



Filed by:

Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
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September 12, 2016

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

Notice of Exempt Modification

95 Country Club Road, New Canaan, CT 06840

41 10 22.3 N

-73 29 46.8 W

AT&T #: 10091783_LTE - CT2282

Dear Ms. Bachman:

AT&T currently maintains three (3) antennas at the 89-foot level of the existing 109-foot Monopole Tower at 95 Country Club Rd in New Canaan, CT. The tower is owned by SBA Monarch Towers III, LLC. The property is owned by The Country Club of New Canaan. AT&T now intends to replace (3) existing antennas with (3) newer antennas. These antennas would be installed at the 87-foot level of the tower. AT&T's full scope of work is as follows:

Remove:

- None

Remove and Replace:

- Remove (3) Existing Panel Powerwave P65-16-XLH-RR antennas and replace with (3) CCI Panel HPA-65R-BUU-H6 antennas

Install:

- (6) 7/8" coax
- (3) TMA CCI DTMABP7819VG12A

Existing Equipment to Remain (Entitlements):

- (6) 7/8" coax
- (3) TMA CCI DTMABP7819VG12A



This facility was approved by the Council in docket # 244 on February 18, 2004. The approval called for a "silhouette structure" not to exceed 110' agl. There was to be reasonable space provided on the tower without charge for municipal antennas. A D&M plan was to be presented. And any future obsolete or non-functioning antennas were to be removed. This modification complies with the aforementioned conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to Robert E. Mallozzi, III, First Selectman for the Town of New Canaan, as well as the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581

508.251.0720 x3804 + T
508.366.2610 + F
203.446.7700 + C
kpelletier@sbsite.com

Attachments

cc: First Selectman Robert E. Mallozzi III—as elected official
Town of New Canaan Town Hall, 2nd Floor, 77 Main Street, New Canaan, CT 06840
The Country Club of New Canaan – as property owner
95 Country Club Road, New Canaan, CT 06840



POWER DENSITY

AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6
Gain:	12.65 / 14.75 / 11.95 dBd	Gain:	12.65 / 14.75 / 11.95 dBd	Gain:	12.65 / 14.75 / 11.95 dBd
Height (AGL):	89 feet	Height (AGL):	89 feet	Height (AGL):	89 feet
Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz	Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz	Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	420 Watts	Total TX Power(W):	420 Watts	Total TX Power(W):	420 Watts
ERP (W):	10,149.48	ERP (W):	10,149.48	ERP (W):	10,149.48
Antenna A1 MPE%	6.86 %	Antenna B1 MPE%	6.86 %	Antenna C1 MPE%	6.86 %

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	6.86 %
T-Mobile	1.35 %
Site Total MPE %:	8.21 %

AT&T Sector A Total:	6.86 %
AT&T Sector B Total:	6.86 %
AT&T Sector C Total:	6.86 %
Site Total:	8.21 %

AT&T _ Max Values Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	552.23	89	5.76	850 MHz	567	1.02%
AT&T 1900 MHz (PCS) GSM	2	895.61	89	9.35	1900 MHz (PCS)	1000	0.93%
AT&T 1900 MHz (PCS) UMTS	2	895.61	89	9.35	1900 MHz (PCS)	1000	0.93%
AT&T 700 MHz LTE	2	940.05	89	9.81	700 MHz	467	2.10%
AT&T 1900 MHz (PCS) LTE	2	1,791.23	89	18.70	1900 MHz (PCS)	1000	1.87%
						Total*:	6.86%

*NOTE: Totals may vary by 0.01% due to summing of remainders



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Location	Owner	Account	MBLU
95 COUNTRY CLUB RD	COUNTRY CLUB OF N C	01297	0033/ 0034/ 0055/

Parcel Value

Item	Appraised Value	Assessed Value
Buildings	8,542,300	5,979,610
Extra Building Features	9,500	6,650
Outbuildings	8,410,700	5,887,490
Land	23,738,600	16,617,020
Total	40,701,100	28,490,770

Owner of Record

COUNTRY CLUB OF N C 95 COUNTRY CLUB RD NEW CANAAN, CT 06840

Owner History

Name	Book/Page	Sale Date	Sale Price
COUNTRY CLUB OF N C	179/ 405	01/01/1966	0
COUNTRY CLUB OF N C	75/ 581	05/20/1945	0
COUNTRY CLUB OF N C	24/ 459	10/23/1902	0

Assessment History

Year	Total Assessment
2015	28,490,770
2014	28,490,770
2013	28,490,770
2012	24,167,710
2011	24,167,710
2010	24,167,800
2009	24,167,800
2008	24,045,700
2007	24,510,300
2006	24,510,300
2005	24,510,300
2004	24,510,300
2003	15,789,400
2002	10,858,120

Building Permits

Permit ID	Issue Date	Amount	Description
12-1355	11/27/2012	450,000	COM ADDS & ALTS
11-1151	01/04/2012	20,000	COM ADDS & ALTS
11-0645	08/04/2011	10,000	DEMO PERMIT
11-0521	08/02/2011	600,000	COM ADDS & ALTS
10-0080	03/01/2010	100,000	COM ADDS & ALTS
09-0154	04/22/2009	100	GENERAL PERMIT
08-1000	12/05/2008	10,500	GENERAL PERMIT
08-0881	10/21/2008	10,000	PADDLE TENNIS HUT
08-0248	06/10/2008	600,000	COM ADDITIONS & ALTERATIONS
07-0965	11/28/2007	159,000	COM ADDITIONS AND ALTERATIONS

06-0509	08/23/2006	3,000	SAND SILO
4-0160	01/18/2005	0	COM ISSUED
04-1362	12/27/2004	28,000	BUILT STORAGE ROOM
03-01195	06/03/2004	0	CO ISSUED
04-0160	05/25/2004	230,000	ADDITIONS AND ALTERATIONS
03-1195	12/09/2003	2,000,000	ALT & ADD
19771A	03/24/2000	70,000	
19940	03/07/2000	15,000	
19868	01/07/2000	2,400	
19771	11/02/1999	700,000	
35-99	10/05/1999	10,500	
20-99	06/15/1999	10,000	
19282	01/04/1999	20,000	
19168	10/06/1998	500,000	COUNTRY CLUB OF N C
1864-0055	10/28/1997	26,000	COUNTRY CLUB OF N C
1778-0055	05/01/1996	7,000	COUNTRY CLUB OF N C
1755-0055	10/12/1995	200,000	COUNTRY CLUB OF N C

Land Line Valuation

Size	Zone	Dev Map #	Appraised Value	Assessed Value
153.35 AC	4 AC	1469	23,738,600	16,617,020

Building Details - Click Buildings Below

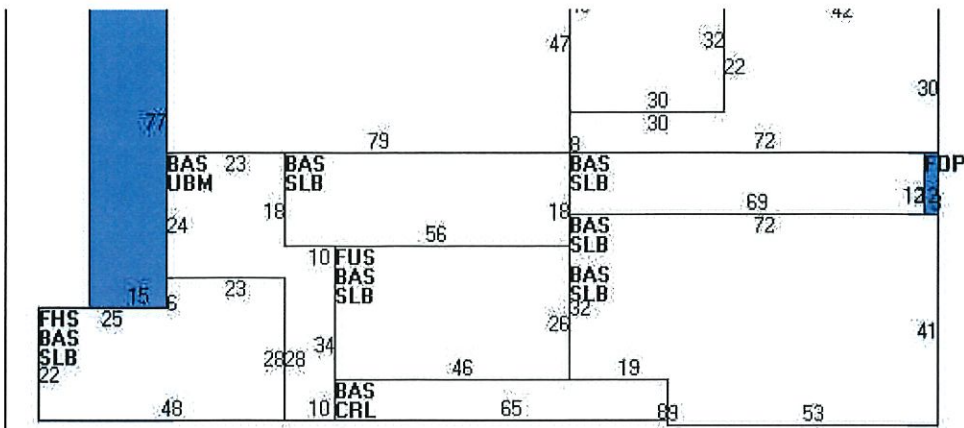
Building 1	Building 2	Building 3	Building 4	Building 5
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Building 1



Item	Value
Style	Country Club
Stories	2.00
Exterior Wall 1	Wood on Sheath
Roof Cover	Asphalt Shngl.
Roof Structure	Gable/Hip
Interior Wall 1	Brick
Interior Floor 1	Average
Heat Fuel	Typical
Heat Type	Hot Water
AC Type	None
Total Bedrooms	00
Total Bathrooms	0
Year Built	1900

Building Sketch



Outbuildings

Code	Description	Units
PAV5	Paving	20000 S.F.
GRS1	Golf Greens good	18 UNITS
SHD1	Shed	96 S.F.
SHD2	Shed Good	225 S.F.

Subarea Summary

Code	Description	Gross Area	Living Area
BAS	First Floor	14,914	14,914
CAN	Canopy	1,533	0
CRL	Crawl Space	5,515	0
FHS	Half Story, Finished	1,194	597
FLP	Flagstote Pat	2,111	0
FOP	Open Porch	36	0
FUS	Upper Story, Finished	1,196	1,196
SLB	Slab	8,507	0
UBM	Basement, Unfinished	892	0
Total Living Area:			16,707



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

AT&T Existing Facility

Site ID: CT2282

New Canaan Country Club
95 Country Club Road
New Canaan, CT 06840

September 1, 2016

EBI Project Number: 6216003844

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	8.21 %



September 1, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT2282 – New Canaan Country Club**

EBI Consulting was directed to analyze the proposed AT&T facility located at **95 Country Club Road, New Canaan, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **95 Country Club Road, New Canaan, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 GSM channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 UMTS channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **CCI HPA-65R-BUU-H6** for transmission in the 700 MHz, 850 MHz and 1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **89 feet** above ground level (AGL) for **Sector A**, **89 feet** above ground level (AGL) for **Sector B** and **89 feet** above ground level (AGL) for Sector C.
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.



AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6
Gain:	12.65 / 14.75 / 11.95 dBd	Gain:	12.65 / 14.75 / 11.95 dBd	Gain:	12.65 / 14.75 / 11.95 dBd
Height (AGL):	89 feet	Height (AGL):	89 feet	Height (AGL):	89 feet
Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz	Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz	Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	420 Watts	Total TX Power(W):	420 Watts	Total TX Power(W):	420 Watts
ERP (W):	10,149.48	ERP (W):	10,149.48	ERP (W):	10,149.48
Antenna A1 MPE%	6.86 %	Antenna B1 MPE%	6.86 %	Antenna C1 MPE%	6.86 %

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	6.86 %
T-Mobile	1.35 %
Site Total MPE %:	8.21 %

AT&T Sector A Total:	6.86 %
AT&T Sector B Total:	6.86 %
AT&T Sector C Total:	6.86 %
Site Total:	8.21 %

AT&T_ Max Values Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	552.23	89	5.76	850 MHz	567	1.02%
AT&T 1900 MHz (PCS) GSM	2	895.61	89	9.35	1900 MHz (PCS)	1000	0.93%
AT&T 1900 MHz (PCS) UMTS	2	895.61	89	9.35	1900 MHz (PCS)	1000	0.93%
AT&T 700 MHz LTE	2	940.05	89	9.81	700 MHz	467	2.10%
AT&T 1900 MHz (PCS) LTE	2	1,791.23	89	18.70	1900 MHz (PCS)	1000	1.87%
						Total*:	6.86%

*NOTE: Totals may vary by 0.01% due to summing of remainders



Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	6.86 %
Sector B:	6.86 %
Sector C:	6.86 %
AT&T Maximum Total (per sector):	6.86 %
Site Total:	8.21 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **8.21 %** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
8445 Freepoint Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 109 ft. EEI Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT40876-T
Customer Site Name: CT389/New Canaan C C
Carrier Name: AT&T
Carrier Site ID / Name: 10091783 - CT2282
Site Location: 95 Country Club Road
New Canaan, Connecticut
Fairfield County
Latitude: 41.172860
Longitude: -73.496333

Analysis Result:

Max Structural Usage: 93.0% [Pass]
Max Foundation Usage: 32.0% [Pass]
Report Prepared by: Matthew Baker



8/22/16

Introduction

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

Sources of Information

Tower Drawings	EEI Job #15040, Drawing #GS56879, Date 09/06/07
Foundation Drawing	EEI Job #15040, Drawing #1504D-110.0, Date 09/06/07
Geotechnical Report	Jaworski Geotech, Inc. Project #04193G
Modification Drawings	Allpro Consulting Job #11-5047, Date 09/15/11

Analysis Criteria

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

Basic Wind Speed Used in the Analysis:	85.0 mph (fastest mile)
Basic Wind Speed with Ice:	74 mph (fastest mile) with 1/2" radial ice concurrent
Operational Wind Speed:	50 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-F / 2005 Connecticut State Building Code

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	106.0	3	S20045A1 - TMA	Flush Mounted inside existing 18" Concealment Shroud	(6) 1 5/8"	T-Mobile
2		3	Andrew - RR65-19-XXDP - Panel			
3	99.0	3	S20045A1 - TMA	Flush Mounted inside existing 18" Concealment Shroud	(6) 1 5/8"	
4		3	Andrew - RR65-19-XXDP - Panel			
5	89.0	3	Powerwave - P65-16-XLH-RR - Panel	Flush Mounted inside existing 30" Concealment Shroud	(6) 7/8"	AT&T
6		3	CCI - DTMAPB7819VG12A - TMA			

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	89.0	3	CCI - HPA-65R-BUU-H6 - Panel	Flush Mounted inside existing 30" Concealment Shroud	(12) 7/8"	AT&T
2		6	CCI - DTMAPB7819VG12A - TMA			

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate	Concealment mast
Max. Usage:	54.2%	84.2%	71.0%	93.0%*
Pass/Fail	Pass	Pass	Pass	Pass

*Complete information on the concealment mast was not available at the time this analysis was performed. Concealment mast usage was calculated by comparing the analysis reactions with the original design reactions at the elevation of the concealment mast to obtain the results shown here. It is recommended that original drawings of the concealment mast showing complete geometry be obtained for use in any future analyses.

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	272.0	4.7	5.9
Analysis Reactions	277.2	4.8	9.1

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-F for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.9173 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

The existing concealment shrouds at the 89' elevation are currently damaged. This analysis considers that these concealment shrouds are replaced with new shrouds of the same size at that elevation and fully intact. The analysis results are void if the concealment shrouds are not replaced.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed or/and ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Stress 54.2% at 0.0ft

Structure: CT40876-T-SBA
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69

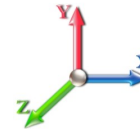
8/19/2016



Page: 1

Dead Load Factor: 1.00
Wind Load Factor: 1.00

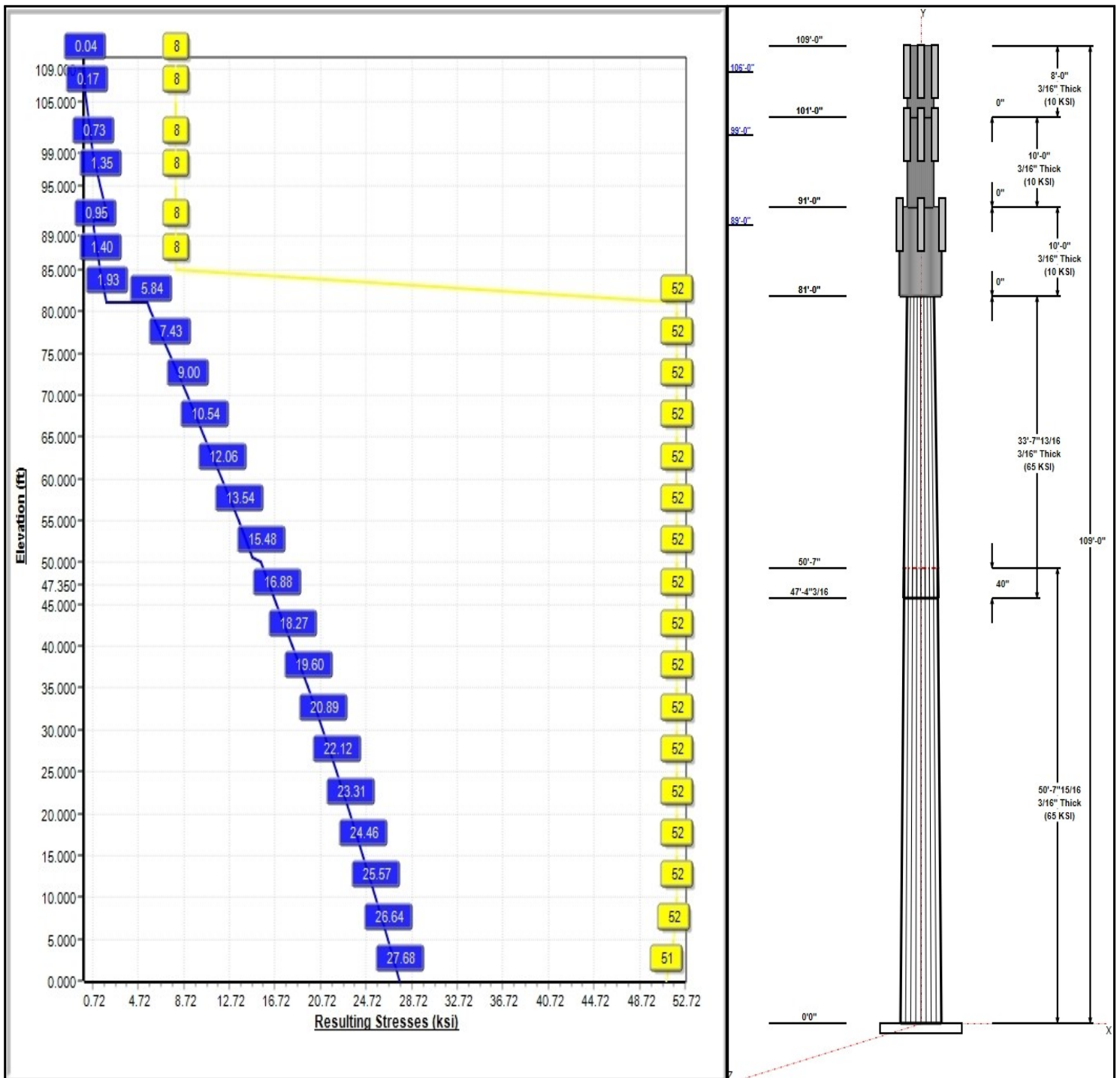
Load Case : 85 mph Wind with 0 in Ice



Iterations: 31

51 Allowable Stress
28 Resulting Stress

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Structure: CT40876-T-SBA

Type: Custom
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.00000

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	50.66	21.57	29.00	0.188		0.14660	65
2	33.65	17.50	22.43	0.188	Slip	0.14660	65
3	10.00	30.00	30.00	0.188	Butt	0.00000	10
4	10.00	18.00	18.00	0.188	Butt	0.00000	10
5	8.00	18.00	18.00	0.188	Butt	0.00000	10

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
106.00	106.00	3	S20045A1	T-Mobile
106.00	106.00	3	RR65-19-XXDP	T-Mobile
99.00	99.00	3	S20045A1	T-Mobile
99.00	99.00	3	RR65-19-XXDP	T-Mobile
89.00	89.00	3	HPA-65R-BUU-H6	AT&T
89.00	89.00	6	DTMABP7819VG12A	AT&T

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	106.00	Inside	1 5/8" Coax	T-Mobile
0.00	99.00	Inside	1 5/8" Coax	T-Mobile
0.00	89.00	Inside	7/8" Coax	AT&T

Anchor Bolts

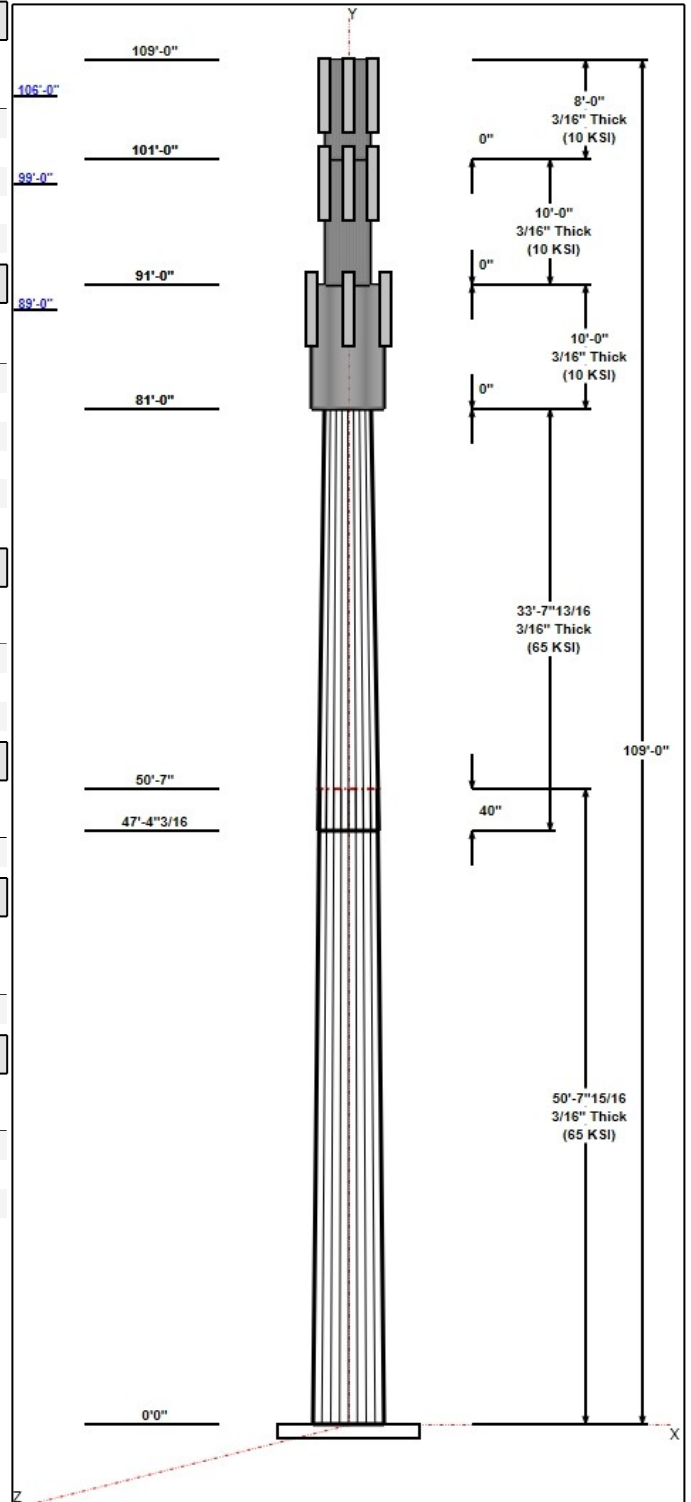
Qty	Specifications	Grade (ksi)	Arrangement
4	1.75" #18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.7500	36.0	50.0	Clipped

Reactions

Load Case	Moment	Shear	Axial
85 mph Wind with 0" Ice	277.2	4.8	7.4
73.61 mph Wind with 0.5" Ice	219.4	3.7	9.1
50 mph Wind with 0" Ice	95.9	1.7	7.4

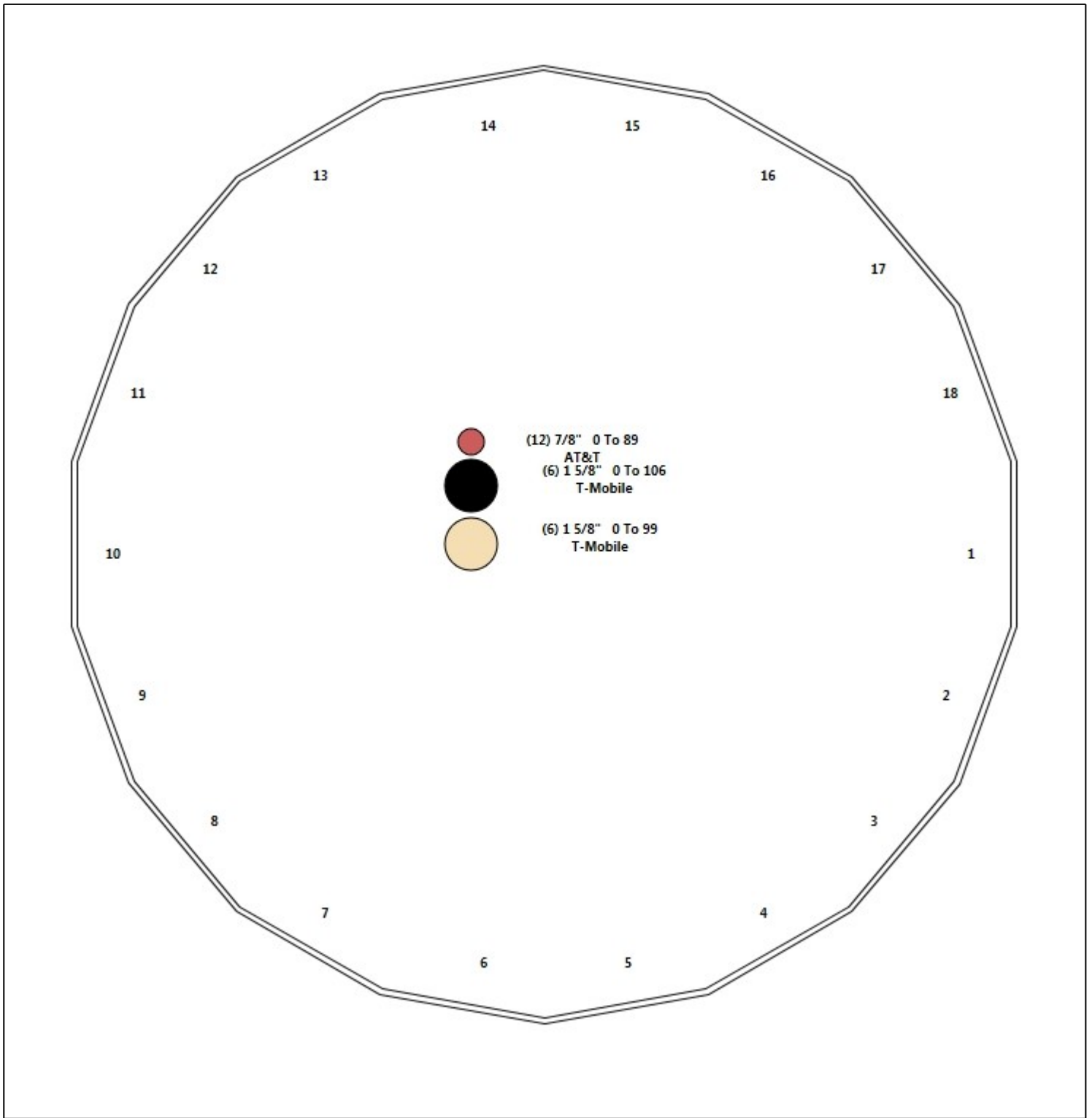


Structure: CT40876-T-SBA - Coax Line Placement

Type: Monopole
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)

8/19/2016

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Shaft Properties

Structure: CT40876-T-SBA
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/19/2016

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	50.660	0.1875	65		0.00	2,575
2	18	33.650	0.1875	65	Slip	39.72	1,348
3	R	10.000	0.1875	10	Flange	0.00	598
4	R	10.000	0.1875	10	Flange	0.00	357
5	R	8.000	0.1875	10	Flange	0.00	286
Total Shaft Weight:							5,163

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	29.00	0.00	17.15	1798.41	25.86	154.67	21.57	50.66	12.73	735.37	18.88	115.06	0.146605
2	22.43	47.35	13.24	827.73	19.69	119.64	17.50	81.00	10.30	390.14	15.05	93.33	0.146605
3	30.00	81.00	17.56	1952.49	0.00	160.00	30.00	91.00	17.56	1952.49	0.00	160.00	0.000000
4	18.00	91.00	10.49	416.46	0.00	96.00	18.00	101.0	10.49	416.46	0.00	96.00	0.000000
5	18.00	101.0	10.49	416.46	0.00	96.00	18.00	109.0	10.49	416.46	0.00	96.00	0.000000

Loading Summary

Structure: CT40876-T-SBA
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/19/2016

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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	106.00	S20045A1	3	11.00	0.00	0.00	16.40	0.000	0.00	0.00	0.00
2	106.00	RR65-19-XXDP	3	16.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00
3	99.00	S20045A1	3	11.00	0.00	0.00	16.40	0.000	0.00	0.00	0.00
4	99.00	RR65-19-XXDP	3	16.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00
5	89.00	HPA-65R-BUU-H6	3	51.00	0.00	0.00	108.40	0.000	0.00	0.00	0.00
6	89.00	DTMABP7819VG12A	6	19.20	0.00	0.00	26.50	0.000	0.00	0.00	0.00
Totals:			21	430.20			582.60				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	No Ice		Ice		Exposed
			Weight (lb/ft)	CaAa (sf/ft)	Weight (lb/ft)	CaAa (sf/ft)	
0.00	106.00	(6) 1 5/8" Coax	6.24	0.00	0.00	0.00	Inside
0.00	99.00	(6) 1 5/8" Coax	6.24	0.00	0.00	0.00	Inside
0.00	89.00	(12) 7/8" Coax	6.24	0.00	0.00	0.00	Inside
Totals:			1,834.56		0.00		

Shaft Section Properties

Structure: CT40876-T-SBA
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/19/2016

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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.1875	29.000	17.146	1798.4	25.86	154.67	65	51	0.0
5.00		0.1875	28.267	16.710	1664.6	25.17	150.76	65	52	288.0
10.00		0.1875	27.534	16.274	1537.6	24.48	146.85	65	52	280.6
15.00		0.1875	26.801	15.838	1417.3	23.79	142.94	65	52	273.2
20.00		0.1875	26.068	15.402	1303.3	23.10	139.03	65	52	265.8
25.00		0.1875	25.335	14.965	1195.7	22.41	135.12	65	52	258.3
30.00		0.1875	24.602	14.529	1094.2	21.73	131.21	65	52	250.9
35.00		0.1875	23.869	14.093	998.5	21.04	127.30	65	52	243.5
40.00		0.1875	23.136	13.657	908.7	20.35	123.39	65	52	236.1
45.00		0.1875	22.403	13.220	824.3	19.66	119.48	65	52	228.6
47.35	Bot - Section 2	0.1875	22.058	13.015	786.6	19.33	117.64	65	52	104.9
50.00		0.1875	21.670	12.784	745.4	18.97	115.57	65	52	234.7
50.66	Top - Section 1	0.1875	21.948	12.950	774.7	19.23	117.06	65	52	57.8
55.00		0.1875	21.312	12.571	708.7	18.63	113.66	65	52	188.4
60.00		0.1875	20.579	12.135	637.5	17.94	109.75	65	52	210.2
65.00		0.1875	19.846	11.699	571.2	17.25	105.84	65	52	202.8
70.00		0.1875	19.113	11.262	509.6	16.56	101.93	65	52	195.3
75.00		0.1875	18.380	10.826	452.7	15.87	98.02	65	52	187.9
80.00		0.1875	17.647	10.390	400.1	15.18	94.12	65	52	180.5
81.00	Top - Section 2	0.1875	17.500	10.303	390.1	15.05	93.33	65	52	35.2
81.00	Bot - Section 3	0.1875	30.000	17.561	1952.5	15.05	93.33	10	52	
85.00		0.1875	30.000	17.561	1952.5	0.00	160.00	10	8	239.0
89.00		0.1875	30.000	17.561	1952.5	0.00	160.00	10	8	239.0
90.00		0.1875	30.000	17.561	1952.5	0.00	160.00	10	8	59.8
91.00	Top - Section 3	0.1875	30.000	17.561	1952.5	0.00	160.00	10	8	59.8
91.00	Bot - Section 4	0.1875	18.000	10.492	416.5	0.00	160.00	10	8	
95.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	142.8
99.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	142.8
100.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	35.7
101.00	Top - Section 4	0.1875	18.000	10.492	416.5	0.00	96.00	10	8	35.7
101.00	Bot - Section 5	0.1875	18.000	10.492	416.5	0.00	96.00	10	8	
105.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	142.8
106.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	35.7
109.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	107.1
										5162.8

Wind Loading - Shaft

Structure: CT40876-T-SBA
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

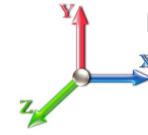
8/19/2016

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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	18.496	31.26	205.42	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	18.496	31.26	200.22	0.650	0.000	5.00	11.931	7.75	242.4	0.0	288.0
10.00		0.00	1.00	18.496	31.26	195.03	0.650	0.000	5.00	11.625	7.56	236.2	0.0	280.6
15.00		0.00	1.00	18.496	31.26	189.84	0.650	0.000	5.00	11.320	7.36	230.0	0.0	273.2
20.00		0.00	1.00	18.496	31.26	184.65	0.650	0.000	5.00	11.014	7.16	223.8	0.0	265.8
25.00		0.00	1.00	18.496	31.26	179.46	0.650	0.000	5.00	10.709	6.96	217.6	0.0	258.3
30.00		0.00	1.00	18.496	31.26	174.26	0.650	0.000	5.00	10.403	6.76	211.4	0.0	250.9
35.00		0.00	1.02	18.810	31.79	170.50	0.650	0.000	5.00	10.098	6.56	208.6	0.0	243.5
40.00		0.00	1.06	19.541	33.02	168.44	0.650	0.000	5.00	9.793	6.37	210.2	0.0	236.1
45.00		0.00	1.09	20.210	34.15	165.88	0.650	0.000	5.00	9.487	6.17	210.6	0.0	228.6
47.35	Bot - Section 2	0.00	1.11	20.506	34.66	164.52	0.650	0.000	2.35	4.353	2.83	98.1	0.0	104.9
50.00		0.00	1.13	20.827	35.20	162.88	0.650	0.000	2.65	4.911	3.19	112.4	0.0	234.7
50.66	Top - Section 1	0.00	1.13	20.906	35.33	162.46	0.650	0.000	0.66	1.210	0.79	27.8	0.0	57.8
55.00		0.00	1.16	21.402	36.17	162.39	0.650	0.000	4.34	7.823	5.08	183.9	0.0	188.4
60.00		0.00	1.19	21.941	37.08	158.76	0.650	0.000	5.00	8.727	5.67	210.3	0.0	210.2
65.00		0.00	1.21	22.449	37.94	154.87	0.650	0.000	5.00	8.422	5.47	207.7	0.0	202.8
70.00		0.00	1.24	22.929	38.75	150.73	0.650	0.000	5.00	8.116	5.28	204.4	0.0	195.3
75.00		0.00	1.26	23.386	39.52	146.39	0.650	0.000	5.00	7.811	5.08	200.7	0.0	187.9
80.00		0.00	1.29	23.821	40.26	141.85	0.650	0.000	5.00	7.505	4.88	196.4	0.0	180.5
81.00	Top - Section 2	0.00	1.29	23.906	40.40	140.92	0.650	0.000	1.00	1.464	0.95	38.5	0.0	35.2
85.00		0.00	1.31	24.237	40.96	243.25	0.590	0.000	4.00	10.000	5.90	241.7	0.0	239.0
89.00	Appurtenance(s)	0.00	1.33	24.558	41.50	244.86	0.590	0.000	4.00	10.000	5.90	244.9	0.0	239.0
90.00		0.00	1.33	24.636	41.63	245.25	0.590	0.000	1.00	2.500	1.47	61.4	0.0	59.8
91.00	Top - Section 3	0.00	1.34	24.714	41.77	245.64	0.590	0.000	1.00	2.500	1.47	61.6	0.0	59.8
95.00		0.00	1.35	25.020	42.28	148.29	0.590	0.000	4.00	6.000	3.54	149.7	0.0	142.8
99.00	Appurtenance(s)	0.00	1.37	25.316	42.78	149.17	0.590	0.000	4.00	6.000	3.54	151.5	0.0	142.8
100.00		0.00	1.37	25.389	42.91	149.38	0.590	0.000	1.00	1.500	0.89	38.0	0.0	35.7
101.00	Top - Section 4	0.00	1.38	25.461	43.03	149.59	0.590	0.000	1.00	1.500	0.89	38.1	0.0	35.7
105.00		0.00	1.39	25.745	43.51	150.43	0.590	0.000	4.00	6.000	3.54	154.0	0.0	142.8
106.00	Appurtenance(s)	0.00	1.40	25.815	43.63	150.63	0.590	0.000	1.00	1.500	0.89	38.6	0.0	35.7
109.00		0.00	1.41	26.022	43.98	151.23	0.590	0.000	3.00	4.500	2.65	116.8	0.0	107.1
Totals:									109.00			4,767.0		5,162.8

Discrete Appurtenance Forces

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

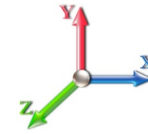
8/19/2016

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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	106.00	S20045A1	3	25.815	43.628	0.00	0.00	33.00	0.000	0.000	0.00	0.00	0.00
2	106.00	RR65-19-XXDP	3	25.815	43.628	0.00	0.00	48.00	0.000	0.000	0.00	0.00	0.00
3	99.00	S20045A1	3	25.316	42.784	0.00	0.00	33.00	0.000	0.000	0.00	0.00	0.00
4	99.00	RR65-19-XXDP	3	25.316	42.784	0.00	0.00	48.00	0.000	0.000	0.00	0.00	0.00
5	89.00	HPA-65R-BUU-H6	3	24.558	41.502	0.00	0.00	153.00	0.000	0.000	0.00	0.00	0.00
6	89.00	DTMABP7819VG12A	6	24.558	41.502	0.00	0.00	115.20	0.000	0.000	0.00	0.00	0.00
Totals:								430.20			0.00		

Total Applied Force Summary

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

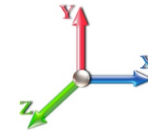
8/19/2016

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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		242.40	381.62	0.00	0.00
10.00		236.20	374.19	0.00	0.00
15.00		229.99	366.77	0.00	0.00
20.00		223.79	359.35	0.00	0.00
25.00		217.58	351.93	0.00	0.00
30.00		211.38	344.51	0.00	0.00
35.00		208.65	337.08	0.00	0.00
40.00		210.21	329.66	0.00	0.00
45.00		210.62	322.24	0.00	0.00
47.35		98.07	148.89	0.00	0.00
50.00		112.36	284.26	0.00	0.00
50.66		27.78	70.15	0.00	0.00
55.00		183.92	269.69	0.00	0.00
60.00		210.35	303.77	0.00	0.00
65.00		207.68	296.35	0.00	0.00
70.00		204.43	288.93	0.00	0.00
75.00		200.65	281.51	0.00	0.00
80.00		196.40	274.08	0.00	0.00
81.00		38.46	53.93	0.00	0.00
85.00		241.67	313.90	0.00	0.00
89.00	(9) appurtenances	244.86	582.10	0.00	0.00
90.00		61.41	72.24	0.00	0.00
91.00		61.61	72.24	0.00	0.00
95.00		149.68	192.73	0.00	0.00
99.00	(6) appurtenances	151.46	273.73	0.00	0.00
100.00		37.97	41.94	0.00	0.00
101.00		38.08	41.94	0.00	0.00
105.00		154.02	167.77	0.00	0.00
106.00	(6) appurtenances	38.61	122.94	0.00	0.00
109.00		116.76	107.11	0.00	0.00
Totals:		4,767.05	7,427.59	0.00	0.00

Resulting Forces and Deflections

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

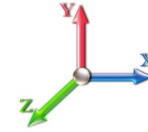
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/19/2016
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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-4.780	-7.419	0.000	0.000	0.000	-277.159	0.000	0.000	0.000	0.000	0.000
5.00	-4.563	-7.021	0.000	0.000	0.000	-253.257	-0.113	0.000	0.113	-0.210	0.000
10.00	-4.348	-6.632	0.000	0.000	0.000	-230.444	-0.443	0.000	0.443	-0.416	0.000
15.00	-4.137	-6.253	0.000	0.000	0.000	-208.702	-0.989	0.000	0.989	-0.620	0.000
20.00	-3.929	-5.883	0.000	0.000	0.000	-188.018	-1.745	0.000	1.745	-0.819	0.000
25.00	-3.724	-5.523	0.000	0.000	0.000	-168.373	-2.707	0.000	2.707	-1.013	0.000
30.00	-3.523	-5.171	0.000	0.000	0.000	-149.752	-3.870	0.000	3.870	-1.202	0.000
35.00	-3.322	-4.828	0.000	0.000	0.000	-132.137	-5.228	0.000	5.228	-1.386	0.000
40.00	-3.117	-4.495	0.000	0.000	0.000	-115.527	-6.774	0.000	6.774	-1.562	0.000
45.00	-2.906	-4.172	0.000	0.000	0.000	-99.942	-8.501	0.000	8.501	-1.731	0.000
47.35	-2.809	-4.023	0.000	0.000	0.000	-93.113	-9.372	0.000	9.372	-1.809	0.000
50.00	-2.691	-3.740	0.000	0.000	0.000	-85.669	-10.401	0.000	10.401	-1.895	0.000
50.66	-2.666	-3.667	0.000	0.000	0.000	-83.893	-10.664	0.000	10.664	-1.916	0.000
55.00	-2.481	-3.398	0.000	0.000	0.000	-72.323	-12.467	0.000	12.467	-2.047	0.000
60.00	-2.266	-3.097	0.000	0.000	0.000	-59.919	-14.683	0.000	14.683	-2.180	0.000
65.00	-2.053	-2.805	0.000	0.000	0.000	-48.588	-17.032	0.000	17.032	-2.301	0.000
70.00	-1.841	-2.521	0.000	0.000	0.000	-38.324	-19.500	0.000	19.500	-2.409	0.000
75.00	-1.632	-2.246	0.000	0.000	0.000	-29.119	-22.074	0.000	22.074	-2.503	0.000
80.00	-1.425	-1.980	0.000	0.000	0.000	-20.959	-24.739	0.000	24.739	-2.582	0.000
81.00	-1.385	-1.927	0.000	0.000	0.000	-19.534	-25.281	0.000	25.281	-2.596	0.000
85.00	-1.130	-1.624	0.000	0.000	0.000	-13.993	-27.478	0.000	27.478	-2.645	0.000
89.00	-0.859	-1.054	0.000	0.000	0.000	-9.471	-29.696	0.000	29.696	-2.652	0.000
90.00	-0.794	-0.985	0.000	0.000	0.000	-8.612	-30.252	0.000	30.252	-2.653	0.000
91.00	-0.730	-0.915	0.000	0.000	0.000	-7.818	-30.807	0.000	30.807	-2.655	0.000
95.00	-0.571	-0.730	0.000	0.000	0.000	-4.900	-33.032	0.000	33.032	-2.658	0.000
99.00	-0.407	-0.463	0.000	0.000	0.000	-2.615	-35.264	0.000	35.264	-2.669	0.000
100.00	-0.367	-0.423	0.000	0.000	0.000	-2.208	-35.823	0.000	35.823	-2.670	0.000
101.00	-0.327	-0.383	0.000	0.000	0.000	-1.841	-36.382	0.000	36.382	-2.672	0.000
105.00	-0.166	-0.223	0.000	0.000	0.000	-0.531	-38.621	0.000	38.621	-2.675	0.000
106.00	-0.122	-0.102	0.000	0.000	0.000	-0.365	-39.181	0.000	39.181	-2.675	0.000
109.00	-0.117	0.000	0.000	0.000	0.000	0.000	0.000	0.000	40.861	-2.676	0.000

Resulting Stresses

Structure: CT40876-T-SBA
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

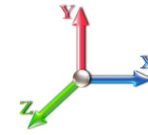
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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio	
0.00	0.43	0.56	0.00	0.00	0.00	27.23	27.68	51.1	0.542	
5.00	0.42	0.55	0.00	0.00	0.00	26.20	26.64	51.7	0.516	
10.00	0.41	0.54	0.00	0.00	0.00	25.14	25.57	52.0	0.492	
15.00	0.39	0.53	0.00	0.00	0.00	24.05	24.46	52.0	0.471	
20.00	0.38	0.51	0.00	0.00	0.00	22.91	23.31	52.0	0.448	
25.00	0.37	0.50	0.00	0.00	0.00	21.74	22.12	52.0	0.426	
30.00	0.36	0.49	0.00	0.00	0.00	20.51	20.89	52.0	0.402	
35.00	0.34	0.48	0.00	0.00	0.00	19.24	19.60	52.0	0.377	
40.00	0.33	0.46	0.00	0.00	0.00	17.92	18.27	52.0	0.351	
45.00	0.32	0.44	0.00	0.00	0.00	16.55	16.88	52.0	0.325	
47.35	0.31	0.44	0.00	0.00	0.00	15.91	16.24	52.0	0.312	
50.00	0.29	0.42	0.00	0.00	0.00	15.17	15.48	52.0	0.298	
50.66	0.28	0.41	0.00	0.00	0.00	14.48	14.78	52.0	0.284	
55.00	0.27	0.40	0.00	0.00	0.00	13.25	13.54	52.0	0.260	
60.00	0.26	0.38	0.00	0.00	0.00	11.78	12.06	52.0	0.232	
65.00	0.24	0.35	0.00	0.00	0.00	10.29	10.54	52.0	0.203	
70.00	0.22	0.33	0.00	0.00	0.00	8.76	9.00	52.0	0.173	
75.00	0.21	0.30	0.00	0.00	0.00	7.20	7.43	52.0	0.143	
80.00	0.19	0.28	0.00	0.00	0.00	5.63	5.84	52.0	0.112	
81.00	0.19	0.27	0.00	0.00	0.00	5.34	5.55	52.0	0.107	
81.00	0.19	0.27	0.00	0.00	0.00	5.34	5.55	52.0	0.037	
85.00	0.09	0.13	0.00	0.00	0.00	1.29	1.40	8.0	8.0	0.175
89.00	0.06	0.10	0.00	0.00	0.00	0.87	0.95	8.0	8.0	0.119
90.00	0.06	0.09	0.00	0.00	0.00	0.79	0.86	8.0	8.0	0.108
91.00	0.05	0.08	0.00	0.00	0.00	0.72	0.79	8.0	8.0	0.098
91.00	0.05	0.08	0.00	0.00	0.00	0.72	0.79	8.0	8.0	0.266
95.00	0.07	0.11	0.00	0.00	0.00	1.27	1.35	8.0	8.0	0.169
99.00	0.04	0.08	0.00	0.00	0.00	0.68	0.73	8.0	8.0	0.092
100.00	0.04	0.07	0.00	0.00	0.00	0.57	0.62	8.0	8.0	0.078
101.00	0.04	0.06	0.00	0.00	0.00	0.48	0.53	8.0	8.0	0.066
101.00	0.04	0.06	0.00	0.00	0.00	0.48	0.53	8.0	8.0	0.066
105.00	0.02	0.03	0.00	0.00	0.00	0.14	0.17	8.0	8.0	0.021
106.00	0.01	0.02	0.00	0.00	0.00	0.09	0.11	8.0	8.0	0.014
109.00	0.00	0.02	0.00	0.00	0.00	0.00	0.04	8.0	8.0	0.005

Wind Loading - Shaft

Structure: CT40876-T-SBA
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

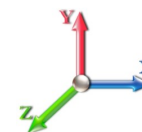
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Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	13.871	23.44	177.89	0.650	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	13.871	23.44	173.39	0.650	0.500	5.00	12.347	8.03	188.1	87.9	375.9
10.00		0.00	1.00	13.871	23.44	168.90	0.650	0.500	5.00	12.042	7.83	183.5	85.6	366.2
15.00		0.00	1.00	13.871	23.44	164.40	0.650	0.500	5.00	11.736	7.63	178.8	83.4	356.6
20.00		0.00	1.00	13.871	23.44	159.90	0.650	0.500	5.00	11.431	7.43	174.2	81.1	346.9
25.00		0.00	1.00	13.871	23.44	155.41	0.650	0.500	5.00	11.126	7.23	169.5	78.9	337.2
30.00		0.00	1.00	13.871	23.44	150.91	0.650	0.500	5.00	10.820	7.03	164.9	76.7	327.6
35.00		0.00	1.02	14.106	23.84	147.65	0.650	0.500	5.00	10.515	6.83	162.9	74.4	317.9
40.00		0.00	1.06	14.655	24.77	145.87	0.650	0.500	5.00	10.209	6.64	164.4	72.2	308.3
45.00		0.00	1.09	15.156	25.61	143.65	0.650	0.500	5.00	9.904	6.44	164.9	70.0	298.6
47.35 Bot - Section 2		0.00	1.11	15.379	25.99	142.47	0.650	0.500	2.35	4.549	2.96	76.9	32.4	137.3
50.00		0.00	1.13	15.620	26.40	141.06	0.650	0.500	2.65	5.132	3.34	88.1	36.5	271.2
50.66 Top - Section 1		0.00	1.13	15.678	26.50	140.69	0.650	0.500	0.66	1.265	0.82	21.8	9.1	66.8
55.00		0.00	1.16	16.051	27.13	140.63	0.650	0.500	4.34	8.184	5.32	144.3	57.8	246.3
60.00		0.00	1.19	16.455	27.81	137.49	0.650	0.500	5.00	9.144	5.94	165.3	64.4	274.6
65.00		0.00	1.21	16.836	28.45	134.12	0.650	0.500	5.00	8.838	5.74	163.5	62.1	264.9
70.00		0.00	1.24	17.196	29.06	130.54	0.650	0.500	5.00	8.533	5.55	161.2	59.9	255.2
75.00		0.00	1.26	17.538	29.64	126.77	0.650	0.500	5.00	8.228	5.35	158.5	57.7	245.6
80.00		0.00	1.29	17.865	30.19	122.84	0.650	0.500	5.00	7.922	5.15	155.5	55.4	235.9
81.00 Top - Section 2		0.00	1.29	17.928	30.30	122.04	0.650	0.500	1.00	1.548	1.01	30.5	11.0	46.2
85.00		0.00	1.31	18.177	30.72	210.66	0.590	0.500	4.00	10.333	6.10	187.3	74.5	313.6
89.00 Appurtenance(s)		0.00	1.33	18.417	31.12	212.05	0.590	0.500	4.00	10.333	6.10	189.8	74.5	313.6
90.00		0.00	1.33	18.476	31.22	212.38	0.590	0.500	1.00	2.583	1.52	47.6	18.6	78.4
91.00 Top - Section 3		0.00	1.34	18.534	31.32	212.72	0.590	0.500	1.00	2.583	1.52	47.7	18.6	78.4
95.00		0.00	1.35	18.764	31.71	128.42	0.590	0.500	4.00	6.333	3.74	118.5	45.2	188.0
99.00 Appurtenance(s)		0.00	1.37	18.986	32.09	129.18	0.590	0.500	4.00	6.333	3.74	119.9	45.2	188.0
100.00		0.00	1.37	19.041	32.18	129.36	0.590	0.500	1.00	1.583	0.93	30.1	11.3	47.0
101.00 Top - Section 4		0.00	1.38	19.095	32.27	129.55	0.590	0.500	1.00	1.583	0.93	30.1	11.3	47.0
105.00		0.00	1.39	19.308	32.63	130.27	0.590	0.500	4.00	6.333	3.74	121.9	45.2	188.0
106.00 Appurtenance(s)		0.00	1.40	19.360	32.72	130.44	0.590	0.500	1.00	1.583	0.93	30.6	11.3	47.0
109.00		0.00	1.41	19.515	32.98	130.97	0.590	0.500	3.00	4.750	2.80	92.4	33.9	141.0
Totals:									109.00			3,732.5	6,709.0	

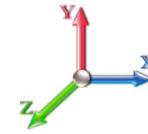
Discrete Appurtenance Forces

Structure: CT40876-T-SB	Code: EIA/TIA-222-F	8/19/2016
Site Name: CT389/New Canaan C C	Exposure: C	
Height: 109.00 (ft)	Gh: 1.69	
Base Elev: 0.000 (ft)	Struct Class: II	Page: 13



Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	106.00	S20045A1	3	19.360	32.719	0.00	0.00	49.20	0.000	0.000	0.00	0.00	0.00
2	106.00	RR65-19-XXDP	3	19.360	32.719	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00
3	99.00	S20045A1	3	18.986	32.086	0.00	0.00	49.20	0.000	0.000	0.00	0.00	0.00
4	99.00	RR65-19-XXDP	3	18.986	32.086	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00
5	89.00	HPA-65R-BUU-H6	3	18.417	31.125	0.00	0.00	325.20	0.000	0.000	0.00	0.00	0.00
6	89.00	DTMABP7819VG12A	6	18.417	31.125	0.00	0.00	159.00	0.000	0.000	0.00	0.00	0.00
Totals:								582.60			0.00		

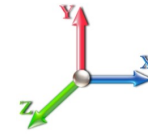
Total Applied Force Summary

Structure: CT40876-T-SB	Code: EIA/TIA-222-F	8/19/2016
Site Name: CT389/New Canaan C C	Exposure: C	
Height: 109.00 (ft)	Gh: 1.69	
Base Elev: 0.000 (ft)	Struct Class: II	Page: 14



Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		188.14	469.48	0.00	0.00
10.00		183.49	459.82	0.00	0.00
15.00		178.83	450.16	0.00	0.00
20.00		174.18	440.50	0.00	0.00
25.00		169.53	430.84	0.00	0.00
30.00		164.87	421.18	0.00	0.00
35.00		162.93	411.52	0.00	0.00
40.00		164.35	401.85	0.00	0.00
45.00		164.89	392.19	0.00	0.00
47.35		76.85	181.27	0.00	0.00
50.00		88.06	320.76	0.00	0.00
50.66		21.78	79.20	0.00	0.00
55.00		144.31	327.52	0.00	0.00
60.00		165.28	368.15	0.00	0.00
65.00		163.46	358.49	0.00	0.00
70.00		161.18	348.83	0.00	0.00
75.00		158.51	339.17	0.00	0.00
80.00		155.47	329.51	0.00	0.00
81.00		30.48	64.92	0.00	0.00
85.00		187.28	388.43	0.00	0.00
89.00	(9) appurtenances	189.76	872.63	0.00	0.00
90.00		47.59	90.87	0.00	0.00
91.00		47.74	90.87	0.00	0.00
95.00		118.49	237.94	0.00	0.00
99.00	(6) appurtenances	119.90	287.14	0.00	0.00
100.00		30.06	53.24	0.00	0.00
101.00		30.15	53.24	0.00	0.00
105.00		121.93	212.98	0.00	0.00
106.00	(6) appurtenances	30.56	102.44	0.00	0.00
109.00		92.43	141.01	0.00	0.00
	Totals:	3,732.49	9,126.16	0.00	0.00

Resulting Forces and Deflections

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

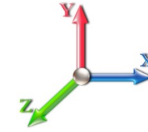
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/19/2016
 Page: 15



Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-3.746	-9.121	0.000	0.000	0.000	-219.432	0.000	0.000	0.000	0.000	0.000
5.00	-3.582	-8.641	0.000	0.000	0.000	-200.704	-0.089	0.000	0.089	-0.166	0.000
10.00	-3.419	-8.172	0.000	0.000	0.000	-182.797	-0.351	0.000	0.351	-0.330	0.000
15.00	-3.259	-7.715	0.000	0.000	0.000	-165.700	-0.783	0.000	0.783	-0.491	0.000
20.00	-3.100	-7.267	0.000	0.000	0.000	-149.407	-1.383	0.000	1.383	-0.649	0.000
25.00	-2.943	-6.831	0.000	0.000	0.000	-133.907	-2.146	0.000	2.146	-0.804	0.000
30.00	-2.789	-6.405	0.000	0.000	0.000	-119.191	-3.069	0.000	3.069	-0.955	0.000
35.00	-2.633	-5.990	0.000	0.000	0.000	-105.248	-4.147	0.000	4.147	-1.100	0.000
40.00	-2.474	-5.586	0.000	0.000	0.000	-92.082	-5.376	0.000	5.376	-1.241	0.000
45.00	-2.309	-5.193	0.000	0.000	0.000	-79.712	-6.748	0.000	6.748	-1.375	0.000
47.35	-2.234	-5.012	0.000	0.000	0.000	-74.286	-7.441	0.000	7.441	-1.438	0.000
50.00	-2.141	-4.692	0.000	0.000	0.000	-68.367	-8.258	0.000	8.258	-1.506	0.000
50.66	-2.122	-4.611	0.000	0.000	0.000	-66.954	-8.468	0.000	8.468	-1.523	0.000
55.00	-1.977	-4.284	0.000	0.000	0.000	-57.745	-9.902	0.000	9.902	-1.628	0.000
60.00	-1.807	-3.917	0.000	0.000	0.000	-47.863	-11.664	0.000	11.664	-1.734	0.000
65.00	-1.639	-3.561	0.000	0.000	0.000	-38.826	-13.533	0.000	13.533	-1.831	0.000
70.00	-1.471	-3.216	0.000	0.000	0.000	-30.633	-15.497	0.000	15.497	-1.917	0.000
75.00	-1.304	-2.881	0.000	0.000	0.000	-23.280	-17.546	0.000	17.546	-1.992	0.000
80.00	-1.139	-2.556	0.000	0.000	0.000	-16.759	-19.667	0.000	19.667	-2.055	0.000
81.00	-1.107	-2.492	0.000	0.000	0.000	-15.620	-20.099	0.000	20.099	-2.067	0.000
85.00	-0.907	-2.110	0.000	0.000	0.000	-11.192	-21.848	0.000	21.848	-2.106	0.000
89.00	-0.685	-1.245	0.000	0.000	0.000	-7.566	-23.614	0.000	23.614	-2.111	0.000
90.00	-0.634	-1.156	0.000	0.000	0.000	-6.881	-24.056	0.000	24.056	-2.112	0.000
91.00	-0.583	-1.067	0.000	0.000	0.000	-6.247	-24.499	0.000	24.499	-2.113	0.000
95.00	-0.456	-0.834	0.000	0.000	0.000	-3.914	-26.271	0.000	26.271	-2.116	0.000
99.00	-0.326	-0.551	0.000	0.000	0.000	-2.090	-28.047	0.000	28.047	-2.125	0.000
100.00	-0.294	-0.499	0.000	0.000	0.000	-1.765	-28.492	0.000	28.492	-2.126	0.000
101.00	-0.262	-0.447	0.000	0.000	0.000	-1.471	-28.937	0.000	28.937	-2.127	0.000
105.00	-0.132	-0.239	0.000	0.000	0.000	-0.425	-30.720	0.000	30.720	-2.130	0.000
106.00	-0.098	-0.137	0.000	0.000	0.000	-0.293	-31.166	0.000	31.166	-2.130	0.000
109.00	-0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.504	-2.130	0.000

Resulting Stresses

Structure: CT40876-T-SBA
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

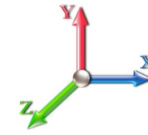
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Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio	
0.00	0.53	0.44	0.00	0.00	0.00	21.56	22.10	51.1	0.433	
5.00	0.52	0.43	0.00	0.00	0.00	20.76	21.29	51.7	0.412	
10.00	0.50	0.42	0.00	0.00	0.00	19.94	20.46	52.0	0.394	
15.00	0.49	0.41	0.00	0.00	0.00	19.09	19.59	52.0	0.377	
20.00	0.47	0.41	0.00	0.00	0.00	18.21	18.69	52.0	0.360	
25.00	0.46	0.40	0.00	0.00	0.00	17.29	17.76	52.0	0.342	
30.00	0.44	0.39	0.00	0.00	0.00	16.33	16.78	52.0	0.323	
35.00	0.43	0.38	0.00	0.00	0.00	15.33	15.77	52.0	0.303	
40.00	0.41	0.37	0.00	0.00	0.00	14.28	14.71	52.0	0.283	
45.00	0.39	0.35	0.00	0.00	0.00	13.20	13.61	52.0	0.262	
47.35	0.39	0.35	0.00	0.00	0.00	12.69	13.09	52.0	0.252	
50.00	0.37	0.34	0.00	0.00	0.00	12.11	12.49	52.0	0.240	
50.66	0.36	0.33	0.00	0.00	0.00	11.56	11.93	52.0	0.229	
55.00	0.34	0.32	0.00	0.00	0.00	10.58	10.93	52.0	0.210	
60.00	0.32	0.30	0.00	0.00	0.00	9.41	9.75	52.0	0.188	
65.00	0.30	0.28	0.00	0.00	0.00	8.22	8.54	52.0	0.164	
70.00	0.29	0.26	0.00	0.00	0.00	7.00	7.30	52.0	0.140	
75.00	0.27	0.24	0.00	0.00	0.00	5.76	6.04	52.0	0.116	
80.00	0.25	0.22	0.00	0.00	0.00	4.50	4.76	52.0	0.092	
81.00	0.24	0.22	0.00	0.00	0.00	4.27	4.53	52.0	0.087	
81.00	0.24	0.22	0.00	0.00	0.00	4.27	4.53	52.0	0.031	
85.00	0.12	0.10	0.00	0.00	0.00	1.03	1.17	8.0	8.0	0.146
89.00	0.07	0.08	0.00	0.00	0.00	0.70	0.78	8.0	8.0	0.098
90.00	0.07	0.07	0.00	0.00	0.00	0.63	0.71	8.0	8.0	0.089
91.00	0.06	0.07	0.00	0.00	0.00	0.58	0.65	8.0	8.0	0.081
91.00	0.06	0.07	0.00	0.00	0.00	0.58	0.65	8.0	8.0	0.217
95.00	0.08	0.09	0.00	0.00	0.00	1.02	1.10	8.0	8.0	0.138
99.00	0.05	0.06	0.00	0.00	0.00	0.54	0.60	8.0	8.0	0.076
100.00	0.05	0.06	0.00	0.00	0.00	0.46	0.51	8.0	8.0	0.064
101.00	0.04	0.05	0.00	0.00	0.00	0.38	0.43	8.0	8.0	0.054
101.00	0.04	0.05	0.00	0.00	0.00	0.38	0.43	8.0	8.0	0.054
105.00	0.02	0.03	0.00	0.00	0.00	0.11	0.14	8.0	8.0	0.017
106.00	0.01	0.02	0.00	0.00	0.00	0.08	0.09	8.0	8.0	0.012
109.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	8.0	8.0	0.004

Wind Loading - Shaft

Structure: CT40876-T-SBA
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

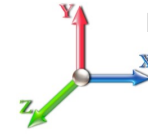
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Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 29

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.82	120.83	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.82	117.78	0.650	0.000	5.00	11.931	7.75	83.9	0.0	288.0
10.00		0.00	1.00	6.400	10.82	114.72	0.650	0.000	5.00	11.625	7.56	81.7	0.0	280.6
15.00		0.00	1.00	6.400	10.82	111.67	0.650	0.000	5.00	11.320	7.36	79.6	0.0	273.2
20.00		0.00	1.00	6.400	10.82	108.62	0.650	0.000	5.00	11.014	7.16	77.4	0.0	265.8
25.00		0.00	1.00	6.400	10.82	105.56	0.650	0.000	5.00	10.709	6.96	75.3	0.0	258.3
30.00		0.00	1.00	6.400	10.82	102.51	0.650	0.000	5.00	10.403	6.76	73.1	0.0	250.9
35.00		0.00	1.02	6.509	11.00	100.29	0.650	0.000	5.00	10.098	6.56	72.2	0.0	243.5
40.00		0.00	1.06	6.762	11.43	99.09	0.650	0.000	5.00	9.793	6.37	72.7	0.0	236.1
45.00		0.00	1.09	6.993	11.82	97.57	0.650	0.000	5.00	9.487	6.17	72.9	0.0	228.6
47.35	Bot - Section 2	0.00	1.11	7.095	11.99	96.77	0.650	0.000	2.35	4.353	2.83	33.9	0.0	104.9
50.00		0.00	1.13	7.207	12.18	95.81	0.650	0.000	2.65	4.911	3.19	38.9	0.0	234.7
50.66	Top - Section 1	0.00	1.13	7.234	12.23	95.56	0.650	0.000	0.66	1.210	0.79	9.6	0.0	57.8
55.00		0.00	1.16	7.406	12.52	95.52	0.650	0.000	4.34	7.823	5.08	63.6	0.0	188.4
60.00		0.00	1.19	7.592	12.83	93.39	0.650	0.000	5.00	8.727	5.67	72.8	0.0	210.2
65.00		0.00	1.21	7.768	13.13	91.10	0.650	0.000	5.00	8.422	5.47	71.9	0.0	202.8
70.00		0.00	1.24	7.934	13.41	88.67	0.650	0.000	5.00	8.116	5.28	70.7	0.0	195.3
75.00		0.00	1.26	8.092	13.68	86.11	0.650	0.000	5.00	7.811	5.08	69.4	0.0	187.9
80.00		0.00	1.29	8.242	13.93	83.44	0.650	0.000	5.00	7.505	4.88	68.0	0.0	180.5
81.00	Top - Section 2	0.00	1.29	8.272	13.98	82.90	0.650	0.000	1.00	1.464	0.95	13.3	0.0	35.2
85.00		0.00	1.31	8.387	14.17	143.09	0.590	0.000	4.00	10.000	5.90	83.6	0.0	239.0
89.00	Appurtenance(s)	0.00	1.33	8.497	14.36	144.03	0.590	0.000	4.00	10.000	5.90	84.7	0.0	239.0
90.00		0.00	1.33	8.525	14.41	144.26	0.590	0.000	1.00	2.500	1.47	21.2	0.0	59.8
91.00	Top - Section 3	0.00	1.34	8.552	14.45	144.49	0.590	0.000	1.00	2.500	1.47	21.3	0.0	59.8
95.00		0.00	1.35	8.657	14.63	87.23	0.590	0.000	4.00	6.000	3.54	51.8	0.0	142.8
99.00	Appurtenance(s)	0.00	1.37	8.760	14.80	87.74	0.590	0.000	4.00	6.000	3.54	52.4	0.0	142.8
100.00		0.00	1.37	8.785	14.85	87.87	0.590	0.000	1.00	1.500	0.89	13.1	0.0	35.7
101.00	Top - Section 4	0.00	1.38	8.810	14.89	88.00	0.590	0.000	1.00	1.500	0.89	13.2	0.0	35.7
105.00		0.00	1.39	8.908	15.06	88.49	0.590	0.000	4.00	6.000	3.54	53.3	0.0	142.8
106.00	Appurtenance(s)	0.00	1.40	8.933	15.10	88.61	0.590	0.000	1.00	1.500	0.89	13.4	0.0	35.7
109.00		0.00	1.41	9.004	15.22	88.96	0.590	0.000	3.00	4.500	2.65	40.4	0.0	107.1
Totals:									109.00			1,649.5		5,162.8

Discrete Appurtenance Forces

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

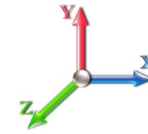
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Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 29

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	106.00	S20045A1	3	8.933	15.096	0.00	0.00	33.00	0.000	0.000	0.00	0.00	0.00
2	106.00	RR65-19-XXDP	3	8.933	15.096	0.00	0.00	48.00	0.000	0.000	0.00	0.00	0.00
3	99.00	S20045A1	3	8.760	14.804	0.00	0.00	33.00	0.000	0.000	0.00	0.00	0.00
4	99.00	RR65-19-XXDP	3	8.760	14.804	0.00	0.00	48.00	0.000	0.000	0.00	0.00	0.00
5	89.00	HPA-65R-BUU-H6	3	8.497	14.361	0.00	0.00	153.00	0.000	0.000	0.00	0.00	0.00
6	89.00	DTMABP7819VG12A	6	8.497	14.361	0.00	0.00	115.20	0.000	0.000	0.00	0.00	0.00
Totals:								430.20			0.00		

Total Applied Force Summary

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

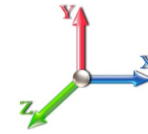
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Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 29

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		83.88	381.62	0.00	0.00
10.00		81.73	374.19	0.00	0.00
15.00		79.58	366.77	0.00	0.00
20.00		77.44	359.35	0.00	0.00
25.00		75.29	351.93	0.00	0.00
30.00		73.14	344.51	0.00	0.00
35.00		72.20	337.08	0.00	0.00
40.00		72.74	329.66	0.00	0.00
45.00		72.88	322.24	0.00	0.00
47.35		33.93	148.89	0.00	0.00
50.00		38.88	284.26	0.00	0.00
50.66		9.61	70.15	0.00	0.00
55.00		63.64	269.69	0.00	0.00
60.00		72.78	303.77	0.00	0.00
65.00		71.86	296.35	0.00	0.00
70.00		70.74	288.93	0.00	0.00
75.00		69.43	281.51	0.00	0.00
80.00		67.96	274.08	0.00	0.00
81.00		13.31	53.93	0.00	0.00
85.00		83.62	313.90	0.00	0.00
89.00	(9) appurtenances	84.73	582.10	0.00	0.00
90.00		21.25	72.24	0.00	0.00
91.00		21.32	72.24	0.00	0.00
95.00		51.79	192.73	0.00	0.00
99.00	(6) appurtenances	52.41	273.73	0.00	0.00
100.00		13.14	41.94	0.00	0.00
101.00		13.18	41.94	0.00	0.00
105.00		53.30	167.77	0.00	0.00
106.00	(6) appurtenances	13.36	122.94	0.00	0.00
109.00		40.40	107.11	0.00	0.00
Totals:		1,649.50	7,427.59	0.00	0.00

Resulting Forces and Deflections

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

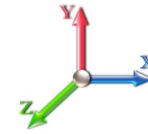
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/19/2016
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Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 29

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-1.653	-7.426	0.000	0.000	0.000	-95.858	0.000	0.000	0.000	0.000	0.000
5.00	-1.578	-7.043	0.000	0.000	0.000	-87.592	-0.039	0.000	0.039	-0.073	0.000
10.00	-1.504	-6.667	0.000	0.000	0.000	-79.702	-0.153	0.000	0.153	-0.144	0.000
15.00	-1.431	-6.299	0.000	0.000	0.000	-72.183	-0.342	0.000	0.342	-0.214	0.000
20.00	-1.359	-5.938	0.000	0.000	0.000	-65.030	-0.603	0.000	0.603	-0.283	0.000
25.00	-1.288	-5.585	0.000	0.000	0.000	-58.236	-0.936	0.000	0.936	-0.350	0.000
30.00	-1.218	-5.240	0.000	0.000	0.000	-51.796	-1.338	0.000	1.338	-0.416	0.000
35.00	-1.149	-4.902	0.000	0.000	0.000	-45.704	-1.808	0.000	1.808	-0.479	0.000
40.00	-1.078	-4.572	0.000	0.000	0.000	-39.959	-2.343	0.000	2.343	-0.540	0.000
45.00	-1.005	-4.250	0.000	0.000	0.000	-34.569	-2.940	0.000	2.940	-0.599	0.000
47.35	-0.972	-4.101	0.000	0.000	0.000	-32.207	-3.242	0.000	3.242	-0.626	0.000
50.00	-0.931	-3.817	0.000	0.000	0.000	-29.632	-3.598	0.000	3.598	-0.655	0.000
50.66	-0.922	-3.746	0.000	0.000	0.000	-29.018	-3.689	0.000	3.689	-0.663	0.000
55.00	-0.858	-3.476	0.000	0.000	0.000	-25.015	-4.312	0.000	4.312	-0.708	0.000
60.00	-0.784	-3.173	0.000	0.000	0.000	-20.725	-5.079	0.000	5.079	-0.754	0.000
65.00	-0.710	-2.877	0.000	0.000	0.000	-16.805	-5.891	0.000	5.891	-0.796	0.000
70.00	-0.637	-2.589	0.000	0.000	0.000	-13.255	-6.745	0.000	6.745	-0.833	0.000
75.00	-0.564	-2.308	0.000	0.000	0.000	-10.071	-7.636	0.000	7.636	-0.866	0.000
80.00	-0.493	-2.035	0.000	0.000	0.000	-7.248	-8.558	0.000	8.558	-0.893	0.000
81.00	-0.479	-1.981	0.000	0.000	0.000	-6.755	-8.746	0.000	8.746	-0.898	0.000
85.00	-0.391	-1.669	0.000	0.000	0.000	-4.838	-9.506	0.000	9.506	-0.915	0.000
89.00	-0.297	-1.088	0.000	0.000	0.000	-3.275	-10.273	0.000	10.273	-0.917	0.000
90.00	-0.275	-1.016	0.000	0.000	0.000	-2.978	-10.465	0.000	10.465	-0.918	0.000
91.00	-0.252	-0.944	0.000	0.000	0.000	-2.703	-10.658	0.000	10.658	-0.918	0.000
95.00	-0.197	-0.752	0.000	0.000	0.000	-1.694	-11.427	0.000	11.427	-0.919	0.000
99.00	-0.141	-0.479	0.000	0.000	0.000	-0.904	-12.199	0.000	12.199	-0.923	0.000
100.00	-0.127	-0.438	0.000	0.000	0.000	-0.763	-12.393	0.000	12.393	-0.924	0.000
101.00	-0.113	-0.396	0.000	0.000	0.000	-0.636	-12.586	0.000	12.586	-0.924	0.000
105.00	-0.057	-0.229	0.000	0.000	0.000	-0.183	-13.361	0.000	13.361	-0.925	0.000
106.00	-0.042	-0.106	0.000	0.000	0.000	-0.126	-13.555	0.000	13.555	-0.925	0.000
109.00	-0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.136	-0.925	0.000

Resulting Stresses

Structure: CT40876-T-SBA
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

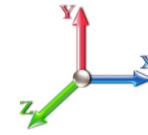
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/19/2016
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Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 29

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvT Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio	
0.00	0.43	0.19	0.00	0.00	0.00	9.42	9.86	51.1	0.193	
5.00	0.42	0.19	0.00	0.00	0.00	9.06	9.49	51.7	0.184	
10.00	0.41	0.19	0.00	0.00	0.00	8.70	9.11	52.0	0.175	
15.00	0.40	0.18	0.00	0.00	0.00	8.32	8.72	52.0	0.168	
20.00	0.39	0.18	0.00	0.00	0.00	7.92	8.32	52.0	0.160	
25.00	0.37	0.17	0.00	0.00	0.00	7.52	7.90	52.0	0.152	
30.00	0.36	0.17	0.00	0.00	0.00	7.10	7.46	52.0	0.144	
35.00	0.35	0.16	0.00	0.00	0.00	6.66	7.01	52.0	0.135	
40.00	0.33	0.16	0.00	0.00	0.00	6.20	6.54	52.0	0.126	
45.00	0.32	0.15	0.00	0.00	0.00	5.72	6.05	52.0	0.116	
47.35	0.32	0.15	0.00	0.00	0.00	5.50	5.82	52.0	0.112	
50.00	0.30	0.15	0.00	0.00	0.00	5.25	5.55	52.0	0.107	
50.66	0.29	0.14	0.00	0.00	0.00	5.01	5.30	52.0	0.102	
55.00	0.28	0.14	0.00	0.00	0.00	4.58	4.87	52.0	0.094	
60.00	0.26	0.13	0.00	0.00	0.00	4.08	4.34	52.0	0.084	
65.00	0.25	0.12	0.00	0.00	0.00	3.56	3.81	52.0	0.073	
70.00	0.23	0.11	0.00	0.00	0.00	3.03	3.26	52.0	0.063	
75.00	0.21	0.11	0.00	0.00	0.00	2.49	2.71	52.0	0.052	
80.00	0.20	0.10	0.00	0.00	0.00	1.95	2.15	52.0	0.041	
81.00	0.19	0.09	0.00	0.00	0.00	1.85	2.04	52.0	0.039	
81.00	0.19	0.09	0.00	0.00	0.00	1.85	2.04	52.0	0.014	
85.00	0.10	0.04	0.00	0.00	0.00	0.45	0.55	8.0	8.0	0.068
89.00	0.06	0.03	0.00	0.00	0.00	0.30	0.37	8.0	8.0	0.046
90.00	0.06	0.03	0.00	0.00	0.00	0.27	0.34	8.0	8.0	0.042
91.00	0.05	0.03	0.00	0.00	0.00	0.25	0.31	8.0	8.0	0.038
91.00	0.05	0.03	0.00	0.00	0.00	0.25	0.31	8.0	8.0	0.099
95.00	0.07	0.04	0.00	0.00	0.00	0.44	0.52	8.0	8.0	0.064
99.00	0.05	0.03	0.00	0.00	0.00	0.23	0.28	8.0	8.0	0.035
100.00	0.04	0.02	0.00	0.00	0.00	0.20	0.24	8.0	8.0	0.030
101.00	0.04	0.02	0.00	0.00	0.00	0.17	0.21	8.0	8.0	0.026
101.00	0.04	0.02	0.00	0.00	0.00	0.17	0.21	8.0	8.0	0.026
105.00	0.02	0.01	0.00	0.00	0.00	0.05	0.07	8.0	8.0	0.009
106.00	0.01	0.01	0.00	0.00	0.00	0.03	0.05	8.0	8.0	0.006
109.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	8.0	8.0	0.002

Final Analysis Summary

Structure: CT40876-T-SBA	Code: EIA/TIA-222-F	8/19/2016
Site Name: CT389/New Canaan C C	Exposure: C	
Height: 109.00 (ft)	Gh: 1.69	
Base Elev: 0.000 (ft)	Struct Class: II	Page: 22



Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
85 mph Wind with 0" Ice	4.8	0.00	7.42	0.00	0.00	277.16
73.61 mph Wind with 0.5" Ice	3.7	0.00	9.12	0.00	0.00	219.43
50 mph Wind with 0" Ice	1.7	0.00	7.43	0.00	0.00	95.86

Max Stresses

Load Case	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fv _t Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
85 mph Wind with 0" Ice	0.43	0.56	0.00	0.00	0.00	27.23	27.68	51.1	0.00	0.542
73.61 mph Wind with 0.5" Ice	0.53	0.44	0.00	0.00	0.00	21.56	22.10	51.1	0.00	0.433
50 mph Wind with 0" Ice	0.43	0.19	0.00	0.00	0.00	9.42	9.86	51.1	0.00	0.193

Base Plate Summary

Structure: CT40876-T-SB	Code: EIA/TIA-222-F	8/19/2016
Site Name: CT389/New Canaan C C	Exposure: C	
Height: 109.00 (ft)	Gh: 1.69	
Base Elev: 0.000 (ft)	Struct Class: II	Page: 23



Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 50.00	Bolt Circle: 35.50
Moment (kip-ft): 272.00	Width (in): 36.00	Number Bolts: 4.00
Axial (kip): 5.90	Style: Clipped	Bolt Type: 1.75" #18J
Shear (kip): 4.70	Polygon Sides: 4.00	Bolt Diameter (in): 1.75
Analysis	Clip Length (in): 6.00	Yield (ksi): 75.00
Moment (kip-ft): 277.16	Effective Len (in): 17.21	Ultimate (ksi): 100.00
Axial (kip): 9.12	Moment (kip-in): 311.90	Arrangement: Radial
Shear (kip): 4.78	Allow Stress (ksi): 50.00	Cluster Dist (in): 6.00
	Applied Stress (ksi): 35.50	Start Angle (deg): 45.00
Moment Design %: 101.90	Stress Ratio: 0.71	Compression
		Force (kip): 95.97
		Allowable (kip): 114.00
		Ratio: 0.84
		Tension
		Force (kip): 91.41
		Allowable (kip): 114.00
		Ratio: 0.80



Pier Foundation Design For Monopole			Date
			8/19/2016
Customer Name:	AT&T	EIA/TIA Standard:	EIA-222-F
Site Name:		Structure Height (Ft.):	109
Site Number:	CT40876-T-SBA	Engineer Name:	M. Baker
Engr. Number:	25378	Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Unfactored)

Axial Load (Kips):	9.1	Shear Force (Kips):	4.8
Uplift Force (Kips):	0.0	Moment (Kips-ft):	277.2

Foundation Geometries:

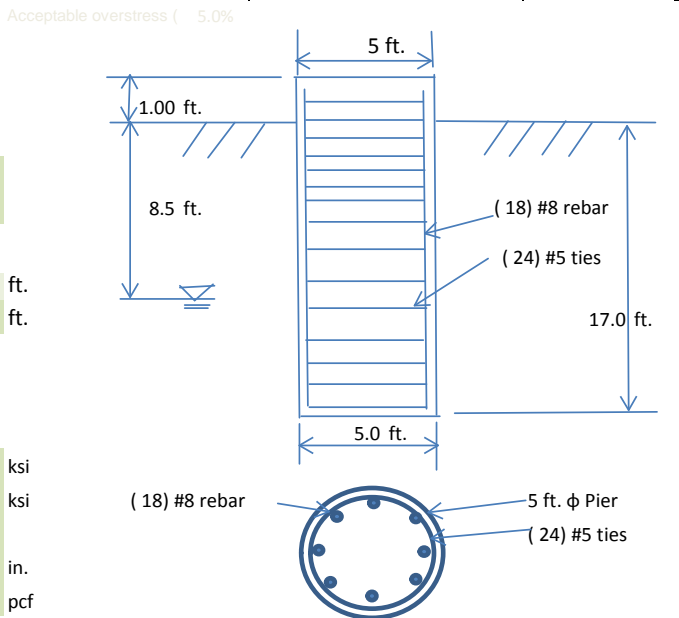
Mods required -Yes/No ?:	No		ft.
Diameter of Pier (ft.):	5.0	Depth of Base B. G. S. :	17.0 ft.
Pier Height A. G. (ft.):	1.00		

Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	60	ksi
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	18	Tie Spacing:	12.0	in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	8.5	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)
Skin Frictions are to be obtained from:	Soil Report			



Monopole Pier Foundation

Depth of Layers (ft)		γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Allowable Skin Friction (psf)	Allowable Bearing (psf)	Soil Types					
Top	Bottom											
0.0	4.0	135	0	0	0	0						
4.0	17.0	135	32	0	1000	20000						

Soil weight Increase Factor for bouyant soils (1.0 to 1.15): 1.1

Foundation Analysis and Design:

Total Dry Soil Volume from Conical Failure (cu. Ft.):	#N/A	Dry Soil Weight from Conical Failure:	#N/A	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	#N/A	Buoyant Soil Weight from Conical Failure (Ki	#N/A	Kips
Total Dry Concrete Volume (cu. Ft.):	#N/A	Total Dry Concrete Weight:	#N/A	Kips
Total Buoyant Concrete Volume (cu. Ft.):	#N/A	Total Buoyant Concrete Weight:	#N/A	Kips
Total Effective Concrete Weight (Kips):	#N/A	Total Effective Soil Weight:	#N/A	Kips
Total Effective Vertical Load on Base (Kips):	#N/A			

Check Soil Capacities:

Allowable Foundation Overturning Resistance (kips-ft.):	1051.0	>	Applied Moment (kips-ft):	337	Usage	0.32	OK!
Factor of Safety of Passive Soil Resistance against Moment:	6.24	OK!					

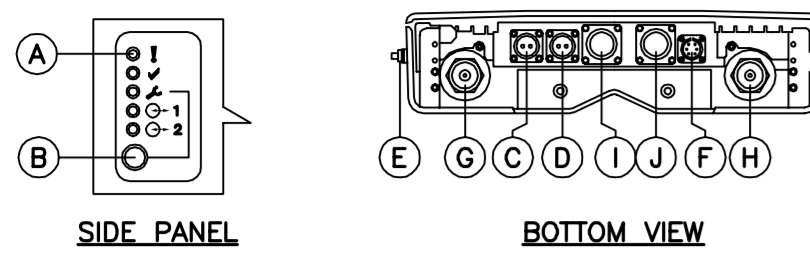
Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.30

Reinforcing Concrete Pier:

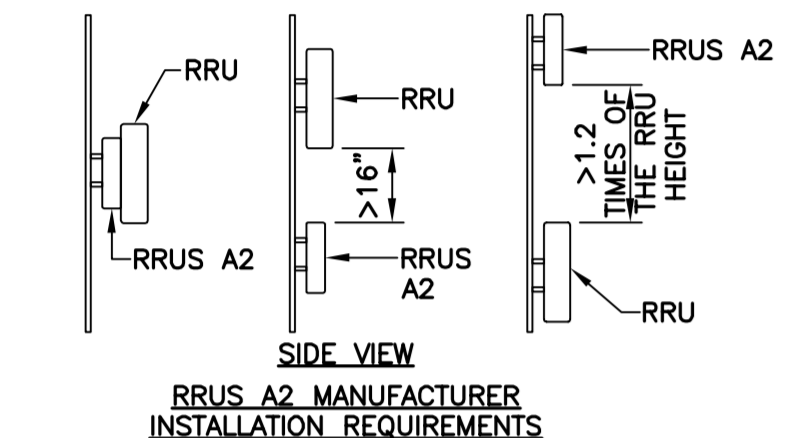
Vertical Steel Rebar Area (sq. in./each):	0.79	Tie / Stirrup Area (sq. in./each):	0.31	Usage	
Calculated Moment Capacity (Mn, Kips-Ft):	1705.0	>	Design Factored Moment (Mu, K-Ft):	382.2	0.22 OK!
Calculated Shear Capacity (Kips):	562.8	>	Design Factored Shear (Kips):	60.3	0.11 OK!
Calculated Tension Capacity (Tn, Kips):	767.9	>	Design Factored Tension (Tu Kips):	0.0	0.00 OK!
Calculated Compression Capacity (Pn, Kips):	4974	>	Design Factored Axial Load (Pu Kips):	11.8	0.00 OK!
Moment & Axial Strength Combination:	0.22	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is too small			



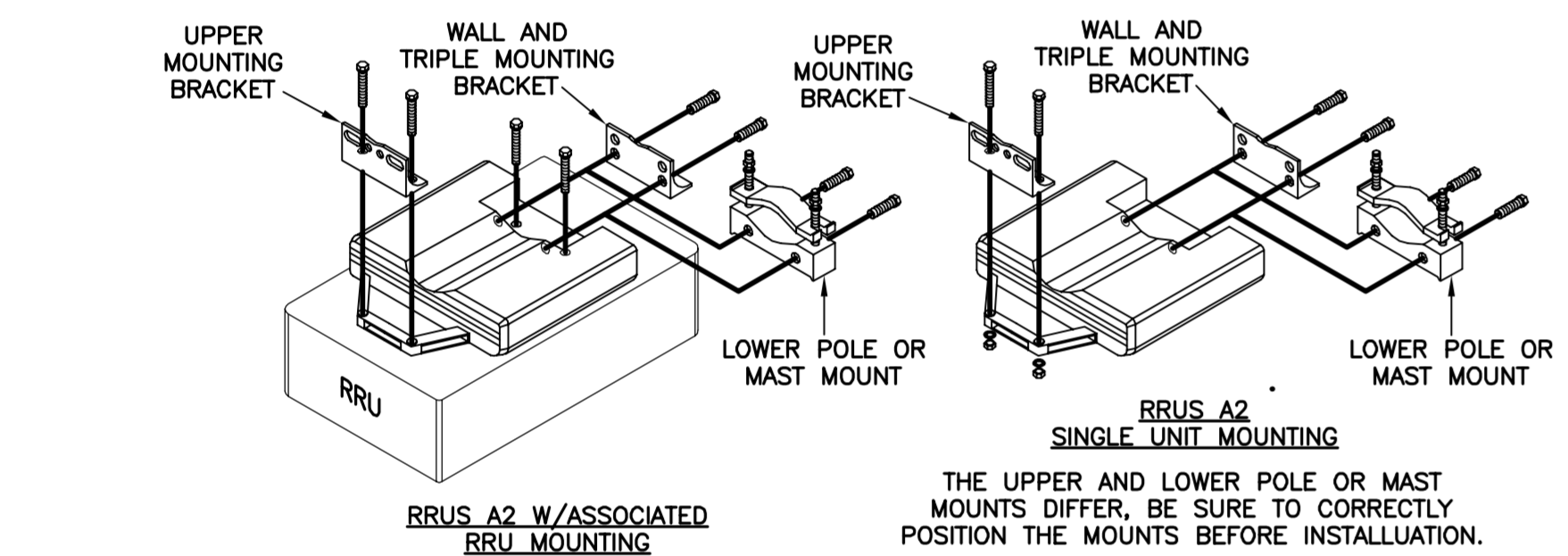


POSITION (ID)	DESCRIPTION	MARKING
A	OPTICAL INDICATORS	1, 2, 3 O-1, O-2
B	MAINTENANCE	▲
C	-48V DC POWER SUPPLY	▲ POW IN
D	-48V DC POWER SUPPLY TO RRU	▲ POW OUT
E	GROUNDING	⊥
F	RET	RET
G	ANTENNA B	▲ - B
H	ANTENNA A	▲ - A
I	OPTICAL CABLE 1	○-1
J	OPTICAL CABLE 2	○-2

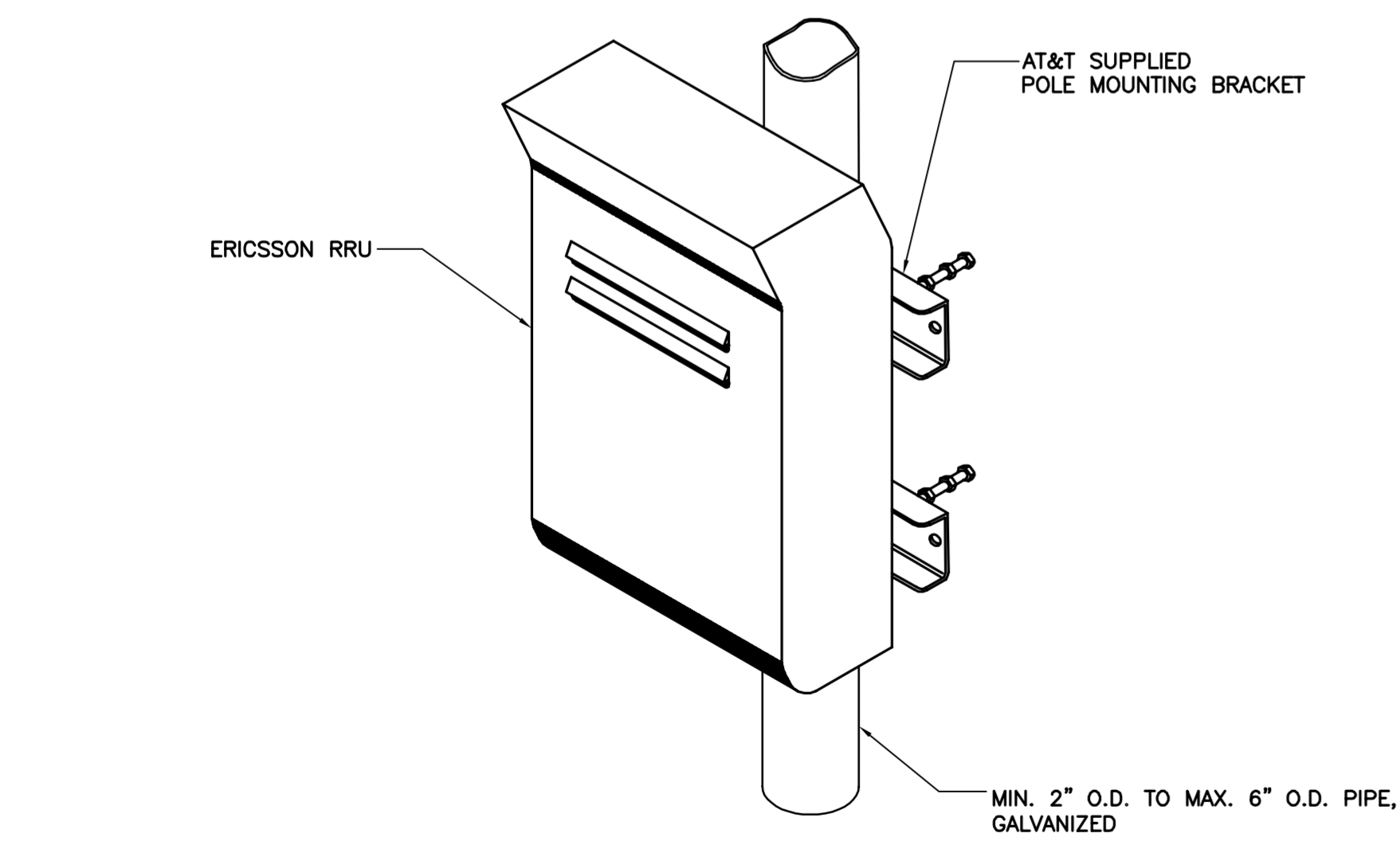
- NOTES:**
1. STACKING OF RRU'S IS NOT PERMITTED.
 2. NO PAINTING OF RRU OR THE SOLAR SHIELD IS ALLOWED.
 3. A SINGLE RRU/A2 CAN BE INSTALLED AS A STAND ALONE UNIT OR MOUNTED TO THE BACK OF ITS ASSOCIATED RRU.



RRUS A2 MANUFACTURER INSTALLATION REQUIREMENTS



1 ERICSSON RRU A2 DETAILS
N-1 NOT TO SCALE



- NOTES:**
1. AT&T SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL INSTALL RRU AND MAKES CABLE TERMINATIONS.
 2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

2 TYPICAL RRUS MOUNTING DETAILS
N-1 SCALE: NTS

NOTES AND SPECIFICATIONS

DESIGN BASIS:

- GOVERNING CODE: 2003 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2005 CT STATE BUILDING CODE AND 2009 AMENDMENTS.
1. DESIGN CRITERIA:
 - WIND LOAD: PER EIA/TIA 222 F-96 (ANTENNA MOUNTS): 85 MPH (FASTEST MILE), EQUIVALENT TO 105 MPH (3 SECOND GUST)
 - BUILDING CLASSIFICATION: II (BASED ON IBC TABLE 1604.5)
 - BASIC WIND SPEED (OTHER STRUCTURE): 100 MPH (3 SECOND GUST) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-02) PER 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMMENDMENT.
 - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-02 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)
 - A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
 - B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
 - C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
 - D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
 - E. PIPE---ASTM A53 (FY = 35 KSI)
 - F. CONNECTION BOLTS---ASTM A325-N
 - G. U-BOLTS---ASTM A36
 - H. ANCHOR RODS---ASTM F 1554
 - I. WELDING ELECTRODE---ASTM E 70XX
2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

PAINT NOTES

- PAINTING SCHEDULE:**
1. **ANTENNA PANELS:**
 - A. SHERWIN WILLIAMS POLANE-B
 - B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.
 2. **COAXIAL CABLES:**
 - A. ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH)
 - B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH)
 - C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.
- EXAMINATION AND PREPARATION:**
1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
 2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
 3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
 4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
 5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
 6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
 7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
 8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
 9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
 10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
 11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.
- CLEANING:**
1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.
- APPLICATION:**
1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
 3. APPLY EACH COAT TO UNIFORM FINISH.
 4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
 5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
 6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
 7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.
- COMPLETED WORK:**
1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.
 2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

PROFESSIONAL ENGINEER SEAL

DATE: 08/12/16
REV: 0

08/12/16 KAWUR
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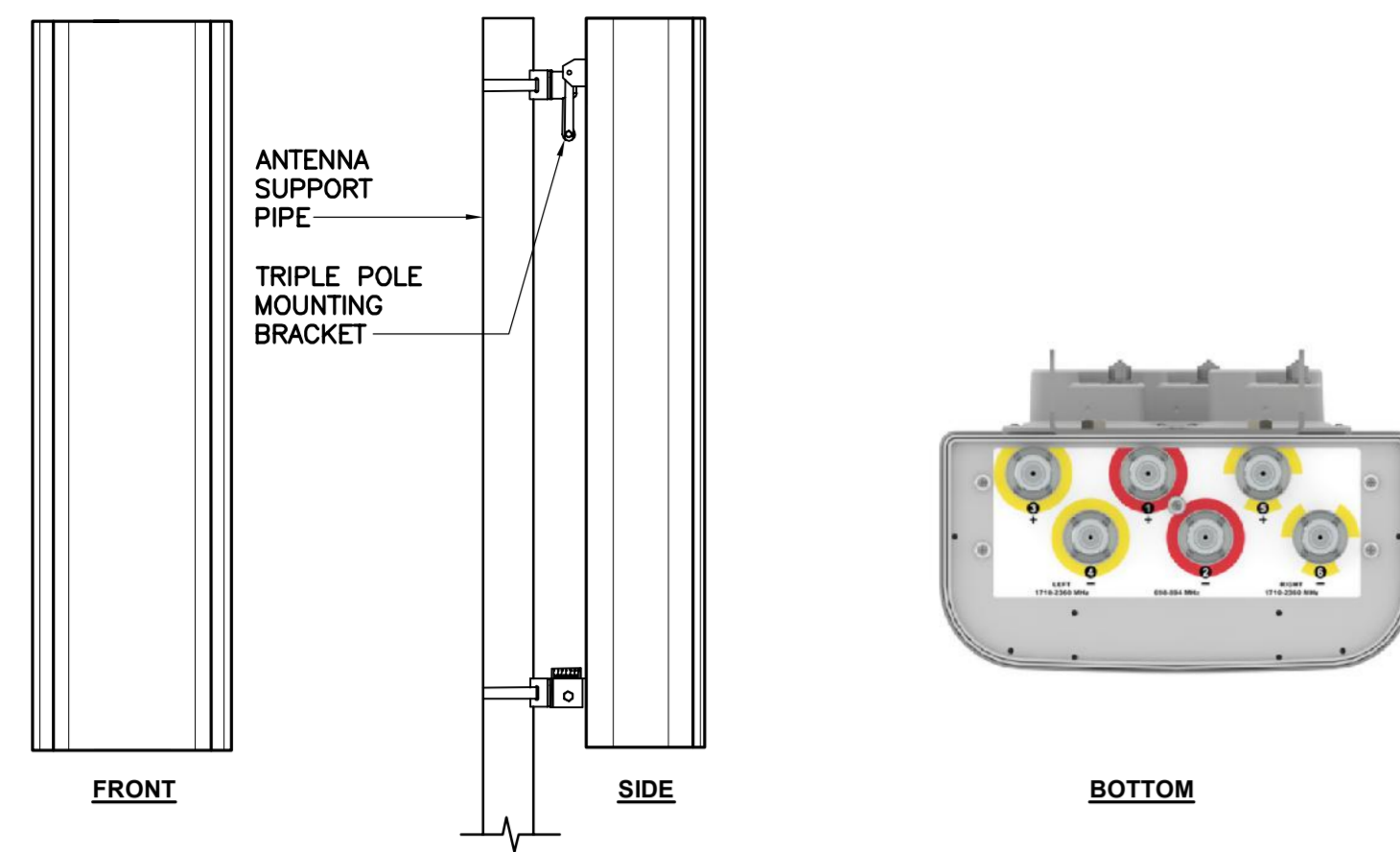
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NOTES, SPECIFICATIONS & DETAILS

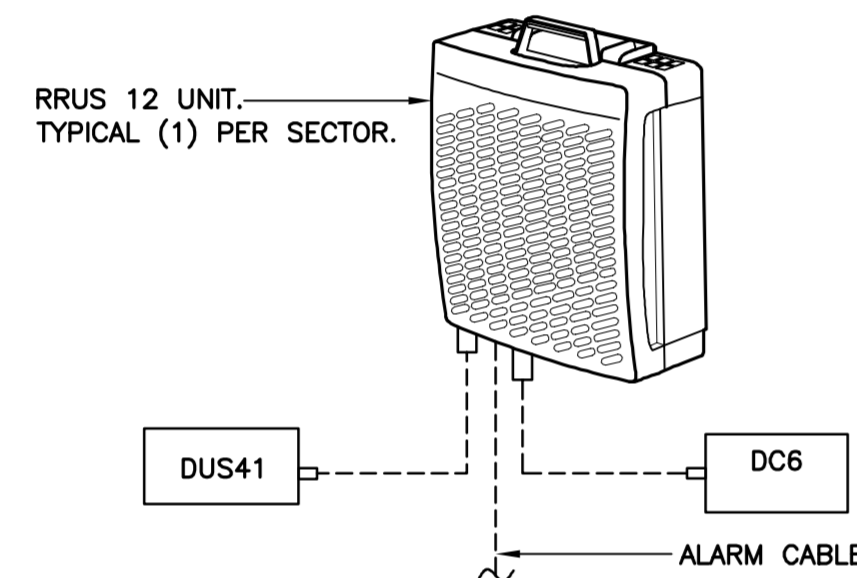
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Sheet No. 2 of 7



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: HPA-65R-BUU-H6	72.3"L x 14.4"W x 7.3"D	42.9 LBS.

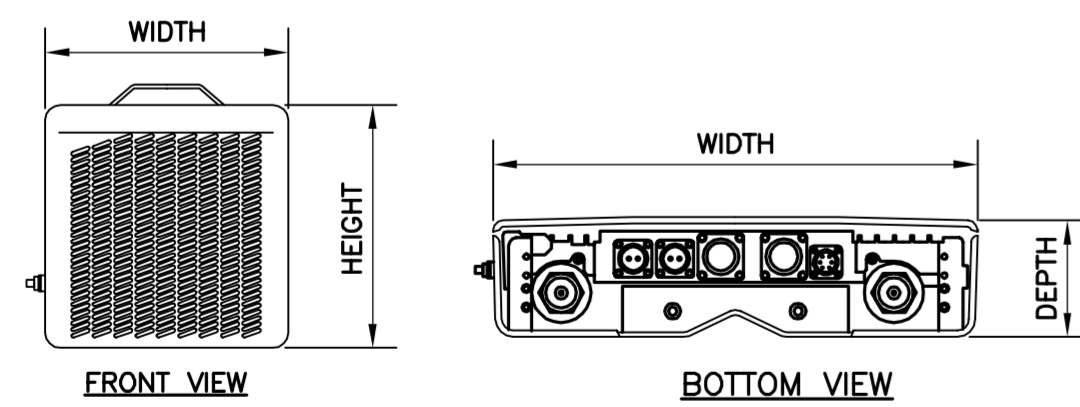
5 PROPOSED ANTENNA DETAIL
C-2 SCALE: 1/2" = 1'-0"



RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 12	20.4"L x 18.5"W x 7.5"D	50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

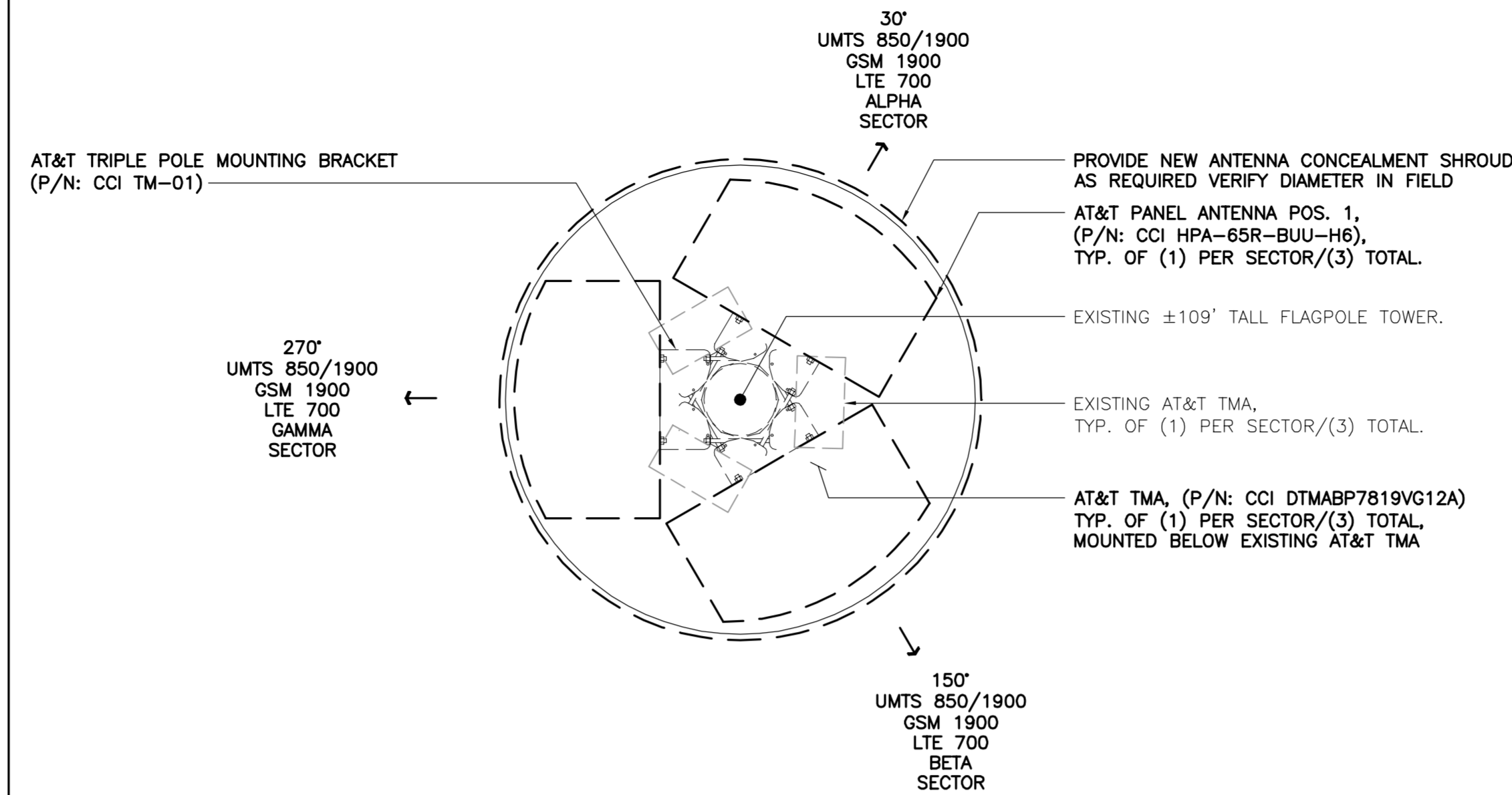
6 ERICSSON RRUS 12 DETAIL
C-2 SCALE: 1" = 1'-0"



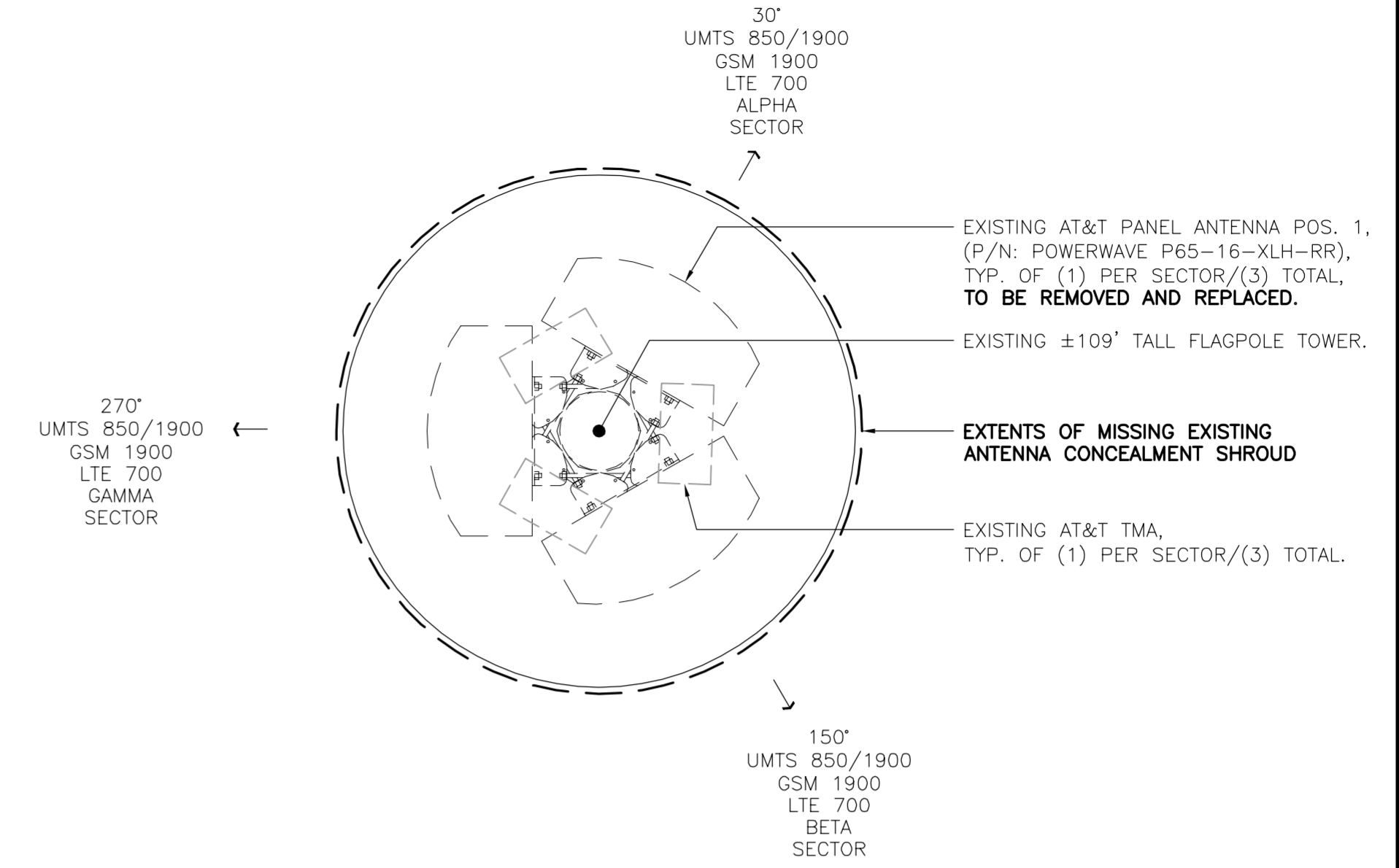
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS A2	16.42"L x 15.19"W x 3.35"D	22.05 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

7 ERICSSON RRUS A2 DETAIL
C-2 SCALE: 1" = 1'-0"

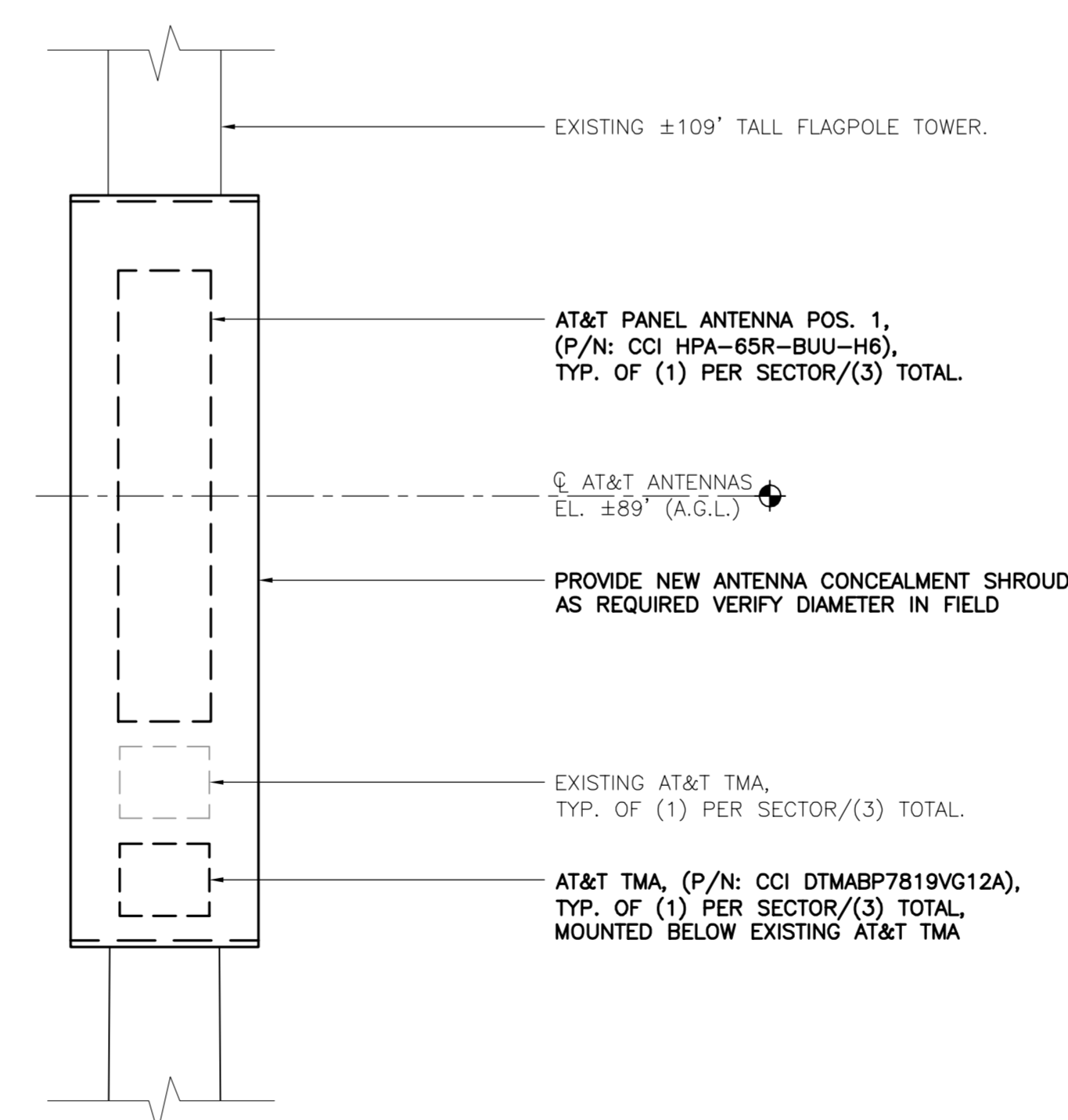


2 PROPOSED ANTENNA PLAN
C-2 SCALE: 1 1/2" = 1'-0"

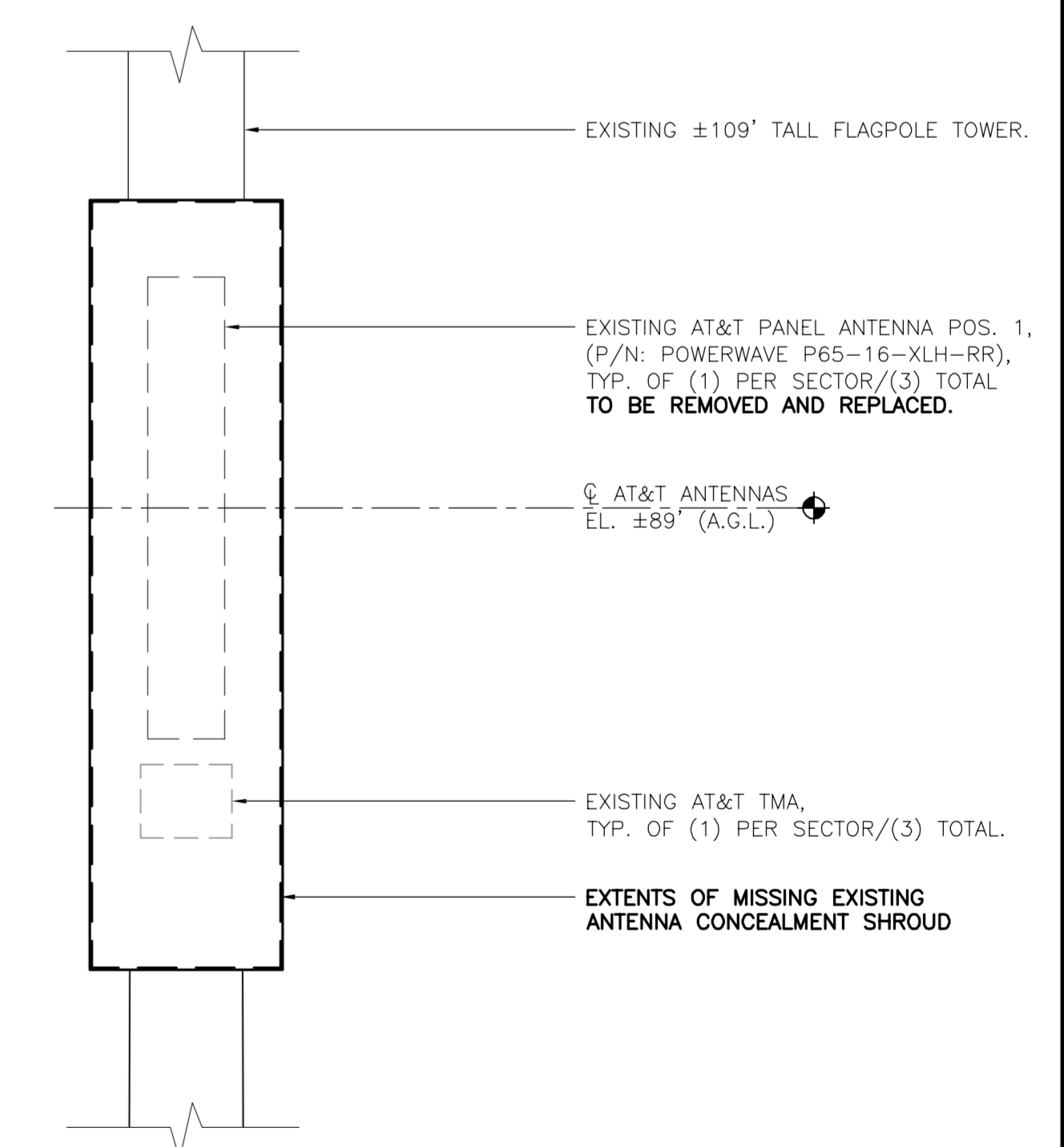


1 EXISTING ANTENNA PLAN
C-2 SCALE: 1 1/2" = 1'-0"

- GENERAL TOWER NOTES:**
- A.G.L. = ABOVE GRADE LEVEL
 - INSTALLATION MUST NOT OBSTRUCT ANY LIGHTING, BEACON, CLIMBING PATH, OR EXISTING CO-LOCATED CARRIER INSTALLATION.
 - AT&T IS RESPONSIBLE FOR EQUIPMENT FIT AND ANY DAMAGE TO SHROUDS OR WIND BANDS DURING INSTALLATION.
 - COAX MUST TRANSITION TO 1/2" JUMPERS AT BULKHEAD LOCATION.
 - ALL COAX SHALL BE ROUTED WITHIN THE INTERIOR OF POLE.

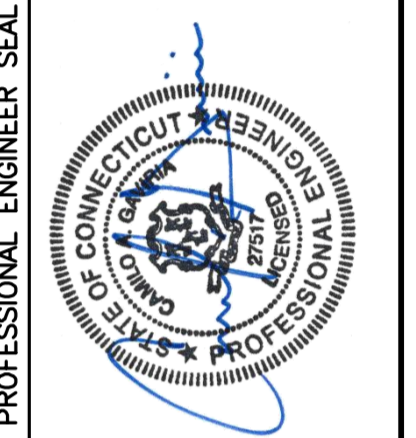


4 PROPOSED FLAG POLE ELEVATION
C-2 SCALE: 1/2" = 1'-0"



3 EXISTING FLAG POLE ELEVATION
C-2 SCALE: 1/2" = 1'-0"

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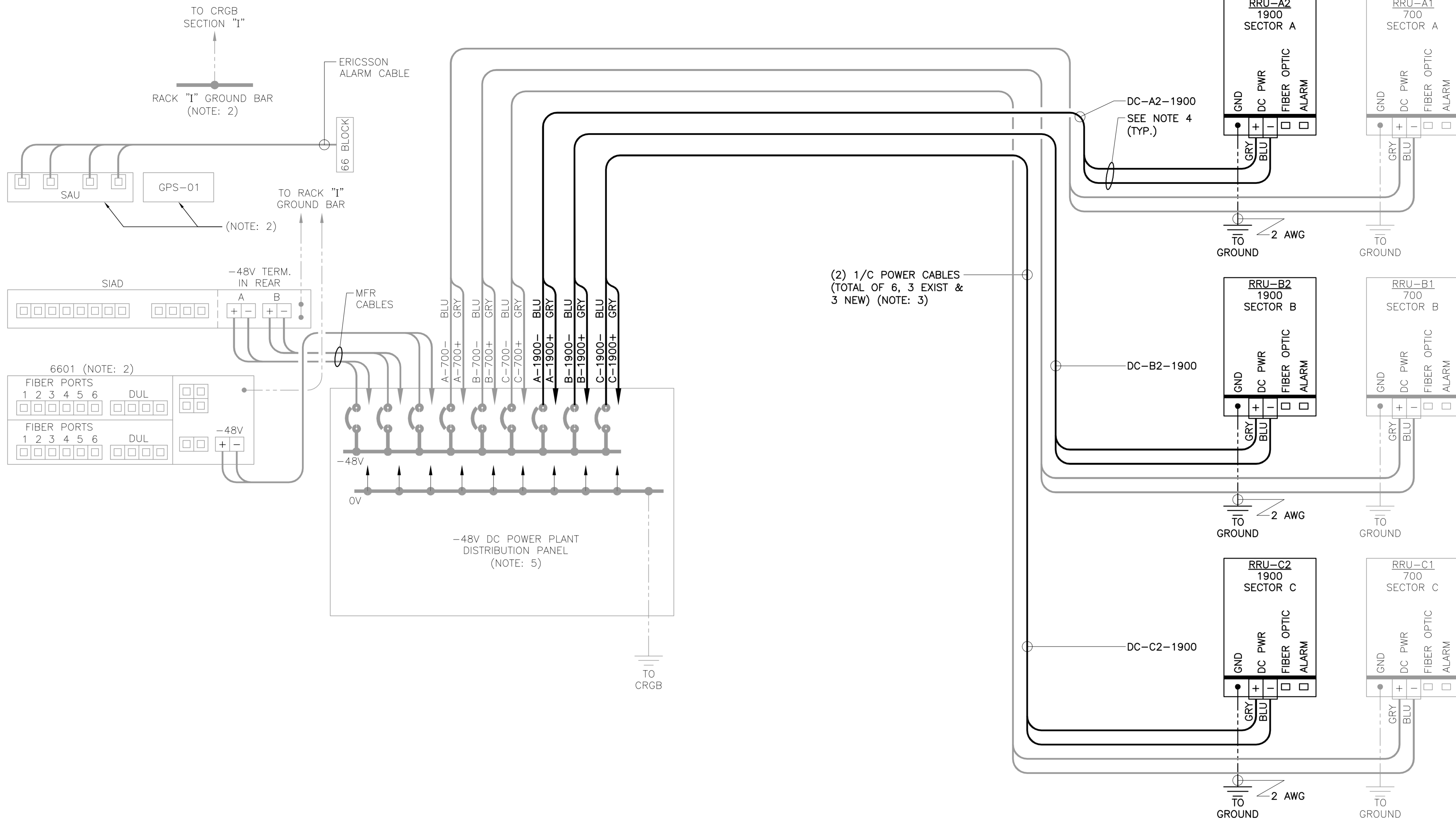


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LTE 2C
EQUIPMENT
DETAILS

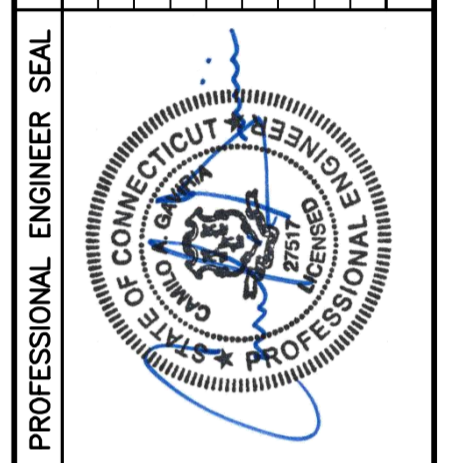


1 LTE WIRING DIAGRAM
E-2 NOT TO SCALE

LTE WIRING DIAGRAM NOTES:

1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-1900+". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AT&T.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE SHALL BE CONNECTED TO THE "P" GROUND BAR ON THE RACK. WHEN A SHIELDED CABLE IS USED, THE DRAIN WIRE ALSO SHALL BE CONNECTED TO THE "P" GROUND BAR.
4. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRU AND DC POWER PLANT.
5. SEE LTE SCHEMATIC DIAGRAM DETAIL 1/E-1 FOR BREAKER RATING.

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LTE WIRING DIAGRAM

