1280 Route 46 West, Suite 9, Parsippany NJ, 07054

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

Re: Notice of Exempt Modification Application
88 Parsonage Hill Road, Northford CT 06472

August 19, 2019

Dear Ms. Bachman

Sprint Spectrum Realty Company, L.P. ("Sprint"), is submitting to the Connecticut Siting Council for a Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site. Sprint currently maintains 3 existing panel antenna and 9 remote radio units at the 190' level of the Tower. Sprint proposes to add 3 panel antennas (1 per sector) and 3 remote radio unit (1 per sector) at 190' tower level as well as 1 fiber cable and 11 jumper cables, batteries in existing ground based battery cabinet and new 2.5 equipment in existing radio cabinet.

The Sprint installation was initially approved on 7/22/1999 by the Town of North Branford, there does not appear to have been a commensurate CT Siting Council Approval. The documents enclosed reflect the reality of the current installations on the Tower.

If you have any questions, please feel free to contact me.

Thank you,

By: *Paul F. Sagristano*

Paul F. Sagristano
Cherundolo Consulting
917.841.0247
psagristano@lrivassoc.com

4 Davis Road West, Suite 5 – Old Lyme, CT 06371

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

Re: Notice of Exempt Modification Application
88 Parsonage Hill Road, Northford CT 06472

August 19, 2019

Latitude : N41.3680
Longitude: W72.8093

Dear Ms. Bachman:

Sprint currently maintains 3 existing panel antenna and 6 remote radio units at the 190' centerline level of the existing monopole. Sprint proposes to add 3 panel antenna and 3 remote radio unit at 190' centerline on the tower. Sprint further proposes to add 1 fiber cable, 11 jumper cables, a new 2.5 radio equipment in the existing ground based radio cabinet, and new batteries in the existing ground based battery cabinet. Sprint is performing a new high-performance upgrade for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

The original building permit was approved July 22, 1999. There does not appear to have been a commensurate CT Siting Council approval for this Tower Share. A recent CSC approval for this proposed modification is available (EM-Sprint-099-171027), but that approval expired before Sprint began the proposed modification.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, for construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).
In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to Sean Loughran, VP of Finance and Admin of the CT State University System, the property owner and to Michael Paulhus, Town Manager for North Branford as well as Thomas Cowell, Building official and Zoning Enforcement official for the Town of North Branford and Joseph Ochenkowski, Jr., managing member of the Ochenkowski Towers LLC
.
Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site. Also included is documentation of the structural sufficiency of the tower with proposed modifications to accommodate the revised antenna configuration.

Existing Facility

The Northford facility is located at 88 Parsonage Hill Road, and is owned by Ochenkowski Towers, LLC, the Site coordinates are: N41.3680, W72.8093.

The existing facility consists of a 190' Self Support Lattice Tower. Sprint currently operates wireless communications equipment on a platform on a concrete slab at the facility and has 3 antennas and 3 RRU's mounted on at a centerline of 190' feet.

Statutory Considerations

The planned modifications to the facility fall within the activities explicitly provided for in R.C.S.A. 16-50j-72(b)(2)

1. The height of the overall structure will be unaffected.

2. The proposed changes will not require an extension of the property boundaries.

3. The proposed additions will not increase the noise level at the existing facility by

six decibels or more, or to levels that exceed state and/or local criteria

4. The changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the Federal Communications Commission safety standard.

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

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

For the foregoing reasons, Sprint respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully submitted,

Paul F. Sagristano

Paul F. Sagristano
Charles Cherundolo Consulting
917-841-0247
psagristano@lrivassoc.com

PFS/mtf

Additional Recipients:
Michael Paulhus, Town Manager for North Branford – Via Fed Ex
Thomas Cowell, Building official and Zoning Enforcement official Town of North Branford - Via Fed Ex
Joseph Ochenkowski, Jr., managing member of the Ochenkowski Towers LLC – Via Fed Ex

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

November 27, 2017

Paul F. Sagristano
Cherundolo Consulting
1280 Route 46 West, Suite 9
Parsippany, NJ 07054

RE: **EM-SPRINT-099-171027** – Sprint notice of intent to modify an existing telecommunications facility located at 88 Parsonage Hill Road, North Branford, Connecticut.

Dear Mr. Sagristano:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

1. Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;

2. Any material changes to this modification as proposed shall require the filing of a new notice with the Council;

3. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

4. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by Sprint shall be removed within 60 days of the date the antenna ceased to function;

5. The validity of this action shall expire one year from the date of this letter; and

6. The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated October 27, 2017. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site by any dimension, increase noise levels at the tower site boundary by six decibels or more, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996 and by the state Department of Energy and Environmental Protection pursuant to Connecticut General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below state and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent

with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Melanie A. Bachman
Executive Director

MAB/FOC/bm

c: The Honorable Michael J. Doody, Mayor, Town of North Branford
Michael T. Paulhus, Town Manager, Town of North Branford
Carey Duques, Town Planner, Town of North Branford
K.W and J.J Ochenkowski, Jr. and Ochenkowski Tower LLC, Tower Owner
Jean Szwabowski & Veronica Ochenkowski, Property Owner

BUILDING PERMIT

JOB WEATHER CARD

APPLICANT Pinnacle Site Development, Inc. DATE July 28, 19 99 ADDRESS [redacted] (CONTR'S LICENSE) 5986

PERMIT TO Antennas (TYPE OF IMPROVEMENT) ( ) NO. STORY (PROPOSED USE) NUMBER OF DWELLING UNITS

AT (LOCATION) 88 Parsonage Hill Road (Sprint Cellular Antennas) (NO.) (STREET) ZONING DISTRICT

BETWEEN (CROSS STREET) AND (CROSS STREET)

SUBDIVISION LOT 7 BLOCK 31 LOT SIZE

BUILDING IS TO BE FT. WIDE BY FT. LONG BY FT. IN HEIGHT AND SHALL CONFORM IN CONSTRUCTI

TO TYPE USE GROUP BASEMENT WALLS OR FOUNDATION (TYPE)

REMARKS: Installation of additional telecommunications antennas on existing tower and equipment on a ground pad per all applicable codes.

FORM NO. BOCA - BP 1994

AREA OR VOLUME (CUBIC/SQUARE FEET) ESTIMATED COST $ 20,000.00 PERMIT FEE $ 240.00(+$20 (+$3.20 Edu. Fee)

OWNER Jean Szumborski

ADDRESS 88 Parsonage Hill Road, Bloomfield, CT 06072

BUILDING DEPT. BY

THIS PERMIT CONVEYS NO RIGHT TO OCCUPY ANY STREET, ALLEY OR SIDEWALK OR ANY PART THEREOF. EITHER TEMPORARILY PERMANENTLY. ENCROACHMENTS ON PUBLIC PROPERTY, NOT SPECIFICALLY PERMITTED UNDER THE BUILDING CODE, MUST BE A PROVED BY THE JURISDICTION. STREET OR ALLEY GRADES AS WELL AS DEPTH AND LOCATION OF PUBLIC SEWERS MAY BE OBTAIN FROM THE DEPARTMENT OF PUBLIC WORKS. THE ISSUANCE OF THIS PERMIT DOES NOT RELEASE THE APPLICANT FROM THE CONDITIO OF ANY APPLICABLE SUBDIVISION RESTRICTIONS.

MINIMUM OF THREE CALLED INSPECTIONS REQUIRED FOR ALL CONSTRUCTION WORK:
1. FOUNDATIONS OR FOOTINGS
2. PRIOR TO COVERING STRUCTURAL MEMBERS (READY FOR LATH OR FINISH COVERING).

APPROVED PLANS MUST BE RETAINED ON JOB AND THIS CARD KEPT POSTED UNTIL FINAL INSPECTION HAS BEEN MADE. WHERE A CERTIFICATE OF OCCUPANCY IS REQUIRED, SUCH BUILDING SHALL NOT BE OCCUPIED UNTIL FINAL INSPECTION HAS BEEN MADE.

WHERE APPLICABLE SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING AND MECHANICAL INSTALLATIONS.

EFORE

ST THIS CARD SO IT IS VISIBLE FROM STREET

TION APPROVALS	PLUMBING INSPECTION APPROVALS	ELECTRICAL INSPECTION APPROVALS
	1	1
	2	2
	HEATING INSPECTING APPROVALS	REFRIGERATION INSPECTION APPROVALS
	1	1
	2	2

No-BRANFORD
BUILDING DEPT

EDUC FEE	$3.20
ST	$3.20
C/of O	$10.00
ST	$13.20
MICROFLM	$10.00
ST	$23.20
BLdPERMT	$240.00
ST	$263.20
ST	$263.20
CHK	$263.20
CG	$0.00

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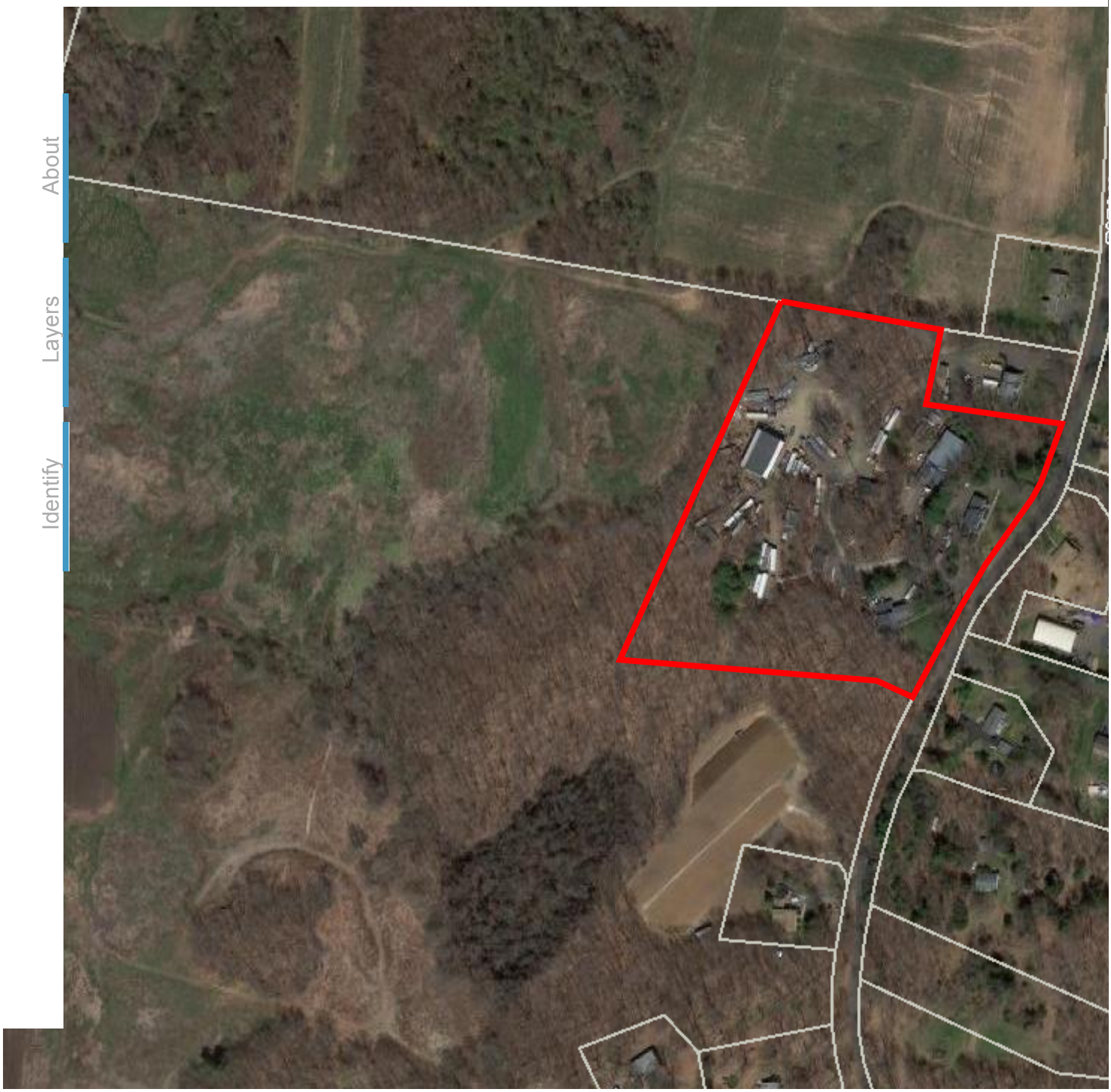
Szwabowski

About

Layers

Identify



Email Map Link

Copy and paste the following string into an email to link to the current map view:

100m

Close

300ft

Tighe&Bond

lat:41.3682, long:-72.8070

88 PARSONAGE HILL RD

Location	88 PARSONAGE HILL RD	**Mblu**	51/A 7/ / /
Acct#	002953	**Owner**	SZWABOWSKI JEAN 1/3
Assessment	$864,000	**Appraisal**	$1,248,800
PID	3060	**Building Count**	3

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$691,400	$557,400	$1,248,800

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$473,900	$390,100	$864,000

Owner of Record

Owner	SZWABOWSKI JEAN 1/3	**Sale Price**	$90,000
Co-Owner	OCHENKOWSKI J J JR 1/3 & K W 1/3 EACH	**Certificate**	
Address	84 PARSONAGE HL RD NORTHFORD, CT 06472-1445	**Book & Page**	429/1132
		Sale Date	12/23/2009

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
SZWABOWSKI JEAN 1/3	$90,000		429/1132	12/23/2009
SZWABOWSKI JEAN &	$90,000		429/1128	12/23/2009
SZWABOWSKI JEAN &	$0		276/ 749	12/15/1998
OCHENKOWSKI VERONICA TIC +	$400,000		269/ 844	05/11/1998
OCHENKOWSKI VERONICA	$0		040/ 206	11/14/1960

Building Information

Building 1 : Section 1

Year Built:	1949
Living Area:	1,996
Replacement Cost:	$197,304
Building Percent Good:	55

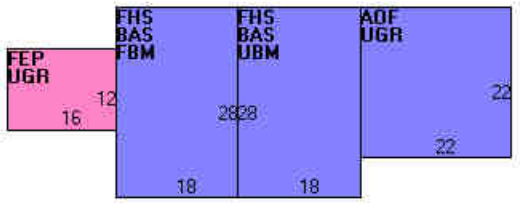
Replacement Cost Less Depreciation: $108,500

Building Attributes	
Field	**Description**
Style	RES TYPE COMM
Model	Res Type Com
Grade:	Above Avg
Stories:	1 1/2 Stories
Occupancy	2
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt Shingl
Interior Wall 1	Plastered
Interior Wall 2	Plywood Panel
Interior Flr 1	Carpet
Interior Flr 2	Hardwood
Heat Fuel	Oil
Heat Type:	Forced Air-Duc
AC Type:	Central
Total Bedrooms:	2 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	Average
Kitchen Style:	Average

Building Photo

(http://images.vgsi.com/photos/NorthBranfordCTPhotos//\00\00\

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,008	1,008
FHS	Half Story, Finished	1,008	504
AOF	Office, (Average)	484	484
FBM	Basement, Finished	504	0
FEP	Porch, Enclosed, Finished	192	0
UBM	Basement, Unfinished	504	0
UGR	Garage, Unfinished	676	0
		4,376	1,996

Building 1 : Section 1

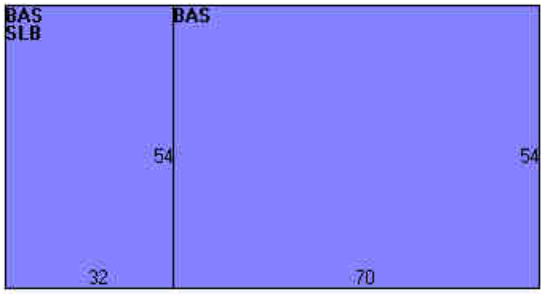
Year Built: 1949
Living Area: 0
Replacement Cost: $197,304
Building Percent Good: 55
Replacement Cost Less Depreciation: $108,500

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	

Building Photo

(http://images.vgsi.com/photos/NorthBranfordCTPhotos//default.

Building Layout



Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Building 2 : Section 1

Year Built: 1958
Living Area: 2,286
Replacement Cost: $183,022
Building Percent Good: 64
Replacement Cost Less Depreciation: $117,100

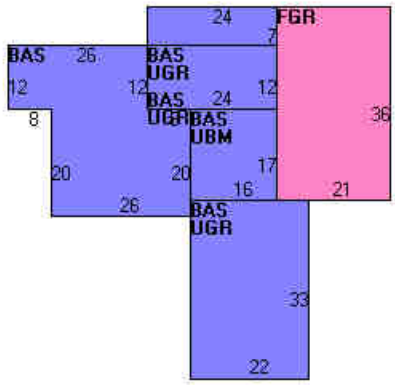
Building Attributes : Bldg 2 of 3	
Field	**Description**
Style	Ranch
Model	Residential
Grade:	Average
Stories:	1 Story
Occupancy	1

Building Photo

(http://images.vgsi.com/photos/NorthBranfordCTPhotos//default.

Building Layout

Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	2
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	5 Rooms
Bath Style:	Average
Kitchen Style:	Average



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	2,286	2,286
FGR	Garage, Framed	756	0
UBM	Basement, Unfinished	272	0
UGR	Garage, Unfinished	1,182	0
		4,496	2,286

Building 3 : Section 1

Year Built: 1973
Living Area: 600
Replacement Cost: $38,964
Building Percent Good: 49
Replacement Cost Less Depreciation: $19,100

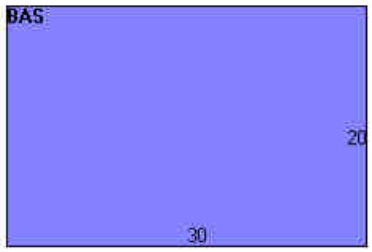
Building Attributes : Bldg 3 of 3	
Field	**Description**
STYLE	Industrial
MODEL	Ind or Comm
Grade	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Drywall/Sheet
Interior Wall 2	Minim/Masonry
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	

Building Photo

(http://images.vgsi.com/photos/NorthBranfordCTPhotos//default.

Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Heat Pump
Bldg Use	COMM WHSE MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	031I
Heat/AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths/Plumbing	LIGHT
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	0
% Comn Wall	12

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	600	600
		600	600

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
FPL2	FIREPLACE 1.5 STY	1 UNITS	$2,800	1

Land

Land Use

Use Code	010M
Description	SINGLE FAM MDL-03
Zone	R40
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	9.31
Frontage	0
Depth	0
Assessed Value	$390,100
Appraised Value	$557,400

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
ELCB	ELECTRONIC COMM BLDG			576 S.F.	$64,800	1
PAV1	PAVING-ASPHALT			4000 S.F.	$3,400	3
SHD1	SHED FRAME			220 S.F.	$800	2
ELCB	ELECTRONIC COMM BLDG			576 S.F.	$64,800	1
FN5	FENCE-10'CHAIN			300 L.F.	$3,200	3
BRN1	BARN - 1 STORY			5058 S.F.	$13,000	1

SHD8	SHED UNDER 144 SF			128 S.F.	$15,000	3
FGR2	GARAGE-GOOD			1200 S.F.	$27,000	3
SHD1	SHED FRAME			288 S.F.	$1,700	1
	RADIO TOWER			175	$17,500	3
	RADIO TOWER			175 HEIGHT	$87,500	3
TW1	CELL TOWER			125 HEIGHT	$50,600	3
ELCB	ELECTRONIC COMM BLDG			360 S.F.	$60,800	3
ELCB	ELECTRONIC COMM BLDG			200 S.F.	$33,800	3

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$691,400	$557,400	$1,248,800
2015	$691,400	$557,400	$1,248,800
2014	$548,500	$361,400	$909,900

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$473,900	$390,100	$864,000
2015	$473,900	$390,100	$864,000
2014	$373,700	$252,900	$626,600

EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT03XC030

Northford / Oshencowski
88 Parsonage Hill Road
Northford, CT 06472

October 16, 2017

EBI Project Number: 6217004504

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	6.92 %

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

EBI Consulting
environmental | engineering | due diligence

October 16, 2017

SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT03XC030 – Northford / Oshencowski**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **88 Parsonage Hill Road, Northford, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **88 Parsonage Hill Road, Northford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT 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) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 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 **RFS APXVSPP18-C-A20 and the RFS APXVTM14-C-120** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) 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 **190 feet** above ground level (AGL) for **Sector A**, **190 feet** above ground level (AGL) for **Sector B** and **190 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 population threshold limits.

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**190 feet**	Height (AGL):	**190 feet**	Height (AGL):	**190 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**0.91 %**	Antenna B1 MPE%	**0.91 %**	Antenna C1 MPE%	**0.91 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-C-120	Make / Model:	RFS APXVTM14-C-120	Make / Model:	RFS APXVTM14-C-120
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**190 feet**	Height (AGL):	**190 feet**	Height (AGL):	**190 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**0.66 %**	Antenna B2 MPE%	**0.66 %**	Antenna C2 MPE%	**0.66 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**1.57 %**
Nextel	0.24 %
Motient	0.54 %
T-Mobile	0.63 %
AT&T	1.88 %
Verizon Wireless	2.06 %
Site Total MPE %:	**6.92 %**

SPRINT Sector A Total:	1.57 %
SPRINT Sector B Total:	1.57 %
SPRINT Sector C Total:	1.57 %
Site Total:	6.92 %

SPRINT _ Max Values per Frequency Band / Technology Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	437.55	190	0.46	850 MHz	567	0.08%
Sprint 850 MHz LTE	2	437.55	190	0.93	850 MHz	567	0.17%
Sprint 1900 MHz (PCS) CDMA	5	622.47	190	3.30	1900 MHz (PCS)	1000	0.33%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	190	3.30	1900 MHz (PCS)	1000	0.33%
Sprint 2500 MHz (BRS) LTE	8	778.09	190	6.61	2500 MHz (BRS)	1000	0.66%
						Total:	**1.57%**

Summary

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

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	1.57 %
Sector B:	1.57 %
Sector C:	1.57 %
SPRINT Maximum Total (per sector):	1.57 %
Site Total:	6.92 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **6.92 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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Office: 862-209-4300 | Fax: 862-209-4301

CT03XC030

88 Parsonage Hill Road, Northford, CT 06472 (New Haven County)
Latitude: 41.36801°, Longitude: -72.809302°

Tower Structural Analysis
DO MACRO UPGRADE

July 22, 2019

Item	Pass/Fail	Capacity
Tower	**PASS**	57.3%
Foundation	**PASS**	35.6%

Nicholas D. Barile, PE
Connecticut Professional Engineer
License No. 28643
Com-Ex Project No. 17042-CHE

Com-Ex Consultants, LLC ● 115 Route 46, Suite E39 ● Mountain Lakes, NJ ● 07046
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Executive Summary

At the request of Sprint, COMEX has performed a structural analysis of self-support tower for proposed antenna equipment loading under 2018 CT state building code and *2015 IBC International Building Code, ANSI/TIA-222-G, ASCE 7-10, and AISC (LRFD14)*. Information pertaining the antenna mounts was obtained from:

- Comex Construction Drawings dated 07/22/19

Conclusions

Per our analysis, the self-supported tower can support proposed antenna equipment loading under 2018 CT state building code and *2015 IBC International Building Code*.

General Comments

If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, COMEX should be notified immediately to perform a revised analysis. This report is not a condition assessment and assumes good workmanship will be used and systems will be properly maintained.

Limitations

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of COMEX.

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Attachment A

Proposed Equipment

Final Alpha Sector Antenna Configuration
Rad Center for Antennas is 190'-0"
(1) (N) APXVTM14-ALU-120 RFS Antenna
(1) (N) 2500 MHz Alcatel Lucent RRH
(1) (E) APXVSPP18-C-A20 RFS Antenna

Final Beta Sector Antenna Configuration
Rad Center for Antennas is 190'-0"
(1) (N) APXVTM14-ALU-120 RFS Antenna
(1) (N) 2500 MHz Alcatel Lucent RRH
(1) (E) APXVSPP18-C-A20 RFS Antenna

Final Gamma Sector Antenna Configuration
Rad Center for Antennas is 190'-0"
(1) (N) APXVTM14-ALU-120 RFS Antenna
(1) (N) 2500 MHz Alcatel Lucent RRH
(1) (E) APXVSPP18-C-A20 RFS Antenna

Foundation

Leg Forces	Original Design Reactions	Current Analysis	% Capacity
Uplift (kips)	741.6	223	30.0%
Axial (kips)	841.1	277	32.9%
Shear (kips)	81.4	29	35.6%

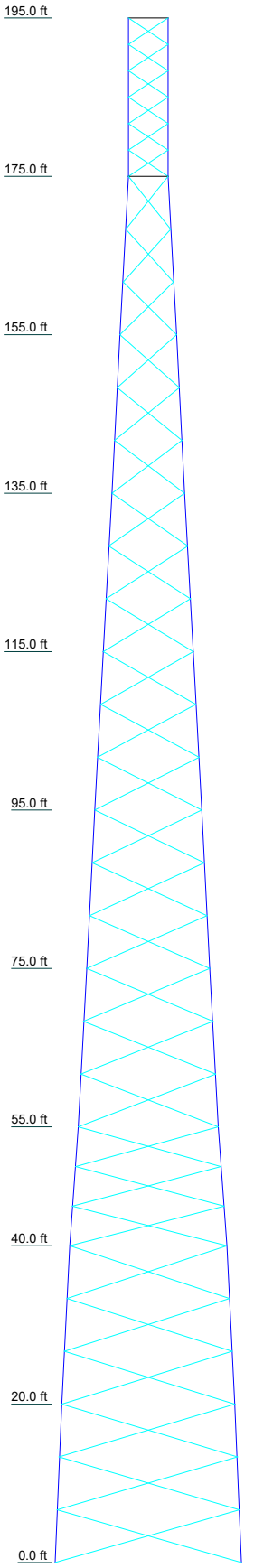
1.35 comparison conversion factor used per TIA-222-G.

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Legs	SR 3	SR 3 3/4	SR 4	SR 4 1/4	SR 4 1/4	SR 4 1/2	SR 4 3/4	SR 4 3/4	SR 5	
Leg Grade	A572-50									
Diagonals	SR 1 1/4	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x5/16	L3x3x1/4	L3x3x3/8	L3 1/2x3 1/2x5/16	L4x4x1/4		L4x4x5/16	L4x4x3/8
Diagonal Grade	A36									
Top Girts	SR 1 1/4									
Face Width (ft)	5		7.1143	9.2286	11.3429	13.4572	15.5715	17.6858	19.8	21.9144
# Panels @ (ft)	6 @ 3.33333			18 @ 6.66667				3 @ 5	6 @ 6.66667	
Weight (K)	2.4	2.8	3.5	4.0	4.7	5.3	5.8	5.0	6.8	8.2

23.5 ft

48.5 ft

N.A.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVTM14-C-I20	190	AM-X-CD-16-65-00T-RET	172
2500 MHz RRH, 8X20-25	190	(2) RRUS11	172
Existing Antenna	190	80010121	172
Existing RRH	190	(2) 21401 TMA	172
Empty Mount	190	AM-X-CD-16-65-00T-RET	172
Empty Mount	190	(2) RRUS11	172
APXVTM14-C-I20	190	80010121	172
2500 MHz RRH, 8X20-25	190	(2) 21401 TMA	172
Existing Antenna	190	DC6-48-60-18-8F	172
Existing RRH	190	Frames Sector	172
Empty Mount	190	(4) DB844H90E-XY	160
Empty Mount	190	(4) DB844H90E-XY	160
APXVTM14-C-I20	190	(4) DB844H90E-XY	160
2500 MHz RRH, 8X20-25	190	(2) FD9R6004-2C-3L	145
Existing Antenna	190	BXA-70063/6CF	145
Existing RRH	190	BXA-171085/8CF	145
Empty Mount	190	LPA-80080/4 CF	145
Empty Mount	190	(2) FD9R6004-2C-3L	145
Sector Frames	180	BXA-70063/6CF	145
TMA	180	BXA-171085/8CF	145
AIR21	180	LPA-80080/4 CF	145
TMA	180	(2) FD9R6004-2C-3L	145
AIR21	180	BXA-70063/6CF	145
TMA	180	BXA-171085/8CF	145
AIR21	180	LPA-80080/4 CF	145
Sector Frames	180	SECTOR FRAMES	145
AM-X-CD-16-65-00T-RET	172	GPS	80
(2) RRUS11	172	2ft Standoff	80
80010121	172	GPS	80
(2) 21401 TMA	172	2ft Standoff	80

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 98 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. Vult = 126mph
9. Vasd = Vult x 0.6 ^1/2 = 97.6mph : Use 98mph
10. TOWER RATING: 57.3%

ALL REAC
ARE FAC

MAX. CORNER REACTIONS AT BASE:
DOWN: 277 K
SHEAR: 29 K

UPLIFT: -223 K
SHEAR: 24 K

AXIAL
131 K

SHEAR
14 K

MOMENT
1643 kip-ft

TORQUE 12 kip-ft
50 mph WIND - 0.750 in ICE

AXIAL
67 K

SHEAR
49 K

MOMENT
5189 kip-ft

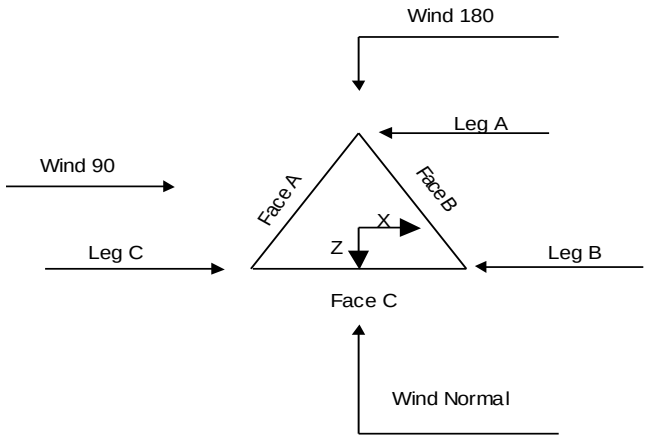
TORQUE 21 kip-ft
REACTIONS - 98 mph WIND

Phone: FAX:	Job: **17042-CHE**		
	Project: **Self-Supported Tower**		
	Client:	Drawn by:	App'd:
	Code: TIA-222-G	Date: 07/21/19	Scale: NTS
	Path: F:\SZS Engineering\COMEX\DOUG\17042-CHE - CT03XC030 - DO Macro Upgrade\STRUCTURAL\Tower DATA\17042-CHE Tower.eri		Dwg No. E-1

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 195.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 5.000 ft at the top and 23.500 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 98 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Deflections calculated using a wind speed of 60 mph.
Vult = 126mph.
Vasd = Vult x 0.6 ^1/2 = 97.6mph : Use 98mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	195.000-175.000			5.000	1	20.000
T2	175.000-155.000			5.000	1	20.000
T3	155.000-135.000			7.114	1	20.000
T4	135.000-115.000			9.229	1	20.000
T5	115.000-95.000			11.343	1	20.000
T6	95.000-75.000			13.457	1	20.000
T7	75.000-55.000			15.572	1	20.000
T8	55.000-40.000			17.686	1	15.000
T9	40.000-20.000			19.800	1	20.000
T10	20.000-0.000			21.914	1	20.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	195.000-175.000	3.333	X Brace	No	No	0.000	0.000
T2	175.000-155.000	6.667	X Brace	No	No	0.000	0.000
T3	155.000-135.000	6.667	X Brace	No	No	0.000	0.000
T4	135.000-115.000	6.667	X Brace	No	No	0.000	0.000
T5	115.000-95.000	6.667	X Brace	No	No	0.000	0.000
T6	95.000-75.000	6.667	X Brace	No	No	0.000	0.000
T7	75.000-55.000	6.667	X Brace	No	No	0.000	0.000
T8	55.000-40.000	5.000	X Brace	No	No	0.000	0.000
T9	40.000-20.000	6.667	X Brace	No	No	0.000	0.000
T10	20.000-0.000	6.667	X Brace	No	No	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 195.000-175.000	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T2 175.000-155.000	Solid Round	3 3/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T3 155.000-135.000	Solid Round	4	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T4 135.000-115.000	Solid Round	4 1/4	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T5 115.000-95.000	Solid Round	4 1/4	A572-50 (50 ksi)	Single Angle	L3x3x3/8	A36 (36 ksi)
T6 95.000-75.000	Solid Round	4 1/2	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T7 75.000-55.000	Solid Round	4 3/4	A572-50 (50 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)
T8 55.000-40.000	Solid Round	4 3/4	A572-50 (50 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)
T9 40.000-20.000	Solid Round	4 3/4	A572-50 (50 ksi)	Single Angle	L4x4x5/16	A36 (36 ksi)
T10 20.000-0.000	Solid Round	5	A572-50 (50 ksi)	Single Angle	L4x4x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 195.000-175.000	Solid Round	1 1/4	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T2 175.000-155.000	Solid Round	1 1/4	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 195.000-175.000	0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
T2 175.000-155.000	0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
T3 155.000-135.000	0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
T4 135.000-115.000	0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
T5 115.000-95.000	0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
T6 95.000-75.000	0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
T7 75.000-55.000	0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
T8 55.000-40.000	0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
T9 40.000-20.000	0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
T10 20.000-0.000	0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 195.000-175.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 175.000-155.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 155.000-135.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 135.000-115.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 115.000-95.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 95.000-75.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 75.000-55.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 55.000-40.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 40.000-20.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 20.000-0.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 195.000-175.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 175.000-155.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 155.000-135.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T4 135.000-115.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 115.000-95.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 95.000-75.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 75.000-55.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 55.000-40.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 40.000-20.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 20.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Hybrid Cable	C	No	Ar (CaAa)	190.000 - 0.000	0.500	0.15	3	3	0.500 1.397	1.540		0.002
RET Cable	C	No	Ar (CaAa)	195.000 - 0.000	0.500	0	4	4	0.500 0.000	0.500		0.000
Safety Cable	B	No	Ar (CaAa)	195.000 - 0.000	0.500	0	1	1	0.000	0.375		0.000
1-5/8" Coax	C	No	Ar (CaAa)	180.000 - 0.000	0.500	0.02	1	1	0.000	1.980		0.001
1-5/8" Hybriflex	C	No	Ar (CaAa)	180.000 - 0.000	0.500	0.04	1	1	0.000	1.980		0.001
1-5/8" Coax	C	No	Ar (CaAa)	172.000 - 0.000	0.500	0.06	1	1	0.000	1.980		0.001
Copper Wire	C	No	Ar (CaAa)	172.000 - 0.000	0.500	0.08	1	1	0.000	0.440		0.000
RG6 Fiber	C	No	Ar (CaAa)	172.000 - 0.000	0.500	-0.02	1	1	0.000	0.440		0.000
1-5/8" Coax	C	No	Ar (CaAa)	160.000 - 0.000	0.500	-0.04	1	1	0.000	1.980		0.001
1-5/8" Coax	C	No	Ar (CaAa)	145.000 - 0.000	0.500	-0.06	1	1	0.000	1.980		0.001
1/2: Fiber	C	No	Ar (CaAa)	145.000 - 0.000	0.500	0.08	1	1	0.000	0.650		0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight klf
Ladder	B	No	CaAa (In Face)	195.000 - 0.000	0.500	0	1	No Ice	0.200	0.007
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	195.000-175.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.144
		C	0.000	0.000	12.910	0.000	0.107
T2	175.000-155.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.144
		C	0.000	0.000	27.012	0.000	0.189
T3	155.000-135.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.144
		C	0.000	0.000	33.470	0.000	0.220
T4	135.000-115.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.144
		C	0.000	0.000	36.100	0.000	0.232
T5	115.000-95.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.144
		C	0.000	0.000	36.100	0.000	0.232
T6	95.000-75.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.144
		C	0.000	0.000	36.100	0.000	0.232
T7	75.000-55.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.144
		C	0.000	0.000	36.100	0.000	0.232
T8	55.000-40.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	3.563	0.000	0.108
		C	0.000	0.000	27.075	0.000	0.174
T9	40.000-20.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.144
		C	0.000	0.000	36.100	0.000	0.232
T10	20.000-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.144
		C	0.000	0.000	36.100	0.000	0.232

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	195.000-175.000	A	1.782	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	7.879	0.000	0.098
		C		0.000	0.000	45.621	0.000	0.587
T2	175.000-155.000	A	1.762	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	7.798	0.000	0.096
		C		0.000	0.000	93.969	0.000	1.310
T3	155.000-135.000	A	1.739	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	7.707	0.000	0.094
		C		0.000	0.000	114.991	0.000	1.621
T4	135.000-115.000	A	1.714	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	7.605	0.000	0.092
		C		0.000	0.000	123.409	0.000	1.730
T5	115.000-95.000	A	1.684	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	7.486	0.000	0.089
		C		0.000	0.000	122.059	0.000	1.692
T6	95.000-75.000	A	1.649	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	7.345	0.000	0.086
		C		0.000	0.000	120.453	0.000	1.648
T7	75.000-55.000	A	1.605	0.000	0.000	0.000	0.000	0.000

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	7.171	0.000	0.082
		C		0.000	0.000	118.464	0.000	1.594
T8	55.000-40.000	A	1.556	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	5.229	0.000	0.058
		C		0.000	0.000	87.154	0.000	1.151
T9	40.000-20.000	A	1.486	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	6.693	0.000	0.072
		C		0.000	0.000	113.024	0.000	1.451
T10	20.000-0.000	A	1.331	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	6.075	0.000	0.060
		C		0.000	0.000	105.993	0.000	1.277

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	195.000-175.000	0.437	2.863	-0.391	4.665
T2	175.000-155.000	-0.177	5.151	-1.087	9.001
T3	155.000-135.000	-0.102	7.427	-1.200	12.681
T4	135.000-115.000	-0.061	8.336	-1.319	14.921
T5	115.000-95.000	-0.071	9.171	-1.488	16.689
T6	95.000-75.000	-0.072	9.120	-1.569	17.549
T7	75.000-55.000	-0.072	8.942	-1.621	18.059
T8	55.000-40.000	-0.065	8.031	-1.530	17.000
T9	40.000-20.000	-0.080	9.605	-1.798	19.648
T10	20.000-0.000	-0.082	9.789	-1.858	19.752

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	Hybrid Cable	175.00 - 190.00	0.6000	0.6000
T1	2	RET Cable	175.00 - 195.00	0.6000	0.6000
T1	3	Ladder	175.00 - 195.00	0.8000	0.8000
T1	4	Safety Cable	175.00 - 195.00	0.6000	0.6000
T1	5	1-5/8" Coax	175.00 - 180.00	0.6000	0.6000
T1	6	1-5/8" Hybriflex	175.00 - 180.00	0.6000	0.6000
T2	1	Hybrid Cable	155.00 - 175.00	0.6000	0.6000
T2	2	RET Cable	155.00 - 175.00	0.6000	0.6000
T2	3	Ladder	155.00 - 175.00	0.8000	0.8000
T2	4	Safety Cable	155.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T2	5	1-5/8" Coax	155.00 - 175.00	0.6000	0.6000
T2	6	1-5/8" Hybriflex	155.00 - 175.00	0.6000	0.6000
T2	7	1-5/8" Coax	155.00 - 175.00	0.6000	0.6000
T2	8	Copper Wire	155.00 - 172.00	0.6000	0.6000
T2	9	RG6 Fiber	155.00 - 172.00	0.6000	0.6000
T2	10	1-5/8" Coax	155.00 - 172.00	0.6000	0.6000
T3	1	Hybrid Cable	135.00 - 160.00	0.6000	0.6000
T3	2	RET Cable	135.00 - 155.00	0.6000	0.6000
T3	3	Ladder	135.00 - 155.00	0.8000	0.8000
T3	4	Safety Cable	135.00 - 155.00	0.6000	0.6000
T3	5	1-5/8" Coax	135.00 - 155.00	0.6000	0.6000
T3	6	1-5/8" Hybriflex	135.00 - 155.00	0.6000	0.6000
T3	7	1-5/8" Coax	135.00 - 155.00	0.6000	0.6000
T3	8	Copper Wire	135.00 - 155.00	0.6000	0.6000
T3	9	RG6 Fiber	135.00 - 155.00	0.6000	0.6000
T3	10	1-5/8" Coax	135.00 - 155.00	0.6000	0.6000
T3	11	1-5/8" Coax	135.00 - 145.00	0.6000	0.6000
T3	12	1/2: Fiber	135.00 - 145.00	0.6000	0.6000
T4	1	Hybrid Cable	115.00 - 135.00	0.6000	0.6000
T4	2	RET Cable	115.00 - 135.00	0.6000	0.6000
T4	3	Ladder	115.00 - 135.00	0.8000	0.8000
T4	4	Safety Cable	115.00 - 135.00	0.6000	0.6000
T4	5	1-5/8" Coax	115.00 - 135.00	0.6000	0.6000
T4	6	1-5/8" Hybriflex	115.00 - 135.00	0.6000	0.6000
T4	7	1-5/8" Coax	115.00 - 135.00	0.6000	0.6000
T4	8	Copper Wire	115.00 - 135.00	0.6000	0.6000
T4	9	RG6 Fiber	115.00 - 135.00	0.6000	0.6000
T4	10	1-5/8" Coax	115.00 - 135.00	0.6000	0.6000
T4	11	1-5/8" Coax	115.00 - 135.00	0.6000	0.6000
T4	12	1/2: Fiber	115.00 - 135.00	0.6000	0.6000
T5	1	Hybrid Cable	95.00 - 115.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	2	RET Cable	95.00 - 115.00	0.6000	0.6000
T5	3	Ladder	95.00 - 115.00	0.8000	0.8000
T5	4	Safety Cable	95.00 - 115.00	0.6000	0.6000
T5	5	1-5/8" Coax	95.00 - 115.00	0.6000	0.6000
T5	6	1-5/8" Hybriflex	95.00 - 115.00	0.6000	0.6000
T5	7	1-5/8" Coax	95.00 - 115.00	0.6000	0.6000
T5	8	Copper Wire	95.00 - 115.00	0.6000	0.6000
T5	9	RG6 Fiber	95.00 - 115.00	0.6000	0.6000
T5	10	1-5/8" Coax	95.00 - 115.00	0.6000	0.6000
T5	11	1-5/8" Coax	95.00 - 115.00	0.6000	0.6000
T5	12	1/2: Fiber	95.00 - 115.00	0.6000	0.6000
T6	1	Hybrid Cable	75.00 - 95.00	0.6000	0.6000
T6	2	RET Cable	75.00 - 95.00	0.6000	0.6000
T6	3	Ladder	75.00 - 95.00	0.8000	0.8000
T6	4	Safety Cable	75.00 - 95.00	0.6000	0.6000
T6	5	1-5/8" Coax	75.00 - 95.00	0.6000	0.6000
T6	6	1-5/8" Hybriflex	75.00 - 95.00	0.6000	0.6000
T6	7	1-5/8" Coax	75.00 - 95.00	0.6000	0.6000
T6	8	Copper Wire	75.00 - 95.00	0.6000	0.6000
T6	9	RG6 Fiber	75.00 - 95.00	0.6000	0.6000
T6	10	1-5/8" Coax	75.00 - 95.00	0.6000	0.6000
T6	11	1-5/8" Coax	75.00 - 95.00	0.6000	0.6000
T6	12	1/2: Fiber	75.00 - 95.00	0.6000	0.6000
T7	1	Hybrid Cable	55.00 - 75.00	0.6000	0.6000
T7	2	RET Cable	55.00 - 75.00	0.6000	0.6000
T7	3	Ladder	55.00 - 75.00	0.8000	0.8000
T7	4	Safety Cable	55.00 - 75.00	0.6000	0.6000
T7	5	1-5/8" Coax	55.00 - 75.00	0.6000	0.6000
T7	6	1-5/8" Hybriflex	55.00 - 75.00	0.6000	0.6000
T7	7	1-5/8" Coax	55.00 - 75.00	0.6000	0.6000
T7	8	Copper Wire	55.00 - 75.00	0.6000	0.6000
T7	9	RG6 Fiber	55.00 - 75.00	0.6000	0.6000
T7	10	1-5/8" Coax	55.00 - 75.00	0.6000	0.6000
T7	11	1-5/8" Coax	55.00 - 75.00	0.6000	0.6000
T7	12	1/2: Fiber	55.00 - 75.00	0.6000	0.6000
T8	1	Hybrid Cable	40.00 - 55.00	0.6000	0.6000
T8	2	RET Cable	40.00 - 55.00	0.6000	0.6000
T8	3	Ladder	40.00 - 55.00	0.8000	0.8000
T8	4	Safety Cable	40.00 - 55.00	0.6000	0.6000
T8	5	1-5/8" Coax	40.00 - 55.00	0.6000	0.6000
T8	6	1-5/8" Hybriflex	40.00 - 55.00	0.6000	0.6000
T8	7	1-5/8" Coax	40.00 - 55.00	0.6000	0.6000
T8	8	Copper Wire	40.00 - 55.00	0.6000	0.6000
T8	9	RG6 Fiber	40.00 - 55.00	0.6000	0.6000
T8	10	1-5/8" Coax	40.00 - 55.00	0.6000	0.6000
T8	11	1-5/8" Coax	40.00 - 55.00	0.6000	0.6000
T8	12	1/2: Fiber	40.00 - 55.00	0.6000	0.6000
T9	1	Hybrid Cable	20.00 - 40.00	0.6000	0.6000
T9	2	RET Cable	20.00 - 40.00	0.6000	0.6000
T9	3	Ladder	20.00 - 40.00	0.8000	0.8000
T9	4	Safety Cable	20.00 - 40.00	0.6000	0.6000
T9	5	1-5/8" Coax	20.00 - 40.00	0.6000	0.6000
T9	6	1-5/8" Hybriflex	20.00 - 40.00	0.6000	0.6000
T9	7	1-5/8" Coax	20.00 - 40.00	0.6000	0.6000
T9	8	Copper Wire	20.00 - 40.00	0.6000	0.6000
T9	9	RG6 Fiber	20.00 - 40.00	0.6000	0.6000
T9	10	1-5/8" Coax	20.00 - 40.00	0.6000	0.6000
T9	11	1-5/8" Coax	20.00 - 40.00	0.6000	0.6000
T9	12	1/2: Fiber	20.00 - 40.00	0.6000	0.6000
T10	1	Hybrid Cable	0.00 - 20.00	0.6000	0.6000
T10	2	RET Cable	0.00 - 20.00	0.6000	0.6000
T10	3	Ladder	0.00 - 20.00	0.8000	0.8000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T10	4	Safety Cable	0.00 - 20.00	0.6000	0.6000
T10	5	1-5/8" Coax	0.00 - 20.00	0.6000	0.6000
T10	6	1-5/8" Hybriflex	0.00 - 20.00	0.6000	0.6000
T10	7	1-5/8" Coax	0.00 - 20.00	0.6000	0.6000
T10	8	Copper Wire	0.00 - 20.00	0.6000	0.6000
T10	9	RG6 Fiber	0.00 - 20.00	0.6000	0.6000
T10	10	1-5/8" Coax	0.00 - 20.00	0.6000	0.6000
T10	11	1-5/8" Coax	0.00 - 20.00	0.6000	0.6000
T10	12	1/2: Fiber	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVTM14-C-I20	A	From Leg	4.000 5.000 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	6.340 6.970 7.600	3.610 4.250 4.890	0.056 0.095 0.133
2500 MHz RRH, 8X20-25	A	From Leg	4.000 5.000 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	4.050 4.430 4.810	1.530 1.830 2.130	0.070 0.097 0.124
Existing Antenna	A	From Leg	4.000 1.666 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	9.290 10.290 11.290	5.220 6.060 6.900	0.041 0.056 0.072
Existing RRH	A	From Leg	0.000 0.000 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	2.090 2.510 2.930	1.730 2.120 2.510	0.060 0.087 0.114
Empty Mount	A	From Leg	4.000 -1.660 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	1.880 2.720 3.560	1.880 2.720 3.560	0.035 0.055 0.075
Empty Mount	A	From Leg	4.000 -5.000 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	1.880 2.720 3.560	1.880 2.720 3.560	0.035 0.055 0.075
APXVTM14-C-I20	B	From Leg	4.000 5.000 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	6.340 6.970 7.600	3.610 4.250 4.890	0.056 0.095 0.133
2500 MHz RRH, 8X20-25	B	From Leg	4.000 5.000 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	4.050 4.430 4.810	1.530 1.830 2.130	0.070 0.097 0.124
Existing Antenna	B	From Leg	4.000 1.666 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	9.290 10.290 11.290	5.220 6.060 6.900	0.041 0.056 0.072
Existing RRH	B	From Leg	0.000 0.000 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	2.090 2.510 2.930	1.730 2.120 2.510	0.060 0.087 0.114
Empty Mount	B	From Leg	4.000 -1.660 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	1.880 2.720 3.560	1.880 2.720 3.560	0.035 0.055 0.075
Empty Mount	B	From Leg	4.000 -5.000 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	1.880 2.720 3.560	1.880 2.720 3.560	0.035 0.055 0.075

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVTM14-C-I20	C	From Leg	4.000	0.000	190.000	No Ice	6.340	3.610	0.056
			5.000			1/2" Ice	6.970	4.250	0.095
			0.000			1" Ice	7.600	4.890	0.133
2500 MHz RRH, 8X20-25	C	From Leg	4.000	0.000	190.000	No Ice	4.050	1.530	0.070
			5.000			1/2" Ice	4.430	1.830	0.097
			0.000			1" Ice	4.810	2.130	0.124
Existing Antenna	C	From Leg	4.000	0.000	190.000	No Ice	9.290	5.220	0.041
			1.666			1/2" Ice	10.290	6.060	0.056
			0.000			1" Ice	11.290	6.900	0.072
Existing RRH	C	From Leg	0.000	0.000	190.000	No Ice	2.090	1.730	0.060
			0.000			1/2" Ice	2.510	2.120	0.087
			0.000			1" Ice	2.930	2.510	0.114
Empty Mount	C	From Leg	4.000	0.000	190.000	No Ice	1.880	1.880	0.035
			-1.660			1/2" Ice	2.720	2.720	0.055
			0.000			1" Ice	3.560	3.560	0.075
Empty Mount	C	From Leg	4.000	0.000	190.000	No Ice	1.880	1.880	0.035
			-5.000			1/2" Ice	2.720	2.720	0.055
			0.000			1" Ice	3.560	3.560	0.075
Sector Frames	C	None		0.000	180.000	No Ice	75.300	75.300	0.000
						1/2" Ice	80.000	80.000	2.500
						1" Ice	84.700	84.700	5.130
TMA	A	From Leg	0.000	0.000	180.000	No Ice	1.167	0.540	0.013
			0.000			1/2" Ice	1.390	0.710	0.021
			0.000			1" Ice	1.613	0.880	0.028
AIR21	A	From Leg	0.000	0.000	180.000	No Ice	5.920	4.220	0.083
			0.000			1/2" Ice	6.530	4.840	0.124
			0.000			1" Ice	7.140	5.460	0.174
TMA	B	From Leg	0.000	0.000	180.000	No Ice	1.167	0.540	0.013
			0.000			1/2" Ice	1.390	0.710	0.021
			0.000			1" Ice	1.613	0.880	0.028
AIR21	B	From Leg	0.000	0.000	180.000	No Ice	5.920	4.220	0.083
			0.000			1/2" Ice	6.530	4.840	0.124
			0.000			1" Ice	7.140	5.460	0.174
TMA	C	From Leg	0.000	0.000	180.000	No Ice	1.167	0.540	0.013
			0.000			1/2" Ice	1.390	0.710	0.021
			0.000			1" Ice	1.613	0.880	0.028
AIR21	C	From Leg	0.000	0.000	180.000	No Ice	5.920	4.220	0.083
			0.000			1/2" Ice	6.530	4.840	0.124
			0.000			1" Ice	7.140	5.460	0.174
Sector Frames	C	None		0.000	180.000	No Ice	15.000	15.000	0.500
						1/2" Ice	20.600	20.600	0.650
						1" Ice	26.200	26.200	0.800
AM-X-CD-16-65-00T-RET	A	From Leg	0.000	0.000	172.000	No Ice	8.020	4.640	0.049
			0.000			1/2" Ice	8.820	5.500	0.095
			0.000			1" Ice	9.620	6.360	0.141
(2) RRUS11	A	From Leg	0.000	0.000	172.000	No Ice	2.780	1.190	0.051
			0.000			1/2" Ice	3.100	1.420	0.071
			0.000			1" Ice	3.420	1.650	0.092
80010121	A	From Leg	0.000	0.000	172.000	No Ice	7.540	5.440	0.055
			0.000			1/2" Ice	9.060	7.000	0.161
			0.000			1" Ice	10.580	8.560	0.266
(2) 21401 TMA	A	From Leg	0.000	0.000	172.000	No Ice	1.288	0.500	0.014
			0.000			1/2" Ice	1.527	0.700	0.022
			0.000			1" Ice	1.766	0.900	0.029
AM-X-CD-16-65-00T-RET	B	From Leg	0.000	0.000	172.000	No Ice	8.020	4.640	0.049
			0.000			1/2" Ice	8.820	5.500	0.095
			0.000			1" Ice	9.620	6.360	0.141

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) RRUS11	B	From Leg	0.000	0.000	0.000	172.000	No Ice	2.780	1.190	0.051
			0.000				1/2" Ice	3.100	1.420	0.071
			0.000				1" Ice	3.420	1.650	0.092
80010121	B	From Leg	0.000	0.000	0.000	172.000	No Ice	7.540	5.440	0.055
			0.000				1/2" Ice	9.060	7.000	0.161
			0.000				1" Ice	10.580	8.560	0.266
(2) 21401 TMA	B	From Leg	0.000	0.000	0.000	172.000	No Ice	1.288	0.500	0.014
			0.000				1/2" Ice	1.527	0.700	0.022
			0.000				1" Ice	1.766	0.900	0.029
AM-X-CD-16-65-00T-RET	C	From Leg	0.000	0.000	0.000	172.000	No Ice	8.020	4.640	0.049
			0.000				1/2" Ice	8.820	5.500	0.095
			0.000				1" Ice	9.620	6.360	0.141
(2) RRUS11	C	From Leg	0.000	0.000	0.000	172.000	No Ice	2.780	1.190	0.051
			0.000				1/2" Ice	3.100	1.420	0.071
			0.000				1" Ice	3.420	1.650	0.092
80010121	C	From Leg	0.000	0.000	0.000	172.000	No Ice	7.540	5.440	0.055
			0.000				1/2" Ice	9.060	7.000	0.161
			0.000				1" Ice	10.580	8.560	0.266
(2) 21401 TMA	C	From Leg	0.000	0.000	0.000	172.000	No Ice	1.288	0.500	0.014
			0.000				1/2" Ice	1.527	0.700	0.022
			0.000				1" Ice	1.766	0.900	0.029
DC6-48-60-18-8F	C	From Leg	0.000	0.000	0.000	172.000	No Ice	2.560	0.940	0.033
			0.000				1/2" Ice	2.910	1.370	0.051
			0.000				1" Ice	3.260	1.800	0.068
Frames Sector	C	None			0.000	172.000	No Ice	15.000	15.000	0.500
							1/2" Ice	20.600	20.600	0.650
							1" Ice	26.200	26.200	0.800
(4) DB844H90E-XY	A	From Leg	0.000	0.000	0.000	160.000	No Ice	3.060	3.610	0.014
			0.000				1/2" Ice	3.610	4.150	0.040
			0.000				1" Ice	4.160	4.690	0.067
(4) DB844H90E-XY	B	From Leg	0.000	0.000	0.000	160.000	No Ice	3.060	3.610	0.014
			0.000				1/2" Ice	3.610	4.150	0.040
			0.000				1" Ice	4.160	4.690	0.067
(4) DB844H90E-XY	C	From Leg	0.000	0.000	0.000	160.000	No Ice	3.060	3.610	0.014
			0.000				1/2" Ice	3.610	4.150	0.040
			0.000				1" Ice	4.160	4.690	0.067
(2) FD9R6004-2C-3L	A	From Leg	0.000	0.000	0.000	145.000	No Ice	0.310	0.090	0.003
			0.000				1/2" Ice	0.430	0.170	0.085
			0.000				1" Ice	0.550	0.250	0.167
BXA-70063/6CF	A	From Leg	0.000	0.000	0.000	145.000	No Ice	7.570	4.160	0.017
			0.000				1/2" Ice	8.360	5.030	0.059
			0.000				1" Ice	9.150	5.900	0.102
BXA-171085/8CF	A	From Leg	0.000	0.000	0.000	145.000	No Ice	2.920	2.140	0.009
			0.000				1/2" Ice	3.470	2.720	0.018
			0.000				1" Ice	4.020	3.300	0.027
LPA-80080/4 CF	A	From Leg	0.000	0.000	0.000	145.000	No Ice	2.620	0.001	0.012
			0.000				1/2" Ice	3.160	5.930	0.045
			0.000				1" Ice	3.700	11.860	0.078
(2) FD9R6004-2C-3L	B	From Leg	0.000	0.000	0.000	145.000	No Ice	0.310	0.090	0.003
			0.000				1/2" Ice	0.430	0.170	0.085
			0.000				1" Ice	0.550	0.250	0.167
BXA-70063/6CF	B	From Leg	0.000	0.000	0.000	145.000	No Ice	7.570	4.160	0.017
			0.000				1/2" Ice	8.360	5.030	0.059
			0.000				1" Ice	9.150	5.900	0.102
BXA-171085/8CF	B	From Leg	0.000	0.000	0.000	145.000	No Ice	2.920	2.140	0.009
			0.000				1/2" Ice	3.470	2.720	0.018
			0.000				1" Ice	4.020	3.300	0.027

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
LPA-80080/4 CF	B	From Leg	0.000	0.000	145.000	No Ice	2.620	0.001	0.012
			0.000			1/2" Ice	3.160	5.930	0.045
			0.000			1" Ice	3.700	11.860	0.078
(2) FD9R6004-2C-3L	C	From Leg	0.000	0.000	145.000	No Ice	0.310	0.090	0.003
			0.000			1/2" Ice	0.430	0.170	0.085
			0.000			1" Ice	0.550	0.250	0.167
BXA-70063/6CF	C	From Leg	0.000	0.000	145.000	No Ice	7.570	4.160	0.017
			0.000			1/2" Ice	8.360	5.030	0.059
			0.000			1" Ice	9.150	5.900	0.102
BXA-171085/8CF	C	From Leg	0.000	0.000	145.000	No Ice	2.920	2.140	0.009
			0.000			1/2" Ice	3.470	2.720	0.018
			0.000			1" Ice	4.020	3.300	0.027
LPA-80080/4 CF	C	From Leg	0.000	0.000	145.000	No Ice	2.620	0.001	0.012
			0.000			1/2" Ice	3.160	5.930	0.045
			0.000			1" Ice	3.700	11.860	0.078
SECTOR FRAMES	A	From Leg	0.000	0.000	145.000	No Ice	15.000	15.000	0.500
			0.000			1/2" Ice	20.600	20.600	0.650
			0.000			1" Ice	26.200	26.200	0.800
GPS	A	From Leg	2.000	0.000	80.000	No Ice	2.000	2.000	0.040
			0.000			1/2" Ice	3.000	3.000	0.063
			0.000			1" Ice	4.000	4.000	0.086
2ft Standoff	A	From Leg	0.000	0.000	80.000	No Ice	2.630	2.630	0.050
			0.000			1/2" Ice	4.340	4.240	0.100
			0.000			1" Ice	6.050	5.850	0.150
GPS	B	From Leg	2.000	0.000	80.000	No Ice	2.000	2.000	0.040
			0.000			1/2" Ice	3.000	3.000	0.063
			0.000			1" Ice	4.000	4.000	0.086
2ft Standoff	B	From Leg	0.000	0.000	80.000	No Ice	2.630	2.630	0.050
			0.000			1/2" Ice	4.340	4.240	0.100
			0.000			1" Ice	6.050	5.850	0.150

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1	185.000	1.441	0.030	105.000	A	0.000	17.631	10.000	56.72	0.000	0.000
195.000-175.0					B	0.000	17.631		56.72	4.750	0.000
00					C	0.000	17.631		56.72	12.910	0.000
T2	165.000	1.406	0.029	127.402	A	10.711	13.018	12.523	52.78	0.000	0.000
175.000-155.0					B	10.711	13.018		52.78	4.750	0.000
00					C	10.711	13.018		52.78	27.012	0.000
T3	145.000	1.369	0.029	170.105	A	12.659	13.358	13.358	51.34	0.000	0.000
155.000-135.0					B	12.659	13.358		51.34	4.750	0.000
00					C	12.659	13.358		51.34	33.470	0.000
T4	125.000	1.326	0.028	212.808	A	17.767	14.193	14.193	44.41	0.000	0.000
135.000-115.0					B	17.767	14.193		44.41	4.750	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	17.767	14.193		44.41	36.100	0.000
T5	105.000	1.279	0.027	255.094	A	20.520	14.193	14.193	40.89	0.000	0.000
115.000-95.00					B	20.520	14.193		40.89	4.750	0.000
0					C	20.520	14.193		40.89	36.100	0.000
T6	85.000	1.223	0.026	297.797	A	27.241	15.028	15.028	35.55	0.000	0.000
95.000-75.000					B	27.241	15.028		35.55	4.750	0.000
					C	27.241	15.028		35.55	36.100	0.000
T7	65.000	1.156	0.024	340.501	A	34.990	15.863	15.863	31.19	0.000	0.000
75.000-55.000					B	34.990	15.863		31.19	4.750	0.000
					C	34.990	15.863		31.19	36.100	0.000
T8	47.500	1.082	0.023	287.096	A	37.981	11.914	11.914	23.88	0.000	0.000
55.000-40.000					B	37.981	11.914		23.88	3.563	0.000
					C	37.981	11.914		23.88	27.075	0.000
T9	30.000	0.982	0.021	425.072	A	42.966	15.863	15.863	26.96	0.000	0.000
40.000-20.000					B	42.966	15.863		26.96	4.750	0.000
					C	42.966	15.863		26.96	36.100	0.000
T10	10.000	0.85	0.018	462.484	A	46.472	16.684	16.684	26.42	0.000	0.000
20.000-0.000					B	46.472	16.684		26.42	4.750	0.000
					C	46.472	16.684		26.42	36.100	0.000

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	185.000	1.441	0.008	1.782	110.941	A	0.000	51.271	21.881	42.68	0.000	0.000
195.000-175.000						B	0.000	51.271		42.68	7.879	0.000
						C	0.000	51.271		42.68	45.621	0.000
T2	165.000	1.406	0.008	1.762	133.283	A	10.711	41.279	24.291	46.72	0.000	0.000
175.000-155.000						B	10.711	41.279		46.72	7.798	0.000
						C	10.711	41.279		46.72	93.969	0.000
T3	145.000	1.369	0.007	1.739	175.911	A	12.659	42.590	24.975	45.20	0.000	0.000
155.000-135.000						B	12.659	42.590		45.20	7.707	0.000
						C	12.659	42.590		45.20	114.991	0.000
T4	125.000	1.326	0.007	1.714	218.528	A	17.767	45.937	25.639	40.25	0.000	0.000
135.000-115.000						B	17.767	45.937		40.25	7.605	0.000
						C	17.767	45.937		40.25	123.409	0.000
T5	105.000	1.279	0.007	1.684	260.716	A	20.520	48.480	25.441	36.87	0.000	0.000
115.000-95.000						B	20.520	48.480		36.87	7.486	0.000
						C	20.520	48.480		36.87	122.059	0.000
T6	85.000	1.223	0.007	1.649	303.301	A	27.241	51.707	26.041	32.98	0.000	0.000
95.000-75.000						B	27.241	51.707		32.98	7.345	0.000
						C	27.241	51.707		32.98	120.453	0.000
T7	65.000	1.156	0.006	1.605	345.859	A	34.990	54.667	26.584	29.65	0.000	0.000
75.000-55.000						B	34.990	54.667		29.65	7.171	0.000
						C	34.990	54.667		29.65	118.464	0.000
T8	47.500	1.082	0.006	1.556	290.994	A	37.981	49.260	19.718	22.60	0.000	0.000
55.000-40.000						B	37.981	49.260		22.60	5.229	0.000
						C	37.981	49.260		22.60	87.154	0.000
T9	30.000	0.982	0.005	1.486	430.031	A	42.966	57.705	25.786	25.61	0.000	0.000
40.000-20.000						B	42.966	57.705		25.61	6.693	0.000
						C	42.966	57.705		25.61	113.024	0.000
T10	10.000	0.85	0.005	1.331	466.925	A	46.472	56.499	25.568	24.83	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
20.000-0.000						B	46.472	56.499		24.83	6.075	0.000
						C	46.472	56.499		24.83	105.993	0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	185.000	1.441	0.011	105.000	A	0.000	17.631	10.000	56.72	0.000	0.000
195.000-175.0					B	0.000	17.631		56.72	4.750	0.000
00					C	0.000	17.631		56.72	12.910	0.000
T2	165.000	1.406	0.011	127.402	A	10.711	13.018	12.523	52.78	0.000	0.000
175.000-155.0					B	10.711	13.018		52.78	4.750	0.000
00					C	10.711	13.018		52.78	27.012	0.000
T3	145.000	1.369	0.011	170.105	A	12.659	13.358	13.358	51.34	0.000	0.000
155.000-135.0					B	12.659	13.358		51.34	4.750	0.000
00					C	12.659	13.358		51.34	33.470	0.000
T4	125.000	1.326	0.010	212.808	A	17.767	14.193	14.193	44.41	0.000	0.000
135.000-115.0					B	17.767	14.193		44.41	4.750	0.000
00					C	17.767	14.193		44.41	36.100	0.000
T5	105.000	1.279	0.010	255.094	A	20.520	14.193	14.193	40.89	0.000	0.000
115.000-95.00					B	20.520	14.193		40.89	4.750	0.000
0					C	20.520	14.193		40.89	36.100	0.000
T6	85.000	1.223	0.010	297.797	A	27.241	15.028	15.028	35.55	0.000	0.000
95.000-75.000					B	27.241	15.028		35.55	4.750	0.000
					C	27.241	15.028		35.55	36.100	0.000
T7	65.000	1.156	0.009	340.501	A	34.990	15.863	15.863	31.19	0.000	0.000
75.000-55.000					B	34.990	15.863		31.19	4.750	0.000
					C	34.990	15.863		31.19	36.100	0.000
T8	47.500	1.082	0.008	287.096	A	37.981	11.914	11.914	23.88	0.000	0.000
55.000-40.000					B	37.981	11.914		23.88	3.563	0.000
					C	37.981	11.914		23.88	27.075	0.000
T9	30.000	0.982	0.008	425.072	A	42.966	15.863	15.863	26.96	0.000	0.000
40.000-20.000					B	42.966	15.863		26.96	4.750	0.000
					C	42.966	15.863		26.96	36.100	0.000
T10	10.000	0.85	0.007	462.484	A	46.472	16.684	16.684	26.42	0.000	0.000
20.000-0.000					B	46.472	16.684		26.42	4.750	0.000
					C	46.472	16.684		26.42	36.100	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T1	0.251	2.409	A	0.168	2.707	0.030	1	1	10.043	0.987	0.049	C
195.000-175.0			B	0.168	2.707		1	1	10.043			
00			C	0.168	2.707		1	1	10.043			
T2	0.334	2.820	A	0.186	2.643	0.029	1	1	17.934	1.680	0.084	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
175.000-155.0			B	0.186	2.643		1	1	17.934			
00			C	0.186	2.643		1	1	17.934			
T3	0.365	3.514	A	0.153	2.761	0.029	1	1	19.862	1.910	0.095	C
155.000-135.0			B	0.153	2.761		1	1	19.862			
00			C	0.153	2.761		1	1	19.862			
T4	0.377	3.983	A	0.15	2.771	0.028	1	1	25.296	2.248	0.112	C
135.000-115.0			B	0.15	2.771		1	1	25.296			
00			C	0.15	2.771		1	1	25.296			
T5	0.377	4.722	A	0.136	2.823	0.027	1	1	28.061	2.374	0.119	C
115.000-95.00			B	0.136	2.823		1	1	28.061			
0			C	0.136	2.823		1	1	28.061			
T6	0.377	5.298	A	0.142	2.801	0.026	1	1	35.141	2.689	0.134	C
95.000-75.000			B	0.142	2.801		1	1	35.141			
			C	0.142	2.801		1	1	35.141			
T7	0.377	5.754	A	0.149	2.774	0.024	1	1	43.274	2.984	0.149	C
75.000-55.000			B	0.149	2.774		1	1	43.274			
			C	0.149	2.774		1	1	43.274			
T8	0.283	5.028	A	0.174	2.686	0.023	1	1	44.343	2.654	0.177	C
55.000-40.000			B	0.174	2.686		1	1	44.343			
			C	0.174	2.686		1	1	44.343			
T9	0.377	6.844	A	0.138	2.815	0.021	1	1	51.461	2.969	0.148	C
40.000-20.000			B	0.138	2.815		1	1	51.461			
			C	0.138	2.815		1	1	51.461			
T10	0.377	8.159	A	0.137	2.822	0.018	1	1	55.466	2.745	0.137	C
20.000-0.000			B	0.137	2.822		1	1	55.466			
			C	0.137	2.822		1	1	55.466			
Sum Weight:	3.493	48.531						OTM	1932.192 kip-ft	23.241		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T1	0.251	2.409	A	0.168	2.707	0.030	0.8	1	10.043	0.987	0.049	C
195.000-175.0			B	0.168	2.707		0.8	1	10.043			
00			C	0.168	2.707		0.8	1	10.043			
T2	0.334	2.820	A	0.186	2.643	0.029	0.8	1	15.791	1.539	0.077	C
175.000-155.0			B	0.186	2.643		0.8	1	15.791			
00			C	0.186	2.643		0.8	1	15.791			
T3	0.365	3.514	A	0.153	2.761	0.029	0.8	1	17.330	1.740	0.087	C
155.000-135.0			B	0.153	2.761		0.8	1	17.330			
00			C	0.153	2.761		0.8	1	17.330			
T4	0.377	3.983	A	0.15	2.771	0.028	0.8	1	21.743	2.016	0.101	C
135.000-115.0			B	0.15	2.771		0.8	1	21.743			
00			C	0.15	2.771		0.8	1	21.743			
T5	0.377	4.722	A	0.136	2.823	0.027	0.8	1	23.957	2.111	0.106	C
115.000-95.00			B	0.136	2.823		0.8	1	23.957			
0			C	0.136	2.823		0.8	1	23.957			
T6	0.377	5.298	A	0.142	2.801	0.026	0.8	1	29.693	2.357	0.118	C
95.000-75.000			B	0.142	2.801		0.8	1	29.693			
			C	0.142	2.801		0.8	1	29.693			
T7	0.377	5.754	A	0.149	2.774	0.024	0.8	1	36.276	2.586	0.129	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
75.000-55.000			B	0.149	2.774		0.8	1	36.276			
			C	0.149	2.774		0.8	1	36.276			
T8	0.283	5.028	A	0.174	2.686	0.023	0.8	1	36.747	2.262	0.151	C
55.000-40.000			B	0.174	2.686		0.8	1	36.747			
			C	0.174	2.686		0.8	1	36.747			
T9	0.377	6.844	A	0.138	2.815	0.021	0.8	1	42.867	2.547	0.127	C
40.000-20.000			B	0.138	2.815		0.8	1	42.867			
			C	0.138	2.815		0.8	1	42.867			
T10	0.377	8.159	A	0.137	2.822	0.018	0.8	1	46.171	2.349	0.117	C
20.000-0.000			B	0.137	2.822		0.8	1	46.171			
			C	0.137	2.822		0.8	1	46.171			
Sum Weight:	3.493	48.531						OTM	1738.243 kip-ft	20.494		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T1	0.251	2.409	A	0.168	2.707	0.030	0.85	1	10.043	0.987	0.049	C
195.000-175.0			B	0.168	2.707		0.85	1	10.043			
00			C	0.168	2.707		0.85	1	10.043			
T2	0.334	2.820	A	0.186	2.643	0.029	0.85	1	16.327	1.574	0.079	C
175.000-155.0			B	0.186	2.643		0.85	1	16.327			
00			C	0.186	2.643		0.85	1	16.327			
T3	0.365	3.514	A	0.153	2.761	0.029	0.85	1	17.963	1.783	0.089	C
155.000-135.0			B	0.153	2.761		0.85	1	17.963			
00			C	0.153	2.761		0.85	1	17.963			
T4	0.377	3.983	A	0.15	2.771	0.028	0.85	1	22.631	2.074	0.104	C
135.000-115.0			B	0.15	2.771		0.85	1	22.631			
00			C	0.15	2.771		0.85	1	22.631			
T5	0.377	4.722	A	0.136	2.823	0.027	0.85	1	24.983	2.177	0.109	C
115.000-95.00			B	0.136	2.823		0.85	1	24.983			
0			C	0.136	2.823		0.85	1	24.983			
T6	0.377	5.298	A	0.142	2.801	0.026	0.85	1	31.055	2.440	0.122	C
95.000-75.000			B	0.142	2.801		0.85	1	31.055			
			C	0.142	2.801		0.85	1	31.055			
T7	0.377	5.754	A	0.149	2.774	0.024	0.85	1	38.026	2.685	0.134	C
75.000-55.000			B	0.149	2.774		0.85	1	38.026			
			C	0.149	2.774		0.85	1	38.026			
T8	0.283	5.028	A	0.174	2.686	0.023	0.85	1	38.646	2.360	0.157	C
55.000-40.000			B	0.174	2.686		0.85	1	38.646			
			C	0.174	2.686		0.85	1	38.646			
T9	0.377	6.844	A	0.138	2.815	0.021	0.85	1	45.016	2.652	0.133	C
40.000-20.000			B	0.138	2.815		0.85	1	45.016			
			C	0.138	2.815		0.85	1	45.016			
T10	0.377	8.159	A	0.137	2.822	0.018	0.85	1	48.495	2.448	0.122	C
20.000-0.000			B	0.137	2.822		0.85	1	48.495			
			C	0.137	2.822		0.85	1	48.495			
Sum Weight:	3.493	48.531						OTM	1786.730 kip-ft	21.181		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T1	0.685	4.561	A	0.462	1.954	0.008	1	1	34.110	0.658	0.033	C
195.000-175.0			B	0.462	1.954		1	1	34.110			
00			C	0.462	1.954		1	1	34.110			
T2	1.407	5.482	A	0.39	2.084	0.008	1	1	36.800	0.896	0.045	C
175.000-155.0			B	0.39	2.084		1	1	36.800			
00			C	0.39	2.084		1	1	36.800			
T3	1.715	6.377	A	0.314	2.259	0.007	1	1	38.360	1.014	0.051	C
155.000-135.0			B	0.314	2.259		1	1	38.360			
00			C	0.314	2.259		1	1	38.360			
T4	1.822	7.487	A	0.292	2.319	0.007	1	1	45.160	1.124	0.056	C
135.000-115.0			B	0.292	2.319		1	1	45.160			
00			C	0.292	2.319		1	1	45.160			
T5	1.781	8.547	A	0.265	2.394	0.007	1	1	49.062	1.154	0.058	C
115.000-95.00			B	0.265	2.394		1	1	49.062			
0			C	0.265	2.394		1	1	49.062			
T6	1.734	9.865	A	0.26	2.407	0.007	1	1	57.624	1.218	0.061	C
95.000-75.000			B	0.26	2.407		1	1	57.624			
			C	0.26	2.407		1	1	57.624			
T7	1.676	11.096	A	0.259	2.41	0.006	1	1	67.097	1.267	0.063	C
75.000-55.000			B	0.259	2.41		1	1	67.097			
			C	0.259	2.41		1	1	67.097			
T8	1.209	10.356	A	0.3	2.297	0.006	1	1	67.480	1.053	0.070	C
55.000-40.000			B	0.3	2.297		1	1	67.480			
			C	0.3	2.297		1	1	67.480			
T9	1.523	12.635	A	0.234	2.486	0.005	1	1	76.508	1.190	0.060	C
40.000-20.000			B	0.234	2.486		1	1	76.508			
			C	0.234	2.486		1	1	76.508			
T10	1.337	13.619	A	0.221	2.529	0.005	1	1	79.149	1.051	0.053	C
20.000-0.000			B	0.221	2.529		1	1	79.149			
			C	0.221	2.529		1	1	79.149			
Sum Weight:	14.889	90.024						OTM	960.443 kip-ft	10.626		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T1	0.685	4.561	A	0.462	1.954	0.008	0.8	1	34.110	0.658	0.033	C
195.000-175.0			B	0.462	1.954		0.8	1	34.110			
00			C	0.462	1.954		0.8	1	34.110			
T2	1.407	5.482	A	0.39	2.084	0.008	0.8	1	34.657	0.867	0.043	C
175.000-155.0			B	0.39	2.084		0.8	1	34.657			
00			C	0.39	2.084		0.8	1	34.657			
T3	1.715	6.377	A	0.314	2.259	0.007	0.8	1	35.828	0.978	0.049	C
155.000-135.0			B	0.314	2.259		0.8	1	35.828			
00			C	0.314	2.259		0.8	1	35.828			
T4	1.822	7.487	A	0.292	2.319	0.007	0.8	1	41.607	1.074	0.054	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
135.000-115.0			B	0.292	2.319		0.8	1	41.607			
00			C	0.292	2.319		0.8	1	41.607			
T5	1.781	8.547	A	0.265	2.394	0.007	0.8	1	44.958	1.096	0.055	C
115.000-95.00			B	0.265	2.394		0.8	1	44.958			
0			C	0.265	2.394		0.8	1	44.958			
T6	1.734	9.865	A	0.26	2.407	0.007	0.8	1	52.176	1.144	0.057	C
95.000-75.000			B	0.26	2.407		0.8	1	52.176			
			C	0.26	2.407		0.8	1	52.176			
T7	1.676	11.096	A	0.259	2.41	0.006	0.8	1	60.099	1.177	0.059	C
75.000-55.000			B	0.259	2.41		0.8	1	60.099			
			C	0.259	2.41		0.8	1	60.099			
T8	1.209	10.356	A	0.3	2.297	0.006	0.8	1	59.884	0.965	0.064	C
55.000-40.000			B	0.3	2.297		0.8	1	59.884			
			C	0.3	2.297		0.8	1	59.884			
T9	1.523	12.635	A	0.234	2.486	0.005	0.8	1	67.915	1.093	0.055	C
40.000-20.000			B	0.234	2.486		0.8	1	67.915			
			C	0.234	2.486		0.8	1	67.915			
T10	1.337	13.619	A	0.221	2.529	0.005	0.8	1	69.855	0.959	0.048	C
20.000-0.000			B	0.221	2.529		0.8	1	69.855			
			C	0.221	2.529		0.8	1	69.855			
Sum Weight:	14.889	90.024						OTM	917.842 kip-ft	10.011		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T1	0.685	4.561	A	0.462	1.954	0.008	0.85	1	34.110	0.658	0.033	C
195.000-175.0			B	0.462	1.954		0.85	1	34.110			
00			C	0.462	1.954		0.85	1	34.110			
T2	1.407	5.482	A	0.39	2.084	0.008	0.85	1	35.193	0.874	0.044	C
175.000-155.0			B	0.39	2.084		0.85	1	35.193			
00			C	0.39	2.084		0.85	1	35.193			
T3	1.715	6.377	A	0.314	2.259	0.007	0.85	1	36.461	0.987	0.049	C
155.000-135.0			B	0.314	2.259		0.85	1	36.461			
00			C	0.314	2.259		0.85	1	36.461			
T4	1.822	7.487	A	0.292	2.319	0.007	0.85	1	42.495	1.087	0.054	C
135.000-115.0			B	0.292	2.319		0.85	1	42.495			
00			C	0.292	2.319		0.85	1	42.495			
T5	1.781	8.547	A	0.265	2.394	0.007	0.85	1	45.984	1.111	0.056	C
115.000-95.00			B	0.265	2.394		0.85	1	45.984			
0			C	0.265	2.394		0.85	1	45.984			
T6	1.734	9.865	A	0.26	2.407	0.007	0.85	1	53.538	1.162	0.058	C
95.000-75.000			B	0.26	2.407		0.85	1	53.538			
			C	0.26	2.407		0.85	1	53.538			
T7	1.676	11.096	A	0.259	2.41	0.006	0.85	1	61.848	1.200	0.060	C
75.000-55.000			B	0.259	2.41		0.85	1	61.848			
			C	0.259	2.41		0.85	1	61.848			
T8	1.209	10.356	A	0.3	2.297	0.006	0.85	1	61.783	0.987	0.066	C
55.000-40.000			B	0.3	2.297		0.85	1	61.783			
			C	0.3	2.297		0.85	1	61.783			
T9	1.523	12.635	A	0.234	2.486	0.005	0.85	1	70.063	1.117	0.056	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
40.000-20.000			B	0.234	2.486		0.85	1	70.063			
			C	0.234	2.486		0.85	1	70.063			
T10	1.337	13.619	A	0.221	2.529	0.005	0.85	1	72.179	0.982	0.049	C
20.000-0.000			B	0.221	2.529		0.85	1	72.179			
			C	0.221	2.529		0.85	1	72.179			
Sum Weight:	14.889	90.024						OTM	928.492 kip-ft	10.164		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T1	0.251	2.409	A	0.168	2.707	0.011	1	1	10.043	0.370	0.019	C
195.000-175.0			B	0.168	2.707		1	1	10.043			
00			C	0.168	2.707		1	1	10.043			
T2	0.334	2.820	A	0.186	2.643	0.011	1	1	17.934	0.630	0.031	C
175.000-155.0			B	0.186	2.643		1	1	17.934			
00			C	0.186	2.643		1	1	17.934			
T3	0.365	3.514	A	0.153	2.761	0.011	1	1	19.862	0.716	0.036	C
155.000-135.0			B	0.153	2.761		1	1	19.862			
00			C	0.153	2.761		1	1	19.862			
T4	0.377	3.983	A	0.15	2.771	0.010	1	1	25.296	0.843	0.042	C
135.000-115.0			B	0.15	2.771		1	1	25.296			
00			C	0.15	2.771		1	1	25.296			
T5	0.377	4.722	A	0.136	2.823	0.010	1	1	28.061	0.890	0.045	C
115.000-95.00			B	0.136	2.823		1	1	28.061			
0			C	0.136	2.823		1	1	28.061			
T6	0.377	5.298	A	0.142	2.801	0.010	1	1	35.141	1.008	0.050	C
95.000-75.000			B	0.142	2.801		1	1	35.141			
			C	0.142	2.801		1	1	35.141			
T7	0.377	5.754	A	0.149	2.774	0.009	1	1	43.274	1.119	0.056	C
75.000-55.000			B	0.149	2.774		1	1	43.274			
			C	0.149	2.774		1	1	43.274			
T8	0.283	5.028	A	0.174	2.686	0.008	1	1	44.343	0.995	0.066	C
55.000-40.000			B	0.174	2.686		1	1	44.343			
			C	0.174	2.686		1	1	44.343			
T9	0.377	6.844	A	0.138	2.815	0.008	1	1	51.461	1.113	0.056	C
40.000-20.000			B	0.138	2.815		1	1	51.461			
			C	0.138	2.815		1	1	51.461			
T10	0.377	8.159	A	0.137	2.822	0.007	1	1	55.466	1.029	0.051	C
20.000-0.000			B	0.137	2.822		1	1	55.466			
			C	0.137	2.822		1	1	55.466			
Sum Weight:	3.493	48.531						OTM	724.270 kip-ft	8.712		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T1	0.251	2.409	A	0.168	2.707	0.011	0.8	1	10.043	0.370	0.019	C
195.000-175.0			B	0.168	2.707		0.8	1	10.043			
00			C	0.168	2.707		0.8	1	10.043			
T2	0.334	2.820	A	0.186	2.643	0.011	0.8	1	15.791	0.577	0.029	C
175.000-155.0			B	0.186	2.643		0.8	1	15.791			
00			C	0.186	2.643		0.8	1	15.791			
T3	0.365	3.514	A	0.153	2.761	0.011	0.8	1	17.330	0.652	0.033	C
155.000-135.0			B	0.153	2.761		0.8	1	17.330			
00			C	0.153	2.761		0.8	1	17.330			
T4	0.377	3.983	A	0.15	2.771	0.010	0.8	1	21.743	0.756	0.038	C
135.000-115.0			B	0.15	2.771		0.8	1	21.743			
00			C	0.15	2.771		0.8	1	21.743			
T5	0.377	4.722	A	0.136	2.823	0.010	0.8	1	23.957	0.791	0.040	C
115.000-95.00			B	0.136	2.823		0.8	1	23.957			
0			C	0.136	2.823		0.8	1	23.957			
T6	0.377	5.298	A	0.142	2.801	0.010	0.8	1	29.693	0.884	0.044	C
95.000-75.000			B	0.142	2.801		0.8	1	29.693			
			C	0.142	2.801		0.8	1	29.693			
T7	0.377	5.754	A	0.149	2.774	0.009	0.8	1	36.276	0.969	0.048	C
75.000-55.000			B	0.149	2.774		0.8	1	36.276			
			C	0.149	2.774		0.8	1	36.276			
T8	0.283	5.028	A	0.174	2.686	0.008	0.8	1	36.747	0.848	0.057	C
55.000-40.000			B	0.174	2.686		0.8	1	36.747			
			C	0.174	2.686		0.8	1	36.747			
T9	0.377	6.844	A	0.138	2.815	0.008	0.8	1	42.867	0.955	0.048	C
40.000-20.000			B	0.138	2.815		0.8	1	42.867			
			C	0.138	2.815		0.8	1	42.867			
T10	0.377	8.159	A	0.137	2.822	0.007	0.8	1	46.171	0.881	0.044	C
20.000-0.000			B	0.137	2.822		0.8	1	46.171			
			C	0.137	2.822		0.8	1	46.171			
Sum Weight:	3.493	48.531						OTM	651.570 kip-ft	7.682		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T1	0.251	2.409	A	0.168	2.707	0.011	0.85	1	10.043	0.370	0.019	C
195.000-175.0			B	0.168	2.707		0.85	1	10.043			
00			C	0.168	2.707		0.85	1	10.043			
T2	0.334	2.820	A	0.186	2.643	0.011	0.85	1	16.327	0.590	0.029	C
175.000-155.0			B	0.186	2.643		0.85	1	16.327			
00			C	0.186	2.643		0.85	1	16.327			
T3	0.365	3.514	A	0.153	2.761	0.011	0.85	1	17.963	0.668	0.033	C
155.000-135.0			B	0.153	2.761		0.85	1	17.963			
00			C	0.153	2.761		0.85	1	17.963			
T4	0.377	3.983	A	0.15	2.771	0.010	0.85	1	22.631	0.777	0.039	C
135.000-115.0			B	0.15	2.771		0.85	1	22.631			
00			C	0.15	2.771		0.85	1	22.631			
T5	0.377	4.722	A	0.136	2.823	0.010	0.85	1	24.983	0.816	0.041	C
115.000-95.00			B	0.136	2.823		0.85	1	24.983			
0			C	0.136	2.823		0.85	1	24.983			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T6	0.377	5.298	A	0.142	2.801	0.010	0.85	1	31.055	0.915	0.046	C
95.000-75.000			B	0.142	2.801		0.85	1	31.055			
			C	0.142	2.801		0.85	1	31.055			
T7	0.377	5.754	A	0.149	2.774	0.009	0.85	1	38.026	1.007	0.050	C
75.000-55.000			B	0.149	2.774		0.85	1	38.026			
			C	0.149	2.774		0.85	1	38.026			
T8	0.283	5.028	A	0.174	2.686	0.008	0.85	1	38.646	0.885	0.059	C
55.000-40.000			B	0.174	2.686		0.85	1	38.646			
			C	0.174	2.686		0.85	1	38.646			
T9	0.377	6.844	A	0.138	2.815	0.008	0.85	1	45.016	0.994	0.050	C
40.000-20.000			B	0.138	2.815		0.85	1	45.016			
			C	0.138	2.815		0.85	1	45.016			
T10	0.377	8.159	A	0.137	2.822	0.007	0.85	1	48.495	0.918	0.046	C
20.000-0.000			B	0.137	2.822		0.85	1	48.495			
			C	0.137	2.822		0.85	1	48.495			
Sum Weight:	3.493	48.531						OTM	669.745 kip-ft	7.939		

Discrete Appurtenance Pressures - No Ice $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z ksf	C_AA_C Front ft²	C_AA_C Side ft²
APXVTM14-C-I20	0.000	0.056	5.000	-6.887	190.000	1.449	0.030	6.340	3.610
2500 MHz RRH, 8X20-25	0.000	0.070	5.000	-6.887	190.000	1.449	0.030	4.050	1.530
Existing Antenna	0.000	0.041	1.666	-6.887	190.000	1.449	0.030	9.290	5.220
Existing RRH	0.000	0.060	0.000	-2.887	190.000	1.449	0.030	2.090	1.730
Empty Mount	0.000	0.035	-1.660	-6.887	190.000	1.449	0.030	1.880	1.880
Empty Mount	0.000	0.035	-5.000	-6.887	190.000	1.449	0.030	1.880	1.880
APXVTM14-C-I20	120.000	0.056	3.464	7.774	190.000	1.449	0.030	6.340	3.610
2500 MHz RRH, 8X20-25	120.000	0.070	3.464	7.774	190.000	1.449	0.030	4.050	1.530
Existing Antenna	120.000	0.041	5.131	4.886	190.000	1.449	0.030	9.290	5.220
Existing RRH	120.000	0.060	2.500	1.443	190.000	1.449	0.030	2.090	1.730
Empty Mount	120.000	0.035	6.794	2.006	190.000	1.449	0.030	1.880	1.880
Empty Mount	120.000	0.035	8.464	-0.887	190.000	1.449	0.030	1.880	1.880
APXVTM14-C-I20	240.000	0.056	-8.464	-0.887	190.000	1.449	0.030	6.340	3.610
2500 MHz RRH, 8X20-25	240.000	0.070	-8.464	-0.887	190.000	1.449	0.030	4.050	1.530
Existing Antenna	240.000	0.041	-6.797	2.001	190.000	1.449	0.030	9.290	5.220
Existing RRH	240.000	0.060	-2.500	1.443	190.000	1.449	0.030	2.090	1.730
Empty Mount	240.000	0.035	-5.134	4.881	190.000	1.449	0.030	1.880	1.880
Empty Mount	240.000	0.035	-3.464	7.774	190.000	1.449	0.030	1.880	1.880
Sector Frames	0.000	0.000	0.000	0.000	180.000	1.432	0.030	75.300	75.300
TMA	0.000	0.013	0.000	-2.887	180.000	1.432	0.030	1.167	0.540
AIR21	0.000	0.083	0.000	-2.887	180.000	1.432	0.030	5.920	4.220
TMA	120.000	0.013	2.500	1.443	180.000	1.432	0.030	1.167	0.540
AIR21	120.000	0.083	2.500	1.443	180.000	1.432	0.030	5.920	4.220
TMA	240.000	0.013	-2.500	1.443	180.000	1.432	0.030	1.167	0.540
AIR21	240.000	0.083	-2.500	1.443	180.000	1.432	0.030	5.920	4.220
Sector Frames	0.000	0.500	0.000	0.000	180.000	1.432	0.030	15.000	15.000
AM-X-CD-16-65-00T-RET	0.000	0.049	0.000	-3.070	172.000	1.419	0.030	8.020	4.640

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z ksf	C_AA_C Front ft^2	C_AA_C Side ft^2
RRUS11	0.000	0.101	0.000	-3.070	172.000	1.419	0.030	5.560	2.380
80010121	0.000	0.055	0.000	-3.070	172.000	1.419	0.030	7.540	5.440
21401 TMA	0.000	0.028	0.000	-3.070	172.000	1.419	0.030	2.576	1.000
AM-X-CD-16-65-00T-RET	120.000	0.049	2.659	1.535	172.000	1.419	0.030	8.020	4.640
RRUS11	120.000	0.101	2.659	1.535	172.000	1.419	0.030	5.560	2.380
80010121	120.000	0.055	2.659	1.535	172.000	1.419	0.030	7.540	5.440
21401 TMA	120.000	0.028	2.659	1.535	172.000	1.419	0.030	2.576	1.000
AM-X-CD-16-65-00T-RET	240.000	0.049	-2.659	1.535	172.000	1.419	0.030	8.020	4.640
RRUS11	240.000	0.101	-2.659	1.535	172.000	1.419	0.030	5.560	2.380
80010121	240.000	0.055	-2.659	1.535	172.000	1.419	0.030	7.540	5.440
21401 TMA	240.000	0.028	-2.659	1.535	172.000	1.419	0.030	2.576	1.000
DC6-48-60-18-8F	240.000	0.033	-2.659	1.535	172.000	1.419	0.030	2.560	0.940
Frames Sector	0.000	0.500	0.000	0.000	172.000	1.419	0.030	15.000	15.000
DB844H90E-XY	0.000	0.056	0.000	-3.802	160.000	1.397	0.029	12.240	14.440
DB844H90E-XY	120.000	0.056	3.293	1.901	160.000	1.397	0.029	12.240	14.440
DB844H90E-XY	240.000	0.056	-3.293	1.901	160.000	1.397	0.029	12.240	14.440
FD9R6004-2C-3L	0.000	0.006	0.000	-4.718	145.000	1.369	0.029	0.620	0.180
BXA-70063/6CF	0.000	0.017	0.000	-4.718	145.000	1.369	0.029	7.570	4.160
BXA-171085/8CF	0.000	0.009	0.000	-4.718	145.000	1.369	0.029	2.920	2.140
LPA-80080/4 CF	0.000	0.012	0.000	-4.718	145.000	1.369	0.029	2.620	0.001
FD9R6004-2C-3L	120.000	0.006	4.086	2.359	145.000	1.369	0.029	0.620	0.180
BXA-70063/6CF	120.000	0.017	4.086	2.359	145.000	1.369	0.029	7.570	4.160
BXA-171085/8CF	120.000	0.009	4.086	2.359	145.000	1.369	0.029	2.920	2.140
LPA-80080/4 CF	120.000	0.012	4.086	2.359	145.000	1.369	0.029	2.620	0.001
FD9R6004-2C-3L	240.000	0.006	-4.086	2.359	145.000	1.369	0.029	0.620	0.180
BXA-70063/6CF	240.000	0.017	-4.086	2.359	145.000	1.369	0.029	7.570	4.160
BXA-171085/8CF	240.000	0.009	-4.086	2.359	145.000	1.369	0.029	2.920	2.140
LPA-80080/4 CF	240.000	0.012	-4.086	2.359	145.000	1.369	0.029	2.620	0.001
SECTOR FRAMES	0.000	0.500	0.000	-4.718	145.000	1.369	0.029	15.000	15.000
GPS	0.000	0.040	0.000	-10.685	80.000	1.208	0.025	2.000	2.000
2ft Standoff	0.000	0.050	0.000	-8.685	80.000	1.208	0.025	2.630	2.630
GPS	120.000	0.040	9.254	5.343	80.000	1.208	0.025	2.000	2.000
2ft Standoff	120.000	0.050	7.521	4.343	80.000	1.208	0.025	2.630	2.630
	Sum Weight:	3.892							

Discrete Appurtenance Pressures - With Ice $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z ksf	C_AA_C Front ft^2	C_AA_C Side ft^2	t_z in
APXVTM14-C-I20	0.000	0.193	5.000	-6.887	190.000	1.449	0.008	8.592	5.897	1.787
2500 MHz RRH, 8X20-25	0.000	0.167	5.000	-6.887	190.000	1.449	0.008	5.408	2.602	1.787
Existing Antenna	0.000	0.097	1.666	-6.887	190.000	1.449	0.008	12.864	8.222	1.787
Existing RRH	0.000	0.156	0.000	-2.887	190.000	1.449	0.008	3.591	3.124	1.787
Empty Mount	0.000	0.106	-1.660	-6.887	190.000	1.449	0.008	4.882	4.882	1.787
Empty Mount	0.000	0.106	-5.000	-6.887	190.000	1.449	0.008	4.882	4.882	1.787
APXVTM14-C-I20	120.000	0.193	3.464	7.774	190.000	1.449	0.008	8.592	5.897	1.787
2500 MHz RRH, 8X20-25	120.000	0.167	3.464	7.774	190.000	1.449	0.008	5.408	2.602	1.787
Existing Antenna	120.000	0.097	5.131	4.886	190.000	1.449	0.008	12.864	8.222	1.787
Existing RRH	120.000	0.156	2.500	1.443	190.000	1.449	0.008	3.591	3.124	1.787
Empty Mount	120.000	0.106	6.794	2.006	190.000	1.449	0.008	4.882	4.882	1.787
Empty Mount	120.000	0.106	8.464	-0.887	190.000	1.449	0.008	4.882	4.882	1.787
APXVTM14-C-I20	240.000	0.193	-8.464	-0.887	190.000	1.449	0.008	8.592	5.897	1.787

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z ksf	C_AA_C Front ft^2	C_AA_C Side ft^2	t_z in
2500 MHz RRH, 8X20-25	240.000	0.167	-8.464	-0.887	190.000	1.449	0.008	5.408	2.602	1.787
Existing Antenna	240.000	0.097	-6.797	2.001	190.000	1.449	0.008	12.864	8.222	1.787
Existing RRH	240.000	0.156	-2.500	1.443	190.000	1.449	0.008	3.591	3.124	1.787
Empty Mount	240.000	0.106	-5.134	4.881	190.000	1.449	0.008	4.882	4.882	1.787
Empty Mount	240.000	0.106	-3.464	7.774	190.000	1.449	0.008	4.882	4.882	1.787
Sector Frames	0.000	1.176	0.000	0.000	180.000	1.432	0.008	92.007	92.007	1.777
TMA	0.000	0.040	0.000	-2.887	180.000	1.432	0.008	1.960	1.144	1.777
AIR21	0.000	0.239	0.000	-2.887	180.000	1.432	0.008	8.088	6.424	1.777
TMA	120.000	0.040	2.500	1.443	180.000	1.432	0.008	1.960	1.144	1.777
AIR21	120.000	0.239	2.500	1.443	180.000	1.432	0.008	8.088	6.424	1.777
TMA	240.000	0.040	-2.500	1.443	180.000	1.432	0.008	1.960	1.144	1.777
AIR21	240.000	0.239	-2.500	1.443	180.000	1.432	0.008	8.088	6.424	1.777
Sector Frames	0.000	1.033	0.000	0.000	180.000	1.432	0.008	34.906	34.906	1.777
AM-X-CD-16-65-00T-RET	0.000	0.213	0.000	-3.070	172.000	1.419	0.008	10.851	7.683	1.769
RRUS11	0.000	0.249	0.000	-3.070	172.000	1.419	0.008	7.825	4.008	1.769
80010121	0.000	0.428	0.000	-3.070	172.000	1.419	0.008	12.919	10.960	1.769
21401 TMA	0.000	0.082	0.000	-3.070	172.000	1.419	0.008	4.267	2.415	1.769
AM-X-CD-16-65-00T-RET	120.000	0.213	2.659	1.535	172.000	1.419	0.008	10.851	7.683	1.769
RRUS11	120.000	0.249	2.659	1.535	172.000	1.419	0.008	7.825	4.008	1.769
80010121	120.000	0.428	2.659	1.535	172.000	1.419	0.008	12.919	10.960	1.769
21401 TMA	120.000	0.082	2.659	1.535	172.000	1.419	0.008	4.267	2.415	1.769
AM-X-CD-16-65-00T-RET	240.000	0.213	-2.659	1.535	172.000	1.419	0.008	10.851	7.683	1.769
RRUS11	240.000	0.249	-2.659	1.535	172.000	1.419	0.008	7.825	4.008	1.769
80010121	240.000	0.428	-2.659	1.535	172.000	1.419	0.008	12.919	10.960	1.769
21401 TMA	240.000	0.082	-2.659	1.535	172.000	1.419	0.008	4.267	2.415	1.769
DC6-48-60-18-8F	240.000	0.096	-2.659	1.535	172.000	1.419	0.008	3.798	2.462	1.769
Frames Sector	0.000	1.031	0.000	0.000	172.000	1.419	0.008	34.816	34.816	1.769
DB844H90E-XY	0.000	0.426	0.000	-3.802	160.000	1.397	0.008	19.969	22.028	1.757
DB844H90E-XY	120.000	0.426	3.293	1.901	160.000	1.397	0.008	19.969	22.028	1.757
DB844H90E-XY	240.000	0.426	-3.293	1.901	160.000	1.397	0.008	19.969	22.028	1.757
FD9R6004-2C-3L	0.000	0.576	0.000	-4.718	145.000	1.369	0.007	1.455	0.737	1.739
BXA-70063/6CF	0.000	0.165	0.000	-4.718	145.000	1.369	0.007	10.318	7.186	1.739
BXA-171085/8CF	0.000	0.041	0.000	-4.718	145.000	1.369	0.007	4.833	4.158	1.739
LPA-80080/4 CF	0.000	0.127	0.000	-4.718	145.000	1.369	0.007	4.498	20.627	1.739
FD9R6004-2C-3L	120.000	0.576	4.086	2.359	145.000	1.369	0.007	1.455	0.737	1.739
BXA-70063/6CF	120.000	0.165	4.086	2.359	145.000	1.369	0.007	10.318	7.186	1.739
BXA-171085/8CF	120.000	0.041	4.086	2.359	145.000	1.369	0.007	4.833	4.158	1.739
LPA-80080/4 CF	120.000	0.127	4.086	2.359	145.000	1.369	0.007	4.498	20.627	1.739
FD9R6004-2C-3L	240.000	0.576	-4.086	2.359	145.000	1.369	0.007	1.455	0.737	1.739
BXA-70063/6CF	240.000	0.165	-4.086	2.359	145.000	1.369	0.007	10.318	7.186	1.739
BXA-171085/8CF	240.000	0.041	-4.086	2.359	145.000	1.369	0.007	4.833	4.158	1.739
LPA-80080/4 CF	240.000	0.127	-4.086	2.359	145.000	1.369	0.007	4.498	20.627	1.739
SECTOR FRAMES	0.000	1.022	0.000	-4.718	145.000	1.369	0.007	34.480	34.480	1.739
GPS	0.000	0.115	0.000	-10.685	80.000	1.208	0.007	5.278	5.278	1.639
2ft Standoff	0.000	0.214	0.000	-8.685	80.000	1.208	0.007	8.235	7.907	1.639
GPS	120.000	0.115	9.254	5.343	80.000	1.208	0.007	5.278	5.278	1.639
2ft Standoff	120.000	0.214	7.521	4.343	80.000	1.208	0.007	8.235	7.907	1.639
	Sum Weight:	15.249								

Discrete Appurtenance Pressures - Service $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z ksf	C_AA_C Front ft^2	C_AA_C Side ft^2
APXVTM14-C-I20	0.000	0.056	5.000	-6.887	190.000	1.449	0.011	6.340	3.610
2500 MHz RRH, 8X20-25	0.000	0.070	5.000	-6.887	190.000	1.449	0.011	4.050	1.530
Existing Antenna	0.000	0.041	1.666	-6.887	190.000	1.449	0.011	9.290	5.220
Existing RRH	0.000	0.060	0.000	-2.887	190.000	1.449	0.011	2.090	1.730
Empty Mount	0.000	0.035	-1.660	-6.887	190.000	1.449	0.011	1.880	1.880
Empty Mount	0.000	0.035	-5.000	-6.887	190.000	1.449	0.011	1.880	1.880
APXVTM14-C-I20	120.000	0.056	3.464	7.774	190.000	1.449	0.011	6.340	3.610
2500 MHz RRH, 8X20-25	120.000	0.070	3.464	7.774	190.000	1.449	0.011	4.050	1.530
Existing Antenna	120.000	0.041	5.131	4.886	190.000	1.449	0.011	9.290	5.220
Existing RRH	120.000	0.060	2.500	1.443	190.000	1.449	0.011	2.090	1.730
Empty Mount	120.000	0.035	6.794	2.006	190.000	1.449	0.011	1.880	1.880
Empty Mount	120.000	0.035	8.464	-0.887	190.000	1.449	0.011	1.880	1.880
APXVTM14-C-I20	240.000	0.056	-8.464	-0.887	190.000	1.449	0.011	6.340	3.610
2500 MHz RRH, 8X20-25	240.000	0.070	-8.464	-0.887	190.000	1.449	0.011	4.050	1.530
Existing Antenna	240.000	0.041	-6.797	2.001	190.000	1.449	0.011	9.290	5.220
Existing RRH	240.000	0.060	-2.500	1.443	190.000	1.449	0.011	2.090	1.730
Empty Mount	240.000	0.035	-5.134	4.881	190.000	1.449	0.011	1.880	1.880
Empty Mount	240.000	0.035	-3.464	7.774	190.000	1.449	0.011	1.880	1.880
Sector Frames	0.000	0.000	0.000	0.000	180.000	1.432	0.011	75.300	75.300
TMA	0.000	0.013	0.000	-2.887	180.000	1.432	0.011	1.167	0.540
AIR21	0.000	0.083	0.000	-2.887	180.000	1.432	0.011	5.920	4.220
TMA	120.000	0.013	2.500	1.443	180.000	1.432	0.011	1.167	0.540
AIR21	120.000	0.083	2.500	1.443	180.000	1.432	0.011	5.920	4.220
TMA	240.000	0.013	-2.500	1.443	180.000	1.432	0.011	1.167	0.540
AIR21	240.000	0.083	-2.500	1.443	180.000	1.432	0.011	5.920	4.220
Sector Frames	0.000	0.500	0.000	0.000	180.000	1.432	0.011	15.000	15.000
AM-X-CD-16-65-00T-RET	0.000	0.049	0.000	-3.070	172.000	1.419	0.011	8.020	4.640
RRUS11	0.000	0.101	0.000	-3.070	172.000	1.419	0.011	5.560	2.380
80010121	0.000	0.055	0.000	-3.070	172.000	1.419	0.011	7.540	5.440
21401 TMA	0.000	0.028	0.000	-3.070	172.000	1.419	0.011	2.576	1.000
AM-X-CD-16-65-00T-RET	120.000	0.049	2.659	1.535	172.000	1.419	0.011	8.020	4.640
RRUS11	120.000	0.101	2.659	1.535	172.000	1.419	0.011	5.560	2.380
80010121	120.000	0.055	2.659	1.535	172.000	1.419	0.011	7.540	5.440
21401 TMA	120.000	0.028	2.659	1.535	172.000	1.419	0.011	2.576	1.000
AM-X-CD-16-65-00T-RET	240.000	0.049	-2.659	1.535	172.000	1.419	0.011	8.020	4.640
RRUS11	240.000	0.101	-2.659	1.535	172.000	1.419	0.011	5.560	2.380
80010121	240.000	0.055	-2.659	1.535	172.000	1.419	0.011	7.540	5.440
21401 TMA	240.000	0.028	-2.659	1.535	172.000	1.419	0.011	2.576	1.000
DC6-48-60-18-8F	240.000	0.033	-2.659	1.535	172.000	1.419	0.011	2.560	0.940
Frames Sector	0.000	0.500	0.000	0.000	172.000	1.419	0.011	15.000	15.000
DB844H90E-XY	0.000	0.056	0.000	-3.802	160.000	1.397	0.011	12.240	14.440
DB844H90E-XY	120.000	0.056	3.293	1.901	160.000	1.397	0.011	12.240	14.440
DB844H90E-XY	240.000	0.056	-3.293	1.901	160.000	1.397	0.011	12.240	14.440
FD9R6004-2C-3L	0.000	0.006	0.000	-4.718	145.000	1.369	0.011	0.620	0.180
BXA-70063/6CF	0.000	0.017	0.000	-4.718	145.000	1.369	0.011	7.570	4.160
BXA-171085/8CF	0.000	0.009	0.000	-4.718	145.000	1.369	0.011	2.920	2.140
LPA-80080/4 CF	0.000	0.012	0.000	-4.718	145.000	1.369	0.011	2.620	0.001
FD9R6004-2C-3L	120.000	0.006	4.086	2.359	145.000	1.369	0.011	0.620	0.180
BXA-70063/6CF	120.000	0.017	4.086	2.359	145.000	1.369	0.011	7.570	4.160
BXA-171085/8CF	120.000	0.009	4.086	2.359	145.000	1.369	0.011	2.920	2.140
LPA-80080/4 CF	120.000	0.012	4.086	2.359	145.000	1.369	0.011	2.620	0.001
FD9R6004-2C-3L	240.000	0.006	-4.086	2.359	145.000	1.369	0.011	0.620	0.180
BXA-70063/6CF	240.000	0.017	-4.086	2.359	145.000	1.369	0.011	7.570	4.160
BXA-171085/8CF	240.000	0.009	-4.086	2.359	145.000	1.369	0.011	2.920	2.140
LPA-80080/4 CF	240.000	0.012	-4.086	2.359	145.000	1.369	0.011	2.620	0.001

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z ksf	C_AA_C Front ft^2	C_AA_C Side ft^2
SECTOR FRAMES	0.000	0.500	0.000	-4.718	145.000	1.369	0.011	15.000	15.000
GPS	0.000	0.040	0.000	-10.685	80.000	1.208	0.009	2.000	2.000
2ft Standoff	0.000	0.050	0.000	-8.685	80.000	1.208	0.009	2.630	2.630
GPS	120.000	0.040	9.254	5.343	80.000	1.208	0.009	2.000	2.000
2ft Standoff	120.000	0.050	7.521	4.343	80.000	1.208	0.009	2.630	2.630
	Sum Weight:	3.892							

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	1.2D+1.6W (pattern 1) 0 deg - No Ice
4	1.2D+1.6W (pattern 2) 0 deg - No Ice
5	0.9 Dead+1.6 Wind 0 deg - No Ice
6	1.2 Dead+1.6 Wind 30 deg - No Ice
7	1.2D+1.6W (pattern 1) 30 deg - No Ice
8	1.2D+1.6W (pattern 2) 30 deg - No Ice
9	0.9 Dead+1.6 Wind 30 deg - No Ice
10	1.2 Dead+1.6 Wind 60 deg - No Ice
11	1.2D+1.6W (pattern 1) 60 deg - No Ice
12	1.2D+1.6W (pattern 2) 60 deg - No Ice
13	0.9 Dead+1.6 Wind 60 deg - No Ice
14	1.2 Dead+1.6 Wind 90 deg - No Ice
15	1.2D+1.6W (pattern 1) 90 deg - No Ice
16	1.2D+1.6W (pattern 2) 90 deg - No Ice
17	0.9 Dead+1.6 Wind 90 deg - No Ice
18	1.2 Dead+1.6 Wind 120 deg - No Ice
19	1.2D+1.6W (pattern 1) 120 deg - No Ice
20	1.2D+1.6W (pattern 2) 120 deg - No Ice
21	0.9 Dead+1.6 Wind 120 deg - No Ice
22	1.2 Dead+1.6 Wind 150 deg - No Ice
23	1.2D+1.6W (pattern 1) 150 deg - No Ice
24	1.2D+1.6W (pattern 2) 150 deg - No Ice
25	0.9 Dead+1.6 Wind 150 deg - No Ice
26	1.2 Dead+1.6 Wind 180 deg - No Ice
27	1.2D+1.6W (pattern 1) 180 deg - No Ice
28	1.2D+1.6W (pattern 2) 180 deg - No Ice
29	0.9 Dead+1.6 Wind 180 deg - No Ice
30	1.2 Dead+1.6 Wind 210 deg - No Ice
31	1.2D+1.6W (pattern 1) 210 deg - No Ice
32	1.2D+1.6W (pattern 2) 210 deg - No Ice
33	0.9 Dead+1.6 Wind 210 deg - No Ice
34	1.2 Dead+1.6 Wind 240 deg - No Ice
35	1.2D+1.6W (pattern 1) 240 deg - No Ice
36	1.2D+1.6W (pattern 2) 240 deg - No Ice
37	0.9 Dead+1.6 Wind 240 deg - No Ice
38	1.2 Dead+1.6 Wind 270 deg - No Ice
39	1.2D+1.6W (pattern 1) 270 deg - No Ice
40	1.2D+1.6W (pattern 2) 270 deg - No Ice
41	0.9 Dead+1.6 Wind 270 deg - No Ice
42	1.2 Dead+1.6 Wind 300 deg - No Ice
43	1.2D+1.6W (pattern 1) 300 deg - No Ice
44	1.2D+1.6W (pattern 2) 300 deg - No Ice
45	0.9 Dead+1.6 Wind 300 deg - No Ice
46	1.2 Dead+1.6 Wind 330 deg - No Ice

Comb. No.	Description
47	1.2D+1.6W (pattern 1) 330 deg - No Ice
48	1.2D+1.6W (pattern 2) 330 deg - No Ice
49	0.9 Dead+1.6 Wind 330 deg - No Ice
50	1.2 Dead+1.0 Ice
51	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
52	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
53	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
54	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
55	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
56	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
57	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
58	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
59	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
60	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
61	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
62	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
63	Dead+Wind 0 deg - Service
64	Dead+Wind 30 deg - Service
65	Dead+Wind 60 deg - Service
66	Dead+Wind 90 deg - Service
67	Dead+Wind 120 deg - Service
68	Dead+Wind 150 deg - Service
69	Dead+Wind 180 deg - Service
70	Dead+Wind 210 deg - Service
71	Dead+Wind 240 deg - Service
72	Dead+Wind 270 deg - Service
73	Dead+Wind 300 deg - Service
74	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	195 - 175	Leg	Max Tension	13	10.767	-0.155	0.092
			Max. Compression	18	-13.654	-0.368	-0.183
			Max. Mx	39	-1.511	-0.755	-0.002
			Max. My	3	1.229	-0.049	-0.755
			Max. Vy	38	0.676	0.366	-0.061
			Max. Vx	2	0.691	-0.000	0.400
		Diagonal	Max Tension	38	2.858	0.000	0.000
			Max. Compression	14	-2.884	0.000	0.000
			Max. Mx	59	0.792	-0.012	-0.000
			Max. My	30	-1.026	-0.005	-0.001
			Max. Vy	59	0.018	-0.012	-0.000
			Max. Vx	30	0.000	-0.005	-0.001
		Top Girt	Max Tension	44	0.027	0.000	0.000
			Max. Compression	4	-0.060	0.000	0.000
			Max. Mx	50	-0.037	0.036	0.000
			Max. My	14	-0.016	0.000	0.000
			Max. Vy	50	-0.029	0.000	0.000
			Max. Vx	14	-0.000	0.000	0.000
T2	175 - 155	Leg	Max Tension	13	39.614	-0.223	-0.009
			Max. Compression	34	-45.721	0.337	0.039
			Max. Mx	11	12.813	1.284	-0.015
			Max. My	47	-2.528	-0.032	-1.272
			Max. Vy	10	-0.596	-0.438	-0.017
			Max. Vx	23	-0.569	-0.012	-0.356
		Diagonal	Max Tension	38	4.655	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	14	-4.710	0.000	0.000
			Max. Mx	57	1.173	0.034	0.005
			Max. My	61	-1.295	0.026	0.006
			Max. Vy	57	0.034	0.034	0.005
			Max. Vx	55	0.002	0.000	0.000
		Top Girt	Max Tension	37	0.217	0.000	0.000
			Max. Compression	10	-0.267	0.000	0.000
			Max. Mx	50	-0.084	0.036	0.000
			Max. My	14	-0.025	0.000	0.000
			Max. Vy	50	-0.029	0.000	0.000
			Max. Vx	14	-0.000	0.000	0.000
T3	155 - 135	Leg	Max Tension	13	69.549	-0.490	0.066
			Max. Compression	2	-79.447	0.045	0.001
			Max. Mx	27	49.896	0.713	-0.000
			Max. My	39	-4.873	-0.029	0.895
			Max. Vy	26	0.395	-0.511	-0.000
			Max. Vx	14	-0.436	-0.029	0.513
		Diagonal	Max Tension	30	5.030	0.000	0.000
			Max. Compression	30	-5.086	0.000	0.000
			Max. Mx	61	1.424	0.059	-0.008
			Max. My	61	-1.434	0.047	0.009
			Max. Vy	61	0.050	0.059	-0.008
			Max. Vx	62	-0.003	0.000	0.000
T4	135 - 115	Leg	Max Tension	13	96.303	-0.152	-0.019
			Max. Compression	2	-110.205	0.266	0.001
			Max. Mx	5	-108.311	0.268	0.001
			Max. My	22	-6.863	-0.007	-0.243
			Max. Vy	42	0.095	-0.230	0.013
			Max. Vx	18	0.082	-0.143	-0.230
		Diagonal	Max Tension	38	5.019	0.000	0.000
			Max. Compression	38	-5.086	0.000	0.000
			Max. Mx	57	1.235	0.089	-0.012
			Max. My	55	-0.197	0.086	-0.013
			Max. Vy	57	0.065	0.089	-0.012
			Max. Vx	55	0.004	0.000	0.000
T5	115 - 95	Leg	Max Tension	13	119.465	-0.194	-0.019
			Max. Compression	34	-138.344	0.191	0.017
			Max. Mx	5	-117.336	0.268	0.001
			Max. My	22	-7.095	-0.007	-0.243
			Max. Vy	42	-0.082	-0.263	0.022
			Max. Vx	18	-0.083	-0.143	-0.230
		Diagonal	Max Tension	38	5.401	0.000	0.000
			Max. Compression	38	-5.503	0.000	0.000
			Max. Mx	57	1.192	0.136	-0.018
			Max. My	55	-0.300	0.132	-0.019
			Max. Vy	57	0.088	0.136	-0.018
			Max. Vx	55	-0.005	0.000	0.000
T6	95 - 75	Leg	Max Tension	13	141.001	-0.259	-0.017
			Max. Compression	34	-165.663	0.137	0.013
			Max. Mx	34	-156.526	0.283	0.017
			Max. My	6	-11.684	-0.056	-0.319
			Max. Vy	42	-0.161	-0.261	-0.004
			Max. Vx	31	0.161	0.002	0.236
		Diagonal	Max Tension	38	6.080	0.000	0.000
			Max. Compression	38	-6.104	0.000	0.000
			Max. Mx	57	1.331	0.182	0.023
			Max. My	55	0.137	0.161	-0.025
			Max. Vy	57	0.106	0.182	0.023
			Max. Vx	55	-0.006	0.000	0.000
T7	75 - 55	Leg	Max Tension	13	162.224	-0.142	-0.017
			Max. Compression	34	-193.124	0.582	0.003

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	34	-193.124	0.582	0.003
			Max. My	6	-13.367	-0.116	-0.574
			Max. Vy	2	-0.148	0.582	0.001
			Max. Vx	6	-0.190	-0.116	-0.574
		Diagonal	Max Tension	38	6.750	0.000	0.000
			Max. Compression	38	-6.994	0.000	0.000
			Max. Mx	58	1.304	0.241	0.031
			Max. My	61	1.729	0.225	0.032
			Max. Vy	58	0.123	0.241	0.031
			Max. Vx	61	0.007	0.000	0.000
T8	55 - 40	Leg	Max Tension	13	175.066	-0.257	0.000
			Max. Compression	34	-211.734	-0.013	0.032
			Max. Mx	34	-200.339	0.582	0.003
			Max. My	6	-14.856	-0.164	-0.653
			Max. Vy	2	0.192	0.582	0.001
			Max. Vx	6	-0.253	-0.164	-0.653
		Diagonal	Max Tension	39	5.561	0.000	0.000
			Max. Compression	39	-5.521	0.000	0.000
			Max. Mx	58	0.271	0.263	-0.044
			Max. My	61	-0.925	0.237	0.047
			Max. Vy	58	0.133	0.263	-0.044
			Max. Vx	61	0.009	0.000	0.000
T9	40 - 20	Leg	Max Tension	13	194.323	-0.267	-0.011
			Max. Compression	34	-238.401	0.006	0.019
			Max. Mx	5	-223.421	0.273	0.000
			Max. My	6	-16.798	-0.114	-0.633
			Max. Vy	42	-0.091	-0.270	0.012
			Max. Vx	22	0.143	-0.062	-0.584
		Diagonal	Max Tension	38	8.518	0.000	0.000
			Max. Compression	38	-8.441	0.000	0.000
			Max. Mx	58	0.811	0.354	-0.043
			Max. My	61	-1.612	0.325	0.047
			Max. Vy	58	0.156	0.354	-0.043
			Max. Vx	61	0.008	0.000	0.000
T10	20 - 0	Leg	Max Tension	13	218.997	-0.197	-0.014
			Max. Compression	34	-271.938	0.000	-0.000
			Max. Mx	34	-248.821	0.425	0.008
			Max. My	30	-21.554	-0.066	0.614
			Max. Vy	2	-0.107	0.424	-0.000
			Max. Vx	22	0.181	-0.066	-0.614
		Diagonal	Max Tension	38	10.972	0.000	0.000
			Max. Compression	38	-11.082	0.000	0.000
			Max. Mx	58	2.213	0.415	0.040
			Max. My	54	1.873	0.395	-0.040
			Max. Vy	58	0.169	0.415	0.040
			Max. Vx	54	-0.007	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	34	277.349	25.594	-14.275
	Max. H_x	34	277.349	25.594	-14.275
	Max. H_z	9	-194.109	-17.510	12.576
	Min. Vert	13	-222.905	-21.322	11.798
	Min. H_x	13	-222.905	-21.322	11.798

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H_z	34	277.349	25.594	-14.275
Leg B	Max. Vert	18	277.276	-25.559	-14.284
	Max. H_x	45	-222.234	21.282	11.801
	Max. H_z	49	-193.373	17.456	12.594
	Min. Vert	45	-222.234	21.282	11.801
	Min. H_x	18	277.276	-25.559	-14.284
	Min. H_z	18	277.276	-25.559	-14.284
Leg A	Max. Vert	2	276.820	0.026	29.272
	Max. H_x	41	16.392	4.256	1.151
	Max. H_z	2	276.820	0.026	29.272
	Min. Vert	29	-222.576	-0.022	-24.336
	Min. H_x	17	16.871	-4.252	1.185
	Min. H_z	29	-222.576	-0.022	-24.336

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	55.916	0.000	0.000	3.220	-3.337	-0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	67.099	0.028	-49.439	-5178.534	-8.895	1.035
1.2D+1.6W (pattern 1) 0 deg - No Ice	67.099	0.028	-48.176	-4940.023	-8.895	1.035
1.2D+1.6W (pattern 2) 0 deg - No Ice	67.099	0.017	-33.995	-3645.154	-6.942	0.547
0.9 Dead+1.6 Wind 0 deg - No Ice	50.324	0.028	-49.439	-5176.171	-7.886	1.033
1.2 Dead+1.6 Wind 30 deg - No Ice	67.099	23.112	-39.975	-4284.683	-2485.656	10.905
1.2D+1.6W (pattern 1) 30 deg - No Ice	67.099	22.481	-38.881	-4078.126	-2366.399	10.905
1.2D+1.6W (pattern 2) 30 deg - No Ice	67.099	16.033	-27.736	-3036.561	-1762.795	11.177
0.9 Dead+1.6 Wind 30 deg - No Ice	50.324	23.112	-39.975	-4282.873	-2483.044	10.890
1.2 Dead+1.6 Wind 60 deg - No Ice	67.099	39.052	-22.547	-2436.065	-4230.132	17.861
1.2D+1.6W (pattern 1) 60 deg - No Ice	67.099	37.958	-21.915	-2316.810	-4023.574	17.860
1.2D+1.6W (pattern 2) 60 deg - No Ice	67.099	27.182	-15.694	-1729.884	-3006.984	18.813
0.9 Dead+1.6 Wind 60 deg - No Ice	50.324	39.052	-22.547	-2435.444	-4226.378	17.859
1.2 Dead+1.6 Wind 90 deg - No Ice	67.099	46.175	-0.028	-0.995	-4958.826	20.032
1.2D+1.6W (pattern 1) 90 deg - No Ice	67.099	44.912	-0.028	-0.996	-4720.315	20.032
1.2D+1.6W (pattern 2) 90 deg - No Ice	67.099	32.037	-0.017	0.953	-3516.490	21.408
0.9 Dead+1.6 Wind 90 deg - No Ice	50.324	46.175	-0.028	-1.957	-4954.612	20.054
1.2 Dead+1.6 Wind 120 deg - No Ice	67.099	42.830	24.695	2590.853	-4494.535	16.829
1.2D+1.6W (pattern 1) 120 deg - No Ice	67.099	41.736	24.063	2471.597	-4287.979	16.829
1.2D+1.6W (pattern 2) 120 deg	67.099	29.449	16.983	1825.850	-3165.615	18.268

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
- No Ice						
0.9 Dead+1.6 Wind 120 deg - No Ice	50.324	42.830	24.695	2588.226	-4490.645	16.830
1.2 Dead+1.6 Wind 150 deg - No Ice	67.099	23.063	39.947	4287.544	-2477.187	9.113
1.2D+1.6W (pattern 1) 150 deg - No Ice	67.099	22.432	38.853	4080.986	-2357.931	9.114
1.2D+1.6W (pattern 2) 150 deg - No Ice	67.099	16.004	27.719	3041.371	-1757.710	10.230
0.9 Dead+1.6 Wind 150 deg - No Ice	50.324	23.063	39.947	4283.805	-2474.580	9.102
1.2 Dead+1.6 Wind 180 deg - No Ice	67.099	-0.028	45.044	4875.305	0.865	-1.035
1.2D+1.6W (pattern 1) 180 deg - No Ice	67.099	-0.028	43.781	4636.793	0.865	-1.034
1.2D+1.6W (pattern 2) 180 deg - No Ice	67.099	-0.017	31.358	3466.317	-1.086	-0.547
0.9 Dead+1.6 Wind 180 deg - No Ice	50.324	-0.028	45.044	4871.170	1.867	-1.032
1.2 Dead+1.6 Wind 210 deg - No Ice	67.099	-23.112	39.975	4292.425	2477.610	-10.905
1.2D+1.6W (pattern 1) 210 deg - No Ice	67.099	-22.481	38.881	4085.867	2358.355	-10.905
1.2D+1.6W (pattern 2) 210 deg - No Ice	67.099	-16.033	27.736	3044.300	1754.753	-11.177
0.9 Dead+1.6 Wind 210 deg - No Ice	50.324	-23.112	39.975	4288.682	2477.007	-10.890
1.2 Dead+1.6 Wind 240 deg - No Ice	67.099	-42.858	24.744	2599.308	4491.387	-17.864
1.2D+1.6W (pattern 1) 240 deg - No Ice	67.099	-41.764	24.112	2480.051	4284.830	-17.864
1.2D+1.6W (pattern 2) 240 deg - No Ice	67.099	-29.466	17.012	1830.924	3160.515	-18.815
0.9 Dead+1.6 Wind 240 deg - No Ice	50.324	-42.858	24.744	2596.673	4489.503	-17.862
1.2 Dead+1.6 Wind 270 deg - No Ice	67.099	-46.175	0.028	8.767	4950.799	-20.032
1.2D+1.6W (pattern 1) 270 deg - No Ice	67.099	-44.912	0.028	8.765	4712.287	-20.031
1.2D+1.6W (pattern 2) 270 deg - No Ice	67.099	-32.037	0.017	6.811	3508.463	-21.408
0.9 Dead+1.6 Wind 270 deg - No Ice	50.324	-46.175	0.028	7.796	4948.595	-20.054
1.2 Dead+1.6 Wind 300 deg - No Ice	67.099	-39.023	-22.498	-2427.613	4217.225	-16.826
1.2D+1.6W (pattern 1) 300 deg - No Ice	67.099	-37.930	-21.866	-2308.358	4010.667	-16.826
1.2D+1.6W (pattern 2) 300 deg - No Ice	67.099	-27.165	-15.664	-1724.812	2996.029	-18.267
0.9 Dead+1.6 Wind 300 deg - No Ice	50.324	-39.023	-22.498	-2426.998	4215.484	-16.827
1.2 Dead+1.6 Wind 330 deg - No Ice	67.099	-23.063	-39.947	-4279.804	2469.175	-9.113
1.2D+1.6W (pattern 1) 330 deg - No Ice	67.099	-22.432	-38.853	-4073.247	2349.918	-9.114
1.2D+1.6W (pattern 2) 330 deg - No Ice	67.099	-16.004	-27.719	-3033.632	1749.696	-10.230
0.9 Dead+1.6 Wind 330 deg - No Ice	50.324	-23.063	-39.947	-4277.998	2468.579	-9.102
1.2 Dead+1.0 Ice	131.345	0.000	0.000	50.432	2.834	0.000
1.2 Dead+1.0 Wind 0 deg+1.0	131.345	0.003	-14.475	-1563.335	2.255	-0.716

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Ice 1.2 Dead+1.0 Wind 30 deg+1.0 Ice	131.345	7.011	-12.138	-1319.607	-788.965	5.319
1.2 Dead+1.0 Wind 60 deg+1.0 Ice	131.345	12.007	-6.933	-735.458	-1358.755	9.931
1.2 Dead+1.0 Wind 90 deg+1.0 Ice	131.345	14.017	-0.003	50.066	-1579.747	11.880
1.2 Dead+1.0 Wind 120 deg+1.0 Ice	131.345	12.537	7.235	857.140	-1395.211	10.645
1.2 Dead+1.0 Wind 150 deg+1.0 Ice	131.345	7.006	12.135	1420.328	-787.933	6.561
1.2 Dead+1.0 Wind 180 deg+1.0 Ice	131.345	-0.003	13.860	1621.861	3.442	0.717
1.2 Dead+1.0 Wind 210 deg+1.0 Ice	131.345	-7.011	12.138	1420.921	794.658	-5.319
1.2 Dead+1.0 Wind 240 deg+1.0 Ice	131.345	-12.540	7.240	858.168	1401.502	-9.928
1.2 Dead+1.0 Wind 270 deg+1.0 Ice	131.345	-14.017	0.003	51.253	1585.444	-11.880
1.2 Dead+1.0 Wind 300 deg+1.0 Ice	131.345	-12.004	-6.927	-734.430	1363.859	-10.647
1.2 Dead+1.0 Wind 330 deg+1.0 Ice	131.345	-7.006	-12.135	-1319.013	793.635	-6.561
Dead+Wind 0 deg - Service	55.916	0.007	-11.582	-1210.380	-4.486	0.242
Dead+Wind 30 deg - Service	55.916	5.415	-9.365	-1001.059	-584.486	2.553
Dead+Wind 60 deg - Service	55.916	9.149	-5.282	-568.156	-993.002	4.183
Dead+Wind 90 deg - Service	55.916	10.818	-0.007	2.080	-1163.647	4.699
Dead+Wind 120 deg - Service	55.916	10.034	5.785	609.032	-1054.924	3.943
Dead+Wind 150 deg - Service	55.916	5.403	9.359	1006.359	-582.504	2.131
Dead+Wind 180 deg - Service	55.916	-0.007	10.553	1144.001	-2.201	-0.242
Dead+Wind 210 deg - Service	55.916	-5.415	9.365	1007.502	577.796	-2.550
Dead+Wind 240 deg - Service	55.916	-10.041	5.797	611.012	1049.379	-4.185
Dead+Wind 270 deg - Service	55.916	-10.818	0.007	4.365	1156.960	-4.699
Dead+Wind 300 deg - Service	55.916	-9.142	-5.271	-566.177	985.172	-3.940
Dead+Wind 330 deg - Service	55.916	-5.403	-9.359	-999.916	575.819	-2.131

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-55.916	0.000	0.000	55.916	0.000	0.000%
2	0.028	-67.099	-49.439	-0.028	67.099	49.439	0.000%
3	0.028	-67.099	-48.176	-0.028	67.099	48.176	0.000%
4	0.017	-67.099	-33.995	-0.017	67.099	33.995	0.000%
5	0.028	-50.324	-49.439	-0.028	50.324	49.439	0.000%
6	23.112	-67.099	-39.975	-23.112	67.099	39.975	0.000%
7	22.481	-67.099	-38.881	-22.481	67.099	38.881	0.000%
8	16.033	-67.099	-27.736	-16.033	67.099	27.736	0.000%
9	23.112	-50.324	-39.975	-23.112	50.324	39.975	0.000%
10	39.052	-67.099	-22.547	-39.052	67.099	22.547	0.000%
11	37.958	-67.099	-21.915	-37.958	67.099	21.915	0.000%
12	27.182	-67.099	-15.694	-27.182	67.099	15.694	0.000%
13	39.052	-50.324	-22.547	-39.052	50.324	22.547	0.000%
14	46.175	-67.099	-0.028	-46.175	67.099	0.028	0.000%
15	44.912	-67.099	-0.028	-44.912	67.099	0.028	0.000%
16	32.037	-67.099	-0.017	-32.037	67.099	0.017	0.000%
17	46.175	-50.324	-0.028	-46.175	50.324	0.028	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
18	42.830	-67.099	24.695	-42.830	67.099	-24.695	0.000%
19	41.736	-67.099	24.063	-41.736	67.099	-24.063	0.000%
20	29.449	-67.099	16.983	-29.449	67.099	-16.983	0.000%
21	42.830	-50.324	24.695	-42.830	50.324	-24.695	0.000%
22	23.063	-67.099	39.947	-23.063	67.099	-39.947	0.000%
23	22.432	-67.099	38.853	-22.432	67.099	-38.853	0.000%
24	16.004	-67.099	27.719	-16.004	67.099	-27.719	0.000%
25	23.063	-50.324	39.947	-23.063	50.324	-39.947	0.000%
26	-0.028	-67.099	45.044	0.028	67.099	-45.044	0.000%
27	-0.028	-67.099	43.781	0.028	67.099	-43.781	0.000%
28	-0.017	-67.099	31.358	0.017	67.099	-31.358	0.000%
29	-0.028	-50.324	45.044	0.028	50.324	-45.044	0.000%
30	-23.112	-67.099	39.975	23.112	67.099	-39.975	0.000%
31	-22.481	-67.099	38.881	22.481	67.099	-38.881	0.000%
32	-16.033	-67.099	27.736	16.033	67.099	-27.736	0.000%
33	-23.112	-50.324	39.975	23.112	50.324	-39.975	0.000%
34	-42.858	-67.099	24.744	42.858	67.099	-24.744	0.000%
35	-41.764	-67.099	24.112	41.764	67.099	-24.112	0.000%
36	-29.466	-67.099	17.012	29.466	67.099	-17.012	0.000%
37	-42.858	-50.324	24.744	42.858	50.324	-24.744	0.000%
38	-46.175	-67.099	0.028	46.175	67.099	-0.028	0.000%
39	-44.912	-67.099	0.028	44.912	67.099	-0.028	0.000%
40	-32.037	-67.099	0.017	32.037	67.099	-0.017	0.000%
41	-46.175	-50.324	0.028	46.175	50.324	-0.028	0.000%
42	-39.023	-67.099	-22.498	39.023	67.099	22.498	0.000%
43	-37.930	-67.099	-21.866	37.930	67.099	21.866	0.000%
44	-27.165	-67.099	-15.664	27.165	67.099	15.664	0.000%
45	-39.023	-50.324	-22.498	39.023	50.324	22.498	0.000%
46	-23.063	-67.099	-39.947	23.063	67.099	39.947	0.000%
47	-22.432	-67.099	-38.853	22.432	67.099	38.853	0.000%
48	-16.004	-67.099	-27.719	16.004	67.099	27.719	0.000%
49	-23.063	-50.324	-39.947	23.063	50.324	39.947	0.000%
50	0.000	-131.345	0.000	0.000	131.345	0.000	0.000%
51	0.003	-131.345	-14.475	-0.003	131.345	14.475	0.000%
52	7.011	-131.345	-12.138	-7.011	131.345	12.138	0.000%
53	12.007	-131.345	-6.933	-12.007	131.345	6.933	0.000%
54	14.017	-131.345	-0.003	-14.017	131.345	0.003	0.000%
55	12.537	-131.345	7.235	-12.537	131.345	-7.235	0.000%
56	7.006	-131.345	12.135	-7.006	131.345	-12.135	0.000%
57	-0.003	-131.345	13.860	0.003	131.345	-13.860	0.000%
58	-7.011	-131.345	12.138	7.011	131.345	-12.138	0.000%
59	-12.540	-131.345	7.240	12.540	131.345	-7.240	0.000%
60	-14.017	-131.345	0.003	14.017	131.345	-0.003	0.000%
61	-12.004	-131.345	-6.927	12.004	131.345	6.927	0.000%
62	-7.006	-131.345	-12.135	7.006	131.345	12.135	0.000%
63	0.007	-55.916	-11.582	-0.007	55.916	11.582	0.000%
64	5.415	-55.916	-9.365	-5.415	55.916	9.365	0.000%
65	9.149	-55.916	-5.282	-9.149	55.916	5.282	0.000%
66	10.818	-55.916	-0.007	-10.818	55.916	0.007	0.000%
67	10.034	-55.916	5.785	-10.034	55.916	-5.785	0.000%
68	5.403	-55.916	9.359	-5.403	55.916	-9.359	0.000%
69	-0.007	-55.916	10.553	0.007	55.916	-10.553	0.000%
70	-5.415	-55.916	9.365	5.415	55.916	-9.365	0.000%
71	-10.041	-55.916	5.797	10.041	55.916	-5.797	0.000%
72	-10.818	-55.916	0.007	10.818	55.916	-0.007	0.000%
73	-9.142	-55.916	-5.271	9.142	55.916	5.271	0.000%
74	-5.403	-55.916	-9.359	5.403	55.916	9.359	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000001
3	Yes	4	0.00000001	0.00000001
4	Yes	4	0.00000001	0.00000001
5	Yes	4	0.00000001	0.00000001
6	Yes	4	0.00000001	0.00000001
7	Yes	4	0.00000001	0.00000001
8	Yes	4	0.00000001	0.00000001
9	Yes	4	0.00000001	0.00000001
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000001
12	Yes	4	0.00000001	0.00000001
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000001
17	Yes	4	0.00000001	0.00000001
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000001
20	Yes	4	0.00000001	0.00000001
21	Yes	4	0.00000001	0.00000001
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000001
24	Yes	4	0.00000001	0.00000001
25	Yes	4	0.00000001	0.00000001
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000001
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000001
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000001
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.00000001	0.00000001
51	Yes	4	0.00000001	0.00000001
52	Yes	4	0.00000001	0.00000001
53	Yes	4	0.00000001	0.00000001
54	Yes	4	0.00000001	0.00000001
55	Yes	4	0.00000001	0.00000001
56	Yes	4	0.00000001	0.00000001
57	Yes	4	0.00000001	0.00000001
58	Yes	4	0.00000001	0.00000001
59	Yes	4	0.00000001	0.00000001

60	Yes	4	0.00000001	0.00000001
61	Yes	4	0.00000001	0.00000001
62	Yes	4	0.00000001	0.00000001
63	Yes	4	0.00000001	0.00000001
64	Yes	4	0.00000001	0.00000001
65	Yes	4	0.00000001	0.00000001
66	Yes	4	0.00000001	0.00000001
67	Yes	4	0.00000001	0.00000001
68	Yes	4	0.00000001	0.00000001
69	Yes	4	0.00000001	0.00000001
70	Yes	4	0.00000001	0.00000001
71	Yes	4	0.00000001	0.00000001
72	Yes	4	0.00000001	0.00000001
73	Yes	4	0.00000001	0.00000001
74	Yes	4	0.00000001	0.00000001

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	3	20.000	3.333	53.3 K=1.00	7.069	-8.450	258.358	0.033
T2	175 - 155	3 3/4	20.037	6.679	85.5 K=1.00	11.045	-45.721	291.256	0.157 [1]
T3	155 - 135	4	20.037	6.679	80.1 K=1.00	12.566	-79.447	353.539	0.225 [1]
T4	135 - 115	4 1/4	20.037	6.679	75.4 K=1.00	14.186	-110.205	421.102	0.262 [1]
T5	115 - 95	4 1/4	20.037	6.679	75.4 K=1.00	14.186	-138.344	421.102	0.329 [1]
T6	95 - 75	4 1/2	20.037	6.679	71.2 K=1.00	15.904	-165.663	493.803	0.335 [1]
T7	75 - 55	4 3/4	20.037	6.679	67.5 K=1.00	17.721	-193.124	571.525	0.338 [1]
T8	55 - 40	4 3/4	15.050	5.017	50.7 K=1.00	17.721	-211.734	660.825	0.320 [1]
T9	40 - 20	4 3/4	20.037	6.679	67.5 K=1.00	17.721	-238.401	571.525	0.417 [1]
T10	20 - 0	5	20.021	6.674	64.1 K=1.00	19.635	-271.938	654.491	0.415 [1]

[1] P_u / ϕP_n controls

Leg Bending Design Data (Compression)

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	195 - 175	3	0.737	16.875	0.044	0.000	16.875	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T2	175 - 155	3 3/4	0.339	32.959	0.010	0.000	32.959	0.000
T3	155 - 135	4	0.045	40.000	0.001	0.000	40.000	0.000
T4	135 - 115	4 1/4	0.266	47.978	0.006	0.000	47.978	0.000
T5	115 - 95	4 1/4	0.192	47.978	0.004	0.000	47.978	0.000
T6	95 - 75	4 1/2	0.138	56.953	0.002	0.000	56.953	0.000
T7	75 - 55	4 3/4	0.582	66.982	0.009	0.000	66.982	0.000
T8	55 - 40	4 3/4	0.035	66.982	0.001	0.000	66.982	0.000
T9	40 - 20	4 3/4	0.020	66.982	0.000	0.000	66.982	0.000
T10	20 - 0	5	0.000	78.125	0.000	0.000	78.125	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	195 - 175	3	0.033	0.044	0.000	0.060 ✔	1.000	4.8.1 ✔
T2	175 - 155	3 3/4	0.157	0.010	0.000	0.157 [1] ✔	1.000	4.8.1 ✔
T3	155 - 135	4	0.225	0.001	0.000	0.225 [1] ✔	1.000	4.8.1 ✔
T4	135 - 115	4 1/4	0.262	0.006	0.000	0.262 [1] ✔	1.000	4.8.1 ✔
T5	115 - 95	4 1/4	0.329	0.004	0.000	0.329 [1] ✔	1.000	4.8.1 ✔
T6	95 - 75	4 1/2	0.335	0.002	0.000	0.335 [1] ✔	1.000	4.8.1 ✔
T7	75 - 55	4 3/4	0.338	0.009	0.000	0.338 [1] ✔	1.000	4.8.1 ✔
T8	55 - 40	4 3/4	0.320	0.001	0.000	0.320 [1] ✔	1.000	4.8.1 ✔
T9	40 - 20	4 3/4	0.417	0.000	0.000	0.417 [1] ✔	1.000	4.8.1 ✔
T10	20 - 0	5	0.415	0.000	0.000	0.415 [1] ✔	1.000	4.8.1 ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.009	2.854	109.6 K=1.00	1.227	-2.884	21.124	0.137 [1] ✔
T2	175 - 155	L2 1/2x2 1/2x3/16	9.498	4.777	115.8 K=1.00	0.902	-4.710	14.425	0.326 [1] ✔
T3	155 - 135	L2 1/2x2 1/2x5/16	11.103	5.563	136.5	1.460	-5.086	17.696	0.287 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	135 - 115	L3x3x1/4	12.856	6.427	130.3 K=1.00	1.440	-5.086	19.093	0.266 [1] ✔
T5	115 - 95	L3x3x3/8	14.704	7.351	150.3 K=1.00	2.110	-5.503	21.106	0.261 [1] ✔
T6	95 - 75	L3 1/2x3 1/2x5/16	16.616	8.296	144.3 K=1.00	2.090	-6.104	22.683	0.269 [1] ✔
T7	75 - 55	L4x4x1/4	18.572	9.263	139.8 K=1.00	1.940	-6.994	22.419	0.312 [1] ✔
T8	55 - 40	L4x4x1/4	20.081	10.018	151.2 K=1.00	1.940	-5.521	19.166	0.288 [1] ✔
T9	40 - 20	L4x4x5/16	22.570	11.262	170.9 K=1.00	2.400	-8.441	18.573	0.454 [1] ✔
T10	20 - 0	L4x4x3/8	24.174	12.008	182.9 K=1.00	2.860	-11.082	19.323	0.573 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	5.000	4.750	182.4 K=1.00	1.227	-0.060	8.333	0.007 [1] ✔
T2	175 - 155	1 1/4	5.000	4.750	182.4 K=1.00	1.227	-0.267	8.333	0.032 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	3	20.000	3.333	53.3	7.069	6.148	318.086	0.019
T2	175 - 155	3 3/4	20.037	6.679	85.5	11.045	39.614	497.010	0.080 [1]
T3	155 - 135	4	20.037	6.679	80.1	12.566	69.549	565.487	0.123 [1]
T4	135 - 115	4 1/4	20.037	6.679	75.4	14.186	96.303	638.381	0.151 [1]
T5	115 - 95	4 1/4	20.037	6.679	75.4	14.186	119.465	638.381	0.187 [1]
T6	95 - 75	4 1/2	20.037	6.679	71.2	15.904	141.001	715.694	0.197 [1]
T7	75 - 55	4 3/4	20.037	6.679	67.5	17.721	162.224	797.425	0.203 [1]
T8	55 - 40	4 3/4	15.050	5.017	50.7	17.721	175.066	797.425	0.220 [1]
T9	40 - 20	4 3/4	20.037	6.679	67.5	17.721	194.323	797.425	0.244 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	5	20.021	6.674	64.1	19.635	218.997	883.573	0.248 [1]

[1] P_u / ϕP_n controls

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	195 - 175	3	0.738	16.875	0.044	0.000	16.875	0.000
T2	175 - 155	3 3/4	0.223	32.959	0.007	0.000	32.959	0.000
T3	155 - 135	4	0.495	40.000	0.012	0.000	40.000	0.000
T4	135 - 115	4 1/4	0.153	47.978	0.003	0.000	47.978	0.000
T5	115 - 95	4 1/4	0.195	47.978	0.004	0.000	47.978	0.000
T6	95 - 75	4 1/2	0.259	56.953	0.005	0.000	56.953	0.000
T7	75 - 55	4 3/4	0.143	66.982	0.002	0.000	66.982	0.000
T8	55 - 40	4 3/4	0.257	66.982	0.004	0.000	66.982	0.000
T9	40 - 20	4 3/4	0.267	66.982	0.004	0.000	66.982	0.000
T10	20 - 0	5	0.197	78.125	0.003	0.000	78.125	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	195 - 175	3	0.019	0.044	0.000	0.053 ✔	1.000	4.8.1 ✔
T2	175 - 155	3 3/4	0.080	0.007	0.000	0.080 [1] ✔	1.000	4.8.1 ✔
T3	155 - 135	4	0.123	0.012	0.000	0.123 [1] ✔	1.000	4.8.1 ✔
T4	135 - 115	4 1/4	0.151	0.003	0.000	0.151 [1] ✔	1.000	4.8.1 ✔
T5	115 - 95	4 1/4	0.187	0.004	0.000	0.187 [1] ✔	1.000	4.8.1 ✔
T6	95 - 75	4 1/2	0.197	0.005	0.000	0.197 [1] ✔	1.000	4.8.1 ✔
T7	75 - 55	4 3/4	0.203	0.002	0.000	0.203 [1] ✔	1.000	4.8.1 ✔
T8	55 - 40	4 3/4	0.220	0.004	0.000	0.220 [1] ✔	1.000	4.8.1 ✔
T9	40 - 20	4 3/4	0.244	0.004	0.000	0.244 [1] ✔	1.000	4.8.1 ✔
T10	20 - 0	5	0.248	0.003	0.000	0.248 [1] ✔	1.000	4.8.1 ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.009	2.854	109.6	1.227	2.858	39.761	0.072 [1] ✔
T2	175 - 155	L2 1/2x2 1/2x3/16	9.498	4.777	73.7	0.902	4.655	29.225	0.159 [1] ✔
T3	155 - 135	L2 1/2x2 1/2x5/16	11.103	5.563	87.7	1.460	5.030	47.304	0.106 [1] ✔
T4	135 - 115	L3x3x1/4	12.856	6.427	82.9	1.440	5.019	46.656	0.108 [1] ✔
T5	115 - 95	L3x3x3/8	14.704	7.351	96.6	2.110	5.401	68.364	0.079 [1] ✔
T6	95 - 75	L3 1/2x3 1/2x5/16	16.616	8.296	92.2	2.090	6.080	67.716	0.090 [1] ✔
T7	75 - 55	L4x4x1/4	18.572	9.263	88.9	1.940	6.750	62.856	0.107 [1] ✔
T8	55 - 40	L4x4x1/4	20.081	10.018	96.2	1.940	5.561	62.856	0.088 [1] ✔
T9	40 - 20	L4x4x5/16	22.570	11.262	109.0	2.400	8.518	77.760	0.110 [1] ✔
T10	20 - 0	L4x4x3/8	24.174	12.008	117.1	2.860	10.972	92.664	0.118 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	5.000	4.750	182.4	1.227	0.027	39.761	0.001 [1] ✔
T2	175 - 155	1 1/4	5.000	4.750	182.4	1.227	0.217	39.761	0.005 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	195 - 175	Leg	3	1	-8.447	258.358	5.9	Pass
		Leg	3	2	-8.491	258.358	5.9	Pass
		Leg	3	3	-8.450	258.358	6.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
		Diagonal	1 1/4	7	-2.883	21.124	13.6	Pass
		Diagonal	1 1/4	8	-2.884	21.124	13.7	Pass
		Diagonal	1 1/4	9	-2.837	21.124	13.4	Pass
		Diagonal	1 1/4	10	-2.837	21.124	13.4	Pass
		Diagonal	1 1/4	11	-2.817	21.124	13.3	Pass
		Diagonal	1 1/4	12	-2.816	21.124	13.3	Pass
		Diagonal	1 1/4	13	-2.113	21.124	10.0	Pass
		Diagonal	1 1/4	14	-2.114	21.124	10.0	Pass
		Diagonal	1 1/4	15	-2.055	21.124	9.7	Pass
		Diagonal	1 1/4	16	-2.055	21.124	9.7	Pass
		Diagonal	1 1/4	17	-2.047	21.124	9.7	Pass
		Diagonal	1 1/4	18	-2.046	21.124	9.7	Pass
		Diagonal	1 1/4	19	-1.160	21.124	5.5	Pass
		Diagonal	1 1/4	20	-1.159	21.124	5.5	Pass
		Diagonal	1 1/4	21	-1.119	21.124	5.3	Pass
		Diagonal	1 1/4	22	-1.119	21.124	5.3	Pass
		Diagonal	1 1/4	23	-1.110	21.124	5.3	Pass
		Diagonal	1 1/4	24	-1.110	21.124	5.3	Pass
		Diagonal	1 1/4	25	-1.219	21.124	5.8	Pass
		Diagonal	1 1/4	26	-1.220	21.124	5.8	Pass
		Diagonal	1 1/4	27	-1.190	21.124	5.6	Pass
		Diagonal	1 1/4	28	-1.190	21.124	5.6	Pass
		Diagonal	1 1/4	29	-1.184	21.124	5.6	Pass
		Diagonal	1 1/4	30	-1.184	21.124	5.6	Pass
		Diagonal	1 1/4	31	-0.703	21.124	3.3	Pass
		Diagonal	1 1/4	32	-0.700	21.124	3.3	Pass
		Diagonal	1 1/4	33	-0.680	21.124	3.2	Pass
		Diagonal	1 1/4	34	-0.692	21.124	3.3	Pass
		Diagonal	1 1/4	35	-0.688	21.124	3.3	Pass
		Diagonal	1 1/4	36	-0.678	21.124	3.2	Pass
		Diagonal	1 1/4	37	-0.060	21.124	0.3	Pass
		Diagonal	1 1/4	38	-0.059	21.124	0.3	Pass
		Diagonal	1 1/4	39	-0.056	21.124	0.3	Pass
		Diagonal	1 1/4	40	-0.063	21.124	0.3	Pass
		Diagonal	1 1/4	41	-0.063	21.124	0.3	Pass
		Diagonal	1 1/4	42	-0.057	21.124	0.3	Pass
		Top Girt	1 1/4	4	-0.060	8.333	0.7	Pass
		Top Girt	1 1/4	5	-0.060	8.333	0.7	Pass
		Top Girt	1 1/4	6	-0.060	8.333	0.7	Pass
T2	175 - 155	Leg	3 3/4	43	-45.721	291.256	15.7	Pass
		Leg	3 3/4	44	-45.661	291.256	15.7	Pass
		Leg	3 3/4	45	-45.531	291.256	15.6	Pass
		Diagonal	L2 1/2x2 1/2x3/16	49	-4.710	14.425	32.6	Pass
		Diagonal	L2 1/2x2 1/2x3/16	50	-4.710	14.425	32.6	Pass
		Diagonal	L2 1/2x2 1/2x3/16	51	-4.458	14.425	30.9	Pass
		Diagonal	L2 1/2x2 1/2x3/16	52	-4.463	14.425	30.9	Pass
		Diagonal	L2 1/2x2 1/2x3/16	53	-4.495	14.425	31.2	Pass
		Diagonal	L2 1/2x2 1/2x3/16	54	-4.489	14.425	31.1	Pass
		Diagonal	L2 1/2x2 1/2x3/16	55	-4.529	15.413	29.4	Pass
		Diagonal	L2 1/2x2 1/2x3/16	56	-4.525	15.413	29.4	Pass
		Diagonal	L2 1/2x2 1/2x3/16	57	-4.293	15.413	27.9	Pass
		Diagonal	L2 1/2x2 1/2x3/16	58	-4.298	15.413	27.9	Pass
		Diagonal	L2 1/2x2 1/2x3/16	59	-4.337	15.413	28.1	Pass
		Diagonal	L2 1/2x2 1/2x3/16	60	-4.336	15.413	28.1	Pass
		Diagonal	L2 1/2x2 1/2x3/16	61	-4.119	16.326	25.2	Pass
		Diagonal	L2 1/2x2 1/2x3/16	62	-4.110	16.326	25.2	Pass
		Diagonal	L2 1/2x2 1/2x3/16	63	-3.954	16.326	24.2	Pass
		Diagonal	L2 1/2x2 1/2x3/16	64	-3.958	16.326	24.2	Pass
		Diagonal	L2 1/2x2 1/2x3/16	65	-3.966	16.326	24.3	Pass
		Diagonal	L2 1/2x2 1/2x3/16	66	-3.971	16.326	24.3	Pass
		Top Girt	1 1/4	46	-0.263	8.333	3.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
		Top Girt	1 1/4	47	-0.267	8.333	3.2	Pass
		Top Girt	1 1/4	48	-0.263	8.333	3.2	Pass
T3	155 - 135	Leg	4	67	-79.227	353.539	22.4	Pass
		Leg	4	68	-79.100	353.539	22.4	Pass
		Leg	4	69	-79.447	353.539	22.5	Pass
		Diagonal	L2 1/2x2 1/2x5/16	70	-5.057	17.696	28.6	Pass
		Diagonal	L2 1/2x2 1/2x5/16	71	-5.053	17.696	28.6	Pass
		Diagonal	L2 1/2x2 1/2x5/16	72	-5.058	17.696	28.6	Pass
		Diagonal	L2 1/2x2 1/2x5/16	73	-5.039	17.696	28.5	Pass
		Diagonal	L2 1/2x2 1/2x5/16	74	-5.063	17.696	28.6	Pass
		Diagonal	L2 1/2x2 1/2x5/16	75	-5.086	17.696	28.7	Pass
		Diagonal	L2 1/2x2 1/2x5/16	76	-4.830	19.461	24.8	Pass
		Diagonal	L2 1/2x2 1/2x5/16	77	-4.828	19.461	24.8	Pass
		Diagonal	L2 1/2x2 1/2x5/16	78	-4.681	19.461	24.1	Pass
		Diagonal	L2 1/2x2 1/2x5/16	79	-4.674	19.461	24.0	Pass
		Diagonal	L2 1/2x2 1/2x5/16	80	-4.701	19.461	24.2	Pass
		Diagonal	L2 1/2x2 1/2x5/16	81	-4.710	19.461	24.2	Pass
		Diagonal	L2 1/2x2 1/2x5/16	82	-4.743	21.185	22.4	Pass
		Diagonal	L2 1/2x2 1/2x5/16	83	-4.739	21.185	22.4	Pass
		Diagonal	L2 1/2x2 1/2x5/16	84	-4.401	21.185	20.8	Pass
		Diagonal	L2 1/2x2 1/2x5/16	85	-4.410	21.185	20.8	Pass
		Diagonal	L2 1/2x2 1/2x5/16	86	-4.439	21.185	21.0	Pass
		Diagonal	L2 1/2x2 1/2x5/16	87	-4.435	21.185	20.9	Pass
T4	135 - 115	Leg	4 1/4	88	-110.203	421.102	26.2	Pass
		Leg	4 1/4	89	-110.043	421.102	26.1	Pass
		Leg	4 1/4	90	-110.205	421.102	26.2	Pass
		Diagonal	L3x3x1/4	91	-5.086	19.093	26.6	Pass
		Diagonal	L3x3x1/4	92	-5.082	19.093	26.6	Pass
		Diagonal	L3x3x1/4	93	-4.851	19.093	25.4	Pass
		Diagonal	L3x3x1/4	94	-4.843	19.093	25.4	Pass
		Diagonal	L3x3x1/4	95	-4.863	19.093	25.5	Pass
		Diagonal	L3x3x1/4	96	-4.875	19.093	25.5	Pass
		Diagonal	L3x3x1/4	97	-5.026	20.684	24.3	Pass
		Diagonal	L3x3x1/4	98	-5.022	20.684	24.3	Pass
		Diagonal	L3x3x1/4	99	-4.854	20.684	23.5	Pass
		Diagonal	L3x3x1/4	100	-4.844	20.684	23.4	Pass
		Diagonal	L3x3x1/4	101	-4.865	20.684	23.5	Pass
		Diagonal	L3x3x1/4	102	-4.879	20.684	23.6	Pass
		Diagonal	L3x3x1/4	103	-4.967	22.285	22.3	Pass
		Diagonal	L3x3x1/4	104	-4.964	22.285	22.3	Pass
		Diagonal	L3x3x1/4	105	-4.848	22.285	21.8	Pass
		Diagonal	L3x3x1/4	106	-4.836	22.285	21.7	Pass
		Diagonal	L3x3x1/4	107	-4.859	22.285	21.8	Pass
		Diagonal	L3x3x1/4	108	-4.874	22.285	21.9	Pass
T5	115 - 95	Leg	4 1/4	109	-138.344	421.102	32.9	Pass
		Leg	4 1/4	110	-138.170	421.102	32.8	Pass
		Leg	4 1/4	111	-138.187	421.102	32.8	Pass
		Diagonal	L3x3x3/8	112	-5.503	21.106	26.1	Pass
		Diagonal	L3x3x3/8	113	-5.498	21.106	26.0	Pass
		Diagonal	L3x3x3/8	114	-5.115	21.106	24.2	Pass
		Diagonal	L3x3x3/8	115	-5.114	21.106	24.2	Pass
		Diagonal	L3x3x3/8	116	-5.131	21.106	24.3	Pass
		Diagonal	L3x3x3/8	117	-5.138	21.106	24.3	Pass
		Diagonal	L3x3x3/8	118	-5.328	23.005	23.2	Pass
		Diagonal	L3x3x3/8	119	-5.323	23.005	23.1	Pass
		Diagonal	L3x3x3/8	120	-4.988	23.005	21.7	Pass
		Diagonal	L3x3x3/8	121	-4.985	23.005	21.7	Pass
		Diagonal	L3x3x3/8	122	-5.003	23.005	21.7	Pass
		Diagonal	L3x3x3/8	123	-5.011	23.005	21.8	Pass
		Diagonal	L3x3x3/8	124	-5.260	25.139	20.9	Pass
		Diagonal	L3x3x3/8	125	-5.255	25.139	20.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
		Diagonal	L3x3x3/8	126	-4.968	25.139	19.8	Pass
		Diagonal	L3x3x3/8	127	-4.963	25.139	19.7	Pass
		Diagonal	L3x3x3/8	128	-4.981	25.139	19.8	Pass
		Diagonal	L3x3x3/8	129	-4.992	25.139	19.9	Pass
T6	95 - 75	Leg	4 1/2	130	-165.663	493.803	33.5	Pass
		Leg	4 1/2	131	-165.603	493.803	33.5	Pass
		Leg	4 1/2	132	-165.499	493.803	33.5	Pass
		Diagonal	L3 1/2x3 1/2x5/16	133	-6.104	22.683	26.9	Pass
		Diagonal	L3 1/2x3 1/2x5/16	134	-6.094	22.683	26.9	Pass
		Diagonal	L3 1/2x3 1/2x5/16	135	-5.665	22.683	25.0	Pass
		Diagonal	L3 1/2x3 1/2x5/16	136	-5.668	22.683	25.0	Pass
		Diagonal	L3 1/2x3 1/2x5/16	137	-5.608	22.683	24.7	Pass
		Diagonal	L3 1/2x3 1/2x5/16	138	-5.615	22.683	24.8	Pass
		Diagonal	L3 1/2x3 1/2x5/16	139	-5.872	24.539	23.9	Pass
		Diagonal	L3 1/2x3 1/2x5/16	140	-5.866	24.539	23.9	Pass
		Diagonal	L3 1/2x3 1/2x5/16	141	-5.394	24.539	22.0	Pass
		Diagonal	L3 1/2x3 1/2x5/16	142	-5.396	24.539	22.0	Pass
		Diagonal	L3 1/2x3 1/2x5/16	143	-5.419	24.539	22.1	Pass
		Diagonal	L3 1/2x3 1/2x5/16	144	-5.423	24.539	22.1	Pass
		Diagonal	L3 1/2x3 1/2x5/16	145	-5.638	26.611	21.2	Pass
		Diagonal	L3 1/2x3 1/2x5/16	146	-5.632	26.611	21.2	Pass
		Diagonal	L3 1/2x3 1/2x5/16	147	-5.209	26.611	19.6	Pass
		Diagonal	L3 1/2x3 1/2x5/16	148	-5.209	26.611	19.6	Pass
		Diagonal	L3 1/2x3 1/2x5/16	149	-5.223	26.611	19.6	Pass
		Diagonal	L3 1/2x3 1/2x5/16	150	-5.229	26.611	19.6	Pass
T7	75 - 55	Leg	4 3/4	151	-193.124	571.525	33.8	Pass
		Leg	4 3/4	152	-193.053	571.525	33.8	Pass
		Leg	4 3/4	153	-192.843	571.525	33.7	Pass
		Diagonal	L4x4x1/4	154	-6.994	22.419	31.2	Pass
		Diagonal	L4x4x1/4	155	-6.981	22.419	31.1	Pass
		Diagonal	L4x4x1/4	156	-6.458	22.419	28.8	Pass
		Diagonal	L4x4x1/4	157	-6.495	22.419	29.0	Pass
		Diagonal	L4x4x1/4	158	-6.409	22.419	28.6	Pass
		Diagonal	L4x4x1/4	159	-6.398	22.419	28.5	Pass
		Diagonal	L4x4x1/4	160	-6.542	24.072	27.2	Pass
		Diagonal	L4x4x1/4	161	-6.531	24.072	27.1	Pass
		Diagonal	L4x4x1/4	162	-6.045	24.072	25.1	Pass
		Diagonal	L4x4x1/4	163	-6.051	24.072	25.1	Pass
		Diagonal	L4x4x1/4	164	-5.979	24.072	24.8	Pass
		Diagonal	L4x4x1/4	165	-5.984	24.072	24.9	Pass
		Diagonal	L4x4x1/4	166	-6.407	25.716	24.9	Pass
		Diagonal	L4x4x1/4	167	-6.395	25.716	24.9	Pass
		Diagonal	L4x4x1/4	168	-5.954	25.716	23.2	Pass
		Diagonal	L4x4x1/4	169	-5.958	25.716	23.2	Pass
		Diagonal	L4x4x1/4	170	-5.876	25.716	22.8	Pass
		Diagonal	L4x4x1/4	171	-5.882	25.716	22.9	Pass
T8	55 - 40	Leg	4 3/4	172	-211.734	660.825	32.0	Pass
		Leg	4 3/4	173	-211.659	660.825	32.0	Pass
		Leg	4 3/4	174	-211.383	660.825	32.0	Pass
		Diagonal	L4x4x1/4	175	-5.521	19.166	28.8	Pass
		Diagonal	L4x4x1/4	176	-5.508	19.166	28.7	Pass
		Diagonal	L4x4x1/4	177	-4.947	19.166	25.8	Pass
		Diagonal	L4x4x1/4	178	-4.960	19.166	25.9	Pass
		Diagonal	L4x4x1/4	179	-4.897	19.166	25.5	Pass
		Diagonal	L4x4x1/4	180	-4.898	19.166	25.6	Pass
		Diagonal	L4x4x1/4	181	-5.445	20.538	26.5	Pass
		Diagonal	L4x4x1/4	182	-5.431	20.538	26.4	Pass
		Diagonal	L4x4x1/4	183	-4.879	20.538	23.8	Pass
		Diagonal	L4x4x1/4	184	-4.924	20.538	24.0	Pass
		Diagonal	L4x4x1/4	185	-4.845	20.538	23.6	Pass
		Diagonal	L4x4x1/4	186	-4.826	20.538	23.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
		Diagonal	L4x4x1/4	187	-5.156	22.059	23.4	Pass
		Diagonal	L4x4x1/4	188	-5.141	22.059	23.3	Pass
		Diagonal	L4x4x1/4	189	-4.612	22.059	20.9	Pass
		Diagonal	L4x4x1/4	190	-4.808	22.059	21.8	Pass
		Diagonal	L4x4x1/4	191	-4.726	22.059	21.4	Pass
		Diagonal	L4x4x1/4	192	-4.556	22.059	20.7	Pass
T9	40 - 20	Leg	4 3/4	193	-238.401	571.525	41.7	Pass
		Leg	4 3/4	194	-238.330	571.525	41.7	Pass
		Leg	4 3/4	195	-237.962	571.525	41.6	Pass
		Diagonal	L4x4x5/16	196	-8.441	18.573	45.4	Pass
		Diagonal	L4x4x5/16	197	-8.430	18.573	45.4	Pass
		Diagonal	L4x4x5/16	198	-7.768	18.573	41.8	Pass
		Diagonal	L4x4x5/16	199	-7.781	18.573	41.9	Pass
		Diagonal	L4x4x5/16	200	-7.729	18.573	41.6	Pass
		Diagonal	L4x4x5/16	201	-7.727	18.573	41.6	Pass
		Diagonal	L4x4x5/16	202	-8.385	19.732	42.5	Pass
		Diagonal	L4x4x5/16	203	-8.373	19.732	42.4	Pass
		Diagonal	L4x4x5/16	204	-7.739	19.732	39.2	Pass
		Diagonal	L4x4x5/16	205	-7.788	19.732	39.5	Pass
		Diagonal	L4x4x5/16	206	-7.720	19.732	39.1	Pass
		Diagonal	L4x4x5/16	207	-7.695	19.732	39.0	Pass
		Diagonal	L4x4x5/16	208	-7.996	20.998	38.1	Pass
		Diagonal	L4x4x5/16	209	-7.985	20.998	38.0	Pass
		Diagonal	L4x4x5/16	210	-7.368	20.998	35.1	Pass
		Diagonal	L4x4x5/16	211	-7.379	20.998	35.1	Pass
		Diagonal	L4x4x5/16	212	-7.322	20.998	34.9	Pass
		Diagonal	L4x4x5/16	213	-7.321	20.998	34.9	Pass
T10	20 - 0	Leg	5	214	-271.938	654.491	41.5	Pass
		Leg	5	215	-271.872	654.491	41.5	Pass
		Leg	5	216	-271.411	654.491	41.5	Pass
		Diagonal	L4x4x3/8	217	-11.082	19.323	57.3	Pass
		Diagonal	L4x4x3/8	218	-11.072	19.323	57.3	Pass
		Diagonal	L4x4x3/8	219	-10.327	19.323	53.4	Pass
		Diagonal	L4x4x3/8	220	-10.339	19.323	53.5	Pass
		Diagonal	L4x4x3/8	221	-10.294	19.323	53.3	Pass
		Diagonal	L4x4x3/8	222	-10.292	19.323	53.3	Pass
		Diagonal	L4x4x3/8	223	-10.730	20.166	53.2	Pass
		Diagonal	L4x4x3/8	224	-10.721	20.166	53.2	Pass
		Diagonal	L4x4x3/8	225	-10.007	20.166	49.6	Pass
		Diagonal	L4x4x3/8	226	-10.018	20.166	49.7	Pass
		Diagonal	L4x4x3/8	227	-9.972	20.166	49.5	Pass
		Diagonal	L4x4x3/8	228	-9.970	20.166	49.4	Pass
		Diagonal	L4x4x3/8	229	-10.551	21.063	50.1	Pass
		Diagonal	L4x4x3/8	230	-10.542	21.063	50.1	Pass
		Diagonal	L4x4x3/8	231	-9.847	21.063	46.8	Pass
		Diagonal	L4x4x3/8	232	-9.858	21.063	46.8	Pass
		Diagonal	L4x4x3/8	233	-9.811	21.063	46.6	Pass
		Diagonal	L4x4x3/8	234	-9.809	21.063	46.6	Pass
							Summary	
						Leg (T9)	41.7	Pass
						Diagonal (T10)	57.3	Pass
						Top Girt (T2)	3.2	Pass
						RATING =	**57.3**	**Pass**

Hazards by Location

Search Information

Address: 88 Parsonage Hill Rd, Northford, CT 06472, USA

Coordinates: 41.36798499999999, -72.80925400000001

Elevation: 332 ft

Timestamp: 2019-07-21T20:54:13.214Z

Hazard Type: Wind

ASCE 7-16

MRI 10-Year	75 mph
MRI 25-Year	84 mph
MRI 50-Year	92 mph
MRI 100-Year	99 mph
Risk Category I	110 mph
Risk Category II	121 mph
Risk Category III	⚠ 130 mph

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

Risk Category IV	⚠ 134 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

ASCE 7-10

MRI 10-Year	78 mph
MRI 25-Year	88 mph
MRI 50-Year	95 mph
MRI 100-Year	102 mph
Risk Category I	116 mph
Risk Category II	126 mph
Risk Category III-IV	⚠ 136 mph

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

ASCE 7-05

ASCE 7-05 Wind Speed	⚠ 111 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

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

Com-Ex Consultants, LLC ● 115 Route 46, Suite E39 ● Mountain Lakes, NJ ● 07046
Office: 862-209-4300 | Fax: 862-209-4301

CT03XC030

88 Parsonage Hill Road, Northford, CT 06472 (New Haven County)
Latitude: 41.36801°, Longitude: -72.809302°

Antenna Mount Structural Analysis
DO MACRO UPGRADE

July 22, 2019

Item	Pass/Fail	Capacity
Antenna Platform Mount	**PASS**	72.6%

Nicholas D. Barile, PE
Connecticut Professional Engineer
License No. 28643
Com-Ex Project No. 17042-CHE

COM EX
Consultants

Com-Ex Consultants, LLC ● 115 Route 46, Suite E39 ● Mountain Lakes, NJ ● 07046
Office: 862-209-4300 | Fax: 862-209-4301

Executive Summary

At the request of Sprint, COMEX has performed a structural analysis of antenna mounting system for proposed antenna equipment loading under 2018 CT state building code and *2015 IBC International Building Code, ANSI/TIA-222-G, ASCE 7-10, and AISC (LRFD14).* Information pertaining the antenna mounts was obtained from:

- Comex Construction Drawings dated 07/22/19

Conclusions

Per our analysis, the antenna platform mounts can support proposed antenna equipment loading under 2018 CT state building code and *2015 IBC International Building Code*.

General Comments

If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, COMEX should be notified immediately to perform a revised analysis. This report is not a condition assessment and assumes good workmanship will be used and systems will be properly maintained.

Limitations

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of COMEX.

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Office: 862-209-4300 | Fax: 862-209-4301

Attachment A

Proposed Equipment

Final Alpha Sector Antenna Configuration
Rad Center for Antennas is 190'-0"
(1) (N) APXVTM14-ALU-120 RFS Antenna
(1) (N) 2500 MHz Alcatel Lucent RRH
(1) (E) APXVSPP18-C-A20 RFS Antenna

Final Beta Sector Antenna Configuration
Rad Center for Antennas is 190'-0"
(1) (N) APXVTM14-ALU-120 RFS Antenna
(1) (N) 2500 MHz Alcatel Lucent RRH
(1) (E) APXVSPP18-C-A20 RFS Antenna

Final Gamma Sector Antenna Configuration
Rad Center for Antennas is 190'-0"
(1) (N) APXVTM14-ALU-120 RFS Antenna
(1) (N) 2500 MHz Alcatel Lucent RRH
(1) (E) APXVSPP18-C-A20 RFS Antenna

126 MPH NO ICE Vult = 126 mph

Wind Analysis F = qz x Gh x (EPA) per TIA-222-G Vasd = Vult x 0.6^1/2 = 97.6 mph

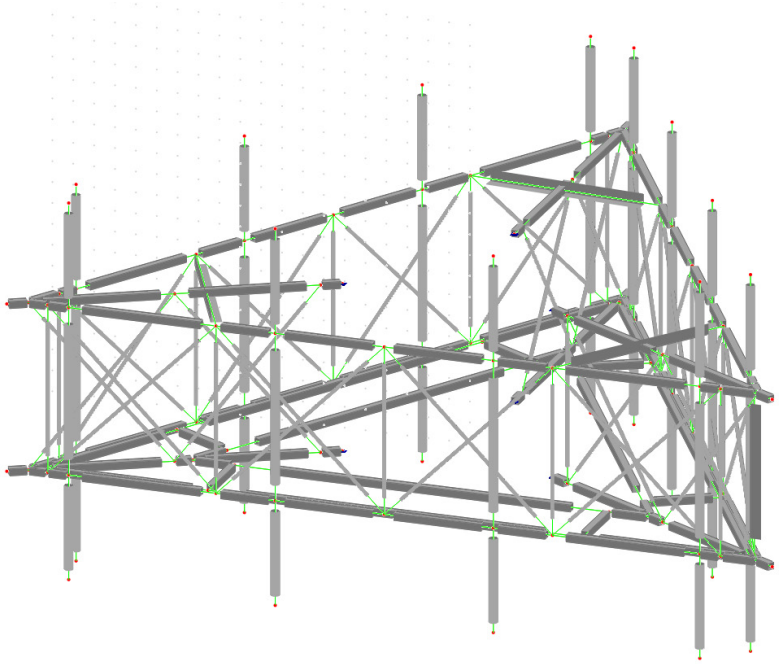
qz = 0.00256 x Kz x Kzt x Kd x V^2 x I

Kz=2.01 (Z/Zg)^(2/α) =	1.449		
Zg =	900	Table 2-4	Exposure C
Alpha (α) =	9.5	Table 2-4	
Z=	190	ft	
Terrain Category	I		
Kzt = (1+KeKt/Kh)^2	1.00	for Category 1	
Ke=	0.90	Table 2-4	
Kt=	0.72	Table 2-5	
Kh=e^(f * Z/H) =	0.000	for H=0	
f=	1.50	Table 2-5	
H =Height of Crest Surrounding Terrain	0.00	ft	
Kz =	1.449		
Kzt =	1.0		
Kd =	0.95		
Importance Factor Table 2-3 = I =	1.0	Use Class II	
V = Velocity (3 sec) =	97.6	mph	
qz = 0.00256 x Kz x Kzt x Kd x V^2 x I =	33.6	psf	
Gh Gh =	1.00		
qz Gh =	**33.6**	**psf**	

	Equipment Loading	CaAa (sf)	Ka	Wind (psf)	Wind (lb)	Weight (lb)
F_{N1}	APXTM14-ALU-120	6.340	1.0	33.6	212.8	55.12
F_{N2}	2500 MHz RRH	4.050	1.0	33.6	135.9	70
F_{N3}	APXVSPP18-C-A20	8.020	1.0	33.6	269.2	57
F_{N4}						
	3"X3"X3/8"	0.500	1.0	33.6	16.8	
	7/8-SR	0.0875	1.0	33.6	2.9	
	2" Std. Pipe	0.2375	1.0	33.6	8.0	
	HSS2"X2"X3/16"	0.333	1.0	33.6	11.2	
F_{T1}	APXTM14-ALU-120	3.610	1.0	33.6	121.2	55.12
F_{T2}	2500 MHz RRH	1.530	1.0	33.6	51.3	79.8
F_{T3}	APXVSPP18-C-A20	5.280	1.0	33.6	177.2	57
F_{T4}						

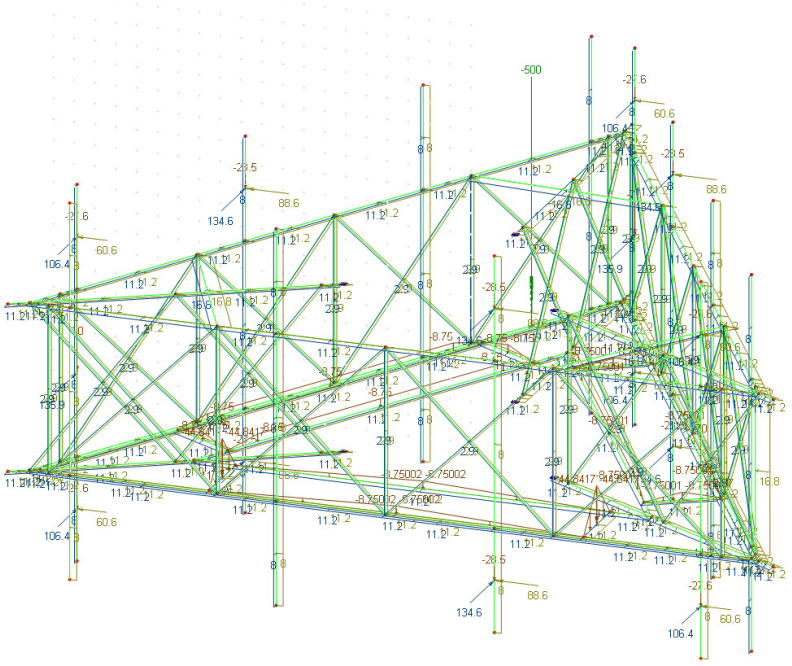
SR - Solid Round: FY = 36ksi
Angles: FY = 36 ksi
HSS: FY = 46ksi
Pipe: FY = 35ksi

Company/Project: COMEX / 17042-CHE		**VersaFrame V8.11 (608.0)** (C) Digital Canal Corp.
Engineer:	Date/Time: 07/21/19 15:24:37	



Note:

Company/Project: COMEX / 17042-CHE		**VersaFrame V8.11 (608.0)** (C) Digital Canal Corp.
Engineer:	Date/Time: 07/21/19 15:24:17	



Note:

Company/Project: COMEX / 17042-CHE		**VersaFrame V8.11 (608.0)** (C) Digital Canal Corp.
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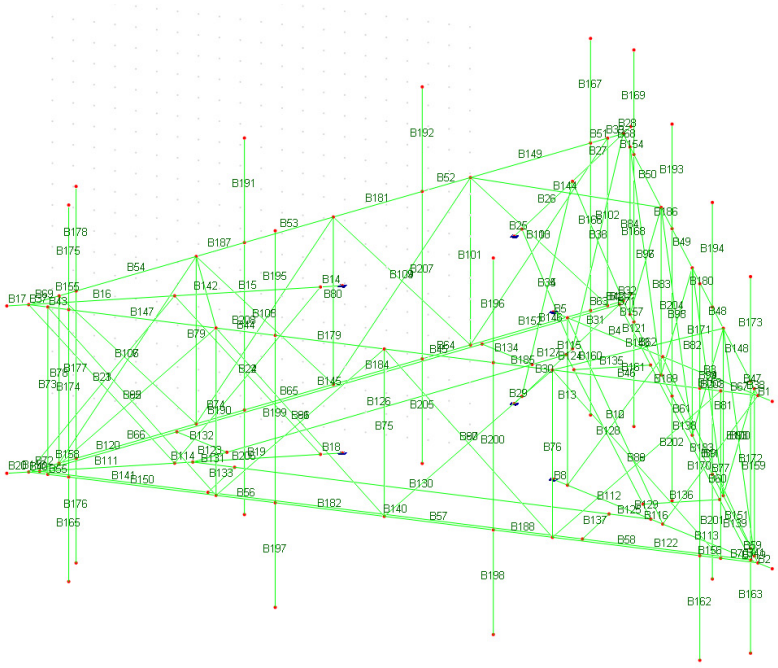
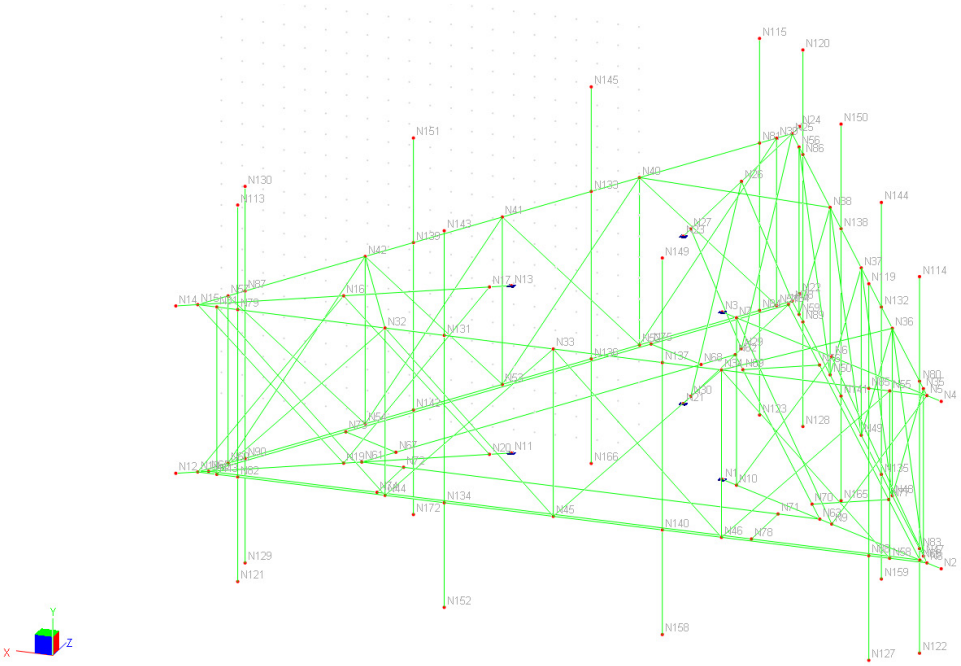


Note:

Company/Project: COMEX / 17042-CHE		**VersaFrame V8.11 (608.0)** (C) Digital Canal Corp.
Engineer:	Date/Time: 07/21/19 15:25:02	



Note:

Steel Check Report

Project::	**17042-CHE**	Company:	**COMEX**
Description:	**Roof Mounts**	User:	
Date:	**07/21/2019 03:25 PM**	Software:	**Digital Canal VersaFrame**

Code Check Results (LRFD14)

CRITICAL STRESS SUMMARY

ID	Section Name	Status	Governing Criteria	Stress Ratio	Load Combination	Distance (ft)
1	HSS2X2X3/16	OK	Axial-Bending	0.0011	TIA-222-G-3.2.1_330	0.5000
2	HSS2X2X3/16	OK	Axial-Bending	0.0011	TIA-222-G-3.2.1_330	0.5000
3	HSS2X2X3/16	OK	Axial-Bending	0.2968	TIA-222-G-3.2.1_330	0.0000
4	HSS2X2X3/16	OK	Axial-Bending	0.1690	TIA-222-G-3.2.1_300	3.3333
5	HSS2X2X3/16	OK	Axial-Bending	0.3314	TIA-222-G-3.2.1_300	0.5000
8	HSS2X2X3/16	OK	Axial-Bending	0.2811	TIA-222-G-3.2.1_240	0.5000
9	SR-7/8	OK	Axial-Bending	0.0713	TIA-222-G-3.2.1_330	2.8638
10	SR-7/8	OK	Axial-Bending	0.5821	TIA-222-G-3.2.1_300	0.0000
11	SR-7/8	OK	Axial-Bending	0.4789	TIA-222-G-3.2.1_210	0.0000
12	SR-7/8	OK	Axial-Bending	0.0875	TIA-222-G-3.2.1_180	5.2068
13	SR-7/8	OK	Axial-Bending	0.0551	TIA-222-G-3.2.1_30	0.0000
14	HSS2X2X3/16	OK	Axial-Bending	0.3689	TIA-222-G-3.2.1_210	0.0000
15	HSS2X2X3/16	OK	Axial-Bending	0.2144	TIA-222-G-3.2.1_210	0.0000
16	HSS2X2X3/16	OK	Axial-Bending	0.3247	TIA-222-G-3.2.1_210	3.3333
17	HSS2X2X3/16	OK	Axial-Bending	0.0011	TIA-222-G-3.2.1_210	0.0000
18	HSS2X2X3/16	OK	Axial-Bending	0.3059	TIA-222-G-3.2.1_240	0.0000
19	HSS2X2X3/16	OK	Axial-Bending	0.1750	TIA-222-G-3.2.1_240	2.9167
20	HSS2X2X3/16	OK	Axial-Bending	0.0011	TIA-222-G-3.2.1_210	0.0000
21	SR-7/8	OK	Axial-Bending	0.0716	TIA-222-G-3.2.1_210	2.8638
22	SR-7/8	OK	Axial-Bending	0.5431	TIA-222-G-3.2.1_150	5.2068
23	SR-7/8	OK	Axial-Bending	0.4362	TIA-222-G-3.2.1_150	5.2068
24	SR-7/8	OK	Axial-Bending	0.0866	TIA-222-G-3.2.1_240	5.2068
25	HSS2X2X3/16	OK	Axial-Bending	0.2786	TIA-222-G-3.2.1_300	0.0000
26	HSS2X2X3/16	OK	Axial-Bending	0.1315	TIA-222-G-3.2.1_300	0.0000
27	HSS2X2X3/16	OK	Axial-Bending	0.2521	TIA-222-G-3.2.1_300	3.3333
28	HSS2X2X3/16	OK	Axial-Bending	0.0011	TIA-222-G-3.2.1_270	0.0000
29	HSS2X2X3/16	OK	Axial-Bending	0.2559	TIA-222-G-3.2.1_30	0.0000
30	HSS2X2X3/16	OK	Axial-Bending	0.1599	TIA-222-G-3.2.1_210	2.9167
31	HSS2X2X3/16	OK	Axial-Bending	0.2547	TIA-222-G-3.2.1_300	3.0833
32	HSS2X2X3/16	OK	Axial-Bending	0.0011	TIA-222-G-3.2.1_180	0.0000
33	SR-7/8	OK	Axial-Bending	0.0661	TIA-222-G-3.2.1_120	2.8638
34	SR-7/8	OK	Axial-Bending	0.5352	TIA-222-G-3.2.1_60	5.2068
35	SR-7/8	OK	Axial-Bending	0.0835	TIA-222-G-3.2.1_240	5.2068
36	SR-7/8	OK	Axial-Bending	0.4345	TIA-222-G-3.2.1_330	0.0000
37	HSS2X2X3/16	OK	Axial-Bending	0.1584	TIA-222-G-3.2.1_60	0.0000
38	HSS2X2X3/16	OK	Axial-Bending	0.1563	TIA-222-G-3.2.1_150	0.0000
39	HSS2X2X3/16	OK	Axial-Bending	0.1363	TIA-222-G-3.2.1_300	0.0000
40	HSS2X2X3/16	OK	Axial-Bending	0.3432	TIA-222-G-3.2.1_0	0.0000
41	HSS2X2X3/16	OK	Axial-Bending	0.3251	TIA-222-G-3.2.1_120	0.0000
42	HSS2X2X3/16	OK	Axial-Bending	0.3112	TIA-222-G-3.2.1_240	0.0000
43	HSS2X2X3/16	OK	Axial-Bending	0.1085	TIA-222-G-3.2.1_240	0.0000
44	HSS2X2X3/16	OK	Axial-Bending	0.3841	TIA-222-G-3.2.1_270	0.0000
45	HSS2X2X3/16	OK	Axial-Bending	0.3159	TIA-222-G-3.2.1_120	2.6117
46	HSS2X2X3/16	OK	Axial-Bending	0.1753	TIA-222-G-3.2.1_270	0.0000
47	HSS2X2X3/16	OK	Axial-Bending	0.0977	TIA-222-G-3.2.1_150	0.0000
48	HSS2X2X3/16	OK	Axial-Bending	0.4322	TIA-222-G-3.2.1_30	0.0000
49	HSS2X2X3/16	OK	Axial-Bending	0.2951	TIA-222-G-3.2.1_240	2.6117
50	HSS2X2X3/16	OK	Axial-Bending	0.1996	TIA-222-G-3.2.1_30	0.0000
51	HSS2X2X3/16	OK	Axial-Bending	0.0954	TIA-222-G-3.2.1_330	0.0000
52	HSS2X2X3/16	OK	Axial-Bending	0.4743	TIA-222-G-3.2.1_150	0.0000
53	HSS2X2X3/16	OK	Axial-Bending	0.3694	TIA-222-G-3.2.1_0	2.6117
54	HSS2X2X3/16	OK	Axial-Bending	0.1842	TIA-222-G-3.2.1_150	0.0000
55	HSS2X2X3/16	OK	Axial-Bending	0.2876	TIA-222-G-3.2.1_0	0.0000
56	HSS2X2X3/16	OK	Axial-Bending	0.1777	TIA-222-G-3.2.1_210	1.4167

57	HSS2X2X3/16	OK	Axial-Bending	0.2583	TIA-222-G-3.2.1_330	2.6117
58	HSS2X2X3/16	OK	Axial-Bending	0.2143	TIA-222-G-3.2.1_0	3.5283
59	HSS2X2X3/16	OK	Axial-Bending	0.2735	TIA-222-G-3.2.1_120	0.0000
60	HSS2X2X3/16	OK	Axial-Bending	0.1892	TIA-222-G-3.2.1_330	1.4167
61	HSS2X2X3/16	OK	Axial-Bending	0.2260	TIA-222-G-3.2.1_300	2.6117
62	HSS2X2X3/16	OK	Axial-Bending	0.1988	TIA-222-G-3.2.1_120	3.5283
63	HSS2X2X3/16	OK	Axial-Bending	0.2550	TIA-222-G-3.2.1_240	0.0000
64	HSS2X2X3/16	OK	Axial-Bending	0.1703	TIA-222-G-3.2.1_180	1.4167
65	HSS2X2X3/16	OK	Axial-Bending	0.2557	TIA-222-G-3.2.1_210	2.6117
66	HSS2X2X3/16	OK	Axial-Bending	0.2006	TIA-222-G-3.2.1_240	3.5283
67	HSS2X2X3/16	OK	Axial-Bending	0.2274	TIA-222-G-3.2.1_330	0.8915
68	HSS2X2X3/16	OK	Axial-Bending	0.1734	TIA-222-G-3.2.1_180	0.8915
69	HSS2X2X3/16	OK	Axial-Bending	0.2440	TIA-222-G-3.2.1_210	0.8915
70	HSS2X2X3/16	OK	Axial-Bending	0.4857	TIA-222-G-3.2.1_0	0.8915
71	HSS2X2X3/16	OK	Axial-Bending	0.4460	TIA-222-G-3.2.1_120	0.8915
72	HSS2X2X3/16	OK	Axial-Bending	0.4585	TIA-222-G-3.2.1_210	0.8915
73	SR-7/8	OK	Axial-Bending	0.0629	TIA-222-G-3.2.1_150	0.0000
74	SR-7/8	OK	Axial-Bending	0.1300	TIA-222-G-3.2.1_300	4.0000
75	SR-7/8	OK	Axial-Bending	0.0626	TIA-222-G-3.2.1_330	4.0000
76	SR-7/8	OK	Axial-Bending	0.1099	TIA-222-G-3.2.1_30	4.0000
77	SR-7/8	OK	Axial-Bending	0.1004	TIA-222-G-3.2.1_210	0.0000
78	SR-7/8	OK	Axial-Bending	0.0945	TIA-222-G-3.2.1_120	0.0000
79	SR-7/8	OK	Axial-Bending	0.1241	TIA-222-G-3.2.1_270	4.0000
80	SR-7/8	OK	Axial-Bending	0.0747	TIA-222-G-3.2.1_210	4.0000
81	SR-7/8	OK	Axial-Bending	0.1523	TIA-222-G-3.2.1_60	4.0000
82	SR-7/8	OK	Axial-Bending	0.0717	TIA-222-G-3.2.1_120	4.0000
83	SR-7/8	OK	Axial-Bending	0.1492	TIA-222-G-3.2.1_0	4.0000
84	SR-7/8	OK	Axial-Bending	0.0907	TIA-222-G-3.2.1_30	0.0000
85	SR-7/8	OK	Axial-Bending	0.3311	TIA-222-G-3.2.1_60	0.0000
86	SR-7/8	OK	Axial-Bending	0.1625	TIA-222-G-3.2.1_120	0.0000
87	SR-7/8	OK	Axial-Bending	0.1391	TIA-222-G-3.2.1_240	5.6772
88	SR-7/8	OK	Axial-Bending	0.3728	TIA-222-G-3.2.1_270	5.6772
89	SR-7/8	OK	Axial-Bending	0.1019	TIA-222-G-3.2.1_210	5.6772
90	SR-7/8	OK	Axial-Bending	0.1020	TIA-222-G-3.2.1_180	5.6772
91	SR-7/8	OK	Axial-Bending	0.1271	TIA-222-G-3.2.1_180	0.0000
92	SR-7/8	OK	Axial-Bending	0.1124	TIA-222-G-3.2.1_150	0.0000
93	SR-7/8	OK	Axial-Bending	0.3353	TIA-222-G-3.2.1_210	0.0000
94	SR-7/8	OK	Axial-Bending	0.1674	TIA-222-G-3.2.1_240	0.0000
95	SR-7/8	OK	Axial-Bending	0.1524	TIA-222-G-3.2.1_0	5.6772
96	SR-7/8	OK	Axial-Bending	0.3846	TIA-222-G-3.2.1_30	5.6772
97	SR-7/8	OK	Axial-Bending	0.1044	TIA-222-G-3.2.1_0	5.6772
98	SR-7/8	OK	Axial-Bending	0.1078	TIA-222-G-3.2.1_210	5.6772
99	SR-7/8	OK	Axial-Bending	0.1418	TIA-222-G-3.2.1_210	0.0000
100	SR-7/8	OK	Axial-Bending	0.1050	TIA-222-G-3.2.1_270	0.0000
101	SR-7/8	OK	Axial-Bending	0.1766	TIA-222-G-3.2.1_210	4.0000
102	SR-7/8	OK	Axial-Bending	0.0637	TIA-222-G-3.2.1_60	0.0000
103	SR-7/8	OK	Axial-Bending	0.1217	TIA-222-G-3.2.1_0	5.6772
104	SR-7/8	OK	Axial-Bending	0.1513	TIA-222-G-3.2.1_0	5.6772
105	SR-7/8	OK	Axial-Bending	0.1089	TIA-222-G-3.2.1_330	0.0000
106	SR-7/8	OK	Axial-Bending	0.0997	TIA-222-G-3.2.1_180	0.0000
107	SR-7/8	OK	Axial-Bending	0.3841	TIA-222-G-3.2.1_150	0.0000
108	SR-7/8	OK	Axial-Bending	0.1458	TIA-222-G-3.2.1_120	0.0000
109	SR-7/8	OK	Axial-Bending	0.1914	TIA-222-G-3.2.1_0	5.6772
110	SR-7/8	OK	Axial-Bending	0.3509	TIA-222-G-3.2.1_330	5.6772
111	HSS2X2X3/16	OK	Axial-Bending	0.2712	TIA-222-G-3.2.1_210	3.0833
112	HSS2X2X3/16	OK	Axial-Bending	0.1783	TIA-222-G-3.2.1_60	2.9167
113	HSS2X2X3/16	OK	Axial-Bending	0.2759	TIA-222-G-3.2.1_150	3.0833
114	HSS2X2X3/16	OK	Axial-Bending	0.1623	TIA-222-G-3.2.1_30	0.0000
115	HSS2X2X3/16	OK	Axial-Bending	0.1658	TIA-222-G-3.2.1_180	0.0000
116	HSS2X2X3/16	OK	Axial-Bending	0.1744	TIA-222-G-3.2.1_0	0.0000
117	HSS2X2X3/16	OK	Axial-Bending	0.6004	TIA-222-G-3.2.1_270	0.2500
118	HSS2X2X3/16	OK	Axial-Bending	0.7260	TIA-222-G-3.2.1_210	0.2500
119	HSS2X2X3/16	OK	Axial-Bending	0.7205	TIA-222-G-3.2.1_150	0.2500
120	HSS2X2X3/16	OK	Axial-Bending	0.1850	TIA-222-G-3.2.1_30	0.0000
121	HSS2X2X3/16	OK	Axial-Bending	0.1484	TIA-222-G-3.2.1_120	0.0000
122	HSS2X2X3/16	OK	Axial-Bending	0.1831	TIA-222-G-3.2.1_150	0.0000
123	HSS2X2X3/16	OK	Axial-Bending	0.2107	TIA-222-G-3.2.1_60	0.0000
124	HSS2X2X3/16	OK	Axial-Bending	0.1811	TIA-222-G-3.2.1_330	0.0000
125	HSS2X2X3/16	OK	Axial-Bending	0.1667	TIA-222-G-3.2.1_150	0.0000
126	HSS2X2X3/16	OK	Axial-Bending	0.1472	TIA-222-G-3.2.1_60	0.0000
127	HSS2X2X3/16	OK	Axial-Bending	0.1574	TIA-222-G-3.2.1_60	1.0013
128	HSS2X2X3/16	OK	Axial-Bending	0.1353	TIA-222-G-3.2.1_300	4.0358

129	HSS2X2X3/16	OK	Axial-Bending	0.1956	TIA-222-G-3.2.1_300	1.0013
130	HSS2X2X3/16	OK	Axial-Bending	0.1261	TIA-222-G-3.2.1_210	8.9683
131	HSS2X2X3/16	OK	Axial-Bending	0.1942	TIA-222-G-3.2.1_210	1.0013
132	HSS2X2X3/16	OK	Axial-Bending	0.1439	TIA-222-G-3.2.1_60	0.0000
133	HSS2X2X3/16	OK	Axial-Bending	0.1396	TIA-222-G-3.2.1_30	0.0000
134	HSS2X2X3/16	OK	Axial-Bending	0.0990	TIA-222-G-3.2.1_270	0.0000
135	HSS2X2X3/16	OK	Axial-Bending	0.1106	TIA-222-G-3.2.1_300	0.0000
136	HSS2X2X3/16	OK	Axial-Bending	0.1303	TIA-222-G-3.2.1_120	0.0000
137	HSS2X2X3/16	OK	Axial-Bending	0.1172	TIA-222-G-3.2.1_330	0.0000
138	HSS2X2X3/16	OK	Axial-Bending	0.1473	TIA-222-G-3.2.1_300	8.9683
139	HSS2X2X3/16	OK	Axial-Bending	0.1933	TIA-222-G-3.2.1_330	4.0324
140	HSS2X2X3/16	OK	Axial-Bending	0.1543	TIA-222-G-3.2.1_210	8.9683
141	HSS2X2X3/16	OK	Axial-Bending	0.1943	TIA-222-G-3.2.1_210	4.0324
142	L3X3X3/8	OK	Axial-Bending	0.2405	TIA-222-G-3.2.1_150	4.7186
143	L3X3X3/8	OK	Axial-Bending	0.2606	TIA-222-G-3.2.1_210	0.0000
144	L3X3X3/8	OK	Axial-Bending	0.2787	TIA-222-G-3.2.1_330	0.0000
145	HSS2X2X3/16	OK	Axial-Bending	0.1641	TIA-222-G-3.2.1_60	0.0000
146	HSS2X2X3/16	OK	Axial-Bending	0.1562	TIA-222-G-3.2.1_180	4.0324
147	HSS2X2X3/16	OK	Axial-Bending	0.1767	TIA-222-G-3.2.1_120	3.5288
148	HSS2X2X3/16	OK	Axial-Bending	0.1775	TIA-222-G-3.2.1_210	3.5287
149	HSS2X2X3/16	OK	Axial-Bending	0.2136	TIA-222-G-3.2.1_0	3.5287
150	HSS2X2X3/16	OK	Axial-Bending	0.2385	TIA-222-G-3.2.1_0	0.0000
151	HSS2X2X3/16	OK	Axial-Bending	0.2200	TIA-222-G-3.2.1_120	0.0000
152	HSS2X2X3/16	OK	Axial-Bending	0.2117	TIA-222-G-3.2.1_240	0.0000
153	HSS2X2X3/16	OK	Axial-Bending	0.1105	TIA-222-G-3.2.1_270	0.0000
154	HSS2X2X3/16	OK	Axial-Bending	0.1258	TIA-222-G-3.2.1_30	0.0000
155	HSS2X2X3/16	OK	Axial-Bending	0.1213	TIA-222-G-3.2.1_210	0.5004
156	HSS2X2X3/16	OK	Axial-Bending	0.2804	TIA-222-G-3.2.1_0	0.5004
157	HSS2X2X3/16	OK	Axial-Bending	0.2687	TIA-222-G-3.2.1_300	0.5004
158	HSS2X2X3/16	OK	Axial-Bending	0.2750	TIA-222-G-3.2.1_60	0.5004
159	L3X3X3/8	OK	Axial-Bending	0.0565	TIA-222-G-3.2.1_270	0.0000
160	Pipe2STD	OK	Axial-Bending	0.0216	TIA-222-G-3.2.1_0	2.5000
161	Pipe2STD	OK	Axial-Bending	0.1501	TIA-222-G-3.2.1_210	2.5000
162	Pipe2STD	OK	Axial-Bending	0.1422	TIA-222-G-3.2.1_150	2.5000
163	Pipe2STD	OK	Axial-Bending	0.0216	TIA-222-G-3.2.1_0	2.5000
165	Pipe2STD	OK	Axial-Bending	0.0216	TIA-222-G-3.2.1_270	2.5000
166	Pipe2STD	OK	Axial-Bending	0.0755	TIA-222-G-3.2.1_30	0.0000
167	Pipe2STD	OK	Axial-Bending	0.0216	TIA-222-G-3.2.1_0	0.0000
168	Pipe2STD	OK	Axial-Bending	0.1513	TIA-222-G-3.2.1_330	0.0000
169	Pipe2STD	OK	Axial-Bending	0.1502	TIA-222-G-3.2.1_210	0.0000
170	Pipe2STD	OK	Axial-Bending	0.1376	TIA-222-G-3.2.1_210	0.0000
171	Pipe2STD	OK	Axial-Bending	0.1424	TIA-222-G-3.2.1_150	0.0000
172	Pipe2STD	OK	Axial-Bending	0.0391	TIA-222-G-3.2.1_330	0.0000
173	Pipe2STD	OK	Axial-Bending	0.0216	TIA-222-G-3.2.1_0	0.0000
174	Pipe2STD	OK	Axial-Bending	0.0679	TIA-222-G-3.2.1_150	0.0000
175	Pipe2STD	OK	Axial-Bending	0.0216	TIA-222-G-3.2.1_270	0.0000
176	Pipe2STD	OK	Axial-Bending	0.1500	TIA-222-G-3.2.1_330	2.5000
177	Pipe2STD	OK	Axial-Bending	0.1527	TIA-222-G-3.2.1_210	0.0000
178	Pipe2STD	OK	Axial-Bending	0.1503	TIA-222-G-3.2.1_30	0.0000
179	HSS2X2X3/16	OK	Axial-Bending	0.2523	TIA-222-G-3.2.1_60	0.0000
180	HSS2X2X3/16	OK	Axial-Bending	0.2860	TIA-222-G-3.2.1_0	0.0000
181	HSS2X2X3/16	OK	Axial-Bending	0.2766	TIA-222-G-3.2.1_300	0.0000
182	HSS2X2X3/16	OK	Axial-Bending	0.2346	TIA-222-G-3.2.1_0	2.6121
183	HSS2X2X3/16	OK	Axial-Bending	0.2153	TIA-222-G-3.2.1_120	2.6121
184	HSS2X2X3/16	OK	Axial-Bending	0.2075	TIA-222-G-3.2.1_240	2.6121
185	HSS2X2X3/16	OK	Axial-Bending	0.3602	TIA-222-G-3.2.1_180	1.4171
186	HSS2X2X3/16	OK	Axial-Bending	0.4057	TIA-222-G-3.2.1_210	1.4171
187	HSS2X2X3/16	OK	Axial-Bending	0.4138	TIA-222-G-3.2.1_330	1.4171
188	HSS2X2X3/16	OK	Axial-Bending	0.2842	TIA-222-G-3.2.1_150	0.0000
189	HSS2X2X3/16	OK	Axial-Bending	0.2377	TIA-222-G-3.2.1_120	0.0000
190	HSS2X2X3/16	OK	Axial-Bending	0.2971	TIA-222-G-3.2.1_30	0.0000
191	Pipe2STD	OK	Axial-Bending	0.1913	TIA-222-G-3.2.1_30	0.0000
192	Pipe2STD	OK	Axial-Bending	0.0294	TIA-222-G-3.2.1_150	0.0000
193	Pipe2STD	OK	Axial-Bending	0.1914	TIA-222-G-3.2.1_210	0.0000
194	Pipe2STD	OK	Axial-Bending	0.0294	TIA-222-G-3.2.1_330	0.0000
195	Pipe2STD	OK	Axial-Bending	0.0294	TIA-222-G-3.2.1_240	0.0000
196	Pipe2STD	OK	Axial-Bending	0.1835	TIA-222-G-3.2.1_150	0.0000
197	Pipe2STD	OK	Axial-Bending	0.0294	TIA-222-G-3.2.1_240	0.0000
198	Pipe2STD	OK	Axial-Bending	0.1831	TIA-222-G-3.2.1_150	0.0000
199	Pipe2STD	OK	Axial-Bending	0.1457	TIA-222-G-3.2.1_300	0.0000
200	Pipe2STD	OK	Axial-Bending	0.1916	TIA-222-G-3.2.1_30	0.0000
201	Pipe2STD	OK	Axial-Bending	0.0294	TIA-222-G-3.2.1_30	2.5000

202	Pipe2STD	OK	Axial-Bending	0.1911	TIA-222-G-3.2.1_210	2.5000
203	Pipe2STD	OK	Axial-Bending	0.1736	TIA-222-G-3.2.1_60	0.0000
204	Pipe2STD	OK	Axial-Bending	0.2547	TIA-222-G-3.2.1_150	0.0000
205	Pipe2STD	OK	Axial-Bending	0.0294	TIA-222-G-3.2.1_150	0.0000
206	Pipe2STD	OK	Axial-Bending	0.1911	TIA-222-G-3.2.1_330	0.0000
207	Pipe2STD	OK	Axial-Bending	0.2199	TIA-222-G-3.2.1_0	0.0000
208	Pipe2STD	OK	Axial-Bending	0.1841	TIA-222-G-3.2.1_270	0.0000

SELECTED LOAD COMBINATIONS

Load Combination	Code Check	Total	Live	Dependent	Conditional
TIA-222-G-3.2.1_0	x			-	-
TIA-222-G-3.2.1_30	x			-	-
TIA-222-G-3.2.1_60	x			-	-
TIA-222-G-3.2.1_90	x			-	-
TIA-222-G-3.2.1_120	x			-	-
TIA-222-G-3.2.1_150	x			-	-
TIA-222-G-3.2.1_180	x			-	-
TIA-222-G-3.2.1_210	x			-	-
TIA-222-G-3.2.1_240	x			-	-
TIA-222-G-3.2.1_270	x			-	-
TIA-222-G-3.2.1_300	x			-	-
TIA-222-G-3.2.1_330	x			-	-

INPUT Contents

- General:
- Geometry: [Nodes] [Supports]
- Loads: [Point Loads] [Line Loads]

OUTPUT Contents

- Nodal: [Support Reactions]
- Members:

Nodes

Units: Coordinates X, Y, Z [in]

No.	X	Y	Z	No.	X	Y	Z
1	-30.31	0.00	-17.50	2	-109.99	0.00	-63.50
3	-30.31	48.00	-17.50	4	-109.99	48.00	-63.50
5	-104.79	48.00	-60.50	6	-70.15	48.00	-40.50
7	-35.51	48.00	-20.50	8	-104.79	0.00	-60.50
9	-70.15	0.00	-40.50	10	-35.51	0.00	-20.50
11	30.31	0.00	-17.50	12	109.99	0.00	-63.50
13	30.31	48.00	-17.50	14	109.99	48.00	-63.50
15	104.79	48.00	-60.50	16	70.15	48.00	-40.50
17	35.51	48.00	-20.50	18	104.79	0.00	-60.50
19	70.15	0.00	-40.50	20	35.51	0.00	-20.50
21	0.00	0.00	35.00	22	0.00	0.00	127.00
23	0.00	48.00	35.00	24	0.00	48.00	127.00
25	0.00	48.00	121.00	26	0.00	48.00	81.00
27	0.00	48.00	41.00	28	0.00	0.00	121.00
29	0.00	0.00	81.00	30	0.00	0.00	41.00
31	99.29	48.00	-60.50	32	50.94	48.00	-60.50
33	2.60	48.00	-60.50	34	-45.75	48.00	-60.50
35	-102.04	48.00	-55.74	36	-77.87	48.00	-13.87
37	-53.69	48.00	28.00	38	-29.52	48.00	69.87
39	2.75	48.00	116.24	40	26.92	48.00	74.37
41	51.09	48.00	32.50	42	75.27	48.00	-9.37
43	99.29	0.00	-60.50	44	50.94	0.00	-60.50
45	2.60	0.00	-60.50	46	-45.75	0.00	-60.50
47	-102.04	0.00	-55.74	48	-77.87	0.00	-13.87
49	-53.69	0.00	28.00	50	-29.52	0.00	69.87
51	2.75	0.00	116.24	52	26.92	0.00	74.37
53	51.09	0.00	32.50	54	75.27	0.00	-9.37
55	-94.09	48.00	-60.50	56	-5.35	48.00	111.74
57	99.44	48.00	-51.24	58	-94.09	0.00	-60.50
59	-5.35	0.00	111.74	60	99.44	0.00	-51.24
61	65.82	0.00	-38.00	62	0.00	0.00	76.00
63	-65.82	0.00	-38.00	64	0.00	0.00	118.00
65	102.19	0.00	-59.00	66	-102.19	0.00	-59.00
67	59.82	0.00	-27.61	68	6.01	0.00	65.59
69	-6.00	0.00	65.61	70	-59.81	0.00	-27.59
71	-53.82	0.00	-38.00	72	53.80	0.00	-38.00
73	78.00	0.00	-17.11	74	53.80	0.00	-59.00
75	24.19	0.00	76.09	76	-24.19	0.00	76.11
77	-78.00	0.00	-17.09	78	-53.82	0.00	-59.00
79	93.29	48.00	-60.50	80	-99.04	48.00	-50.54
81	5.75	48.00	111.04	82	93.29	0.00	-60.50
83	-99.04	0.00	-50.54	84	5.75	0.00	111.04
85	-88.09	48.00	-60.50	86	-8.35	48.00	106.53
87	96.44	48.00	-46.03	88	-88.09	0.00	-60.50
89	-8.35	0.00	106.53	90	96.44	0.00	-46.03
113	93.29	78.00	-60.50	114	-99.04	78.00	-50.54
115	5.75	78.00	111.04	119	-88.09	78.00	-60.50
120	-8.35	78.00	106.53	121	93.29	-30.00	-60.50
122	-99.04	-30.00	-50.54	123	5.75	-30.00	111.04
127	-88.09	-30.00	-60.50	128	-8.35	-30.00	106.53
129	96.44	-30.00	-46.03	130	96.44	78.00	-46.03
131	33.94	48.00	-60.50	132	-69.37	48.00	0.85
133	35.42	48.00	59.65	134	33.94	0.00	-60.50
135	-69.37	0.00	0.85	136	35.42	0.00	59.65
137	-28.74	48.00	-60.50	138	-38.02	48.00	55.14
139	66.76	48.00	5.36	140	-28.74	0.00	-60.50
141	-38.02	0.00	55.14	142	66.76	0.00	5.36
143	33.94	78.00	-60.50	144	-69.37	78.00	0.85
145	35.42	78.00	59.65	149	-28.74	78.00	-60.50
150	-38.02	78.00	55.14	151	66.76	78.00	5.36
152	33.94	-30.00	-60.50	158	-28.74	-30.00	-60.50
159	-69.37	-30.00	0.85	165	-38.02	-30.00	55.14
166	35.42	-30.00	59.65	172	66.76	-30.00	5.36

Supports

Units: Forced Displacements Dx, Dy, Dz [in]; Dox, Doy, Doz [rad]

Node	Flag	Dx	Dy	Dz	Dox	Doy	Doz
1	111111	0.000	0.000	0.000	0.000	0.000	0.000
3	111111	0.000	0.000	0.000	0.000	0.000	0.000
11	111111	0.000	0.000	0.000	0.000	0.000	0.000
13	111111	0.000	0.000	0.000	0.000	0.000	0.000
21	111111	0.000	0.000	0.000	0.000	0.000	0.000
23	111111	0.000	0.000	0.000	0.000	0.000	0.000

Point Loads

Units: Force [lb]; Moment [lb-ft]; Coord-Sys: Local=0, Global=1;
Direction: 0=X, 1=Y, 2=Z, 3=OX, 4=OY, 5=OZ

Line Loads

Units: Force [lb/ft]; Coord-Sys: Local=0, Global=1; Direction: 0=X, 1=Y, 2=Z

Support Reactions

Units: Force Reactions Rx, Ry, Rz [lb]; Moment Reactions Rox, Roy, Roz [lb-ft]

Load Combination 2: TIA-222-G-3.2.1 0

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-2261.435	563.631	-1306.691	135.236	109.583	-291.632
3	15.065	784.137	-246.918	165.132	-386.760	-286.017
11	2186.682	544.923	-1454.417	136.692	298.334	286.509
13	-92.712	678.350	-223.593	143.704	538.940	247.719
21	93.974	663.717	-3039.372	-358.972	209.947	-3.723
23	58.426	889.938	-3490.988	-375.992	174.715	-3.794

Load Combination 3: TIA-222-G-3.2.1 30

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-3311.775	532.464	-1819.344	137.679	261.042	-275.881
3	-624.817	747.311	-502.820	154.381	-166.006	-275.689
11	722.694	567.619	-682.144	137.239	426.464	294.197
13	-984.580	739.554	233.326	157.248	663.816	269.573
21	97.084	667.690	-2538.261	-361.317	271.560	8.156
23	-48.075	870.057	-3144.872	-367.595	-0.459	-2.013

Load Combination 4: TIA-222-G-3.2.1 60

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-3647.955	513.755	-1943.886	146.151	343.079	-262.153
3	-835.968	735.431	-472.813	150.055	102.508	-272.854
11	-765.026	599.409	172.708	144.696	441.163	301.697
13	-1867.441	802.534	773.329	170.123	611.822	292.691
21	71.901	655.453	-1162.910	-358.693	259.555	17.401
23	-142.598	818.113	-2247.416	-345.671	-179.011	-0.486

Load Combination 5: TIA-222-G-3.2.1 90

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-3183.477	512.438	-1647.476	158.442	333.850	-254.140
3	-563.821	751.546	-164.865	153.256	344.517	-278.256
11	-1876.739	631.957	884.441	157.153	337.086	307.072
13	-2503.385	850.613	1253.519	178.906	398.079	310.988
21	27.028	630.013	715.400	-351.593	177.607	21.535
23	-198.545	748.128	-1041.018	-316.085	-312.947	0.385

Load Combination 6: TIA-222-G-3.2.1 120

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-2044.577	528.649	-1012.598	171.208	234.703	-253.876
3	118.246	790.999	337.444	163.030	491.287	-290.318
11	-2316.352	656.935	1265.210	171.379	141.237	309.103
13	-2722.392	871.050	1546.436	181.296	79.314	319.662
21	-22.614	598.014	2593.314	-341.791	48.613	19.517

23	-199.400	679.048	151.184	-286.814	-362.755	0.365

Load Combination 7: TIA-222-G-3.2.1_150

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-534.652	557.914	-211.857	180.919	71.092	-261.304
3	1029.038	843.013	898.385	176.716	502.054	-305.693
11	-1969.006	667.857	1212.433	183.576	-93.240	307.397
13	-2467.548	858.302	1573.008	176.675	-260.651	316.377
21	-62.629	568.133	3970.355	-331.994	-92.239	11.946
23	-144.671	629.477	1011.792	-265.764	-311.429	-0.552

Load Combination 8: TIA-222-G-3.2.1_180

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-3183.477	512.438	-1647.476	158.442	333.850	-254.140
3	-563.821	751.546	-164.865	153.256	344.517	-278.256
11	-1876.739	631.957	884.441	157.153	337.086	307.072
13	-2503.385	850.613	1253.519	178.906	398.079	310.988
21	27.028	630.013	715.400	-351.593	177.607	21.535
23	-198.545	748.128	-1041.018	-316.085	-312.947	0.385

Load Combination 9: TIA-222-G-3.2.1_210

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	2000.472	623.303	1046.617	182.162	-267.793	-289.817
3	2570.821	930.005	1620.478	201.328	151.313	-330.282
11	527.191	639.511	-36.961	189.880	-428.451	295.054
13	-921.499	754.181	865.787	152.775	-661.229	280.007
21	-84.372	544.978	3986.622	-322.900	-267.675	-10.862
23	56.856	632.717	971.573	-267.148	11.937	-3.938

Load Combination 10: TIA-222-G-3.2.1_240

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	2346.448	642.243	1172.590	173.518	-350.319	-303.507
3	2787.552	942.227	1590.343	205.800	-111.155	-333.155
11	2011.953	607.240	-900.977	182.188	-439.436	287.355
13	-42.351	690.645	320.863	139.829	-612.661	256.584
21	-64.373	557.973	2618.829	-326.091	-257.100	-20.098
23	147.859	684.366	79.341	-289.095	189.658	-5.480

Load Combination 11: TIA-222-G-3.2.1_270

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	1886.914	644.136	884.419	161.362	-338.421	-311.833
3	2516.618	927.048	1285.304	202.866	-342.908	-328.110
11	3128.633	573.622	-1620.361	169.454	-333.336	281.376
13	594.720	642.200	-162.639	130.909	-397.819	238.017
21	-27.568	583.877	740.668	-333.545	-178.111	-24.396
23	199.620	753.811	-1127.393	-318.539	313.174	-6.340

Load Combination 12: TIA-222-G-3.2.1_300

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	743.159	628.270	256.352	148.902	-236.115	-312.448
3	1830.183	888.187	786.033	193.215	-485.466	-316.368
11	3576.174	548.056	-1999.615	155.185	-139.180	278.938
13	818.572	621.953	-453.943	128.453	-74.530	229.380
21	19.192	615.582	-1144.660	-343.134	-50.646	-22.548
23	199.809	822.648	-2325.156	-347.644	353.391	-6.293

Load Combination 13: TIA-222-G-3.2.1_330

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-776.565	598.774	-545.825	139.362	-72.015	-305.059
3	913.808	835.830	225.218	179.383	-502.277	-300.955
11	3231.784	537.616	-1937.669	143.223	91.581	280.844
13	567.442	635.257	-475.591	133.146	268.858	232.972
21	64.397	644.705	-2529.260	-352.364	91.639	-14.985
23	148.603	872.514	-3190.989	-368.671	302.891	-5.359

Hazards by Location

Search Information

Address: 88 Parsonage Hill Rd, Northford, CT 06472, USA

Coordinates: 41.36798499999999, -72.80925400000001

Elevation: 332 ft

Timestamp: 2019-07-21T20:54:13.214Z

Hazard Type: Wind

ASCE 7-16

MRI 10-Year	75 mph
MRI 25-Year	84 mph
MRI 50-Year	92 mph
MRI 100-Year	99 mph
Risk Category I	110 mph
Risk Category II	121 mph
Risk Category III	⚠ 130 mph

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

Risk Category IV	⚠ 134 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

ASCE 7-10

MRI 10-Year	78 mph
MRI 25-Year	88 mph
MRI 50-Year	95 mph
MRI 100-Year	102 mph
Risk Category I	116 mph
Risk Category II	126 mph
Risk Category III-IV	⚠ 136 mph

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

ASCE 7-05

ASCE 7-05 Wind Speed	⚠ 111 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

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

"DO MACRO UPGRADE"

CT03XC030
88 PARSONAGE HILL ROAD
NORTHFORD, CT 06472
NEW HAVEN COUNTY

KEY MAP

SCALE = N.T.S.

SITE LOCATION INFORMATION

SITE ID NUMBER:	CT03XC030
SITE NAME:	NORTHFORD / OSHENCOWSKI
SITE ADDRESS:	88 PARSONAGE HILL ROAD NORTHFORD, CT 06472
PARCEL ID:	51 A 7
CENSUS TRACT:	186200
CENSUS BLOCK:	2011
PROPERTY OWNER:	JEAN SZWABOWSKI & J J OCHENKOWSKI JR
APPLICANT:	SPRINT 6100 SPRINT PARKWAY OVERLAND PARK, KS 66251
COUNTY:	NEW HAVEN COUNTY

SITE CHARACTERISTICS

LATITUDE:	41.36801
LONGITUDE:	-72.809302
STRUCTURE TYPE:	SELF-SUPPORT TOWER
LOCATION OF PROPOSED EQUIPMENT:	EXISTING ANTENNA PLATFORM
STRUCTURE HEIGHT:	±190'-0" AGL
ANTENNA (RAD CENTER):	±190'-0" AGL (ALPHA) ±190'-0" AGL (BETA) ±190'-0" AGL (GAMMA)

SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
C-1	COMPOUND PLAN & GENERAL NOTES
C-2	EXISTING & FINAL ANTENNA PLANS
C-3	ELEVATION, B.O.M., & FINAL EQUIPMENT PLAN
C-4	CONSTRUCTION DETAILS
C-5	FIBER PLUMBING DIAGRAM
C-6	CABLE COLOR CODING
C-7	EQUIPMENT DETAILS
E-1	GROUNDING DETAILS
E-2	DC POWER DETAILS & PANEL SCHEDULES

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Mountain Lakes, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

Sprint
6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

Cherundolo Consulting

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4		
3	07/22/19	ISSUED AS FINAL
2	09/25/17	ISSUED FOR CONSTRUCTION
1	08/16/17	REVISED PER NEW RFDS
0	05/17/17	INITIAL SUBMISSION

DRAWN BY:	AM
CHECKED BY:	DTS
SCALE:	AS NOTED
JOB NO:	17042-CHE

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR OFFICIAL USE UNLESS ACCOMPANIED BY THE STAMPED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

NICHOLAS D'BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

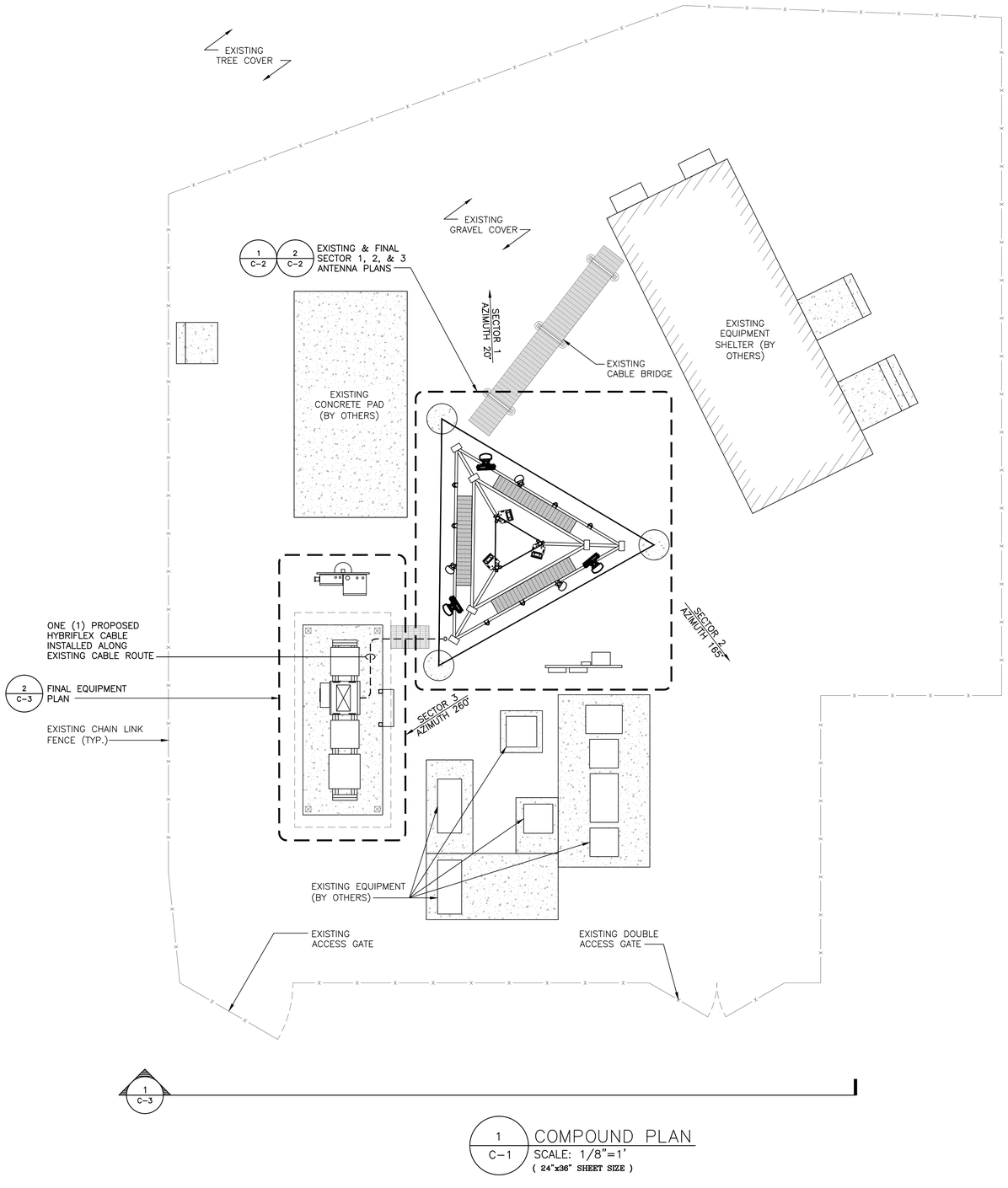
CT03XC030
88 PARSONAGE HILL ROAD
NORTHFORD, CT 06472
NEW HAVEN COUNTY

DRAWING TITLE:

TITLE SHEET

DRAWING SHEET: 1 OF 10

T-1



1 C-1 COMPOUND PLAN
SCALE: 1/8"=1'
(24"x36" SHEET SIZE)

GENERAL NOTES:

1. SUBJECT PROPERTY IS KNOWN AS TAX PARCEL ID 51 A 7, CENSUS TRACT 186200, CENSUS BLOCK 2011 AS SHOWN THE OFFICIAL TAX MAP OF THE TOWN OF NORTHFORD, CT.
2. THE APPLICANT PROPOSES TO INSTALL THREE (3) NEW ANTENNAS AND THREE (3) NEW RADIO HEADS ON PROPOSED ANTENNA MOUNTS (TYPICAL FOR ONE (1) PER SECTOR).
3. CONTRACTOR SHALL NOT COMMENCE ANY WORK UNTIL HE OBTAINS, AT HIS OWN EXPENSE, ALL INSURANCE REQUIRED BY SPRINT, THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
4. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATED "ISSUED FOR CONSTRUCTION".
5. SITE INFORMATION SHOWN TAKEN FROM PLANS PREPARED BY FULLERTON ENGINEERING DESIGN FOR SPRINT'S INSTALLATION ON THIS FACILITY. DRAWINGS ENTITLED "SPRINT, SITE NAME: NORTHFORD/OSHENCOWSKI, SPRINT NUMBER: CT03XC030" DATED 03/03/14 REVISED 03/31/14. ADDITIONAL SITE INFORMATION WAS SUPPLEMENTED WITH A LIMITED SITE VISIT BY COM-EX CONSULTANTS 05/10/17.
6. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES OR OTHER PUBLIC AUTHORITIES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THIS PROJECT IN ACCORDANCE WITH THE OVERALL INTENT OF THESE DRAWINGS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
10. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
11. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
12. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
13. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
14. THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
15. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.
16. THE CONTRACTOR IS TO REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. THE CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND RELATED PARTIES. THE SUBCONTRACTOR SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT EFFECTS THEIR WORK.
17. THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON THE SITE AT ALL TIMES AND INSURE THE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA CONTRACTOR FURNISH 3 SETS OF REDLINE "AS-BUILT" DRAWINGS TO SPRINT UPON COMPLETION OF THE WORK.
18. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAT BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL INCLUDED AS PART OF THE WORK.
19. ALL MATERIAL PROVIDED BY IS TO BE REVIEWED BY THE CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTOR PRIOR TO INSTALLATION. ANY DEFICIENCIES TO PROVIDE MATERIALS SHALL BE BROUGHT TO THE CONSTRUCTION MANAGERS ATTENTION IMMEDIATELY.
20. THE MATERIALS INSTALLED SHALL MEET REQUIREMENTS OF CONTRACTORS DOCUMENTS. NO SUBSTITUTIONS ARE ALLOWED.
21. THE CONTRACTOR SHALL COORDINATE ALL CIVIL, STRUCTURAL AND ELECTRICAL DRAWINGS FOR THE LOCATIONS OF ALL OPENINGS, RECESSES, BUILT-IN WORK, ETC..
22. THE CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTACT DOCUMENTS.
23. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.
24. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST-ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAND PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
25. THE CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
27. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OR WHERE LOCAL CODES OR REGULATIONS MAY TAKE PRECEDENCE.
28. THE CONTRACTOR SHALL REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
29. THE CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE AND DISPOSE OF ALL DEBRIS AND RUBBISH. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
30. BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, TEMPORARY WORKS, UNUSED AND USELESS MATERIALS, RUBBISH AND TEMPORARY STRUCTURES.
31. DESIGN REQUIREMENTS PER INTERNATIONAL BUILDING CODE 2015, CT STATE BUILDING CODE 2018, ANSI/TIA-222 STRUCTURAL STANDARDS FOR ANTENNA STRUCTURES, NFPA 780 – LIGHTNING PROTECTION CODE AND NATIONAL ELECTRIC CODE.

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OVERLAND PARK, KS 66251

Cherundolo Consulting

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4		
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0	05/17/17	INITIAL SUBMISSION

DRAWN BY:	AM
CHECKED BY:	DTS
SCALE:	AS NOTED
JOB NO:	17042-CHE

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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

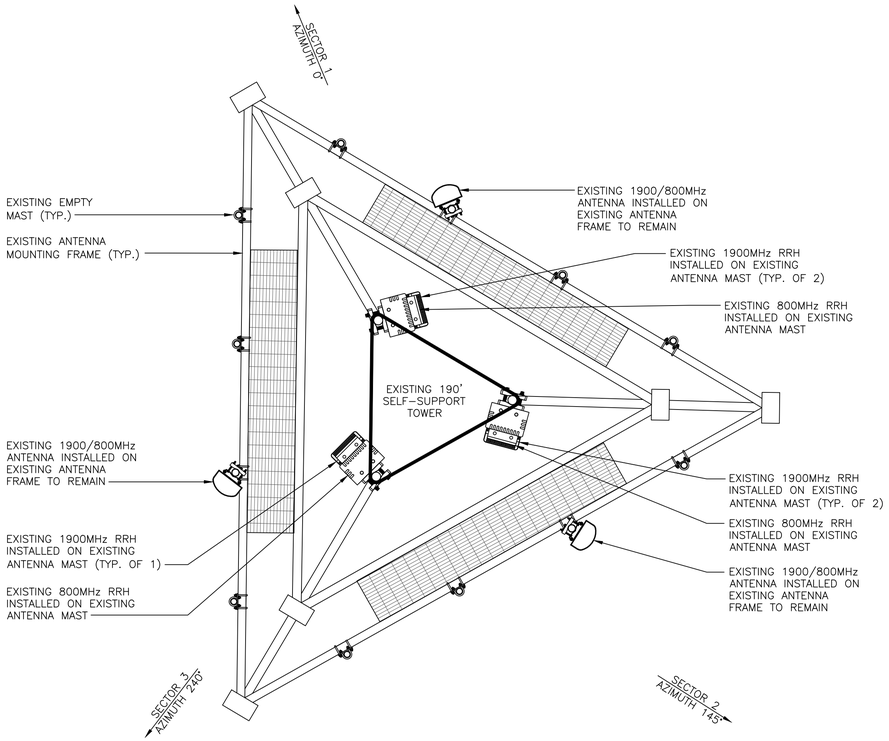
CT03XC030
88 PARSONAGE HILL ROAD
NORTHFORD, CT 06472
NEW HAVEN COUNTY

DRAWING TITLE:

COMPOUND PLAN & GENERAL NOTES

DRAWING SHEET: 2 OF 10

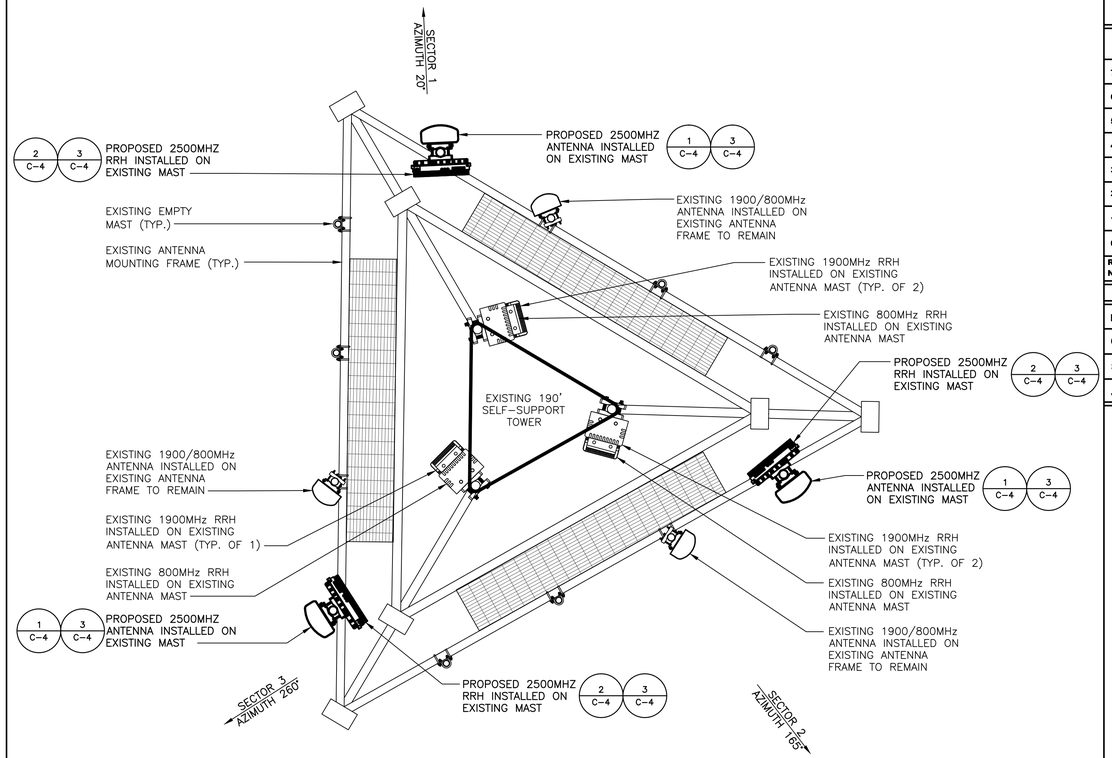
C-1



1 / C-2 EXISTING SECTOR 1, 2, & 3 ANTENNA PLAN

SCALE: 1/2"=1'

LOADING SHOWN ON THIS SET OF DRAWINGS IS BASED ON THE STRUCTURAL ANALYSIS PERFORMED BY COM-EX CONSULTANTS, DATED JULY 22, 2019. CONTRACTOR TO NOTIFY COM-EX AND THE CARRIER IN THE EVENT SITE CONDITIONS DIFFER FROM WHAT IS REPRESENTED IN THE STRUCTURAL ANALYSIS. NO SUBSTITUTIONS ARE PERMITTED WITHOUT ADDITIONAL ANALYSIS.



2 / C-2 FINAL SECTOR 1, 2, & 3 ANTENNA PLAN

SCALE: 1/2"=1'

COM-EX Consultants
115 Route 46
Suite E39
Mountain Lakes, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

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SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
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PROFESSIONAL ENGINEER, CT LIC. No. 28643

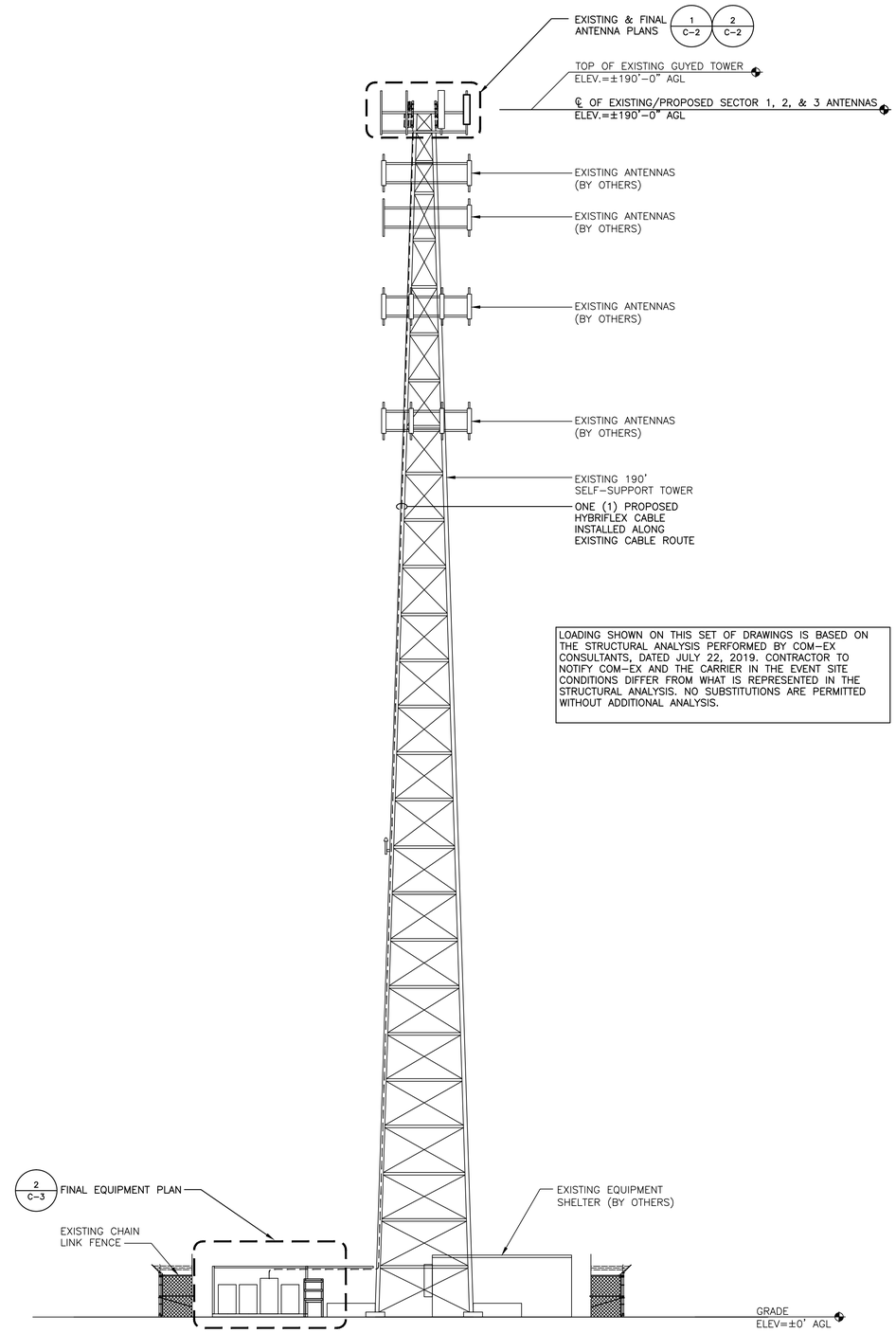
CT03XC030
88 PARSONAGE HILL ROAD
NORTHFORD, CT 06472
NEW HAVEN COUNTY

DRAWING TITLE:

EXISTING & FINAL ANTENNA PLANS

DRAWING SHEET: 3 OF 10

C-2

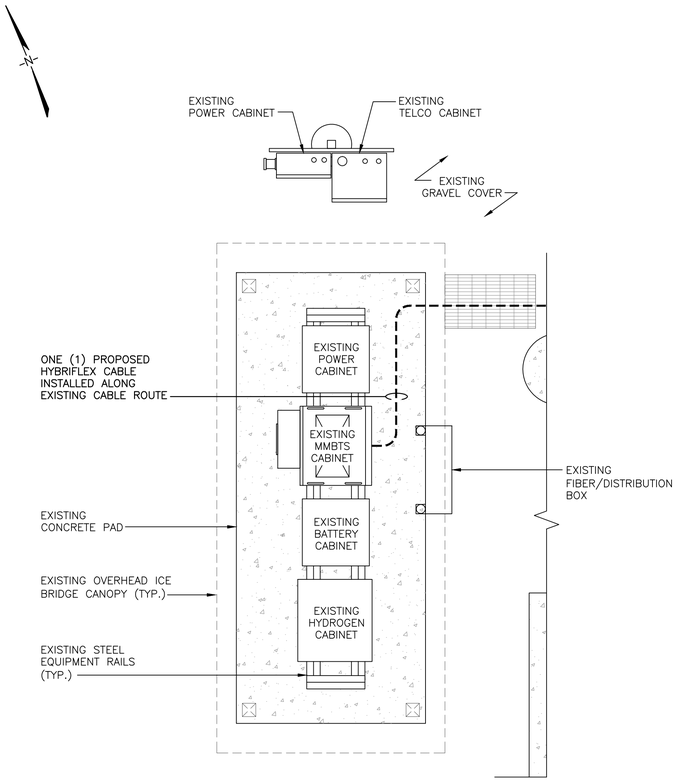


LOADING SHOWN ON THIS SET OF DRAWINGS IS BASED ON THE STRUCTURAL ANALYSIS PERFORMED BY COM-EX CONSULTANTS, DATED JULY 22, 2019. CONTRACTOR TO NOTIFY COM-EX AND THE CARRIER IN THE EVENT SITE CONDITIONS DIFFER FROM WHAT IS REPRESENTED IN THE STRUCTURAL ANALYSIS. NO SUBSTITUTIONS ARE PERMITTED WITHOUT ADDITIONAL ANALYSIS.

1 C-3 ELEVATION
SCALE: 3/32"=1'
(24"x36" SHEET SIZE)

BILL OF MATERIALS

	DESCRIPTION	QUANTITY EACH	DIMENSIONS (HxWxD)	WEIGHT (LBS) EACH	MANUFACTURER: PART/ MODEL#
ANTENNAS	2500 MHz PANEL ANTENNA – SECTOR 1	1	56.3"x12.6"x6.3"	56.2 LBS W/OUT MOUNTING HARDWARE	RFS: APXVTM14-ALU-120
	2500 MHz RRH, 8x20-25	1	26.1"x18.6"x6.7"	70 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	2500 MHz PANEL ANTENNA – SECTOR 2	1	56.3"x12.6"x6.3"	56.2 LBS W/OUT MOUNTING HARDWARE	RFS: APXVTM14-ALU-120
	2500 MHz RRH, 8x20-25	1	26.1"x18.6"x6.7"	70 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	2500 MHz PANEL ANTENNA – SECTOR 3	1	56.3"x12.6"x6.3"	56.2 LBS W/OUT MOUNTING HARDWARE	RFS: APXVTM14-ALU-120
	2500 MHz RRH, 8x20-25	1	26.1"x18.6"x6.7"	70 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	DESCRIPTION	QUANTITY EACH	DIMENSIONS (LENGTH)	WEIGHT (LBS/FOOT)	MANUFACTURER: SIZE/PART/MODEL#
CABLES	SECTOR 1 HYBRIFLEX RUN (BTS TO RRH)	1	±225'	1.3 LBS	RFS: 1-1/4" / HB114-1-08U4-M5J
	SECTOR 1 COAX CABLE JUMPERS	11	10'	N/A	LDF4-50 (OR EQUIVALENT)
	SECTOR 1 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD
	SECTOR 2 HYBRIFLEX RUN (BTS TO RRH)	N/A	N/A	N/A	N/A
	SECTOR 2 COAX CABLE JUMPERS	11	10'	N/A	LDF4-50 (OR EQUIVALENT)
	SECTOR 2 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD
	SECTOR 3 HYBRIFLEX RUN (BTS TO RRH)	N/A	N/A	N/A	N/A
	SECTOR 3 COAX CABLE JUMPERS	11	10'	N/A	LDF4-50 (OR EQUIVALENT)
	SECTOR 3 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD



2 C-3 FINAL EQUIPMENT PLAN
SCALE: 3/8"=1'

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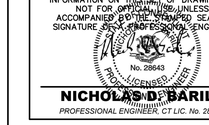

NICHOLAS D. BARILE
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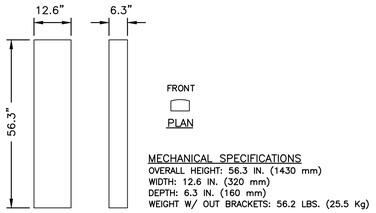
CT03XC030
88 PARSONAGE HILL ROAD
NORTHFORD, CT 06472
NEW HAVEN COUNTY

DRAWING TITLE:

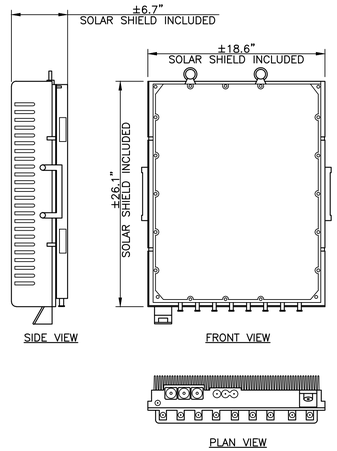
ELEVATION, B.O.M. & FINAL EQUIPMENT PLAN

DRAWING SHEET: 4 OF 10

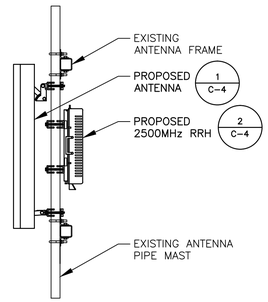
C-3



1 / C-4 2500MHz ANTENNA
RFS: APXVTM14-ALU-I20
SCALE: NTS



2 / C-4 2500MHz RRH DETAIL
SCALE: N.T.S.



3 / C-4 SECTOR 1, 2, & 3 ANTENNA
& RRH INSTALLATION DETAIL
SCALE: N.T.S.

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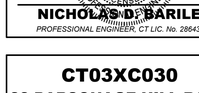

NICHOLAS D'BARILE
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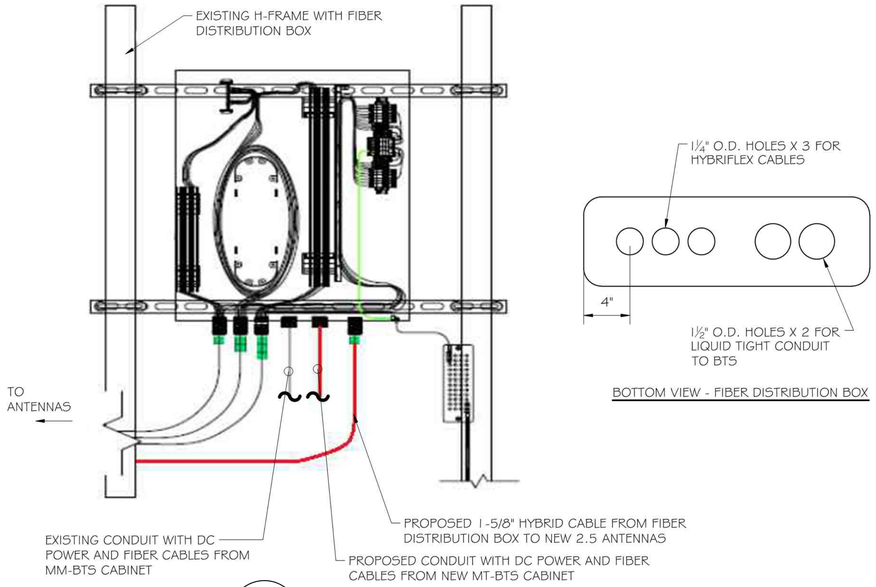
CT03XC030
88 PARSONAGE HILL ROAD
NORTHFORD, CT 06472
NEW HAVEN COUNTY

DRAWING TITLE:

CONSTRUCTION DETAILS

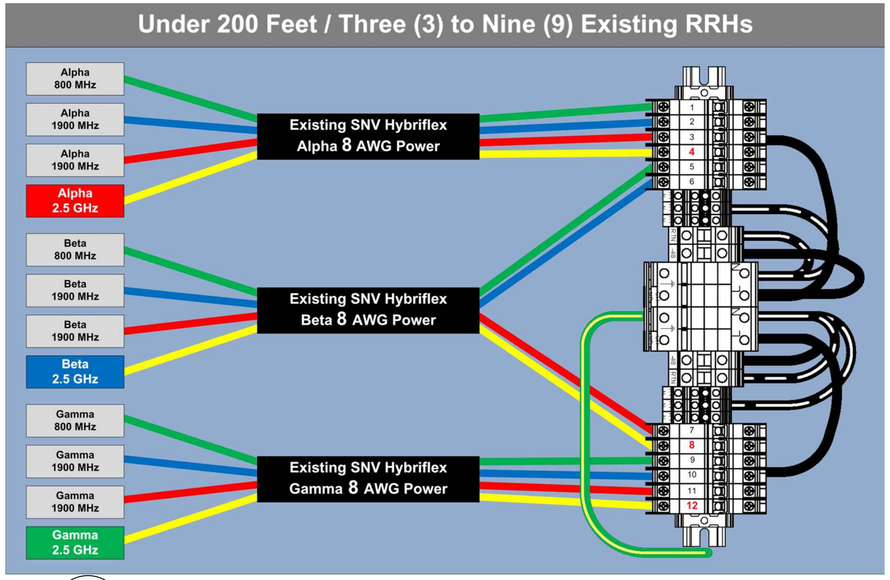
DRAWING SHEET: 5 OF 10

C-4

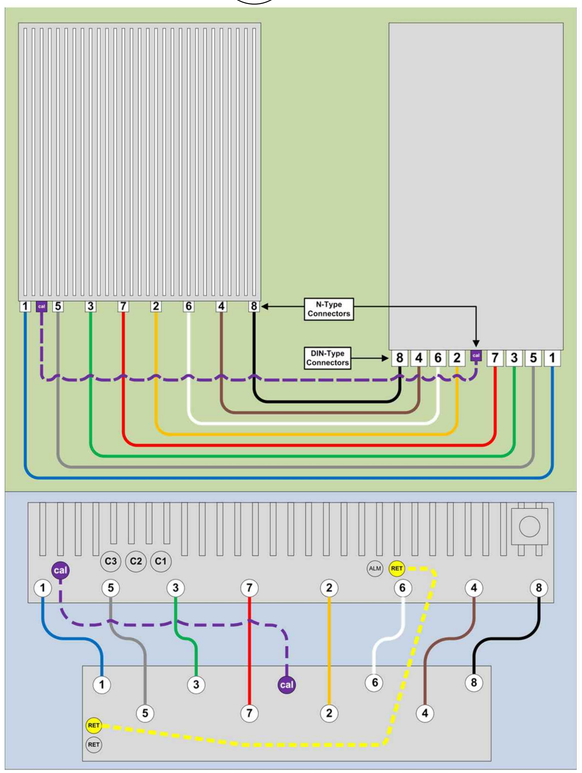


BOTTOM VIEW - FIBER DISTRIBUTION BOX

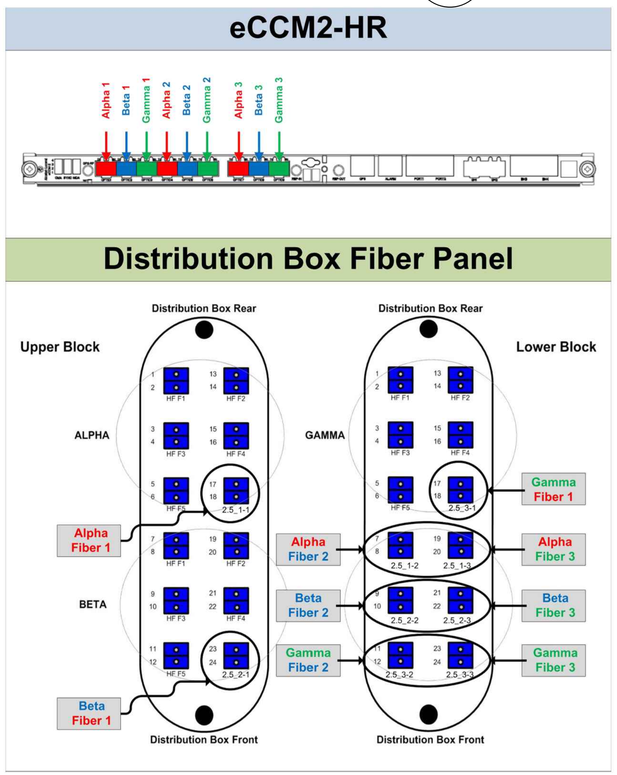
1 / C-5 TYPICAL FIBER DISTRIBUTION BOX DETAIL
SCALE: NTS



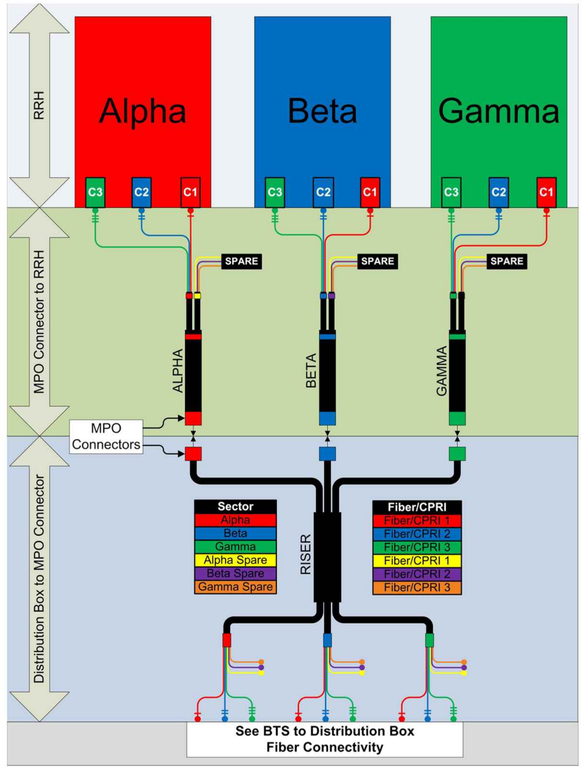
2 / C-5 RRH TO DISTRIBUTION BOX POWER CONNECTIVITY DETAIL
SCALE: NTS



3 / C-5 8T8R DETAIL
SCALE: NTS



4 / C-5 BTS TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL
SCALE: NTS



5 / C-5 RRH TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL
SCALE: NTS

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CT03XC030
88 PARSONAGE HILL ROAD
NORTHFORD, CT 06472
NEW HAVEN COUNTY

DRAWING TITLE:

FIBER PLUMBING DIAGRAM

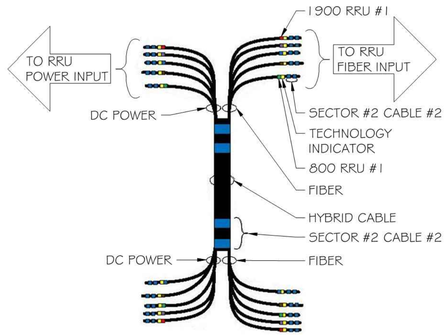
DRAWING SHEET: 6 OF 10

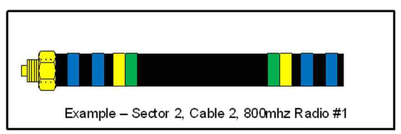
C-5

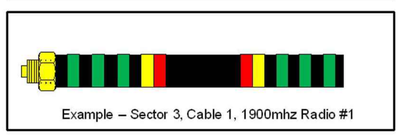
Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue	No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2	Blue	Blue	Blue
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

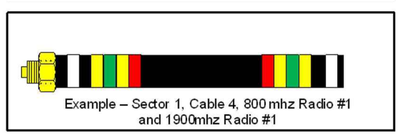
2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL




Example – Sector 2, Cable 2, 800mhz Radio #1


Example – Sector 3, Cable 1, 1900mhz Radio #1


Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1

1 / C-6 COLOR CODING CHARTS
SCALE: NTS

CABLE MARKING NOTES

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.
2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAKOUT UNIT. THERE SHALL BE 1" SPACE BETWEEN EACH RING.
3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.
4. THE 2" COLORED TAPE(S) SHALL BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.
5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE SECOND CABLE IDENTIFIED BY BLUE BANDS OF TAPE
6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.
7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.
8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

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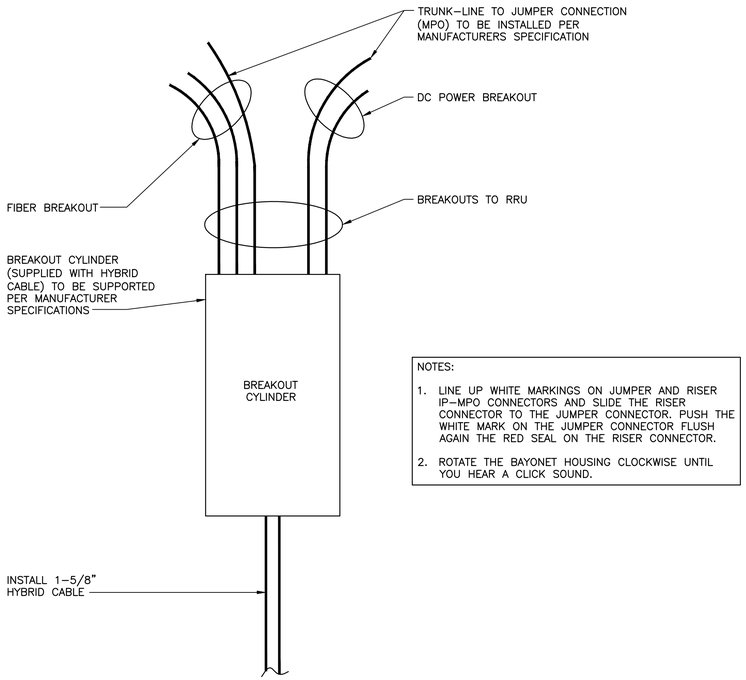
CT03XC030
88 PARSONAGE HILL ROAD
NORTHFORD, CT 06472
NEW HAVEN COUNTY

DRAWING TITLE:

CABLE COLOR CODING

DRAWING SHEET: 7 OF 10

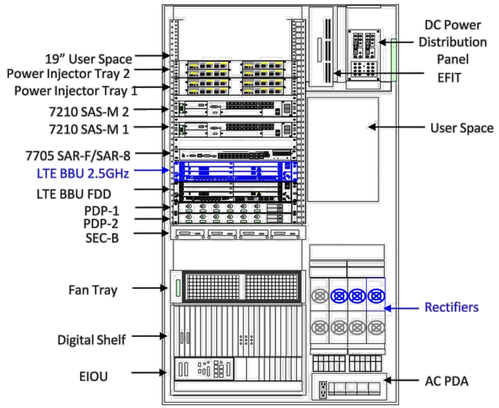
C-6



NOTES:

1. LINE UP WHITE MARKINGS ON JUMPER AND RISER IP–MPO CONNECTORS AND SLIDE THE RISER CONNECTOR TO THE JUMPER CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAIN THE RED SEAL ON THE RISER CONNECTOR.
2. ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL YOU HEAR A CLICK SOUND.

1 / C–7 HYBRID BREAKOUT DETAIL
SCALE: NTS



2 / C–7 EXISTING MMBS CABINET
SCALE: NTS

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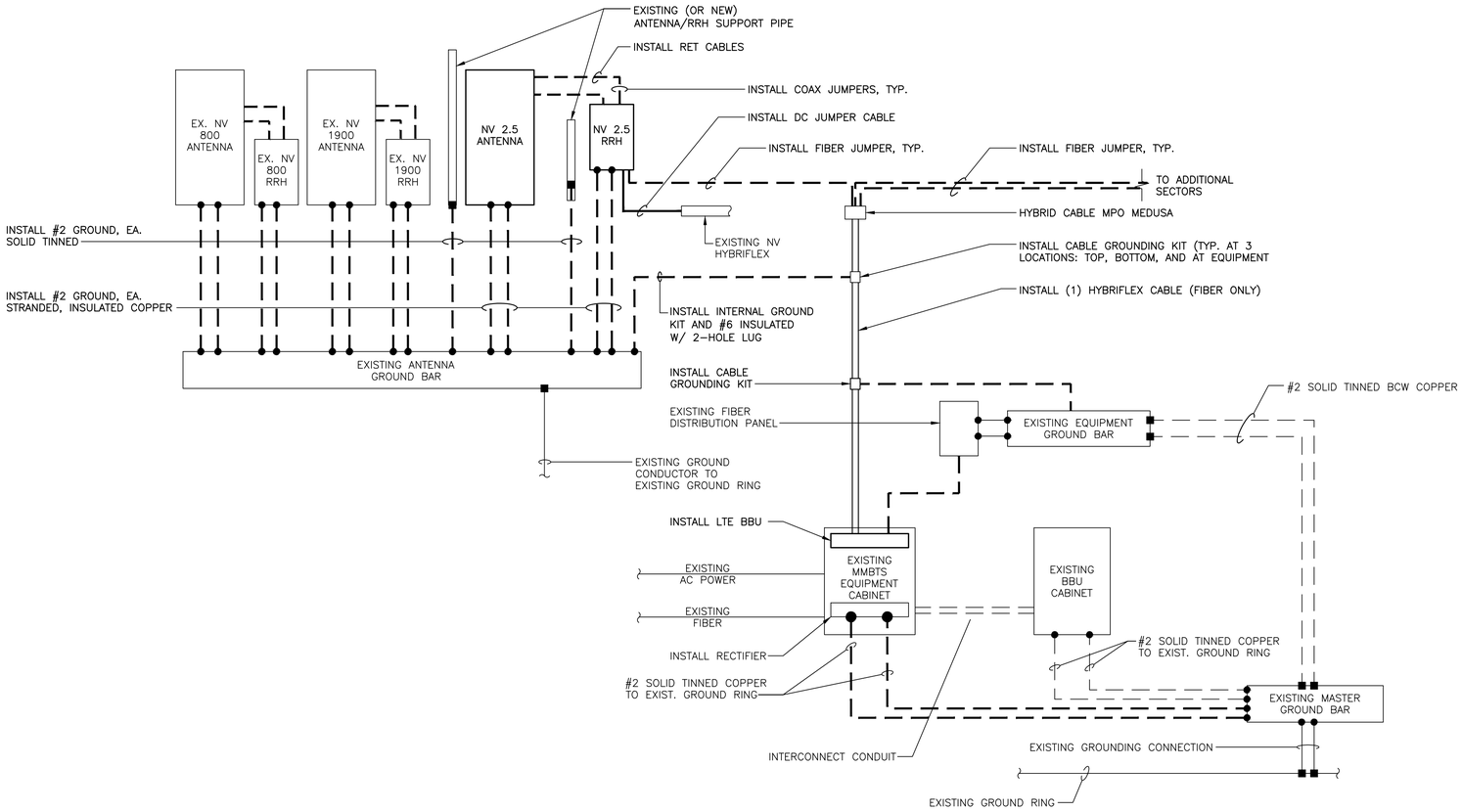
CT03XC030
88 PARSONAGE HILL ROAD
NORTHFORD, CT 06472
NEW HAVEN COUNTY

DRAWING TITLE:

EQUIPMENT DETAILS

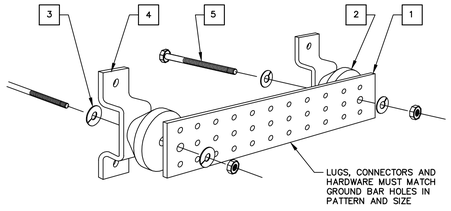
DRAWING SHEET: 8 OF 10

C-7



1 / E-1 TYPICAL POWER & GROUNDING ONE-LINE DIAGRAM

SCALE: N.T.S.



LEGEND

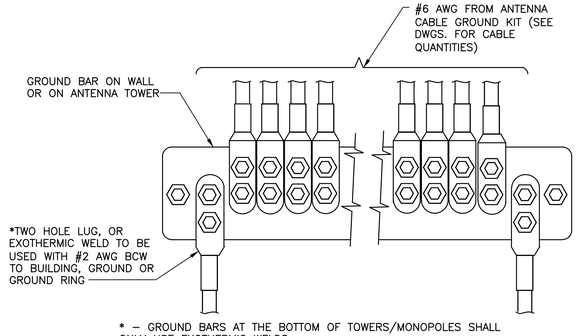
1. COPPER GROUND BAR, 7/16"X 4" X 20", NEWTON INSTRUMENT CO. CAT. NO. B-6142. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 X 1" H.H.C.S.BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1

GROUND BAR SCHEDULE

TYPE	QTY.	MANUFACTURER	CAT. NO.	REMARKS
MGB	2	HARGER	GB14420TMGB	OR EQUAL
CGB	3	HARGER	GB14412TMGB	OR EQUAL

2 / E-1 TYPICAL GROUND BAR DETAIL

SCALE: NTS



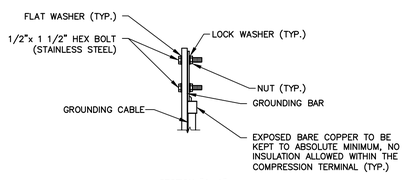
* - GROUND BARS AT THE BOTTOM OF TOWERS/MONOPOLES SHALL ONLY USE EXOTHERMIC WELDS.

- ATTACH "DO NOT DISCONNECT" LABELS TO GROUND BARS. CAN USE BRASS TAG "DO NOT DISCONNECT" AT EACH HYBRIFLEX GROUND POINT OR BACK-A-LITE PLATE LABEL ON GROUND BAR.

- CONNECT SEQUENCE- BOLT/WASHER/NO-OX/GROUND BAR/NO-OX/WASHER/LOCK-WASHER/NUT. THIS IS REPEATED FOR EACH LUG CONNECTION POINT.

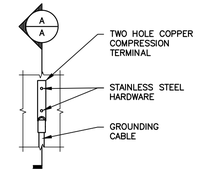
3 / E-1 TYPICAL GROUND BAR CONNECTION PLAN

SCALE: NTS



SECTION "A-A"

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



ELEVATION

4 / E-1 TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: NTS

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
4. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
5. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THNN INSULATION.
6. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
7. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
8. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
9. GROUNDING SHALL COMPLY WITH NEC ART. 250.
10. GROUND HYBRIFLEX CABLE SHIELDS AT 3 LOCATIONS USING MANUFACTURER'S HYBRIFLEX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
11. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
12. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
13. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
14. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
15. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
16. BOND ANTENNA MOUNTING BRACKETS, HYBRIFLEX CABLE GROUND KITS, AND RRHs TO EGB PLACED NEAR THE ANTENNA LOCATION.
17. BOND ANTENNA EGB'S AND MGB TO GROUND RING.
18. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULT FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
19. CONTRACTOR SHALL CONDUCT ANTENNA, HYBRIFLEX CABLES, AND RRH RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.
20. CONTRACTOR (CERTIFIED ELECTRICIAN) SHALL CHECK CAPACITY OF EXISTING SERVICE & PANEL ON SITE TO DETERMINE IF CAPACITY EXISTS TO ACCOMMODATE THE ADDED LOAD OF THIS PROJECT. ADVISE ENGINEER OF ANY DISCREPANCY.

COM-EX Consultants
115 Route 46
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OVERLAND PARK, KS 66251

Cherundolo Consulting

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4		
3	07/22/19	ISSUED AS FINAL
2	09/25/17	ISSUED FOR CONSTRUCTION
1	08/16/17	REVISED PER NEW RFDS
0	05/17/17	INITIAL SUBMISSION

DRAWN BY:	AM
CHECKED BY:	DTS
SCALE:	AS NOTED
JOB NO:	17042-CHE

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR OFFICIAL USE UNLESS ACCOMPANIED BY THE STAMPED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

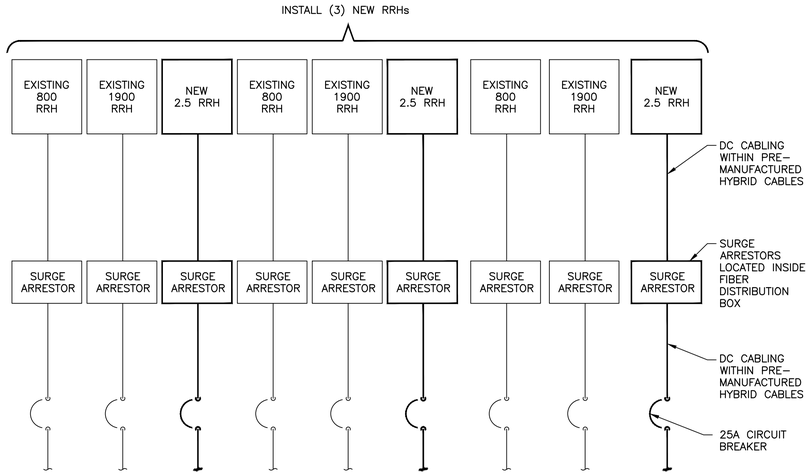
CT03XC030
88 PARSONAGE HILL ROAD
NORTHFORD, CT 06472
NEW HAVEN COUNTY

DRAWING TITLE:

GROUNDING DETAILS

DRAWING SHEET: 9 OF 10

E-1



1 / E–2 DC ONE–LINE DIAGRAM
SCALE: NTS

A/C PANEL SCHEDULE						
VOLTAGE:	240V/120		PANEL STATUS:	EXISTING	N TO GROUND BOND:	YES
MAIN BREAKER:	200 AMP		MODEL NUMBER:	TBD	INTERNAL TVSS:	YES
MOUNT:	AT GRADE		PHASE:	1	WIRE:	3
ENCLOSURE:	NEMA 3R		BUSS RATING:	200 AMP	GROUND BAR:	YES
			NEUTRAL BAR:	YES		

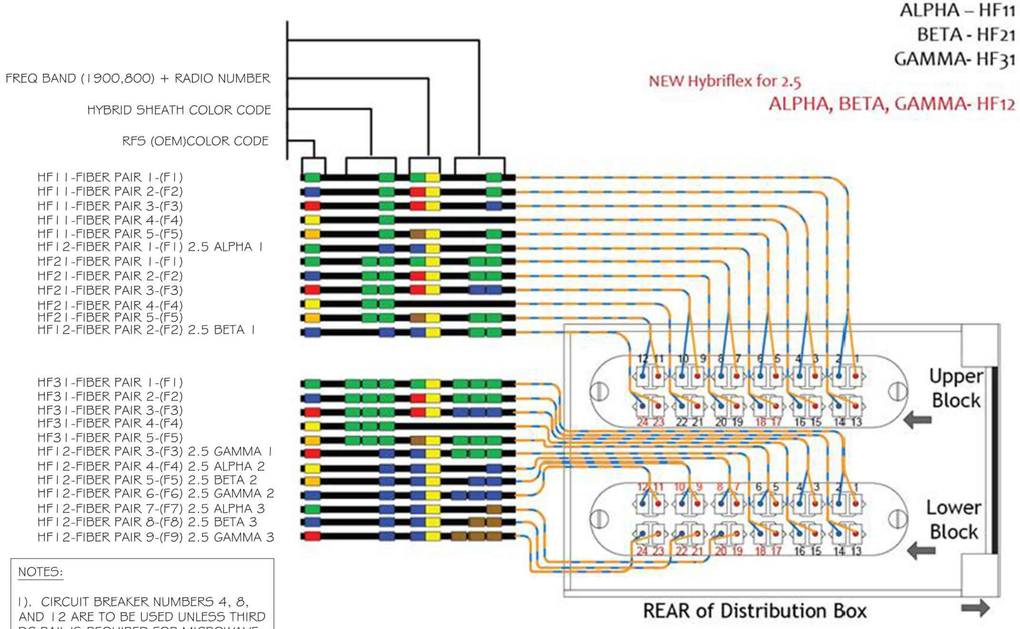
2 / E–2 AC PANEL SCHEDULE
SCALE: NTS

Each sector has separate Hybriflex cable .
Hybriflex cable naming as follows:

ALPHA – HF11
BETA - HF21
GAMMA- HF31

NEW Hybriflex for 2.5

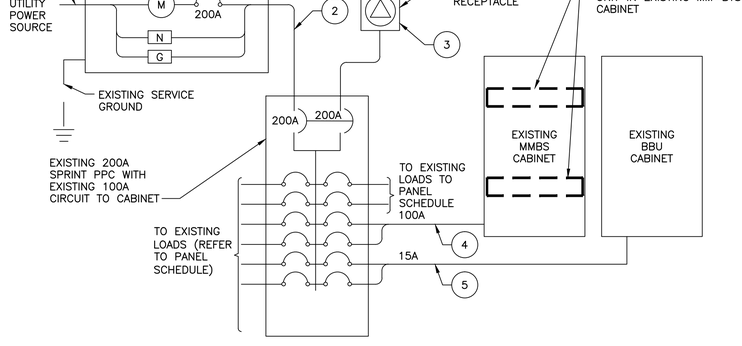
ALPHA, BETA, GAMMA- HF12



NOTES:

1). CIRCUIT BREAKER NUMBERS 4, 8, AND 12 ARE TO BE USED UNLESS THIRD DC RAIL IS REQUIRED FOR MICROWAVE.
2). USE DC POWER LOOP.
3). ALL UNUSED DC FEEDERS TO BE TERMINATED WITH WIRE NUTS AND TAPED.
4). REMOVE ALL DEBRIS FROM INTERIOR OF FIBER DISTRIBUTION BOX WHEN COMPLETE.

3 / E–2 TYPICAL FIBER DISTRIBUTION
SCALE: NTS



CIRCUIT SCHEDULE			
NO.	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/ DISCONNECT	EXISTING
2	METER/ DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EX. MMBS CABINET	(3) #2 AWG, (1) #8 GND IN 1–1/2" CONDUIT
5	TRANSFER & LOAD CENTER	EX. BBU CABINET	(2) #12 AWG, (1) #12 GND IN 3/4" CONDUIT

4 / E–2 ELECTRICAL ONE–LINE DIAGRAM
SCALE: NTS

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DRAWING TITLE:

DC POWER DETAILS & PANEL SCHEDULES

DRAWING SHEET: 10 OF 10

E-2