BSA-M65R-BUU-H6-K Antenna	74.1	30.6	11.8	15.77	6.09	2.42	6.27	1.20	1.37	98	43	57
QD6616-7 Antenna	74.1	24.1	11.7	12.42	6.04	3.07	6.32	1.23	1.37	79	43	52
AIR6419 Antenna	33.3	18.2	11.2	4.22	2.60	1.83	2.97	1.20	1.22	26	16	19
AIR6449 Antenna	32.7	18.0	12.7	4.10	2.89	1.82	2.57	1.20	1.20	26	18	20
OPA65R-BU6DA Antenna	73.3	22.8	9.8	11.63	5.01	3.21	7.46	1.23	1.42	74	37	46
RRUS-32 RRH (Side)	29.3	9.1	14.2	1.86	2.90	3.21	2.06	1.23	1.20	12	18	17
RRUS-32 RRH (Shielded)	29.3	6.8	14.2	1.39	2.90	4.28	2.06	1.28	1.20	9	18	16
RRUS-E2 B29 RRH (Side)	22.5	9.6	20.6	1.51	3.23	2.34	1.09	1.20	1.20	9	20	17
RRUS-E2 B29 RRH (Shielded)	22.5	7.2	20.6	1.13	3.23	3.12	1.09	1.23	1.20	7	20	17
4478 B14 RRH (Side)	20.2	10.4	15.5	1.47	2.18	1.94	1.30	1.20	1.20	9	14	12
4478 B14 RRH (Shielded)	20.2	7.8	15.5	1.10	2.18	2.59	1.30	1.20	1.20	7	14	12
4426 B66 RRH	17.0	15.3	7.9	1.81	0.94	1.11	2.15	1.20	1.20	11	6	7
4426 B66 RRH (Side)	17.0	7.9	15.3	0.94	1.81	2.15	1.11	1.20	1.20	6	11	10
4426 B66 RRH (Shielded)	17.0	5.0	15.3	0.59	1.81	3.39	1.11	1.24	1.20	4	11	9
4449 B5/B12 RRH (Side)	20.0	11.5	15.3	1.60	2.13	1.74	1.31	1.20	1.20	10	13	12
4449 B5/B12 RRH (Shielded)	20.0	6.8	15.3	0.95	2.13	2.93	1.31	1.22	1.20	6	13	11
DC9 Surge Arrestor	21.1	18.0	10.3	2.65	1.52	1.17	2.05	1.20	1.20	17	9	11
DC9 Surge Arrestor (Side)	21.1	10.3	18.0	1.52	2.65	2.05	1.17	1.20	1.20	9	17	15

WIND LOADS AT 30 MPH:

BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	4.85	2.53	7.42	1.20	1.41	32	13	18
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	25	13	16
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	8	5	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	8	5	6
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	24	11	14
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	5
RRUS-32 RRH (Shielded)	27.2	5.3	12.1	0.99	2.29	5.18	2.25	1.32	1.20	2	5	4
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	2	6	5
RRUS-E2 B29 RRH (Shielded)	20.4	5.6	18.5	0.80	2.62	3.63	1.10	1.25	1.20	2	6	5
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4478 B14 RRH (Shielded)	18.1	6.2	13.4	0.78	1.68	2.91	1.35	1.22	1.20	2	4	3
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	3	1	2
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	1	3	3
4426 B66 RRH (Shielded)	14.9	2.9	13.2	0.30	1.37	5.14	1.13	1.32	1.20	1	3	2
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	3
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	1	4	3
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.08	1.19	2.32	1.20	1.20	5	2	3
DC9 Surge Arrestor (Side)	19.0	8.2	15.9	1.08	2.10	2.32	1.19	1.20	1.20	2	5	4

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM Checked By: MSC

WIND LOADS

Angle = 150 (deg) | Ice Thickness = 1.06 in. | Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	4.85	2.53	7.42	1.20	1.41	513	205	436
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	407	204	356
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	125	73	112
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	121	82	112
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	381	168	327
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	58
RRUS-32 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	28	82	42
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	38	94	52
RRUS-E2 B29 RRH (Shielded)	20.4	3.8	18.5	0.53	2.62	5.44	1.10	1.33	1.20	21	94	39
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	37	61	43
4478 B14 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	20	61	30
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	49	22	42
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	22	49	28
4426 B66 RRH (Shielded)	14.9	2.9	13.2	0.30	1.37	5.14	1.13	1.32	1.20	12	49	21
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	42	59	46
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	22	59	31
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.08	1.19	2.32	1.20	1.20	75	39	66
DC9 Surge Arrestor (Side)	19.0	8.2	15.9	1.08	2.10	2.32	1.19	1.20	1.20	39	75	48

WIND LOADS WITH ICE:

BSA-M65R-BUU-H6-K Antenna	74.1	30.6	11.8	15.77	6.09	2.42	6.27	1.20	1.37	98	43	85
QD6616-7 Antenna	74.1	24.1	11.7	12.42	6.04	3.07	6.32	1.23	1.37	79	43	70
AIR6419 Antenna	33.3	18.2	11.2	4.22	2.60	1.83	2.97	1.20	1.22	26	16	24
AIR6449 Antenna	32.7	18.0	12.7	4.10	2.89	1.82	2.57	1.20	1.20	26	18	24
OPA65R-BU6DA Antenna	73.3	22.8	9.8	11.63	5.01	3.21	7.46	1.23	1.42	74	37	65
RRUS-32 RRH (Side)	29.3	9.1	14.2	1.86	2.90	3.21	2.06	1.23	1.20	12	18	13
RRUS-32 RRH (Shielded)	29.3	4.6	14.2	0.93	2.90	6.43	2.06	1.37	1.20	7	18	10
RRUS-E2 B29 RRH (Side)	22.5	9.6	20.6	1.51	3.23	2.34	1.09	1.20	1.20	9	20	12
RRUS-E2 B29 RRH (Shielded)	22.5	4.8	20.6	0.75	3.23	4.68	1.09	1.30	1.20	5	20	9
4478 B14 RRH (Side)	20.2	10.4	15.5	1.47	2.18	1.94	1.30	1.20	1.20	9	14	10
4478 B14 RRH (Shielded)	20.2	5.2	15.5	0.73	2.18	3.88	1.30	1.26	1.20	5	14	7
4426 B66 RRH	17.0	15.3	7.9	1.81	0.94	1.11	2.15	1.20	1.20	11	6	10
4426 B66 RRH (Side)	17.0	7.9	15.3	0.94	1.81	2.15	1.11	1.20	1.20	6	11	7
4426 B66 RRH (Shielded)	17.0	5.0	15.3	0.59	1.81	3.39	1.11	1.24	1.20	4	11	6
4449 B5/B12 RRH (Side)	20.0	11.5	15.3	1.60	2.13	1.74	1.31	1.20	1.20	10	13	11
4449 B5/B12 RRH (Shielded)	20.0	6.8	15.3	0.95	2.13	2.93	1.31	1.22	1.20	6	13	8
DC9 Surge Arrestor	21.1	18.0	10.3	2.65	1.52	1.17	2.05	1.20	1.20	17	9	15
DC9 Surge Arrestor (Side)	21.1	10.3	18.0	1.52	2.65	2.05	1.17	1.20	1.20	9	17	11

WIND LOADS AT 30 MPH:

BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	4.85	2.53	7.42	1.20	1.41	32	13	27
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	25	13	22
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	8	5	7
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	8	5	7
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	24	11	20
RRUS-32 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	4
RRUS-32 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	2	5	3
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	2	6	3
RRUS-E2 B29 RRH (Shielded)	20.4	3.8	18.5	0.53	2.62	5.44	1.10	1.33	1.20	1	6	2
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4478 B14 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	1	4	2
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	3	1	3
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	1	3	2
4426 B66 RRH (Shielded)	14.9	2.9	13.2	0.30	1.37	5.14	1.13	1.32	1.20	1	3	1
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	3
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	1	4	2
DC9 Surge Arrestor	19.0	15.9	8.2	2.10	1.08	1.19	2.32	1.20	1.20	5	2	4
DC9 Surge Arrestor (Side)	19.0	8.2	15.9	1.08	2.10	2.32	1.19	1.20	1.20	2	5	3

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.06 in.
Density of ice: 56 pcf

BSA-M65R-BUU-H6-K Antenna

Weight of ice based on total radial SF area:

Height (in):	72.0	
Width (in):	28.5	
Depth (in):	9.7	
Total weight of ice on object:		242 lbs
Weight of object:	101.0 lbs	
Combined weight of ice and object:		343 lbs

QD6616-7 Antenna

Weight of ice based on total radial SF area:

Height (in):	72.0	
Width (in):	22.0	
Depth (in):	9.6	
Total weight of ice on object:		195 lbs
Weight of object:	130.0 lbs	
Combined weight of ice and object:		325 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:

Height (in):	31.2	
Width (in):	16.1	
Depth (in):	9.1	
Total weight of ice on object:		66 lbs
Weight of object:	66.0 lbs	
Combined weight of ice and object:		132 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:

Height (in):	30.6	
Width (in):	15.9	
Depth (in):	10.6	
Total weight of ice on object:		67 lbs
Weight of object:	82.0 lbs	
Combined weight of ice and object:		149 lbs

OPA65R-BU6DA Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		178 lbs
Weight of object:	64.0 lbs	
Combined weight of ice and object:		242 lbs

RRUS-32 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		44 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		104 lbs

RRUS-E2 B29 RRH

Weight of ice based on total radial SF area:

Height (in):	20.4	
Width (in):	18.5	
Depth (in):	7.5	
Total weight of ice on object:		46 lbs
Weight of object:	53.0 lbs	
Combined weight of ice and object:		99 lbs

4478 B14 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		33 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		93 lbs

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM **Checked By:** MSC

4426 B66 RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	5.8	
Total weight of ice on object:		25 lbs
Weight of object:	49.0 lbs	
Combined weight of ice and object:		74 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		33 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		106 lbs

DC9 Surge Arrestor

Weight of ice based on total radial SF area:

Height (in):	19.0	
Width (in):	15.9	
Depth (in):	8.2	
Total weight of ice on object:		39 lbs
Weight of object:	35.0 lbs	
Combined weight of ice and object:		74 lbs

DC6 Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		38 lbs
Weight of object:	29 lbs	
Combined weight of ice and object:		67 lbs

PL 6x3/8

Weight of ice based on total radial SF area:

Height (in):	6	
Width (in):	0.375	
Per foot weight of ice on object:		9 plf

L 2-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:

Height (in):	2.5	
Width (in):	2.5	
Per foot weight of ice on object:		6 plf

L 2x2 Angles

Weight of ice based on total radial SF area:

Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		5 plf

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		9 plf

2-1/2" Pipe

Per foot weight of ice:

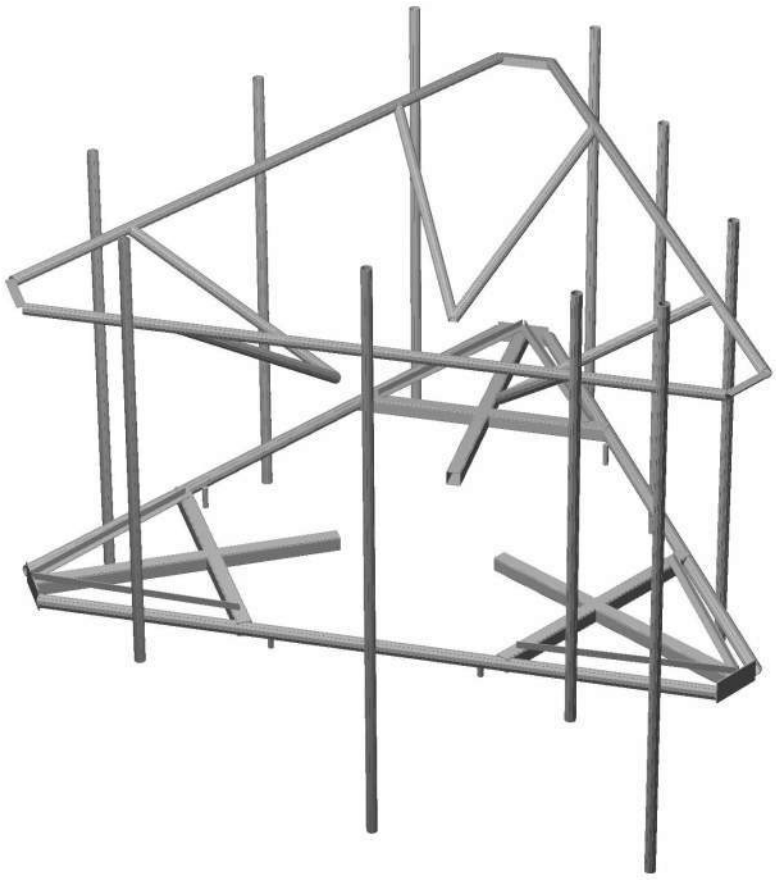
diameter (in):	2.88	
Per foot weight of ice on object:		5 plf

2" Pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		4 plf

Mount Calculations
(Proposed Conditions)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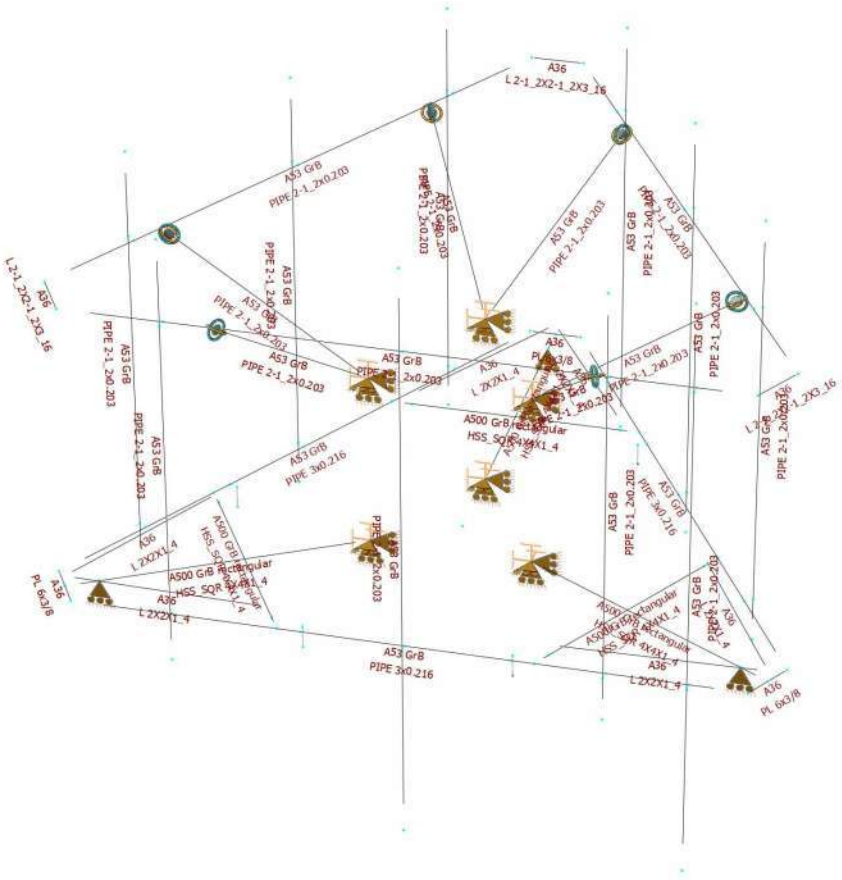
X
Z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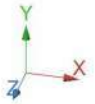
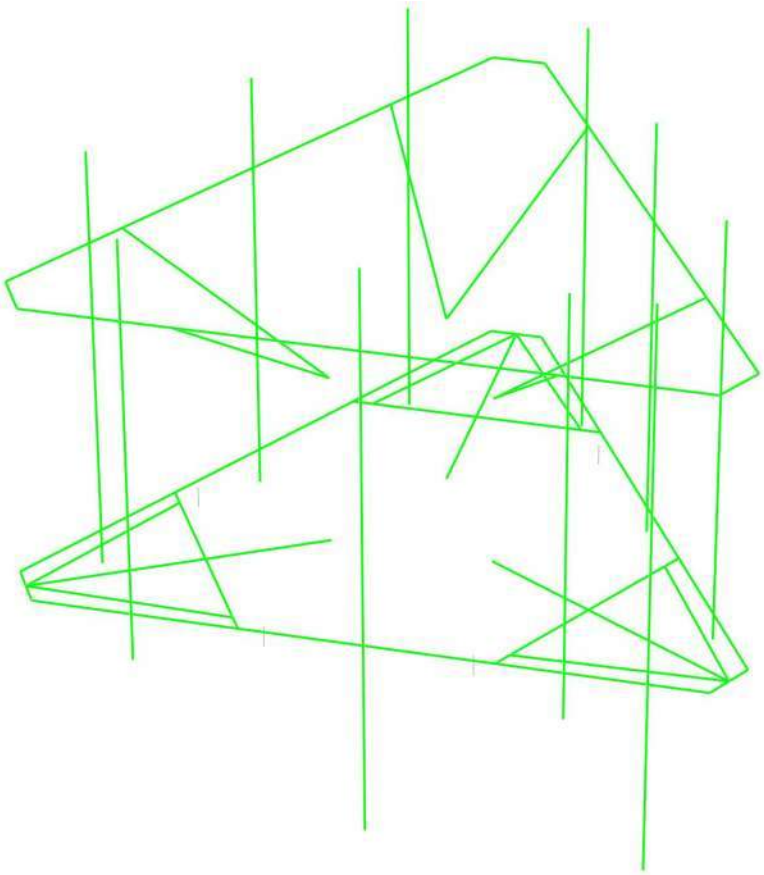
L 2-1_2X2-1_2X3_16
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 3x0.216
A36
L 2X2X1_4
A500 GrB Rectangular
HSS_SQR 4X4X1_4
A36
PL 6x3/8


Y
X
Z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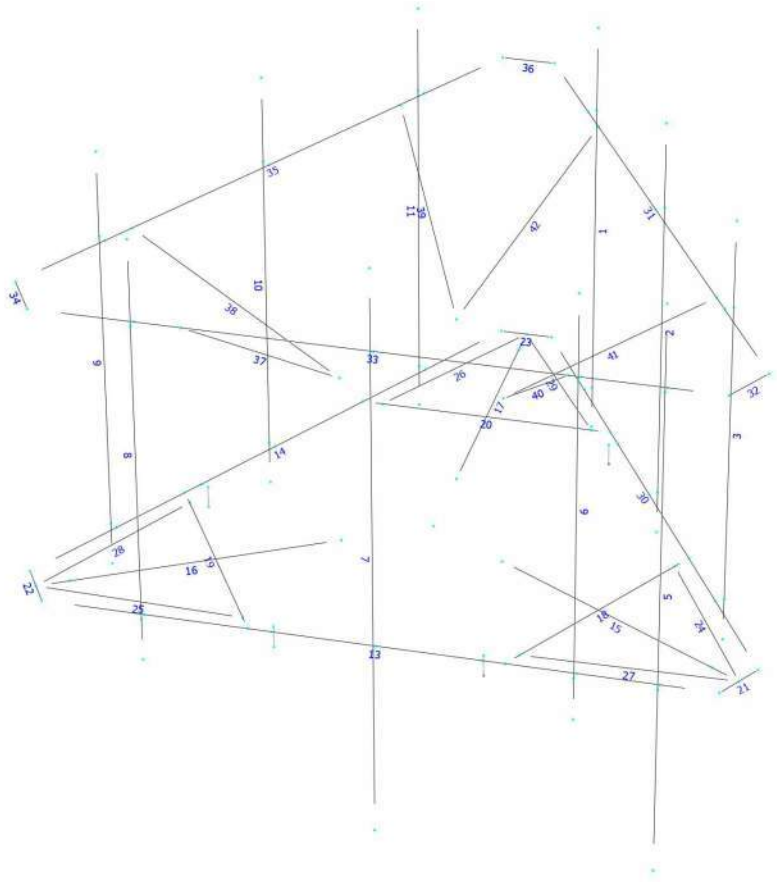
Not designed
Error on design
Design O.K.
With warnings
Y
X
Z


36
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11
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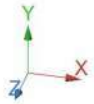

Y
X
Z

RAM® Elements
CONNECT Edition

Current Date: 8/4/2023 3:40 PM
Units system: English

Load data

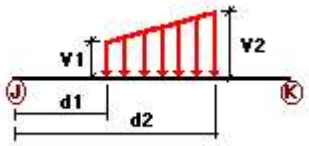
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL
LLa3	500 lb Live Load Antenna 3	No	LL

Distributed force on members

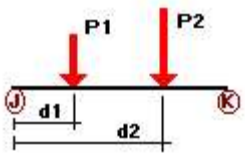


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	15	y	-0.001	-0.001	0.00	No	3.90	No
	16	y	-0.001	-0.001	0.00	No	3.90	No
	17	y	-0.001	-0.001	0.00	No	3.90	No
	24	y	-0.001	0.00	0.00	No	0.00	No
	25	y	-0.001	0.00	0.00	No	0.00	No
	26	y	-0.001	0.00	0.00	No	0.00	No
	27	y	-0.001	0.00	0.00	No	0.00	No
	28	y	-0.001	0.00	0.00	No	0.00	No
	29	y	-0.001	0.00	0.00	No	0.00	No
	18	y	-0.001	0.00	0.00	No	0.00	No
	19	y	-0.001	0.00	0.00	No	0.00	No
	20	y	-0.001	0.00	0.00	No	0.00	No
W0	1	z	-0.009	0.00	0.00	No	0.00	No
	2	z	-0.009	0.00	0.00	No	0.00	No
	3	z	-0.009	0.00	0.00	No	0.00	No
	6	z	-0.009	0.00	0.00	No	0.00	No
	9	z	-0.009	0.00	0.00	No	0.00	No

	10	z	-0.009	0.00	0.00	No	0.00	No
	11	z	-0.009	0.00	0.00	No	0.00	No
	33	z	-0.009	0.00	0.00	No	0.00	No
	35	z	-0.009	0.00	0.00	No	0.00	No
	31	z	-0.009	0.00	0.00	No	0.00	No
	37	z	-0.009	0.00	0.00	No	0.00	No
	38	z	-0.009	0.00	0.00	No	0.00	No
	39	z	-0.009	0.00	0.00	No	0.00	No
	40	z	-0.009	0.00	0.00	No	0.00	No
	41	z	-0.009	0.00	0.00	No	0.00	No
	42	z	-0.009	0.00	0.00	No	0.00	No
	13	z	-0.01	0.00	0.00	No	0.00	No
	14	z	-0.01	0.00	0.00	No	0.00	No
	15	z	-0.012	0.00	0.00	No	0.00	No
	16	z	-0.012	0.00	0.00	No	0.00	No
	17	z	-0.012	0.00	0.00	No	0.00	No
	30	z	-0.01	0.00	0.00	No	0.00	No
	24	z	-0.01	0.00	0.00	No	0.00	No
	25	z	-0.01	0.00	0.00	No	0.00	No
	26	z	-0.01	0.00	0.00	No	0.00	No
	27	z	-0.01	0.00	0.00	No	0.00	No
	28	z	-0.01	0.00	0.00	No	0.00	No
	29	z	-0.01	0.00	0.00	No	0.00	No
	32	z	-0.012	0.00	0.00	No	0.00	No
	34	z	-0.012	0.00	0.00	No	0.00	No
	36	z	-0.012	0.00	0.00	No	0.00	No
	18	z	-0.012	0.00	0.00	No	0.00	No
	19	z	-0.012	0.00	0.00	No	0.00	No
	20	z	-0.012	0.00	0.00	No	0.00	No
	21	z	-0.002	0.00	0.00	No	0.00	No
	22	z	-0.002	0.00	0.00	No	0.00	No
	23	z	-0.002	0.00	0.00	No	0.00	No
W30	1	x	-0.009	0.00	0.00	No	0.00	No
	2	x	-0.009	0.00	0.00	No	0.00	No
	3	x	-0.009	0.00	0.00	No	0.00	No
	5	x	-0.009	0.00	0.00	No	0.00	No
	6	x	-0.009	0.00	0.00	No	0.00	No
	7	x	-0.009	0.00	0.00	No	0.00	No
	8	x	-0.009	0.00	0.00	No	0.00	No
	9	x	-0.009	0.00	0.00	No	0.00	No
	10	x	-0.009	0.00	0.00	No	0.00	No
	11	x	-0.009	0.00	0.00	No	0.00	No
	33	x	-0.009	0.00	0.00	No	0.00	No
	35	x	-0.009	0.00	0.00	No	0.00	No
	31	x	-0.009	0.00	0.00	No	0.00	No
	37	x	-0.009	0.00	0.00	No	0.00	No
	38	x	-0.009	0.00	0.00	No	0.00	No
	39	x	-0.009	0.00	0.00	No	0.00	No
	40	x	-0.009	0.00	0.00	No	0.00	No
	41	x	-0.009	0.00	0.00	No	0.00	No
	42	x	-0.009	0.00	0.00	No	0.00	No
	13	x	-0.01	0.00	0.00	No	0.00	No
	14	x	-0.01	0.00	0.00	No	0.00	No
	15	x	-0.012	0.00	0.00	No	0.00	No
	16	x	-0.012	0.00	0.00	No	0.00	No
	17	x	-0.012	0.00	0.00	No	0.00	No
	30	x	-0.01	0.00	0.00	No	0.00	No
	24	x	-0.01	0.00	0.00	No	0.00	No
	25	x	-0.01	0.00	0.00	No	0.00	No
	26	x	-0.01	0.00	0.00	No	0.00	No

	27	x	-0.01	0.00	0.00	No	0.00	No
	28	x	-0.01	0.00	0.00	No	0.00	No
	29	x	-0.01	0.00	0.00	No	0.00	No
	32	x	-0.012	0.00	0.00	No	0.00	No
	34	x	-0.012	0.00	0.00	No	0.00	No
	36	x	-0.012	0.00	0.00	No	0.00	No
	18	x	-0.012	0.00	0.00	No	0.00	No
	19	x	-0.012	0.00	0.00	No	0.00	No
	20	x	-0.012	0.00	0.00	No	0.00	No
	21	x	-0.002	0.00	0.00	No	0.00	No
	22	x	-0.002	0.00	0.00	No	0.00	No
	23	x	-0.002	0.00	0.00	No	0.00	No
Di	1	y	-0.005	0.00	0.00	No	0.00	No
	2	y	-0.005	0.00	0.00	No	0.00	No
	3	y	-0.005	0.00	0.00	No	0.00	No
	5	y	-0.005	0.00	0.00	No	0.00	No
	6	y	-0.005	0.00	0.00	No	0.00	No
	7	y	-0.005	0.00	0.00	No	0.00	No
	8	y	-0.005	0.00	0.00	No	0.00	No
	9	y	-0.005	0.00	0.00	No	0.00	No
	10	y	-0.005	0.00	0.00	No	0.00	No
	11	y	-0.005	0.00	0.00	No	0.00	No
	33	y	-0.005	0.00	0.00	No	0.00	No
	35	y	-0.005	0.00	0.00	No	0.00	No
	31	y	-0.005	0.00	0.00	No	0.00	No
	37	y	-0.005	0.00	0.00	No	0.00	No
	38	y	-0.005	0.00	0.00	No	0.00	No
	39	y	-0.005	0.00	0.00	No	0.00	No
	40	y	-0.005	0.00	0.00	No	0.00	No
	41	y	-0.005	0.00	0.00	No	0.00	No
	42	y	-0.005	0.00	0.00	No	0.00	No
	13	y	-0.006	0.00	0.00	No	0.00	No
	14	y	-0.006	0.00	0.00	No	0.00	No
	15	y	-0.009	0.00	0.00	No	0.00	No
	16	y	-0.009	0.00	0.00	No	0.00	No
	17	y	-0.009	0.00	0.00	No	0.00	No
	30	y	-0.006	0.00	0.00	No	0.00	No
	24	y	-0.005	0.00	0.00	No	0.00	No
	25	y	-0.005	0.00	0.00	No	0.00	No
	26	y	-0.005	0.00	0.00	No	0.00	No
	27	y	-0.005	0.00	0.00	No	0.00	No
	28	y	-0.005	0.00	0.00	No	0.00	No
	29	y	-0.005	0.00	0.00	No	0.00	No
	32	y	-0.006	0.00	0.00	No	0.00	No
	34	y	-0.006	0.00	0.00	No	0.00	No
	36	y	-0.006	0.00	0.00	No	0.00	No
	18	y	-0.009	0.00	0.00	No	0.00	No
	19	y	-0.009	0.00	0.00	No	0.00	No
	20	y	-0.009	0.00	0.00	No	0.00	No
	21	y	-0.009	0.00	0.00	No	0.00	No
	22	y	-0.009	0.00	0.00	No	0.00	No
	23	y	-0.009	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	1	y	-0.065	1.50	No
		y	-0.065	6.50	No
		y	-0.06	5.00	No
		y	-0.053	5.00	No
	2	y	-0.033	1.00	No
		y	-0.033	3.00	No
		y	-0.042	4.50	No
		y	-0.042	6.00	No
		y	-0.06	5.00	No
		y	-0.049	5.00	No
	3	y	-0.032	1.50	No
		y	-0.032	6.50	No
		y	-0.073	5.00	No
		y	-0.06	5.00	No
	5	y	-0.051	1.50	No
		y	-0.051	6.50	No
		y	-0.033	10.50	No
		y	-0.033	12.50	No
		y	-0.06	5.00	No
		y	-0.053	5.00	No
	6	y	-0.049	1.00	No
		y	-0.06	7.00	No
		y	-0.053	7.00	No
	7	y	-0.051	1.50	No
		y	-0.051	6.50	No
		y	-0.042	10.50	No
		y	-0.042	12.50	No
		y	-0.06	5.00	No
		y	-0.049	5.00	No
	8	y	-0.051	1.50	No
		y	-0.051	6.50	No
		y	-0.073	5.00	No
		y	-0.06	5.00	No
	9	y	-0.065	1.50	No
		y	-0.065	6.50	No
		y	-0.06	5.00	No
		y	-0.053	5.00	No
	10	y	-0.033	1.00	No
		y	-0.033	3.00	No
		y	-0.042	4.50	No
		y	-0.042	6.00	No
		y	-0.06	5.00	No
		y	-0.049	5.00	No
	11	y	-0.032	1.50	No
		y	-0.032	6.50	No
		y	-0.073	5.00	No
		y	-0.06	5.00	No
	68	y	-0.035	0.00	No
	72	y	-0.035	0.00	No
	74	y	-0.029	0.00	No
	78	y	-0.035	0.00	No
W0	1	z	-0.127	1.50	No
		z	-0.127	6.50	No
		z	-0.078	5.00	No

	2	z	-0.043	1.00	No
		z	-0.043	3.00	No
		z	-0.046	4.50	No
		z	-0.04	6.00	No
		z	-0.053	5.00	No
	3	z	-0.111	1.50	No
		z	-0.111	6.50	No
		z	-0.071	5.00	No
	5	z	-0.257	1.50	No
		z	-0.257	6.50	No
		z	-0.063	10.50	No
		z	-0.063	12.50	No
		z	-0.028	5.00	No
		z	-0.021	5.00	No
	6	z	-0.049	1.00	No
		z	-0.028	7.00	No
		z	-0.021	7.00	No
	7	z	-0.257	1.50	No
		z	-0.257	6.50	No
		z	-0.05	10.50	No
		z	-0.05	12.50	No
		z	-0.02	5.00	No
		z	-0.012	5.00	No
	8	z	-0.257	1.50	No
		z	-0.257	6.50	No
		y	-0.022	5.00	No
		y	-0.028	5.00	No
	9	z	-0.127	1.50	No
		z	-0.127	6.50	No
		z	-0.078	5.00	No
	10	z	-0.043	1.00	No
		z	-0.043	3.00	No
		z	-0.046	4.50	No
		z	-0.04	6.00	No
		z	-0.053	5.00	No
	11	z	-0.111	1.50	No
		z	-0.111	6.50	No
		z	-0.071	5.00	No
	68	z	-0.048	0.00	No
	72	z	-0.075	0.00	No
	74	z	-0.047	0.00	No
	78	z	-0.048	0.00	No
W30	1	x	-0.178	1.50	No
		x	-0.178	6.50	No
		x	-0.042	5.00	No
	2	x	-0.056	1.00	No
		x	-0.056	3.00	No
		x	-0.056	4.50	No
		x	-0.056	6.00	No
		x	-0.03	5.00	No
	3	x	-0.164	1.50	No
		x	-0.164	6.50	No
		x	-0.039	5.00	No
	5	x	-0.103	1.50	No
		x	-0.103	6.50	No
		x	-0.037	10.50	No
		x	-0.037	12.50	No
		x	-0.094	5.00	No
	6	x	-0.049	1.00	No
		x	-0.094	7.00	No

	7	x	-0.103	1.50	No
		x	-0.103	6.50	No
		x	-0.041	10.50	No
		x	-0.041	12.50	No
		x	-0.061	5.00	No
	8	x	-0.103	1.50	No
		x	-0.103	6.50	No
		x	-0.082	5.00	No
	9	x	-0.178	1.50	No
		x	-0.178	6.50	No
		x	-0.042	5.00	No
	10	x	-0.056	1.00	No
		x	-0.056	3.00	No
		x	-0.056	4.50	No
		x	-0.056	6.00	No
		x	-0.03	5.00	No
	11	x	-0.164	1.50	No
		x	-0.164	6.50	No
		x	-0.039	5.00	No
	68	x	-0.066	0.00	No
	72	x	-0.039	0.00	No
	74	x	-0.047	0.00	No
	78	x	-0.066	0.00	No
Di	1	y	-0.098	1.50	No
		y	-0.098	6.50	No
		y	-0.044	5.00	No
		y	-0.046	5.00	No
	2	y	-0.033	1.00	No
		y	-0.033	3.00	No
		y	-0.034	4.50	No
		y	-0.034	6.00	No
		y	-0.033	5.00	No
		y	-0.025	5.00	No
	3	y	-0.089	1.50	No
		y	-0.089	6.50	No
		y	-0.033	5.00	No
		y	-0.044	5.00	No
	5	y	-0.122	1.50	No
		y	-0.122	6.50	No
		y	-0.032	10.50	No
		y	-0.032	12.50	No
		y	-0.044	5.00	No
		y	-0.046	5.00	No
	6	y	-0.025	1.00	No
		y	-0.044	7.00	No
		y	-0.046	7.00	No
	7	y	-0.122	1.50	No
		y	-0.122	6.50	No
		y	-0.034	10.50	No
		y	-0.034	12.50	No
		y	-0.033	5.00	No
		y	-0.025	5.00	No
	8	y	-0.122	1.50	No
		y	-0.122	6.50	No
		y	-0.033	5.00	No
		y	-0.044	5.00	No
	9	y	-0.098	1.50	No
		y	-0.098	6.50	No
		y	-0.044	5.00	No
		y	-0.046	5.00	No

	10	y	-0.033	1.00	No
		y	-0.033	3.00	No
		y	-0.034	4.50	No
		y	-0.034	6.00	No
		y	-0.033	5.00	No
		y	-0.025	5.00	No
	11	y	-0.089	1.50	No
		y	-0.089	6.50	No
		y	-0.033	5.00	No
		y	-0.044	5.00	No
	68	y	-0.039	0.00	No
	72	y	-0.039	0.00	No
	74	y	-0.038	0.00	No
	78	y	-0.039	0.00	No
Wi0	1	z	-0.026	1.50	No
		z	-0.026	6.50	No
		z	-0.017	5.00	No
	2	z	-0.01	1.00	No
		z	-0.01	3.00	No
		z	-0.01	4.50	No
		z	-0.01	6.00	No
		z	-0.012	5.00	No
	3	z	-0.023	1.50	No
		z	-0.023	6.50	No
		z	-0.016	5.00	No
	5	z	-0.049	1.50	No
		z	-0.049	6.50	No
		z	-0.013	10.50	No
		z	-0.013	12.50	No
		z	-0.008	5.00	No
		z	-0.006	5.00	No
	6	z	-0.011	1.00	No
		z	-0.008	7.00	No
		z	-0.006	7.00	No
	7	z	-0.049	1.50	No
		z	-0.049	6.50	No
		z	-0.013	10.50	No
		z	-0.013	12.50	No
		z	-0.006	5.00	No
		z	-0.004	5.00	No
	8	z	-0.049	1.50	No
		z	-0.049	6.50	No
		z	-0.006	5.00	No
		z	-0.008	5.00	No
	9	z	-0.026	1.50	No
		z	-0.026	6.50	No
		z	-0.017	5.00	No
	10	z	-0.01	1.00	No
		z	-0.01	3.00	No
		z	-0.01	4.50	No
		z	-0.01	6.00	No
		z	-0.012	5.00	No
	11	z	-0.023	1.50	No
		z	-0.023	6.50	No
		z	-0.016	5.00	No
	68	z	-0.011	0.00	No
	72	z	-0.017	0.00	No
	74	z	-0.01	0.00	No
	78	z	-0.011	0.00	No
Wi30	1	x	-0.035	1.50	No

		x	-0.035	6.50	No
		x	-0.01	5.00	No
	2	x	-0.012	1.00	No
		x	-0.012	3.00	No
		x	-0.012	4.50	No
		x	-0.012	6.00	No
		x	-0.007	5.00	No
	3	x	-0.033	1.50	No
		x	-0.033	6.50	No
		x	-0.01	5.00	No
	5	x	-0.022	1.50	No
		x	-0.022	6.50	No
		x	-0.008	10.50	No
		x	-0.008	12.50	No
		x	-0.02	5.00	No
	6	x	-0.006	1.00	No
		x	-0.02	7.00	No
	7	x	-0.022	1.50	No
		x	-0.022	6.50	No
		x	-0.009	10.50	No
		x	-0.009	12.50	No
		x	-0.014	5.00	No
	8	x	-0.022	1.50	No
		x	-0.022	6.50	No
		x	-0.018	5.00	No
	9	x	-0.035	1.50	No
		x	-0.035	6.50	No
		x	-0.01	5.00	No
	10	x	-0.012	1.00	No
		x	-0.012	3.00	No
		x	-0.012	4.50	No
		x	-0.012	6.00	No
		x	-0.007	5.00	No
	11	x	-0.033	1.50	No
		x	-0.033	6.50	No
		x	-0.01	5.00	No
	68	x	-0.015	0.00	No
	72	x	-0.009	0.00	No
	74	x	-0.01	0.00	No
	78	x	-0.015	0.00	No
WL0	1	z	-0.008	1.50	No
		z	-0.008	6.50	No
		z	-0.005	5.00	No
	2	z	-0.003	1.00	No
		z	-0.003	3.00	No
		z	-0.003	4.50	No
		z	-0.003	6.00	No
		z	-0.003	5.00	No
	3	z	-0.007	1.50	No
		z	-0.007	6.50	No
		z	-0.004	5.00	No
	5	z	-0.016	1.50	No
		z	-0.016	6.50	No
		z	-0.004	10.50	No
		z	-0.004	12.50	No
		z	-0.002	5.00	No
		z	-0.001	5.00	No
	6	z	-0.003	1.00	No
		z	-0.002	7.00	No
		z	-0.001	7.00	No

	7	z	-0.016	1.50	No
		z	-0.016	6.50	No
		z	-0.004	10.50	No
		z	-0.004	12.50	No
		z	-0.001	5.00	No
		z	-0.001	5.00	No
	8	z	-0.016	1.50	No
		z	-0.016	6.50	No
		z	-0.001	5.00	No
		z	-0.002	5.00	No
	9	z	-0.008	1.50	No
		z	-0.008	6.50	No
		z	-0.005	5.00	No
	10	z	-0.003	1.00	No
		z	-0.003	3.00	No
		z	-0.003	4.50	No
		z	-0.003	6.00	No
		z	-0.003	5.00	No
	11	z	-0.007	1.50	No
		z	-0.007	6.50	No
		z	-0.004	5.00	No
	68	z	-0.003	0.00	No
	72	z	-0.005	0.00	No
	74	z	-0.003	0.00	No
	78	z	-0.003	0.00	No
WL30	1	x	-0.011	1.50	No
		x	-0.011	6.50	No
		x	-0.003	5.00	No
	2	x	-0.004	1.00	No
		x	-0.004	3.00	No
		x	-0.004	4.50	No
		x	-0.004	6.00	No
		x	-0.002	5.00	No
	3	x	-0.01	1.50	No
		x	-0.01	6.50	No
		x	-0.003	5.00	No
	5	x	-0.007	1.50	No
		x	-0.007	6.50	No
		x	-0.003	10.50	No
		x	-0.003	12.50	No
		x	-0.006	5.00	No
	6	x	-0.001	1.00	No
		x	-0.006	7.00	No
	7	x	-0.007	1.50	No
		x	-0.007	6.50	No
		x	-0.003	10.50	No
		x	-0.003	12.50	No
		x	-0.004	5.00	No
	8	x	-0.007	1.50	No
		x	-0.007	6.50	No
		x	-0.005	5.00	No
	9	x	-0.011	1.50	No
		x	-0.011	6.50	No
		x	-0.003	5.00	No
	10	x	-0.004	1.00	No
		x	-0.004	3.00	No
		x	-0.004	4.50	No
		x	-0.004	6.00	No
		x	-0.002	5.00	No
	11	x	-0.01	1.50	No

		x	-0.01	6.50	No
		x	-0.003	5.00	No
	68	x	-0.004	0.00	No
	72	x	-0.002	0.00	No
	74	x	-0.003	0.00	No
	78	x	-0.004	0.00	No
LL1	33	y	-0.25	50.00	Yes
LL2	33	y	-0.25	0.00	Yes
LLa1	5	y	-0.50	50.00	Yes
LLa2	7	y	-0.50	50.00	Yes
LLa3	8	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load Antenna 3	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00

RAM® Elements
CONNECT Edition

Current Date: 8/4/2023 3:41 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.4DL
LC14=1.2DL+1.6LL1
LC15=1.2DL+1.6LL2
LC16=1.2DL+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**15**	LC3 at 100.00%	0.16	OK	
		16	LC11 at 100.00%	0.13	OK	
		17	LC1 at 100.00%	0.11	OK	
		18	LC11 at 50.00%	**0.16**	**OK**	
		19	LC2 at 50.00%	0.16	OK	
		20	LC1 at 50.00%	0.14	OK	
	L 2-1_2X2-1_2X3_16	**32**	LC2 at 0.00%	0.38	OK	
		34	LC4 at 100.00%	0.35	OK	
		36	LC3 at 0.00%	**0.41**	**OK**	
	L 2X2X1_4	**24**	LC4 at 100.00%	**0.13**	**OK**	
		25	LC3 at 100.00%	0.09	OK	
		26	LC1 at 100.00%	0.11	OK	
		27	LC3 at 0.00%	0.12	OK	
		28	LC2 at 0.00%	0.12	OK	
		29	LC1 at 0.00%	0.11	OK	
	PIPE 2-1_2x0.203	**1**	LC1 at 89.58%	0.12	OK	
		2	LC4 at 50.00%	0.09	OK	
		3	LC4 at 50.00%	0.11	OK	
		5	LC4 at 64.58%	0.19	OK	
		6	LC4 at 89.58%	0.09	OK	

	7	LC2 at 64.58%	0.16	OK
	8	LC2 at 89.58%	0.14	OK
	9	LC2 at 64.58%	0.13	OK
	10	LC2 at 50.00%	0.10	OK
	11	LC1 at 89.58%	0.14	OK
	33	LC1 at 77.68%	0.23	OK
	35	LC3 at 77.08%	**0.23**	**OK**
	31	LC3 at 22.92%	0.22	OK
	37	LC4 at 0.00%	0.14	OK
	38	LC1 at 0.00%	0.16	OK
	39	LC2 at 0.00%	0.18	OK
	40	LC3 at 0.00%	0.17	OK
	41	LC1 at 0.00%	0.18	OK
	42	LC4 at 0.00%	0.19	OK
PIPE 3x0.216	**13**	LC21 at 50.00%	**0.20**	**OK**
	14	LC2 at 16.96%	0.14	OK
	30	LC1 at 16.96%	0.14	OK
PL 6x3/8	**21**	LC4 at 46.88%	**0.13**	**OK**
	22	LC2 at 50.00%	0.12	OK
	23	LC1 at 50.00%	0.12	OK

RAM® Elements
CONNECT Edition

Current Date: 8/4/2023 3:41 PM
Units system: English

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	-4.00	0.00	0
3	-7.846	-4.00	3.8417	0
4	-0.596	-4.00	-8.7157	0
9	7.25	-4.00	4.874	0
10	-7.25	-4.00	4.874	0
12	0.596	-4.00	-8.7157	0
13	7.846	-4.00	3.8417	0
14	0.00	-4.00	-8.7157	0
15	0.00	-4.00	-2.0457	0
18	7.548	-4.00	4.3578	0
19	1.7716	-4.00	1.0228	0
20	-7.548	-4.00	4.3578	0
21	-1.7716	-4.00	1.0228	0
22	-5.596	-4.00	-0.0554	0
23	-2.846	-4.00	-4.8186	0
26	-2.75	-4.00	4.874	0
27	2.75	-4.00	4.874	0
28	5.596	-4.00	-0.0554	0
29	2.846	-4.00	-4.8186	0
30	-2.399	-4.00	-4.8186	0
31	2.399	-4.00	-4.8186	0
34	5.3725	-4.00	0.3317	0
35	2.9735	-4.00	4.4869	0

36	-2.9735	-4.00	4.4869	0
37	-5.3725	-4.00	0.3317	0
86	1.846	-4.00	-6.5506	0
87	2.0192	-4.00	-6.6506	0
90	4.221	-4.00	-2.437	0
91	4.3942	-4.00	-2.537	0
94	6.471	-4.00	1.4601	0
95	6.6442	-4.00	1.3601	0
100	2.0192	5.00	-6.6506	0
101	4.3942	5.00	-2.537	0
102	6.6442	5.00	1.3601	0
104	2.0192	-5.00	-6.6506	0
105	4.3942	-5.00	-2.537	0
106	6.6442	-5.00	1.3601	0
108	7.846	3.00	3.8417	0
109	7.25	3.00	4.874	0
110	-7.25	3.00	4.874	0
111	-7.846	3.00	3.8417	0
112	0.596	3.00	-8.7157	0
113	-0.596	3.00	-8.7157	0
114	1.7716	0.00	1.0228	0
115	-1.7716	0.00	1.0228	0
116	0.00	0.00	-2.0457	0
119	6.471	3.00	1.4601	0
120	6.6442	3.00	1.3601	0
121	4.221	3.00	-2.437	0
122	4.3942	3.00	-2.537	0
123	1.846	3.00	-6.5506	0
124	2.0192	3.00	-6.6506	0
125	-5.00	-4.00	4.874	0
126	-5.00	-4.00	5.074	0
127	-5.00	5.00	5.074	0
128	-5.00	-5.00	5.074	0
129	-5.00	3.00	4.874	0
130	-5.00	3.00	5.074	0
131	0.00	-4.00	4.874	0
132	0.00	-4.00	5.074	0
133	0.00	5.00	5.074	0
134	0.00	-8.50	5.074	0
135	0.00	3.00	4.874	0
136	0.00	3.00	5.074	0
137	4.25	-4.00	4.874	0
138	4.25	-4.00	5.074	0
139	4.25	5.00	5.074	0
140	4.25	-5.00	5.074	0
141	4.25	3.00	4.874	0
142	4.25	3.00	5.074	0
143	6.00	-4.00	4.874	0
144	6.00	-4.00	5.074	0
145	6.00	5.00	5.074	0
146	6.00	-8.50	5.074	0
147	6.00	3.00	4.874	0
148	6.00	3.00	5.074	0
155	-1.846	-4.00	-6.5506	0
156	-2.0192	-4.00	-6.6506	0
157	-2.0192	5.00	-6.6506	0
158	-2.0192	-5.00	-6.6506	0
159	-1.846	3.00	-6.5506	0
160	-2.0192	3.00	-6.6506	0
161	-4.221	-4.00	-2.437	0

162	-4.3942	-4.00	-2.537	0
163	-4.3942	5.00	-2.537	0
164	-4.3942	-5.00	-2.537	0
165	-4.221	3.00	-2.437	0
166	-4.3942	3.00	-2.537	0
167	-6.596	-4.00	1.6766	0
168	-6.7692	-4.00	1.5766	0
169	-6.7692	5.00	1.5766	0
170	-6.7692	-5.00	1.5766	0
171	-6.596	3.00	1.6766	0
172	-6.7692	3.00	1.5766	0
173	-2.221	3.00	-5.9011	0
174	6.221	3.00	1.0271	0
175	-4.00	3.00	4.874	0
176	2.221	3.00	-5.9011	0
177	4.00	3.00	4.874	0
178	-6.221	3.00	1.0271	0
179	-6.9062	-4.00	3.9873	0
180	0.00	-4.00	-7.9746	0
181	6.9062	-4.00	3.9873	0
182	3.096	-4.00	-4.3856	0
183	2.9228	-4.00	-4.2856	0
188	-2.25	-4.00	4.874	0
190	-2.25	-4.00	4.674	0
194	2.25	-4.00	4.874	0
195	-5.346	-4.00	-0.4884	0
196	2.25	-4.00	4.674	0
197	-5.1728	-4.00	-0.3884	0
199	-5.1728	-4.50	-0.3884	0
192	-2.25	-4.50	4.674	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
15	1	1	1	1	1	1
19	1	1	1	1	1	1
21	1	1	1	1	1	1
114	1	1	1	1	1	1
115	1	1	1	1	1	1
116	1	1	1	1	1	1
179	0	1	0	0	0	0
180	0	1	0	0	0	0
181	0	1	0	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	100	104		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
2	101	105		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
3	102	106		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
5	145	146		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
6	139	140		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
7	133	134		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
8	127	128		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
9	169	170		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
10	163	164		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
11	157	158		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
33	109	110		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
35	111	113		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
31	112	108		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
37	115	175		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
38	115	178		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
39	116	173		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
40	114	177		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
41	114	174		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
42	116	176		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
13	9	10		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
14	3	4		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
15	18	19		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
16	20	21		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
17	14	15		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
30	12	13		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
24	34	18		L 2X2X1_4	A36	0.00	0.00	0.00
25	36	20		L 2X2X1_4	A36	0.00	0.00	0.00
26	30	14		L 2X2X1_4	A36	0.00	0.00	0.00
27	18	35		L 2X2X1_4	A36	0.00	0.00	0.00
28	20	37		L 2X2X1_4	A36	0.00	0.00	0.00
29	14	31		L 2X2X1_4	A36	0.00	0.00	0.00
32	108	109		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
34	110	111		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
36	112	113		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
18	28	27		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
19	26	22		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
20	23	29		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
21	13	9		PL 6x3/8	A36	0.00	0.00	0.00
22	10	3		PL 6x3/8	A36	0.00	0.00	0.00
23	12	4		PL 6x3/8	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	0.00	2	-0.50	0.00	-0.866
2	0.00	2	-0.50	0.00	-0.866
3	0.00	2	-0.50	0.00	-0.866
5	0.00	2	-0.50	0.00	-0.866
6	0.00	2	-0.50	0.00	-0.866
7	0.00	2	-0.50	0.00	-0.866
8	0.00	2	-0.50	0.00	-0.866
9	0.00	2	-0.50	0.00	-0.866
10	0.00	2	-0.50	0.00	-0.866
11	0.00	2	-0.50	0.00	-0.866
32	180.00	0	0.00	0.00	0.00

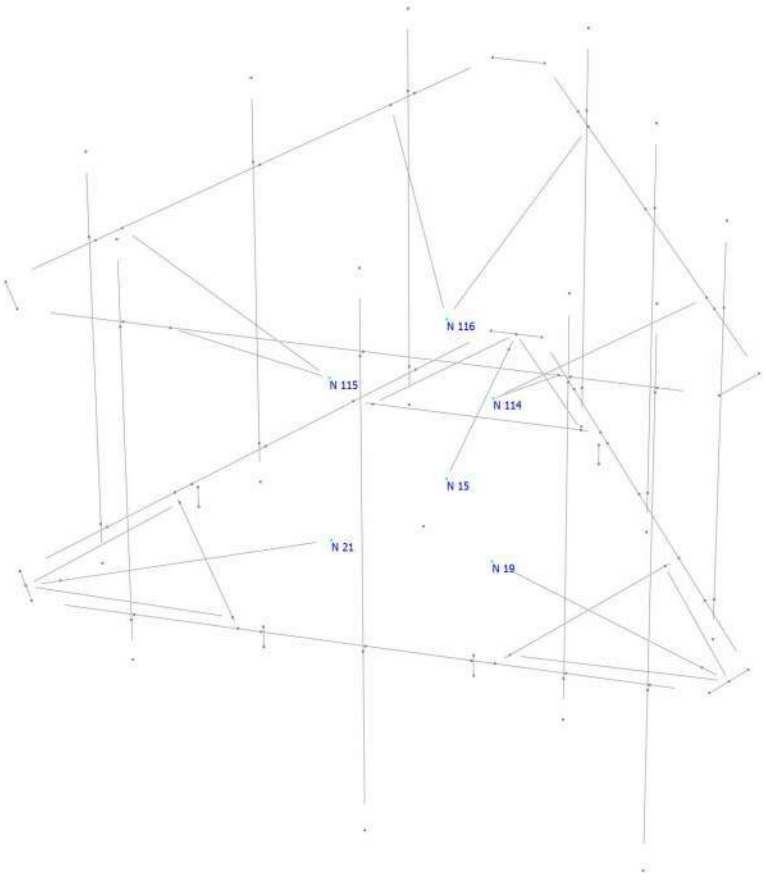
34	180.00	0	0.00	0.00	0.00
36	90.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
24	0.00	3.00	0.00	0.00	3.00	0.00
25	0.00	3.00	0.00	0.00	3.00	0.00
26	0.00	3.00	0.00	0.00	3.00	0.00
27	0.00	3.00	0.00	0.00	3.00	0.00
28	0.00	3.00	0.00	0.00	3.00	0.00
29	0.00	3.00	0.00	0.00	3.00	0.00

Hinges

	Node-J				Node-K						
Member	M33	M22	V3	V2	M33	M22	V3	V2	TOR	AXL	Axial rigidity
37	0	0	0	0	1	1	0	0	0	0	Full
38	0	0	0	0	1	1	0	0	0	0	Full
39	0	0	0	0	1	1	0	0	0	0	Full
40	0	0	0	0	1	1	0	0	0	0	Full
41	0	0	0	0	1	1	0	0	0	0	Full
42	0	0	0	0	1	1	0	0	0	0	Full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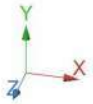
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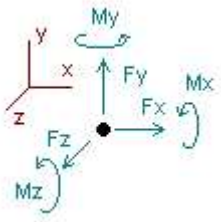
X
Z

RAM® Elements
CONNECT Edition

Current Date: 8/4/2023 3:42 PM
Units system: English

Analysis result

Reactions



Direction of positive forces and moments

	Forces [Kip]			Moments [Kip*ft]		
Node	**FX**	**FY**	**FZ**	**MX**	**MY**	**MZ**
Condition **LC1=1.2DL+W0**						
15	0.08334	0.99933	1.11440	1.45932	-0.24633	0.03096
19	0.27457	0.50140	0.99219	-0.06874	-1.17767	0.81485
21	-0.36816	0.58286	0.75643	-0.09954	0.55555	-0.95396
114	0.53709	0.74178	0.91535	0.31196	-0.45181	0.16317
115	-0.53990	0.70100	0.82537	0.30153	0.30391	-0.12837
116	0.01308	-0.69786	1.16491	0.55864	-0.07112	-0.02438
SUM	0.00000	2.82852	5.76865	2.46318	-1.08747	-0.09772
Condition **LC2=1.2DL+W30**						
15	0.49968	0.66668	-0.15461	0.99071	-0.69475	-0.53160
19	1.25037	0.43746	0.39791	-0.69971	0.44448	0.34956
21	1.04428	1.04637	-0.23435	-0.57966	0.49295	-1.42444
114	1.20044	0.96510	0.44202	-0.14933	0.17962	-0.26133
115	1.03640	-0.62669	-0.33145	-0.13632	0.14692	-0.52637
116	0.51716	0.17222	-0.11952	0.14986	-0.50633	-0.47032
SUM	5.54832	2.66113	0.00000	-0.42445	0.06289	-2.86450
Condition **LC3=1.2DL-W0**						
15	-0.07684	0.33264	-1.33011	0.51836	0.22782	0.00677
19	-0.10244	0.95359	-0.87247	-1.24557	1.13747	0.88857
21	0.13933	0.95304	-0.63841	-1.15065	-0.59008	-0.94691
114	-0.36502	-0.41192	-0.81777	-0.62282	0.53620	0.06106
115	0.41997	-0.41609	-0.75785	-0.51523	-0.26893	-0.16088
116	-0.01500	1.00915	-1.35204	-0.24513	0.11186	0.05326
SUM	0.00000	2.42042	-5.76865	-3.26103	1.15434	-0.09813
Condition **LC4=1.2DL-W30**						
15	-0.49339	0.66504	-0.05937	0.98734	0.67629	0.56893
19	-1.07665	1.01722	-0.27787	-0.61816	-0.48243	1.35091
21	-1.27376	0.48995	0.35258	-0.67389	-0.52830	-0.47474
114	-1.02882	-0.63364	-0.34425	-0.16159	-0.09646	0.48572
115	-1.15558	0.91209	0.39800	-0.07736	-0.11014	0.23641
116	-0.52012	0.13612	-0.06909	0.16266	0.54768	0.49946
SUM	-5.54832	2.58679	0.00000	-0.38099	0.00665	2.66669

Condition **LC5=0.9DL+W0**

15	0.08257	0.83279	1.14153	1.21210	-0.24407	0.02628
19	0.25299	0.31963	0.97742	0.09590	-1.17305	0.60216
21	-0.33968	0.39082	0.74184	0.05714	0.55997	-0.71635
114	0.51545	0.70091	0.90276	0.35058	-0.46213	0.13535
115	-0.52480	0.66591	0.81681	0.32808	0.29936	-0.09238
116	0.01346	-0.73631	1.18830	0.51952	-0.07625	-0.02800
SUM	0.00000	2.17375	5.76865	2.56330	-1.09617	-0.07296

Condition **LC6=0.9DL+W30**

15	0.49900	0.50027	-0.12778	0.74350	-0.69261	-0.53621
19	1.22897	0.25565	0.38311	-0.53499	0.44923	0.13675
21	1.07303	0.85420	-0.24915	-0.42305	0.49728	-1.18688
114	1.17871	0.92417	0.42948	-0.11064	0.16918	-0.28906
115	1.05118	-0.66195	-0.33981	-0.10960	0.14240	-0.49014
116	0.51743	0.13379	-0.09585	0.11093	-0.51132	-0.47383
SUM	5.54832	2.00612	0.00000	-0.32384	0.05417	-2.83938

Condition **LC7=0.9DL-W0**

15	-0.07766	0.16628	-1.30357	0.27108	0.23019	0.00210
19	-0.12406	0.77168	-0.88759	-1.08098	1.14252	0.67580
21	0.16799	0.76094	-0.65322	-0.99410	-0.58576	-0.70933
114	-0.38650	-0.45301	-0.82992	-0.58385	0.52553	0.03314
115	0.43489	-0.45142	-0.76623	-0.48853	-0.27343	-0.12473
116	-0.01466	0.97075	-1.32812	-0.28388	0.10663	0.04960
SUM	0.00000	1.76522	-5.76865	-3.16025	1.14568	-0.07343

Condition **LC8=0.9DL-W30**

15	-0.49429	0.49855	-0.03253	0.74005	0.67879	0.56419
19	-1.09843	0.83535	-0.29297	-0.45364	-0.47752	1.13825
21	-1.24537	0.29798	0.33798	-0.51728	-0.52390	-0.23712
114	-1.05021	-0.67468	-0.35645	-0.12270	-0.10701	0.45771
115	-1.14033	0.87693	0.38942	-0.05084	-0.11467	0.27232
116	-0.51968	0.09770	-0.04546	0.12371	0.54232	0.49568
SUM	-5.54832	1.93184	0.00000	-0.28070	-0.00198	2.69103

Condition **LC9=1.2DL+Di+Wi0**

15	0.01843	1.13916	-0.00926	1.69540	-0.05568	0.03659
19	0.15029	1.21096	0.22922	-1.08068	-0.21342	1.42547
21	-0.20780	1.30751	0.19047	-1.06880	0.05312	-1.62297
114	0.22034	0.36988	0.21165	-0.21900	0.00820	0.18714
115	-0.17996	0.33285	0.18272	-0.15275	0.06713	-0.23618
116	-0.00130	0.13165	0.01920	0.31852	0.02040	0.01975
SUM	0.00000	4.49202	0.82400	-0.50732	-0.12025	-0.19020

Condition **LC10=1.2DL+Di+Wi30**

15	0.04982	1.08650	-0.17798	1.62096	-0.06579	-0.04598
19	0.28389	1.20822	0.13561	-1.18465	0.04269	1.36141
21	-0.03838	1.37966	0.06715	-1.15286	0.05805	-1.69189
114	0.30500	0.39483	0.13916	-0.28789	0.09822	0.12754
115	0.05121	0.12906	0.00574	-0.21955	0.04432	-0.29094
116	0.06346	0.26383	-0.16968	0.25922	-0.03373	-0.03896
SUM	0.71500	4.46210	0.00000	-0.96478	0.14375	-0.57880

Condition **LC11=1.2DL+Di-Wi0**

15	-0.00772	1.03363	-0.32967	1.54592	0.02383	0.03529
19	0.12707	1.28982	-0.03106	-1.27519	0.14223	1.44468
21	-0.16471	1.37108	0.00080	-1.25198	-0.11555	-1.62178
114	0.07567	0.18606	-0.04731	-0.35575	0.14732	0.17208
115	-0.02542	0.14968	-0.06552	-0.27990	-0.01689	-0.23959
116	-0.00490	0.39087	-0.35124	0.20175	0.04877	0.03259
SUM	0.00000	4.42113	-0.82400	-1.41513	0.22971	-0.17673

Condition **LC12=1.2DL+Di-Wi30**

15	-0.03911	1.08628	-0.16093	1.62036	0.03395	0.11785
19	-0.00650	1.29255	0.06256	-1.17132	-0.11384	1.50867
21	-0.33415	1.29894	0.12412	-1.16802	-0.12050	-1.55282
114	-0.00900	0.16113	0.02519	-0.28686	0.05727	0.23168
115	-0.25657	0.35346	0.11145	-0.21310	0.00596	-0.18484
116	-0.06967	0.25862	-0.16240	0.26103	0.10292	0.09130
SUM	-0.71500	4.45099	0.00000	-0.95792	-0.03424	0.21183

Condition **LC13=1.4DL**

15	0.00368	0.77678	-0.12531	1.15380	-0.01075	0.02183
19	0.10083	0.84858	0.06976	-0.76816	-0.02249	0.99270
21	-0.13336	0.89631	0.06864	-0.73083	-0.02033	-1.10870
114	0.10068	0.19144	0.05781	-0.18103	0.04889	0.13010
115	-0.07015	0.16447	0.03956	-0.12426	0.02106	-0.16828
116	-0.00167	0.17943	-0.11046	0.18173	0.02408	0.01697
SUM	0.00000	3.05702	0.00000	-0.46876	0.04045	-0.11539

Condition **LC14=1.2DL+1.6LL1**

15	0.00565	0.60801	-0.15366	0.90823	-0.01630	0.01924
19	0.12654	0.88609	0.08382	-0.94521	-0.02182	0.94877
21	-0.16794	0.92915	0.08337	-0.91906	-0.03177	-1.04974
114	0.10296	0.18627	0.05844	-0.24605	0.07206	0.08410
115	-0.06361	0.15564	0.04094	-0.19512	0.00956	-0.12705
116	-0.00360	0.16350	-0.11292	0.14225	0.02641	0.01816
SUM	0.00000	2.92866	0.00000	-1.25497	0.03814	-0.10652

Condition **LC15=1.2DL+1.6LL2**

15	0.00077	0.64442	-0.11982	0.95869	-0.00315	-0.00149
19	0.11244	0.72531	0.07898	-0.70123	-0.02245	0.81926
21	-0.12318	0.77554	0.06547	-0.63863	-0.01429	-0.95526
114	0.07950	0.16113	0.04419	-0.19356	0.04317	0.11088
115	-0.06902	0.14726	0.03618	-0.11161	0.00789	-0.13662
116	-0.00051	0.16020	-0.10501	0.14953	0.02767	0.01033
SUM	0.00000	2.61386	0.00000	-0.53680	0.03883	-0.15290

Condition **LC16=1.2DL+WL0+1.6LLa1**

15	0.00625	0.62486	-0.07567	0.93107	-0.02155	-0.02872
19	0.10933	0.77762	0.12923	-0.88743	-0.09975	0.80580
21	-0.14942	0.81267	0.10343	-0.69289	0.00358	-0.98535
114	0.11580	0.20838	0.08785	-0.26446	0.06993	0.09529
115	-0.08106	0.16667	0.06349	-0.11402	0.03328	-0.13357
116	-0.00089	0.12704	-0.06033	0.15956	0.03900	0.00283
SUM	0.00000	2.71723	0.24800	-0.86818	0.02448	-0.24373

Condition **LC17=1.2DL+WL30+1.6LLa1**

15	0.01588	0.60903	-0.12589	0.90866	-0.02486	-0.05468
19	0.15136	0.77650	0.10231	-0.91896	-0.02285	0.78586
21	-0.09814	0.83498	0.06611	-0.71846	0.00508	-1.00701
114	0.14160	0.21592	0.06567	-0.28477	0.09555	0.07733
115	-0.00964	0.10347	0.00855	-0.13461	0.02541	-0.14995
116	0.01994	0.16659	-0.11675	0.14192	0.02128	-0.01615
SUM	0.22100	2.70647	0.00000	-1.00621	0.09962	-0.36460

Condition **LC18=1.2DL-WL0+1.6LLa1**

15	-0.00119	0.59299	-0.17084	0.88588	0.00123	-0.02912
19	0.10301	0.80217	0.05267	-0.94708	0.00507	0.81239
21	-0.13769	0.83240	0.04644	-0.74951	-0.04845	-0.98525
114	0.07090	0.15161	0.00847	-0.30558	0.11070	0.09084
115	-0.03344	0.10968	-0.01405	-0.15308	0.00749	-0.13406
116	-0.00159	0.20432	-0.17068	0.12478	0.04700	0.00641
SUM	0.00000	2.69316	-0.24800	-1.14458	0.12304	-0.23879

Condition **LC19=1.2DL-WL30+1.6LLa1**

15	-0.01083	0.60881	-0.12062	0.90829	0.00454	-0.00317
19	0.06098	0.80329	0.07959	-0.91556	-0.07183	0.83232
21	-0.18897	0.81009	0.08376	-0.72395	-0.04996	-0.96358
114	0.04510	0.14408	0.03065	-0.28527	0.08508	0.10880
115	-0.10486	0.17288	0.04089	-0.13249	0.01537	-0.11769
116	-0.02243	0.16477	-0.11427	0.14241	0.06471	0.02539
SUM	-0.22100	2.70392	0.00000	-1.00657	0.04790	-0.11792

Condition **LC20=1.2DL+WL0+1.6LLa2**

15	0.01194	0.56538	-0.14613	0.84888	-0.03501	0.02023
19	0.16567	1.03993	0.15689	-1.21180	-0.09333	1.04961
21	-0.22340	1.08875	0.14638	-1.19509	-0.00495	-1.15686
114	0.13320	0.22472	0.09186	-0.31791	0.07881	0.05517
115	-0.08188	0.18653	0.07195	-0.26535	0.01872	-0.10489
116	-0.00553	0.13239	-0.07295	0.14720	0.02873	0.02035
SUM	0.00000	3.23770	0.24800	-1.99407	-0.00703	-0.11639

Condition **LC21=1.2DL+WL30+1.6LLa2**

15	0.02157	0.54956	-0.19635	0.82648	-0.03830	-0.00573
19	0.20771	1.03883	0.12996	-1.24333	-0.01641	1.02970
21	-0.17211	1.11107	0.10908	-1.22064	-0.00341	-1.17854
114	0.15900	0.23227	0.06969	-0.33821	0.10443	0.03721
115	-0.01047	0.12336	0.01698	-0.28596	0.01085	-0.12128
116	0.01530	0.17193	-0.12936	0.12958	0.01102	0.00137
SUM	0.22100	3.22702	0.00000	-2.13208	0.06818	-0.23727

Condition **LC22=1.2DL-WL0+1.6LLa2**

15	0.00450	0.53352	-0.24132	0.80371	-0.01222	0.01983
19	0.15937	1.06449	0.08033	-1.27142	0.01150	1.05623
21	-0.21167	1.10850	0.08941	-1.25169	-0.05696	-1.15680
114	0.08832	0.16798	0.01249	-0.35900	0.11956	0.05074
115	-0.03427	0.12961	-0.00562	-0.30443	-0.00708	-0.10540
116	-0.00623	0.20967	-0.18329	0.11244	0.03672	0.02392
SUM	0.00000	3.21378	-0.24800	-2.27039	0.09150	-0.11149

Condition **LC23=1.2DL-WL30+1.6LLa2**

15	-0.00513	0.54934	-0.19109	0.82611	-0.00893	0.04579
19	0.11733	1.06560	0.10725	-1.23989	-0.06542	1.07613
21	-0.26296	1.08619	0.12671	-1.22615	-0.05850	-1.13512
114	0.06251	0.16043	0.03466	-0.33870	0.09394	0.06870
115	-0.10568	0.19277	0.04935	-0.28383	0.00079	-0.08901
116	-0.02707	0.17012	-0.12688	0.13007	0.05443	0.04290
SUM	-0.22100	3.22446	0.00000	-2.13240	0.01630	0.00938

Condition **LC24=1.2DL+WL0+1.6LLa3**

15	0.00745	0.60676	-0.02948	0.90395	-0.02145	0.07386
19	0.07167	0.79876	0.09793	-0.77771	-0.08766	0.89775
21	-0.09810	0.94780	0.08941	-1.05064	0.02523	-1.04284
114	0.11493	0.19446	0.07600	-0.18328	0.03820	0.08875
115	-0.09156	0.19773	0.07934	-0.26717	-0.01493	-0.13522
116	-0.00439	0.12955	-0.06520	0.15569	-0.00152	0.02874
SUM	0.00000	2.87506	0.24800	-1.21918	-0.06213	-0.08896

Condition **LC25=1.2DL+WL30+1.6LLa3**

15	0.01708	0.59094	-0.07970	0.88154	-0.02474	0.04790
19	0.11371	0.79762	0.07100	-0.80922	-0.01075	0.87779
21	-0.04682	0.97011	0.05211	-1.07621	0.02677	-1.06451
114	0.14074	0.20200	0.05383	-0.20358	0.06381	0.07078
115	-0.02015	0.13456	0.02436	-0.28779	-0.02282	-0.15160
116	0.01643	0.16908	-0.12161	0.13806	-0.01923	0.00975
SUM	0.22100	2.86431	0.00000	-1.35721	0.01304	-0.20990

Condition **LC26=1.2DL-WL0+1.6LLa3**

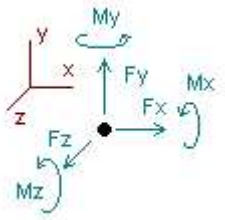
15	0.00001	0.57490	-0.12466	0.85875	0.00136	0.07346
19	0.06537	0.82328	0.02135	-0.83733	0.01719	0.90430
21	-0.08637	0.96754	0.03245	-1.10727	-0.02675	-1.04275
114	0.07004	0.13767	-0.00334	-0.22436	0.07893	0.08430
115	-0.04394	0.14080	0.00175	-0.30628	-0.04077	-0.13572
116	-0.00510	0.20683	-0.17555	0.12092	0.00647	0.03230
SUM	0.00000	2.85102	-0.24800	-1.49558	0.03641	-0.08412

Condition **LC27=1.2DL-WL30+1.6LLa3**

15	-0.00963	0.59072	-0.07445	0.88116	0.00465	0.09942
19	0.02334	0.82442	0.04827	-0.80584	-0.05972	0.92426
21	-0.13765	0.94523	0.06975	-1.08171	-0.02829	-1.02108
114	0.04422	0.13014	0.01883	-0.20406	0.05331	0.10227
115	-0.11535	0.20397	0.05673	-0.28567	-0.03288	-0.11933
116	-0.02593	0.16729	-0.11914	0.13854	0.02418	0.05128
SUM	-0.22100	2.86177	0.00000	-1.35757	-0.03875	0.03682

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.4DL
LC14=1.2DL+1.6LL1
LC15=1.2DL+1.6LL2
LC16=1.2DL+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3

		Forces						Moments					
Node		**Fx** [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
15	Max	0.500	LC2	1.139	LC9	1.142	LC5	1.69540	LC9	0.67879	LC8	0.56893	LC4
	Min	-0.494	LC8	0.166	LC7	-1.330	LC3	0.27108	LC7	-0.69475	LC2	-0.53621	LC6
19	Max	1.250	LC2	1.293	LC12	0.992	LC1	0.09590	LC5	1.14252	LC7	1.50867	LC12
	Min	-1.098	LC8	0.256	LC6	-0.888	LC7	-1.27519	LC11	-1.17767	LC1	0.13675	LC6
21	Max	1.073	LC6	1.380	LC10	0.756	LC1	0.05714	LC5	0.55997	LC5	-0.23712	LC8
	Min	-1.274	LC4	0.298	LC8	-0.653	LC7	-1.25198	LC11	-0.59008	LC3	-1.69189	LC10
114	Max	1.200	LC2	0.965	LC2	0.915	LC1	0.35058	LC5	0.53620	LC3	0.48572	LC4
	Min	-1.050	LC8	-0.675	LC8	-0.830	LC7	-0.62282	LC3	-0.46213	LC5	-0.28906	LC6
115	Max	1.051	LC6	0.912	LC4	0.825	LC1	0.32808	LC5	0.30391	LC1	0.27232	LC8
	Min	-1.156	LC4	-0.662	LC6	-0.766	LC7	-0.51523	LC3	-0.27343	LC7	-0.52637	LC2
116	Max	0.517	LC6	1.009	LC3	1.188	LC5	0.55864	LC1	0.54768	LC4	0.49946	LC4
	Min	-0.520	LC4	-0.736	LC5	-1.352	LC3	-0.28388	LC7	-0.51132	LC6	-0.47383	LC6

Connection Check

Date: 8/4/2023
Project Name: HAMDEN
Project No.: CT2035
Designed By: KM **Checked By:** MSC

CHECK THRU BOLT CONNECTION CAPACITY → PROPOSED COLLAR MOUNT

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A325 5/8" Thru Bolt

Allowable Tensile Load =
F_{Tall} = 13806 lbs.

Allowable Shear Load =
F_{vall} = 8283 lbs.

CONNECTION PLATE CONFIGURATION (4-BOLTS)

$N_{BOLT\ ROWS}$	=	2	rows	d_Y	=	6	in (Min.)
N_{BOLTS}	=	2	bolts/row	d_X	=	6	in (Min.)

TENSILE FORCES

Moment in X axis:	1275	lb-ft.	(See Bentley Output)
Couple Reaction from M_X:	5100	lbs.	
Moment in Y axis:	1178	lb-ft.	(See Bentley Output)
Couple Reaction from M_Y:	4712	lbs.	
Reaction in Z direction:	992	lbs.	(See Bentley Output)

Resultant per bolt: 5154 lbs.

SHEAR FORCES

Moment in Z axis:	1509	lb-ft.	(See Bentley Output)
Couple Reaction from M_Z:	6036	lbs.	
Reaction in X direction:	1250	lbs.	(See Bentley Output)
Reaction in Y direction:	1293	lbs.	(See Bentley Output)

Resultant per bolt: 3468 lbs.

Tension Design Load /Bolts =

f_t= 5154.00 lbs. < 13806 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 3467.61 lbs. < 8283.5 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.373	+	0.419	=	0.792	<	1.0	**Therefore, OK !**

905 MIX AVE

Location	905 MIX AVE	**Mblu**	2628/ 101/ / /
Acct#	100226	**Owner**	CHESTNUT HILL NORTH LLC
Assessment	$12,668,250	**Appraisal**	$18,097,500
PID	100226	**Building Count**	4

Current Value

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2021	$10,591,900	$818,400	$609,700	$6,077,500	$18,097,500
Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2021	$7,414,330	$572,880	$426,790	$4,254,250	$12,668,250

Owner of Record

Owner	CHESTNUT HILL NORTH LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	1621 STATE STREET NEW HAVEN, CT 06511	**Book & Page**	4265/0086
		Sale Date	10/29/2015

Instrument

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CHESTNUT HILL NORTH LLC	$0		4265/0086		10/29/2015
MIX AVENUE LLC	$0		4265/0069		10/29/2015
CHESTNUT HILL NORTH LLC	$0		4249/0165		08/26/2015
MIX AVE LLC	$0		1599/0068	00	09/16/1996

Building Information

Building 1 : Section 1

Year Built: 1970
Living Area: 67,685
Building Percent Good: 45

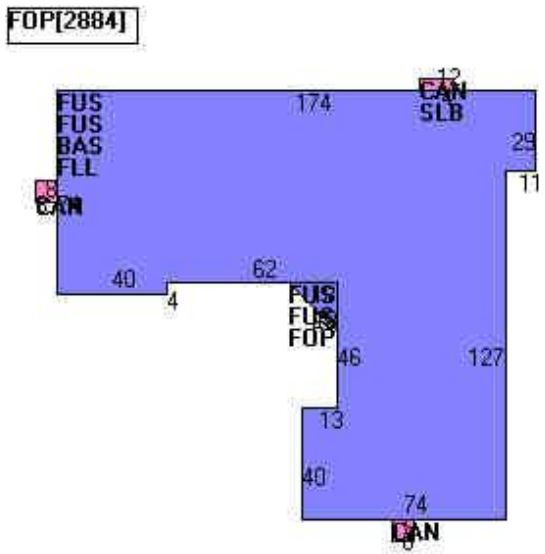
Building Attributes	
Field	**Description**
STYLE	Apartments
MODEL	Comm/Ind
Grade	C -
Stories:	3
Occupancy	56.00
Exterior Wall 1	Brick Masonry
Exterior Wall 2	

Building Photo

(https://images.vgsi.com/photos/HamdenCTPhotos//\0045\20220215_03_4

Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Water
AC Type	None
Struct Class	
Bldg Use	APT Over 8
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	1120
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	8.00
% Comn Wall	0.00

Building Layout



(https://images.vgsi.com/photos/HamdenCTPhotos//Sketches/100226_208

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
FUS	Upper Story, Finished	36,186	36,186
BAS	First Floor	18,048	18,048
FLL	Finished Lower Level	17,935	13,451
CAN	Canopy	176	0
FOP	Porch, Open	2,663	0
SLB	Slab	48	0
		75,056	67,685

Building 2 : Section 1

Year Built: 1970

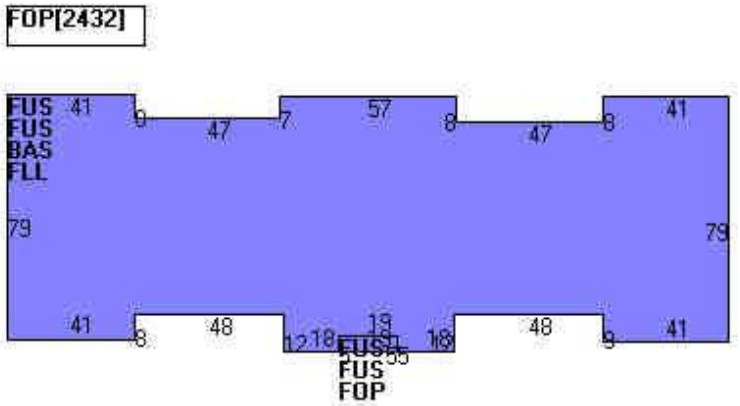
Living Area: 61,923
Building Percent Good: 47

Building Attributes : Bldg 2 of 4	
Field	**Description**
STYLE	Apartments
MODEL	Comm/Ind
Grade	C
Stories:	3
Occupancy	57.00
Exterior Wall 1	Brick Veneer
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Water
AC Type	Central
Struct Class	
Bldg Use	APT Over 8
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	

Building Photo

(https://images.vgsi.com/photos/HamdenCTPhotos//default.jpg)

Building Layout



(https://images.vgsi.com/photos/HamdenCTPhotos//Sketches/100226_125

Building Sub-Areas (sq ft)	Legend

Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	8.00
% Comn Wall	0.00

Code	Description	Gross Area	Living Area
FUS	Upper Story, Finished	33,114	33,114
BAS	First Floor	16,462	16,462
FLL	Finished Lower Level	16,462	12,347
FOP	Porch, Open	2,495	0
		68,533	61,923

Building 3 : Section 1

Year Built: 1970
Living Area: 62,232
Building Percent Good: 47

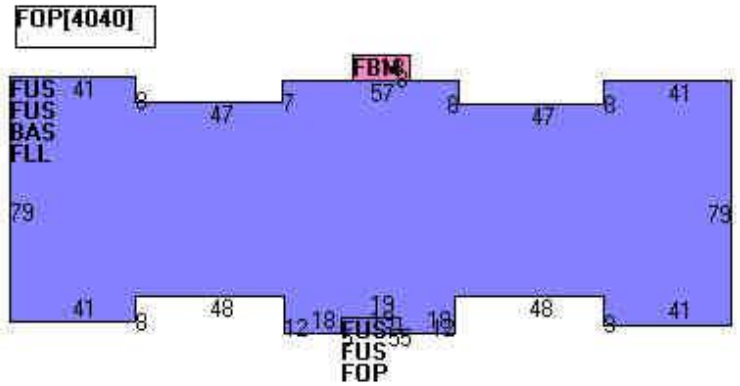
Building Attributes : Bldg 3 of 4	
Field	**Description**
STYLE	Apartments
MODEL	Comm/Ind
Grade	C
Stories:	3
Occupancy	55.00
Exterior Wall 1	Brick Veneer
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet

Building Photo

(https://images.vgsi.com/photos/HamdenCTPhotos//default.jpg)

Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Water
AC Type	Central
Struct Class	
Bldg Use	APT Over 8
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	8.00
% Comn Wall	0.00

Building Layout



(https://images.vgsi.com/photos/HamdenCTPhotos//Sketches/100226_125

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
FUS	Upper Story, Finished	33,208	33,208
BAS	First Floor	16,640	16,640
FLL	Finished Lower Level	16,512	12,384
CAN	Canopy	48	0
FOP	Porch, Open	4,216	0
SLB	Slab	128	0
		70,752	62,232

Building 4 : Section 1

Year Built: 1970

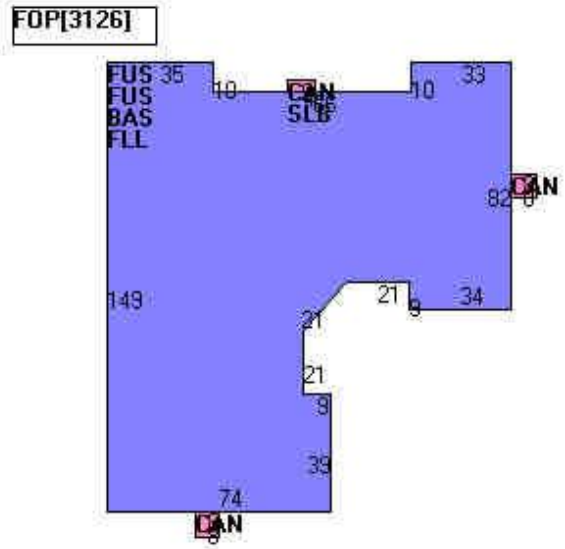
Living Area: 55,616
Building Percent Good: 47

Building Attributes : Bldg 4 of 4	
Field	**Description**
STYLE	Apartments
MODEL	Comm/Ind
Grade	C
Stories:	3
Occupancy	54.00
Exterior Wall 1	Brick Veneer
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Water
AC Type	None
Struct Class	
Bldg Use	APT Over 8
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	

Building Photo

(https://images.vgsi.com/photos/HamdenCTPhotos//default.jpg)

Building Layout



(https://images.vgsi.com/photos/HamdenCTPhotos//Sketches/100226_125

Building Sub-Areas (sq ft)	Legend

Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	8.00
% Comn Wall	0.00

Code	Description	Gross Area	Living Area
FUS	Upper Story, Finished	29,662	29,662
BAS	First Floor	14,831	14,831
FLL	Finished Lower Level	14,831	11,123
CAN	Canopy	164	0
FOP	Porch, Open	2,818	0
SLB	Slab	36	0
		62,342	55,616

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
ELV2	PASS ELEV	4.00 STOPS	$198,000	1
ELV2	PASS ELEV	4.00 STOPS	$206,800	2
ELV2	PASS ELEV	4.00 STOPS	$206,800	3
ELV2	PASS ELEV	4.00 STOPS	$206,800	4

Land

Land Use

Use Code	1120
Description	APT Over 8
Zone	R5
Neighborhood	100
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	8.61
Frontage	
Depth	
Assessed Value	$4,254,250
Appraised Value	$6,077,500

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CELL	CELL SITE			1.00 UNITS	$250,000	4
PAV1	PAVING-ASPHALT			100000.00 S.F.	$66,000	1
LT1	LIGHTS-IN W/PL			36.00 UNITS	$13,100	1
SHD2	W/LIGHTS ETC			216.00 S.F.	$1,600	1
FGR1	GARAGE-AVE			576.00 S.F.	$8,600	1
SHD4	PUMP HOUSE			240.00 S.F.	$20,400	1
CELL	CELL SITE			1.00 UNITS	$250,000	1

Valuation History

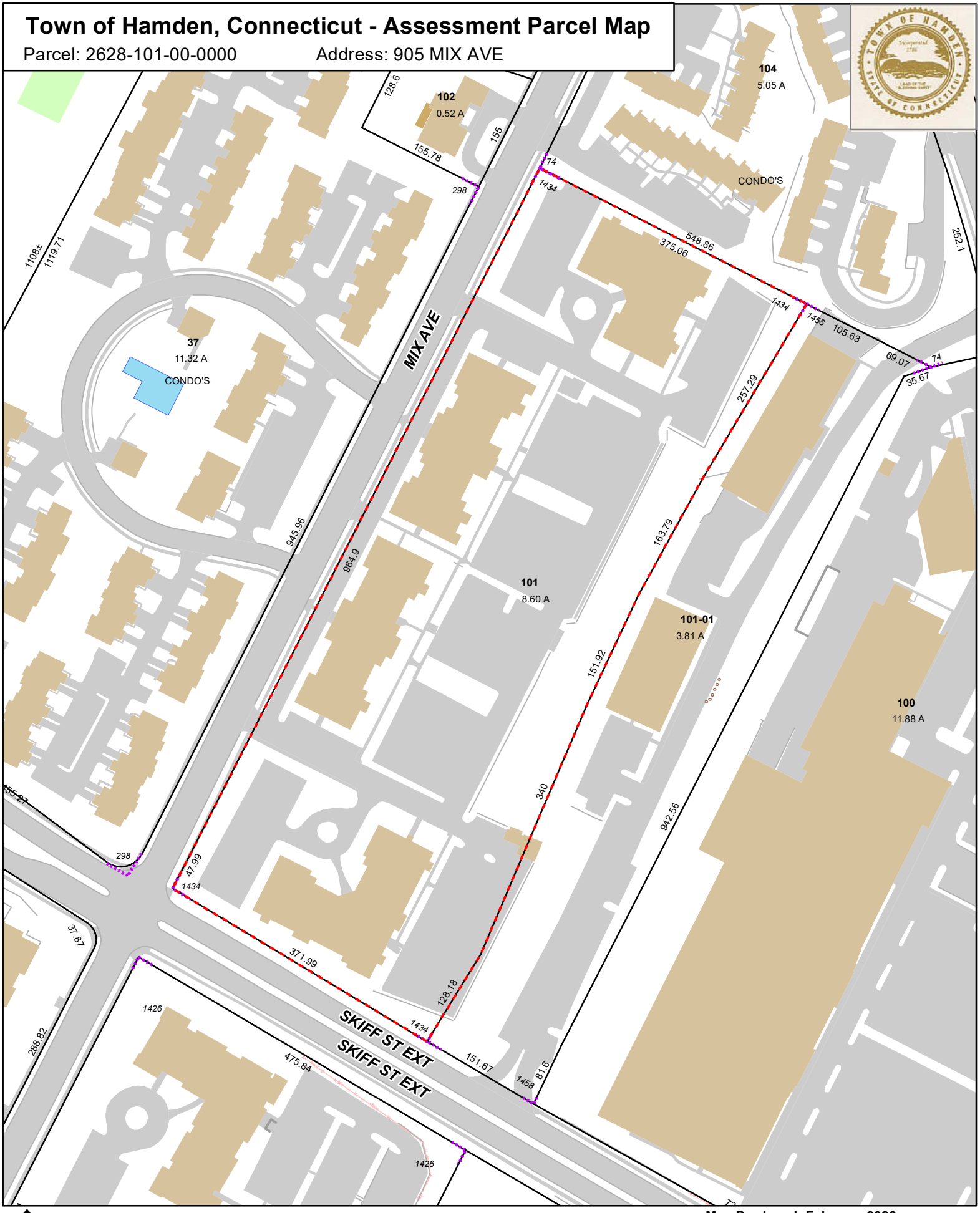
Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2021	$10,591,900	$818,400	$609,700	$6,077,500	$18,097,500

Assessment

Valuation Year	Building	Extra Features	Outbuildings	Land	Total
2021	$7,414,330	$572,880	$426,790	$4,254,250	$12,668,250

Town of Hamden, Connecticut - Assessment Parcel Map

Parcel: 2628-101-00-0000 Address: 905 MIX AVE



Approximate Scale: 1 inch = 150 feet

0 75 150 225 300 Feet

Map Produced: February 2023

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

136 Main Street, Suite 401
New Britain, Connecticut 06051-4225
Phone: 827-7682

Petition No. 316
Springwich Cellular Limited Partnership
Attachment of antennas to the top of a building
Hamden, Connecticut
Staff Report
January 12, 1993

On December 22, 1993, Springwich Cellular Limited Partnership (Springwich) submitted a petition to the Connecticut Siting Council (Council) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the proposed installation of cellular antennas on an existing roof-top tower structure and associated equipment at 975 Mix Avenue, Hamden, Connecticut.

On December 30, 1993, Mortimer A. Gelston, Chairman of the Council, and Joel M. Rinebold and Fred O. Cunliffe of Council staff met Peter Van Wilgen of Springwich at the proposed site.

Springwich's proposal would provide uninterrupted coverage along a high traffic corridor of Routes 10 and 15 in the Town of Hamden. Existing cell sites in Woodbridge, North Haven, New Haven, and Branford would provide hand-off capability to the proposed Hamden site.

Springwich proposes to install two seven-foot whip antennas on an exisitng 20-foot, guyed, lattice tower on the top of a four-story building. The existing tower structure supports an unused television antenna which would be removed. The antenna cables would be installed within an unused chimney to the base of the building and through utility rooms to the equipment room. The equipment room would be within an efficiency apartment on the first floor of a multiple residence complex. Additional sound barriers would be erected around the equipment to further reduce noise.

Springwich would install a cooling unit outside adjacent to the equipment room. The cooling unit would appear compatible with the building and be screened by landscaping. Springwich would obtain a building permit and FCC approval prior to the commencement of construction.

Springwich contends that the proposed installation would not have a substantial adverse environmental effect and accordingly requests that the Council issue a determination that no Certificate is required.

Fred Cunliffe
Siting Analyst

7594E

Petition 592
Southwestern Bell Mobile Systems (Cingular)
Replace Rooftop Telecommunications Tower
975 Mix Avenue
Hamden, Connecticut
Staff Report
October 23, 2002

This is a re-submittal of a modification previously filed as EM-CING-062-020930, which was denied at the Council meeting of 10/7/02. The existing facility is located on the roof of an apartment building at 975 Mix Avenue in Hamden. It consists of a 20-foot tall guyed lattice tower to which two whip antennas are attached. The whip antennas extend about 6 or 7 feet above the top of the lattice tower. Staff visited this site on October 3, 2002.

SBMS seeks to replace existing whip antennas with three 8-foot tall panel antennas and 6 tower mount amplifiers. The guyed lattice tower is not structurally capable of supporting the proposed replacement antennas. Therefore, SBMS seeks to replace the existing tower with a 20-foot tall monopole to be installed approximately 12 feet from the existing tower. An 8 ½' tall "antenna support pipe" would be attached to the top of the new monopole. The replacement panel antennas would be attached to this support pipe.

SBMS asserts that the support pipe would be a separate structural element from the 20-foot tall monopole and that it would be removed should the antennas it supports become obsolete or unneeded. SBMS sought to have a smaller support pipe installed, but engineering studies showed that the support pipe needs to be the same diameter as the monopole beneath it. Because the support pipe is a separate element, SBMS argues, it should not be included when calculating the height of the monopole and the replacement tower should be considered the same height as the existing tower.

However, staff feels that, because the support pipe would be the same diameter as the monopole, most people looking at the tower would not be able to distinguish a difference between the monopole and the support pipe and would perceive the two "separate elements" to be one, taller tower.

Despite this difference in interpretation, there are no compelling reasons to deny this modification as a petition. The top of the new antennas, as attached to the support pipe, would be approximately the same height as the top of the existing whip antennas. The replacement monopole would, in staff's estimation, have less of a visual impact than the existing guyed lattice tower. The power densities of the proposed replacement antennas would be a 13.5% increase over the power density of the existing antennas, but would remain well within regulatory limits.

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CHESTNUT HILL NORTH, LLC
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NEW HAVEN CT 06511-1411

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Hollis Redding

Mayor & Town Planner Copies

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To: Hollis Redding
Subject: USPS® Expected Delivery on Thursday, March 28, 2024 arriving by 9:00pm 9405503699300673855524

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USPS expects to deliver your package on Thursday, March 28, 2024 arriving by 9:00pm.

Tracking Number: **9405503699300673855524**

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By 9:00pm

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Sent: Thursday, March 28, 2024 3:02 AM
To: Hollis Redding
Subject: USPS® Expected Delivery by Friday, March 29, 2024 arriving by 9:00pm 9405503699300673855531

Hello **HOLLIS M REDDING**,

Your item arrived at our USPS facility in SPRINGFIELD MA NETWORK DISTRIBUTION CENTER on March 28, 2024 at 1:06 am. The item is currently in transit to the destination.

Tracking Number: **9405503699300673855531**

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