July 7, 2022

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

Re:	**Notice of Exempt Modification – Antenna and RRU Add**
Property Address:	**864 Opening Hill Road, Madison, CT 06443**
Applicant:	**AT&T Mobility, LLC**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16- 50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 140-feet on an existing 180-foot Self Support Tower owned by NORTH MADISON VOLUNTEER FIRE COMPANY INC at 864 Opening Hill Road, Madison, CT 06443. AT&T now intends to remove three (3) 4.5' Powerwave 7770 Panel Antennas, each currently installed in position [1], and remove three (3) 6' HPA-65R-BU6AA Panel Antenna, each currently installed in position [3]. AT&T intends to install three (3) AIR6419 B77G Panel Antennas and three (3) AIR6449 B77D Stacked Panel Antennas, each installed in position [3], and relocate three (3) Kathrien 800-10965 Panel Antennas to from position [1] to position [2] on all sectors. In addition, AT&T intends to remove six (6) Powerwave – LGP 21401 TMAS, currently installed on position [1] on all sectors. AT&T will install three (3) RRUs-4478 B14, to be installed on position [2] on all sectors, install one (1) DC.Fiber Squid with (2) 6AWG6 DC Trunks and (1) 18-Pair Fiber Trunk and six (6) Y-Cables to their equipment configuration. All of the changes will take place on the existing antenna mount. This modification/proposal includes B2, B5, and B12 hardware that is both 4G(LTE) and 5GNR capable through remote software configuration and either or both services may be turned on or off at various times

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-5I0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Erin Mannix – Town Planner Town of Madison, CT and Peggy Lyons – First Selectwoman, Town of Madison, CT both at 8 Campus Drive, Madison, CT 06443. A copy of this letter is being sent to NORTH MADISON VOLUNTEER FIRE COMPANY INC at 864 Opening Hill Road, Madison, CT 06443 as the property and tower owner.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **TS-AT&T-076-020724** - AT&T Wireless PCS, LLC d/b/a AT&T Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 864 Opening Hill Road, Madison, Connecticut.
- **EM-CING-128-076-048-102-097-061221** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at Grist Mill Road, Simsbury; 864 Opening Hill Road, Madison; 101 Burbank Road, Ellington; 273 Boombridge Road, North Stonington; and 5 Fairfield Drive, Newtown, Connecticut.
- **EM-CING-076-081124** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 864 Opening Hill Road, Madison, Connecticut.
- **EM-AT&T-076-121228** - AT&T Mobility notice of intent to modify an existing telecommunications facility located at 864 Opening Hill Road, Madison, Connecticut.
- **EM-AT&T-076-190326** - AT&T Mobility, LLC notice of intent to modify an existing telecommunications facility located at 864 Opening Hill Road, Madison, Connecticut.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 140-foot level of the 180-foot Monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

Kristina Cottone

CC w/enclosures:
Peggy Lyons – First Selectwoman, Town of Madison, CT
Erin Mannix – Town Planner Town of Madison, CT
NORTH MADISON VOLUNTEER FIRE COMPANY INC -- Property Owner + Tower Owner

TOWN OF MADISON

CONNECTICUT

LAND USE OFFICE

8 CAMPUS DRIVE
MADISON, CONNECTICUT 06443-2563
(203) 245-5632
FAX (203) 245-5613

MADISON PLANNING AND ZONING COMMISSION

CERTIFICATION OF SPECIAL EXCEPTION PERMIT OR
MODIFICATION OF SPECIAL EXCEPTION PERMIT

APPL. NO.: 97-5D

DATE OF APPROVAL: April 17, 1997

This certifies that on the above date a MODIFICATION OF SPECIAL EXCEPTION PERMIT was granted by the Madison Planning and Zoning Commission to:

OWNER OF RECORD: North Madison Volunteer Fire Department

under the provisions of Sec. 4.7 of the Zoning Regulations of the Town of Madison on property located at:

STREET ADDRESS OR LOCATION: 864 OPENING HILL ROAD

TO ALLOW: Construction of a 180 ft. communications tower to replace existing tower, installation of equipment building and emergency back-up generator waiving requirements of 1) a traffic study; 2) a waste water report and engineering study; and 3) final floor plans for the equipment building. The temporary installation of the "Cell on Wheels" was also approved. This approval is conditioned on plastic slats being placed in the chain link fence to obscure the view of the materials enclosed.

In accordance with Section 4.6 of said Regulations, this approval and permit are conditioned upon completion of all proposed improvements in accordance with approved plans within five years from date of approval, and shall become null and void in the event of failure to complete such improvements within said five year period or any extension thereof granted by the Commission.

Appl.: Owner

William B. Bilcheck
Chairman, Planning and Zoning Commission

Received for Record _____, 19____

at _____ h _____ m

_____
Signature of Town Clerk

FRM.SEPERMIT 6/91

copy sent May 30, 1997

TOWN OF MADISON
CONNECTICUT
LAND USE OFFICE

8 CAMPUS DRIVE
MADISON, CONNECTICUT 06443-2563
(203) 245-5632
FAX (203) 245-5613

May 24, 1999

CERTIFIED MAIL

North Madison Volunteer Fire Company, Inc.
864 Opening Hill Road
Madison, CT 06443

Re: Application #99-26D: 864 OPENING HILL ROAD. Request for Modification of Special Exception Permit to allow relocation of the site for emergency generator, enlarge the fenced coumpound, change the style of the fence, add landscaping and permit Nextel Communications ands Sprint PCS to install radio equipment shelters inside the enlarged compound.

Gentlemen:

At their regular meeting on May 20, 1999, the Planning and Zoning Commission approved the application above referenced as presented at the meeting.

Before this Modification of Special Exception Permit will become effective, it is necessary to file a Certificate in the Land Records of the Town for which there is a $10.00 filing fee. At your earliest convenience, please forward this amount to our office so that we may file this Certificate in your behalf. Your check should be made payable to the Town of Madison.

When this Certificate is filed at the end of the appeal period, you may apply for building permits through normal Building Department procedures.

Very truly yours,

William McMinn
Planning and Zoning Administrator

: drk

Copy to: Ronald C. Clark, Nextel Communications

864 OPENING HILL RD

Location	864 OPENING HILL RD	**MBLU**	134/ 17/ / /
Unique ID#	00665700	**Owner**	NORTH MADISON VOLUNTEER FIRE COMPANY INC
Assessment	$938,700	**Appraisal**	$1,341,000
PID	7027	**Building Count**	1
Dev. Map			

Current Value

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2021	$1,211,400	$0	$7,000	$122,600	$1,341,000

Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2021	$848,000	$0	$4,900	$85,800	$938,700

Owner of Record

Owner	NORTH MADISON VOLUNTEER FIRE COMPANY INC	**Sale Price**	$0
Co-Owner		**Book & Page**	0044/0130
Care Of		**Sale Date**	

Ownership History

Ownership History			
Owner	**Sale Price**	**Book & Page**	**Sale Date**
NORTH MADISON VOLUNTEER FIRE COMPANY INC	$0	0044/0130	

Building Information

Building 1 : Section 1

Year Built: 1971
Living Area: 10,480

Building Attributes	
Field	**Description**

Style:	Fire Station
Model	Commercial
Grade	Average
Stories:	2
Occupancy	1.00
Exterior Wall 1	Brick Veneer
Exterior Wall 2	Vinyl Siding
Roof Structure	Gambrel
Roof Cover	Asphalt Shngl.
Interior Wall 1	Minim/Masonry
Interior Wall 2	Plywood Panel
Interior Floor 1	Concr-Finished
Interior Floor 2	Carpet
Heating Fuel	Oil
Heating Type	Hot Water
AC Type	None
Struct Class	
Bldg Use	Municipal Fire
Total Rooms	
Total Bedrms	00
Total Baths	0
Fireplace	
Xtra Fireplaces	
1st Floor Use:	903L
Heat/AC	None
Frame Type	Masonary
Baths/Plumbing	Average
Ceiling/Wall	None
Rooms/Prtns	Average
Wall Height	10.00
% Comn Wall	0.00

Building Photo

(https://images.vgsi.com/photos/MadisonCTPhotos//\01\01\79\69.jpg)

Building Sub-Areas (sq ft)			
Code	**Description**	**Gross Area**	**Living Area**
FUS	Finished Upper Story	6,000	6,000
BAS	First Floor	4,480	4,480
FGR	Garage	1,520	0
UGR	Basement Garage	1,520	0
		13,520	10,480

Extra Features

Extra Features
No Data for Extra Features

Land

Land Use

Use Code	903L
Description	Municipal Fire
Zone	RU-1

Land Line Valuation

Size (Acres)	0.38

lblIndfront

Outbuildings

Outbuildings						
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	Paving Asphalt			10000.00 S.F.	$7,000	1

Radio Frequency Safety Survey Report Predictive (RFSSRP) Prepared For AT&T

Site Name:	MADISON-SR 79
FA#	10035048
USID:	26049
Site ID:	CTL02033
Address:	864 OPENING HILL ROAD MADISON, CT 06443
County:	NEW HAVEN
Latitude:	41.3572981
Longitude:	-72.6387489
Structure Type:	SELF-SUPPORT
Property Owner:	AMERICAN TOWER
Pace Job:	MRCTB054479
RFDS Technology:	5G NR 1SR CBAND

Report Information

Report Writer: Sunita Sati

Report Generated Date: 06-04-2022

Compliance Statement

AT&T Mobility Compliance Statement: Based on the information collected, AT&T Mobility will be Compliant when the remediation recommended in section 5 or appropriate remediation determined by AT&T is implemented

Table of Contents

1. Executive Summary 3
1.1 Site Summary 3
1.2 Signage Summary (Proposed) 3
1.3 List of Documents used to prepare this Report 3
2. Site Scale Map 4
3. Antenna Inventory 5
4. Predicted Emission 7
4.1 Predictive Cumulative MPE Contribution from All Sources at Antennas Centerline Level (140 ft.) 7
4.2 Predictive Cumulative MPE Contribution from All Sources at Ground Level (0 ft.) 8
5. Statement of Compliance 9
5.1 Statement of AT&T Mobility Compliance 9
Appendix A – Statement of Limiting Conditions 11
Appendix B – FCC Guidelines and Emissions Threshold Limits 12
Appendix C – Rules & Regulations 14
Appendix D – General Safety Recommendations 15
Appendix E – References 16
Appendix F – Proprietary Statement 19

1. Executive Summary

1.1 Site Summary

Max Predictive Spatial Average MPE% & Location on Site (General Public)	17504.8% on Antennas Centerline Level & at AT&T Sec-A antenna no. #A2-1
Max Predictive Spatial Average MPE% at Ground Level (General Public)	1.0%
AT&T Mobility Site Compliance	AT&T Mobility will be Compliant by implementing remediation recommended as per section 5 in this report.

TABLE 1: Site Summary

1.2 Signage Summary (Proposed)

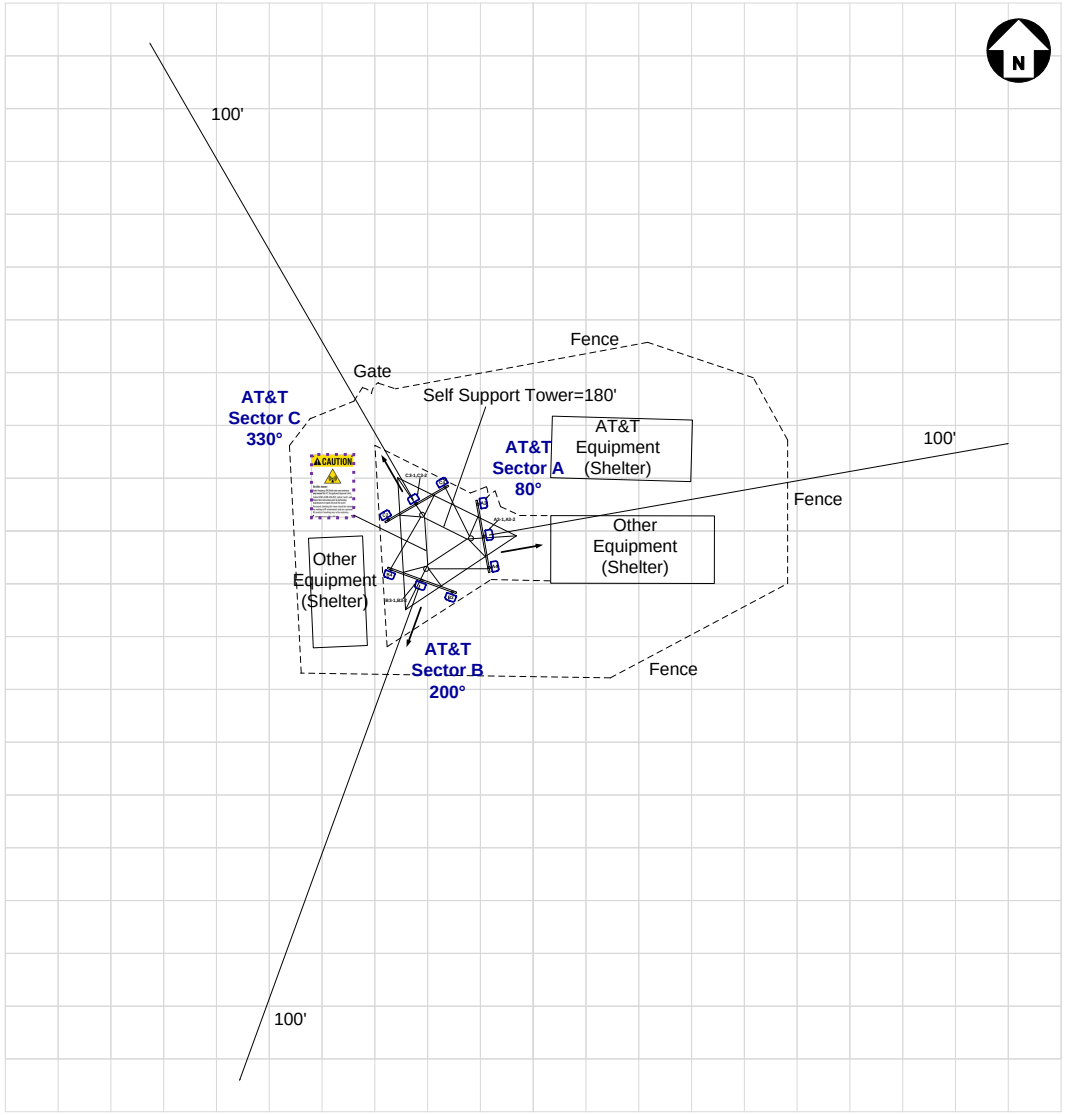
AT&T Signage Locations	Sign Type									
	Safety Instructions	Notice Sign 2	Caution Sign 2	Caution Sign 2B	Caution Sign 2C	Caution 7"x7"	Warning Sign 1B	RF Exposure Map	Lock	Barriers
Access Point(s)				1						
Alpha										
Beta										
Gamma										

TABLE 2: Signage Summary (Proposed)

1.3 List of Documents used to prepare this Report

- *10035048_AE201_220510_CTL02033_Rev2_S&S*
- *NEW-ENGLAND_CONNECTICUT_CTL02033_2021-5G-NR-Radio_5G-NR-1SR-CBAND_hs357s_2051A11KRA_10035048_26049_11-16-2021_Final-Approved_v3.00*

2. Site Scale Map



AT&T Antenna	Proposed	Proposed Signage									Map Scale = 10 ft
Panel	Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	Lock	
OMNI	Posts										

3. Antenna Inventory

Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (0)	HBW (0)	Antenna Gain (dBd)	Antenna Aperture (ft)	Transmitter Power (Watts)	Total Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)
A2	AT&T	Kathrein	80010965	Panel	700	LTE	80	62	12.65	6.5	120.00	0.5	1968.71	3229.84
A2	AT&T	Kathrein	80010965	Panel	2100	LTE/5G	80	62	16.15	6.5	120.00	0.5	4407.39	7230.72
A3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	80	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	80	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A4	AT&T	CCI	DMP65R-BU6EA-K	Panel	700	LTE	80	73	11.95	6	120.00	0.5	1675.64	2749.04
A4	AT&T	CCI	DMP65R-BU6EA-K	Panel	850	5G	80	62	12.45	6	120.00	0.5	1880.10	3084.47
A4	AT&T	CCI	DMP65R-BU6EA-K	Panel	1900	LTE/5G	80	71	15.75	6	120.00	0.5	4019.59	6594.49
B2	AT&T	Kathrein	80010965	Panel	700	LTE	200	62	12.65	6.5	120.00	0.5	1968.71	3229.84
B2	AT&T	Kathrein	80010965	Panel	2100	LTE/5G	200	62	16.15	6.5	120.00	0.5	4407.39	7230.72
B3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	200	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	200	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B4	AT&T	CCI	DMP65R-BU6EA-K	Panel	700	LTE	200	73	11.95	6	120.00	0.5	1675.64	2749.04
B4	AT&T	CCI	DMP65R-BU6EA-K	Panel	850	5G	200	62	12.45	6	120.00	0.5	1880.10	3084.47
B4	AT&T	CCI	DMP65R-BU6EA-K	Panel	1900	LTE/5G	200	71	15.75	6	120.00	0.5	4019.59	6594.49
C2	AT&T	Kathrein	80010965	Panel	700	LTE	330	62	12.65	6.5	120.00	0.5	1968.71	3229.84
C2	AT&T	Kathrein	80010965	Panel	2100	LTE/5G	330	62	16.15	6.5	120.00	0.5	4407.39	7230.72
C3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	330	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	330	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C4	AT&T	CCI	DMP65R-BU6EA-K	Panel	700	LTE	330	73	11.95	6	120.00	0.5	1675.64	2749.04
C4	AT&T	CCI	DMP65R-BU6EA-K	Panel	850	5G	330	62	12.45	6	120.00	0.5	1880.10	3084.47
C4	AT&T	CCI	DMP65R-BU6EA-K	Panel	1900	LTE/5G	330	71	15.75	6	120.00	0.5	4019.59	6594.49

Table 3.1: Antenna Inventory Table

Note: **^ Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.**
* 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP

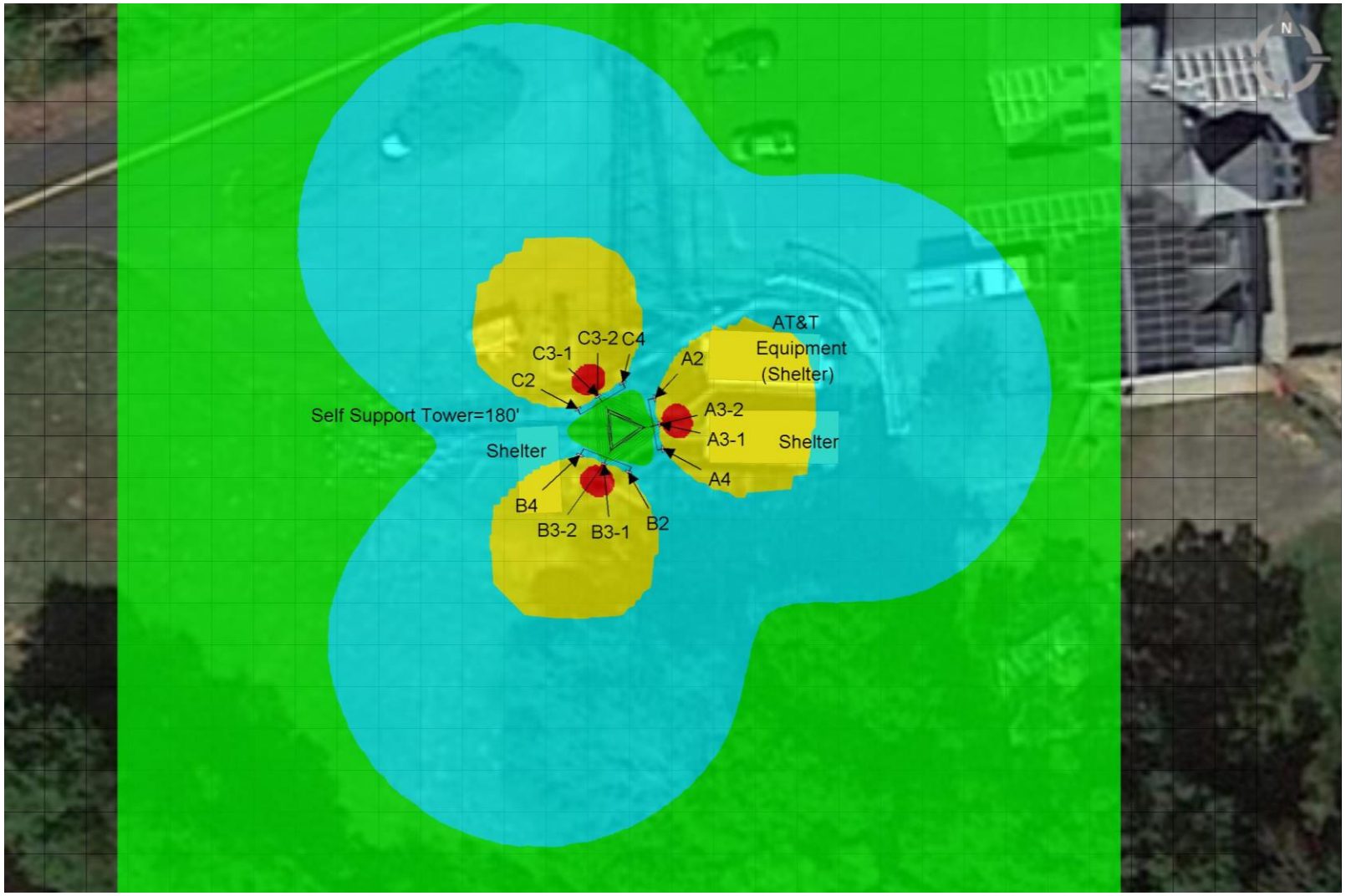
Antenna Heights (Z)

Ant ID	Operator	Antenna Radiation Centerline	Z-Height from Ground
A2	AT&T	140.00	136.75
A3-1	AT&T	141.78	140.50
A3-2	AT&T	138.23	136.95
A4	AT&T	140.00	137.00
B2	AT&T	140.00	136.75
B3-1	AT&T	141.78	140.50
B3-2	AT&T	138.23	136.95
B4	AT&T	140.00	137.00
C2	AT&T	140	136.75
C3-1	AT&T	141.775	140.50
C3-2	AT&T	138.225	136.95
C4	AT&T	140.00	137.00

Table 3.2: Antenna Height(s) Summary Table

4. Predicted Emission

4.1 Predictive Cumulative MPE Contribution from All Sources at Antennas Centerline Level (140 ft.)



Max. Predictive Spatial Average MPE% = **17504.8%**

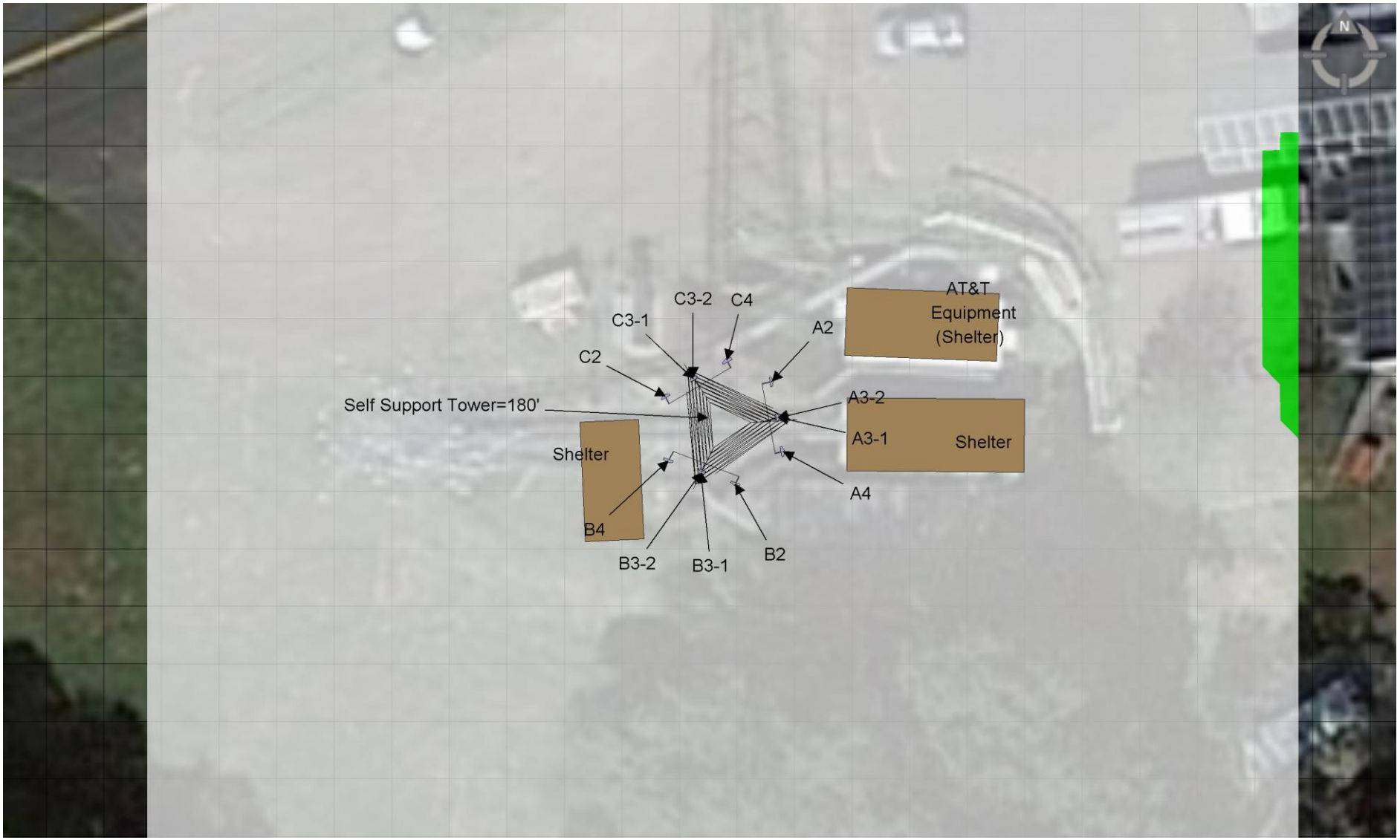
Proposed Barrier
Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.2 Predictive Cumulative MPE Contribution from All Sources at Ground Level (0 ft.)



Max. Predictive Spatial Average MPE% = **1.0%**

Proposed Barrier
Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

5. Statement of Compliance

5.1 Statement of AT&T Mobility Compliance

At the time of our Analysis, AT&T Mobility is required to take action to fulfill their Obligations to comply with the FCC's mandate as defined in OET-65

Recommendations

AT&T Alpha Sector:

- No Action Required

AT&T Beta Sector:

- No Action Required

AT&T Gamma Sector:

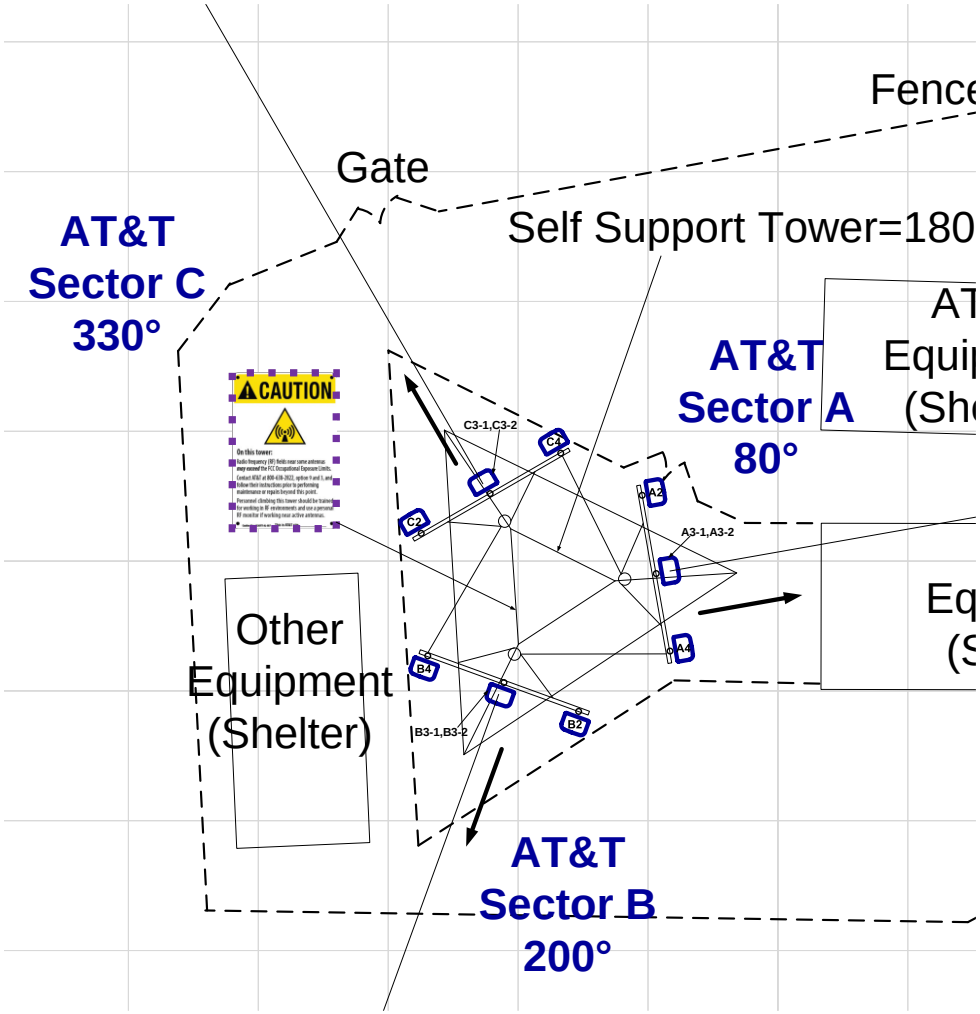
- No Action Required

Tower:

- One Caution 2B Sign to be posted on the Tower at climbing access, facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 10. (1 Total Sign)

Recommendations Map – Detailed View

AT&T Alpha, Beta & Gamma Sectors



AT&T Antenna		Proposed		Proposed Signage									Map Scale = 10 ft
	Panel		Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	Lock	
	OMNI		Posts										

Appendix A – Statement of Limiting Conditions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at full power at all times. AT&T has further recommended to assume a 75% duty cycle of maximum radiated power for all LTE & 5G carriers (& consider 100% duty cycle for all UMTS carriers).

In this site compliance report, it is assumed that Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS^ antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.

AT&T recommended to consider - For C-BAND and/or DoD AAS^ antenna(s) 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP.

AT&T recommended to use worst-case tilts for the simulations.

*[1] **Power Reduction Factor**: IEC Standard 62232: 2017 allows for a statistically conservative power density model to more realistically define the RF exposure area. AT&T recommends a "0.32" factor to calculate the "Actual Maximum" (time averaged) power value, which accounts for "Beam Scanning," "Scheduling," and "RBS Utilization" This recommended value is a conservative figure modelled and supported by other vendors and through measurements published in scientific articles and white papers by IEEE and others. Those publication are listed below:*

1. IEEE Access, Time-Averaged Realistic Maximum Power Levels for the Assessment of RF Exposure for 5G Radio Base Stations Using Massive MIMO (Published Sept. 18, 2017 / BJÖRN THORS, ANDERS FURUSKÄR, DAVIDE COLOMBI, AND CHRISTER TÖRNEVIK)
2. IEEE Explore, A Statistical Approach for RF Exposure Compliance Boundary Assessment in Massive MIMO Systems (Published Jan. 25, 2018 / Paolo Baracca, Andreas Weber, Thorsten Wild, Christophe Grangeat)
3. IEEE Access, In-situ Measurement Methodology for the Assessment of 5G NR Massive MIMO Base Station Exposure at Sub-6 GHz Frequencies (Published Dec. 20, 2019 / SAM AERTS, LEEN VERLOOCK, MATTHIAS VAN DEN BOSSCHE, DAVIDE COLOMBI, LUC MARTENS, CHRISTER TÖRNEVIK AND WOUT JOSEPH)
4. Applied Sciences, Analysis of the Actual Power and EMF Exposure from Base Stations in a Commercial 5G Network (Published July 30, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraju and Christer Törnevik)
5. Ofcom Technical Report, Electromagnetic Field (EMF) measurements near 5G mobile phone base stations (Published Feb. 21, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraju and Christer Törnevik)

MobileComm believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor). Thus, at any time, if power density measurements were made, we believe the real time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modelling in this way, MobileComm has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Other Carrier" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, MobileComm will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, MobileComm uses the closest frequency in the antenna's range that corresponds to the highest Maximum Exposure Limit (MPE), resulting in a conservative analysis.

Appendix B – FCC Guidelines and Emissions Threshold Limits

All power density values used in this report were 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 µW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (µW/cm2). The general population exposure limit for the 700 and 800 MHz Bands is approximately 467 µW/cm2 and 567 µW/cm2 respectively, and the general population exposure limit for the 1900 MHz PCS and 2100 MHz AWS bands is 1000 µW/cm2. 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, have been properly trained in RF safety 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, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-I,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-I,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

Appendix C – Rules & Regulations

Explanation of Applicable Rules and Regulations

FCC has set forth guidelines in OET Bulletin 65 for human exposure to radio frequency electromagnetic fields. Currently, there are two different levels of MPE - General Public MPE and Occupational MPE. An individual classified as Occupational can be defined as an individual who has received appropriate RF training and meets the conditions outlined below. General Public is defined as anyone who does not meet the conditions of being Occupational. FCC Rules and Regulations define compliance in terms of total exposure to total RF energy, regardless of location of or proximity to the sources of energy.

It is the responsibility of all licensees to ensure these guidelines are maintained at all times. It is the ongoing responsibility of all licensees composing the site to maintain ongoing compliance with FCC rules and regulations.

A building owner or site manager can use this report as part of an overall RF Health and Safety Policy. It is important for building owners/site managers to identify areas in excess of the General Population MPE and ensure that only persons qualified as Occupational are granted access to those areas.

Occupational Environment Explained

The FCC definition of Occupational exposure limits apply to persons who:

- *are exposed to RF energy as a consequence of their employment;*
- *have been made aware of the possibility of exposure; and*
- *can exercise control over their exposure.*

FCC guidelines go further to state that persons must complete RF Safety Awareness training and must be trained in the use of appropriate personal protective equipment.

In order to consider this site an Occupational Environment, the site must be controlled to prevent access by any individuals classified as the General Public. Compliance is also maintained when any non-occupational individuals (the General Public) are prevented from accessing areas indicated as Red or Yellow in the attached RF Emissions diagram. In addition, a person must be aware of the RF environment into which they are entering. This can be accomplished by an RF Safety Awareness class, and by appropriate written documentation such as this Site Compliance Report.

Appendix D – General Safety Recommendations

The following are general recommendations appropriate for any site with accessible areas in excess of 100% General Public MPE. These recommendations are not specific to this site. These are safety recommendations appropriate for typical site management, building management, and other tenant operations.

1. All individuals needing access to the main site should be instructed to read and obey all posted placards and signs.

2. The site should be routinely inspected and this or similar report updated with the addition of any antennas or upon any changes to the RF environment including:

- *adding new antennas that may have been located on the site*
- *removing of any existing antennas*
- *changes in the radiating power or number of RF emitters*

3. Post the appropriate SAFETY INSTRUCTIONS, NOTICE, CAUTION & WARNING sign at the main site access point(s) and other locations as required. Note: Please refer to RF Exposure Diagrams in the report section above, to inform everyone who has access to this site that beyond posted signs there may be levels in excess of the limits prescribed by the FCC. The signs below are examples of signs meeting FCC guidelines.

4. Ensure that the site door remains locked (or appropriately controlled) to deny access to the general public if deemed as policy by the building/site owner.

5. For a General Public environment the five color levels identified in measured RF emission diagram can be interpreted in the following manner:

- *White represents areas predicted to be greater than or equal to 0% and less than 1% of the MPE general public limits*
- *Green represents areas predicted to be greater than or equal to 1% and less than 100% of the MPE general public limits*
- *Blue represents areas predicted to be greater than or equal to 100% and lesser than 500% of the MPE general public limits.*
- *Yellow represents areas predicted to be greater than or equal to 500% and lesser than 5000% of the MPE general public limits.*
- *Red areas indicates predicted levels greater than or equal to 5000% of the MPE general public limits.*

Appendix E – References

1 - FCC Definition

FCC defines an Occupational or Controlled environment as one where persons are exposed to RF fields as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Typical criteria for an Occupational or Controlled environment is restricted access (i.e. locked doors, gates, etc.) to areas where antennas are located coupled with proper RF warning signage.

FCC defines a site as a General Public or Uncontrolled environment when human exposure to RF fields occurs to the general public or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over the exposure. Typical criteria for a General Public or Uncontrolled environment are unrestricted access (i.e. unlocked or no restrictions) to areas where antennas are located without proper RF warning signage being posted.

2 - Physical Testing measurement procedure and Tools

The Narda Broadband Field Meter NBM-550 can make rapid conformance measurements with evaluation in the time domain when used in conjunction EA5091 probe. This probe is a so-called Shaped Probe, i.e. it is frequency weighted so that it automatically takes account of the FCC Occupational limit values. To collect data, the probe is pointed towards the potential source(s) of EME radiation and moved slowly from ground level up to slightly above head height (approx. 6 ft).

Spatial Average Measurement A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.

3 - Site Safety Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: *Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.*

Training and Qualification Verification: *All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).*

Physical Access Control: *Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:*

- *Locked door or gate*
- *Alarmed door*
- *Locked ladder access*
- *Restrictive Barrier at antenna locations (e.g. Chain link with posted RF Sign)*

RF Signage: *Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.*

Assume all antennas are active: *Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.*

Maintain a 3 foot clearance from all antennas: *There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.*

Rooftop RF Emissions Diagram: *Section 4 of this report contains an RF Emissions Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas on the rooftop. This analysis is all theoretical and assumes a duty cycle of 75% for each transmitting antenna at full power. This analysis is a worst case scenario. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.*

4 - Definitions

Compliance- *The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.*

Decibel (dB) – *A unit for measuring power or strength of a signal.*

Duty Cycle – *The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 75% corresponds to continuous operation.*

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – *The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna, this product is divided by the cable losses*

Effective Radiated Power (ERP) – *In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.*

Gain (of an antenna in dbd) – *The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from a reference dipole. Gain is a measure of the relative efficiency of a directional antennas as compared to a reference dipole.*

General Population/Uncontrolled Environment – *Defined by the FCC, as an area where RFR exposure may occur to persons who are unaware of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.*

Generic Antenna – *For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, MobileComm will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.*

Isotropic Antenna – *An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.*

Maximum Measurement – *This measurement represents the single largest measurement recorded when performing a spatial average measurement.*

Maximum Exposure Limit (MPE) – *The RMS and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.*

Occupational/Controlled Environment – *Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are aware of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.*

Radio Frequency Radiation – *Electromagnetic waves that are propagated from antennas through space.*

Spatial Average Measurement – *A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.*

Transmitter Power Output (TPO) – *The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.*

Appendix F – Proprietary Statement

This report was prepared for the use of AT&T Mobility, LLC to meet requirements specified in AT&T's corporate RF safety guidelines. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by MobileComm are based solely on the information provided by AT&T Mobility and all observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to MobileComm so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

TOWER STRUCTURAL ANALYSIS REPORT

May 13, 2022

AT&T Mobility Site Name	MADISON-SR 79
AT&T Mobility Site Number	CTL02033
AT&T Mobility FA Number	10035048
Infinigy Job Number	1106-A0001-B
Client	Smartlink
Carrier	AT&T Mobility
Site Location	864 Opening Hill Road Madison, CT 06443 New Haven County 41° 21' 26.27" N NAD83 72° 38' 19.49" W NAD83
Structure Type	Self Support Tower
Structure Height	180.0 ft
Structural Usage Ratio	**73.6%**
Overall Result	**Pass**

The enclosed mount structural analysis has been performed in accordance with the 2018 Connecticut State Building Code based on an ultimate 3-second gust wind speed of 128 mph. The evaluation criteria and applicable codes are presented in the next section of this report.

structural@infinigy.com

CONTENTS

1. Introduction
2. Design/Analysis Parameters
3. Proposed Loading Configuration
4. Other Considered Loading
5. Supporting Documentation
6. Results
7. Recommendations
8. Assumptions
9. Liability Waiver and Limitations
10. Calculations

1. INTRODUCTION

Infinigy performed a structural analysis on the existing Self Support Tower. All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The structure was analyzed using TNX Tower version 8.1.1.0 analysis software.

2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	128 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.5 ice
Adopted Code	2018 Connecticut State Building Code
Standard(s)	TIA-222-H
Risk Category	II
Exposure Category	C
Topographic Factor	1
Seismic Spectral Response	S_s = 0.175 g / S_1 = 0.061 g
Live Load Wind Speed	60 mph
Ground Elevation (HMSL)	291.51 ft

3. PROPOSED LOADING CONFIGURATION

Mount Center (ft)	RAD Center (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines
140.0	140.0	3	Kathrein 800-10965	(3) Sector Mounts	(6) 1 5/8" Hybrid
		3	Ericsson AIR6419 B77G		
		3	Ericsson AIR6449 B77D		
		3	CCI Antennas DMP65R-BU6EA-K		
		3	Ericsson RRUS 8843 B2/B66A		
		3	Ericsson RRUS 4478 B14		
		3	Ericsson RRUS 4449 B5/B12		
		3	Raycap DC6-48-60-18-8F		

4. OTHER CONSIDERED LOADING

Mount Center (ft)	RAD Center (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines
191.0	180.0	2	RFS PD455	(3) Side Arm Mounts	(3) 7/8" Coax (1) 1/2" Coax (1) 2" Conduit (1) 1" Conduit
186.0		1	4-Bay Dipole		
183.0		1	2-Bay Dipole		
170.0	170.0	3	Alcatel Lucent RRH ALU 4X45 AWS	(3) Sector Mounts	(12) 1 5/8" Coax (2) 1 5/8" Hybrid (1) 1 1/4" Coax
		3	ALU RRH2X60PCS		
		3	ALU RRH4X60LTE		
		6	Commscope SBNHH-1D65B		
		3	Commscope LNX6514DS-A1M		
		1	Andrew 8' MW Dish		
		1	Antel BXA-70063/6CF		
		2	Antel BXA-70063/4CF		
		6	RFS FD9R6004/2C-3L		
		2	RFS DB-T1-6Z-8AB-0Z		

Mount Center (ft)	RAD Center (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines
160.0	160.0	12	Andrew DB844H90E-XY	(3) Sector Mounts	(12) 1 5/8" Coax
150.0	150.0	3	ALU 800MHz 2X50W RRH w/ Filter	(3) Sector Mounts	(3) 1 1/4" Hybriflex
		3	ALU 1900MHz 4X45 RRH		
		3	RFS APXVSPP18-C-A20		
130.0	130.0	3	EMS RR90-17-02DP	(3) T-Arm Mounts	(12) 1 5/8" Coax
		3	Commscope LNX-6515DS-VTM		
		3	RFS ATMAP1412D-1A20		
125.0	125.0	1	Sinclair SC323-HF2LDF	(1) Side Arm Mount	(1) 7/8" Coax
90.0	90.0	1	RFI FSA10-67-DIN	(2) Side Arm Mounts	(2) 7/8" Coax
		1	Sinclair SC323-HF2LDF		
75.0	75.0	1	PCTEL GPS-TMG-HR-26N	(1) Stand-Off Mount	(1) 1/2" Coax

5. SUPPORTING DOCUMENTATION

Construction Drawings	Infinigy dated May 10, 2022
AT&T Mobility Proposed Loading	AT&T RFDS dated March 31, 2022
Tower Design Drawings	Rohn dated December 2, 1998
Geotechnical Report	Dr. Clarence Welti, dated July 2, 1999
Structural Analysis Report	American Tower Corp. dated March 14, 2019

6. RESULTS

Structural Components	Capacity	Pass/Fail
Legs	54.5%	Pass
Diagonals	73.6%	Pass
Horizontals	63.1%	Pass
Connection Bolts	50.2%	Pass
Anchor Bolts	30.5%	Pass
Soil Interaction	23.5%	Pass
Structural Foundation	10.7%	Pass
RATING =	**73.6%**	**Pass**

6.1 DEFLECTION, TWIST, AND SWAY

Antenna Elevation (ft)	Deflection (in)	Sway (°)	Twist (°)
140.0	1.626	0.1101	0.0715

***Per ANSI/TIA-222-H Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.**
***Per ANSI/TIA-222-H Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.**
***Per ANSI/TIA-222-H Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.**
***It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-H Annex D or other appropriate microwave signal degradation limits based on the provided values above.**

7. RECOMMENDATIONS

Infinigy recommends installing AT&T Mobility's proposed equipment loading configuration on the mount at 140.0 ft on this structure. The installation shall be performed in accordance with the construction documents issued for this site.

If you have any questions, require additional information, or believe the actual conditions differ from those detailed in this report, please contact us immediately.

Arturo Modesto, PE
Senior Project Engineer | **INFINIGY**

8. ASSUMPTIONS

The structure, its foundation system and related structures were built and maintained in accordance with the manufacturer's specifications and instructions.
The structure condition is essentially as erected and does not have corrosion, damages or defects that would affect its structural integrity. The structure is plumb and all members and their connections are sound and can fully develop their structural capacities.
The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in the loading configuration tables.
Some of the antennas and mounts used in the structure model are similar in size and weight to the actual appurtenances mounted on the structure.
Steel grades have been assumed as follows, unless noted otherwise: Angle, Plate — ASTM A36 Pipe — ASTM A572-50 Connection Bolts — ASTM A325
All bolted connections are pretensioned in accordance with Table 8.2 of the RCSC 2014 Standard.
Existing loading per previous structural analysis.

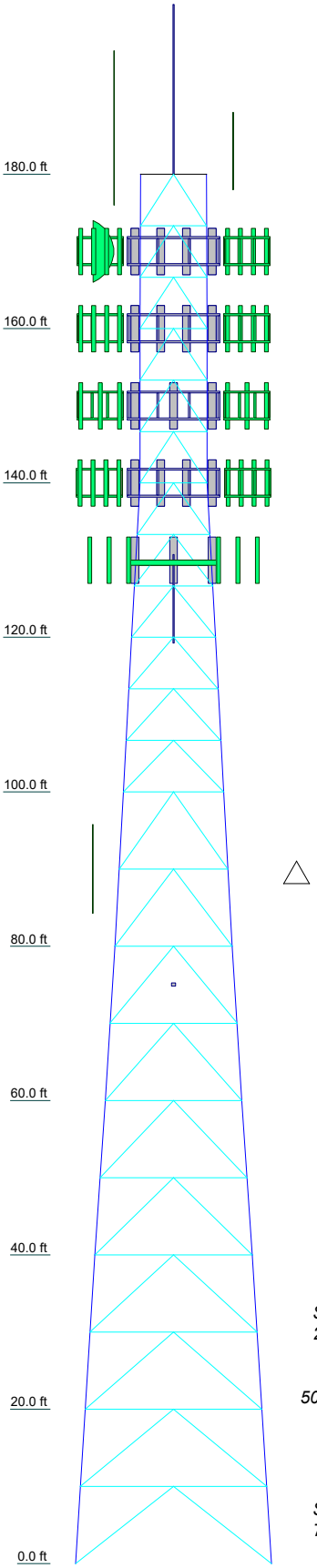
9. LIABILITY WAIVER AND LIMITATIONS

Our structural calculations are completed assuming all information provided to Infinigy is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition as erected and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report, Infinigy Engineering should be notified immediately to assess the impact on the results of this report.

Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based on the stated assumptions and conclusions in this report.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or cable mounting attachments. The analysis of these elements is outside the scope of this analysis and are assumed to be adequate for the purposes of this report and are assumed to have been installed per their manufacturer requirements. This document is not for construction purposes.

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9		
Legs	ROHN 3 STD	ROHN 4 X-STR	ROHN 5 EHS	ROHN 6 EHS	ROHN 8 EHS	ROHN 8 X-STR	ROHN 8 EH	ROHN 10 EH			
Leg Grade	A572-50										
Diagonals	ROHN 2 STD		ROHN 2 EH	ROHN 2.5 STD			ROHN 3 STD		ROHN 3.5 X-STR		
Diagonal Grade	A572-50										
Top Girts	ROHN 1.5 STD				N.A.						
Horizontals	ROHN 1.5 STD				ROHN 2 STD		ROHN 2.5 STD		ROHN 3 STD		
Inner Bracing	L2x2x1/8				L2 1/2x2 1/2x3/16		L3x3x3/16		L3 1/2x3 1/2x1/4		
Face Width (ft)	8.54167	8.625	8.7083	10.7917	12.9271	15.1771	17.6771	20.33	22.86	25.3333	
# Panels @ (ft)	12 @ 6.66667				10 @ 10						
Weight (K)	1.3	2.0	2.4	2.9	3.7	4.5	5.0	6.0	7.5	35.4	



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(3) Side Arm Mounts	180	80010965 w/ Mount Pipe	140
(2) PD455	180	80010965 w/ Mount Pipe	140
10' x 2" Dipole	180	80010965 w/ Mount Pipe	140
20' x 2-1/2" Dipole	180	AIR6419 B77G	140
(3) Sector Mounts	170	AIR6419 B77G	140
RRH ALU 4X45 AWS	170	AIR6419 B77G	140
RRH ALU 4X45 AWS	170	AIR6449 B77D	140
RRH ALU 4X45 AWS	170	AIR6449 B77D	140
RRH2X60PCS	170	AIR6449 B77D	140
RRH2X60PCS	170	DMP65R-BU6D w/ Mount Pipe	140
RRH2X60PCS	170	DMP65R-BU6D w/ Mount Pipe	140
RRH4X60LTE	170	DMP65R-BU6D w/ Mount Pipe	140
RRH4X60LTE	170	RADIO 8843 B2/B66A	140
RRH4X60LTE	170	RADIO 8843 B2/B66A	140
(2) SBNHH-1D65B w/ Mount Pipe	170	RADIO 8843 B2/B66A	140
(2) SBNHH-1D65B w/ Mount Pipe	170	RADIO 4478	140
(2) SBNHH-1D65B w/ Mount Pipe	170	RADIO 4478	140
LNX-6514DS-A1M w/ Mount Pipe	170	RADIO 4478	140
LNX-6514DS-A1M w/ Mount Pipe	170	RADIO 4449 B5/B12	140
LNX-6514DS-A1M w/ Mount Pipe	170	RADIO 4449 B5/B12	140
BXA-70063-6CF-2 w/ Mount Pipe	170	RADIO 4449 B5/B12	140
BXA-70063-4CFx8 w/ Mount Pipe	170	DC6-48-60-18-8F	140
BXA-70063-4CFx8 w/ Mount Pipe	170	DC6-48-60-18-8F	140
(2) FD9R6004/2C-3L	170	DC6-48-60-18-8F	140
(2) FD9R6004/2C-3L	170	(3) Sector Mounts	140
(2) FD9R6004/2C-3L	170	RR90-17-02DP w/Mount Pipe	130
DB-T1-6Z-8AB-0Z	170	RR90-17-02DP w/Mount Pipe	130
DB-T1-6Z-8AB-0Z	170	RR90-17-02DP w/Mount Pipe	130
8 FT DISH	170	LNX-6515DS-VTM w/ Mount Pipe	130
(4) DB844H90E-XY w/ Mount Pipe	160	LNX-6515DS-VTM w/ Mount Pipe	130
(4) DB844H90E-XY w/ Mount Pipe	160	LNX-6515DS-VTM w/ Mount Pipe	130
(4) DB844H90E-XY w/ Mount Pipe	160	ATMAP1412D-1A20	130
(3) Sector Mounts	160	ATMAP1412D-1A20	130
800MHz 2X50W RRH w/ Filter	150	ATMAP1412D-1A20	130
800MHz 2X50W RRH w/ Filter	150	(3) T-Arm Mounts	130
800MHz 2X50W RRH w/ Filter	150	SC329-HF2LDF(D03-G06)	125
1900MHz 4X45 RRH	150	(1) Side Arm Mount	125
1900MHz 4X45 RRH	150	(1) Side Arm Mount	90
1900MHz 4X45 RRH	150	FSA10-41-DIN	90
APXVSPP18-C-A20 w/ Mount Pipe	150	SC329-HF2LDF(D03-G06)	90
APXVSPP18-C-A20 w/ Mount Pipe	150	(1) Side Arm Mount	90
APXVSPP18-C-A20 w/ Mount Pipe	150	GPS-TMG-HR-26N	75
(3) Sector Mounts	150	(1) Stand OffMount	75

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 128 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 73.6%

SHEAR 20 K
MOMENT 2210 kip-ft
TORQUE 34 kip-ft
50 mph WIND - 1.5000 in ICE

AXIAL 68 K
SHEAR 77 K
MOMENT 7592 kip-ft
TORQUE 141 kip-ft
REACTIONS - 128 mph WIND

Job: CTL02033			
Project:			
Client: Smartlink	Drawn by: Arturo Modesto		App'd:
Code: TIA-222-H	Date: 05/13/22		Scale: NTS
Path: L:\Telecom\AT&T\Smartlink\New England_2022_Cband_project\CTL02033_10035048\Structural\2022.04.06 - SA\Report\TNX\CTL02033.eri			Dwg No. E-1

Phone:
FAX:

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

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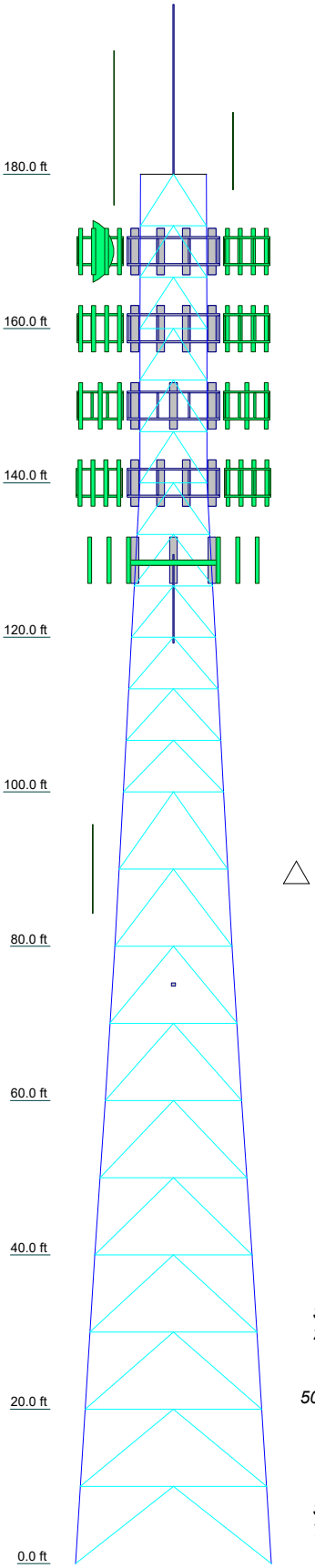
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 73.6%



Section		T1	T2	T3	T4	T5	T6	T7	T8	T9		
Legs		ROHN 3 STD	ROHN 4 X-STR	ROHN 5 EH	ROHN 6 EHS	ROHN 8 EHS	ROHN 8 X-STR	ROHN 8 EH	ROHN 10 EH			
Leg Grade		A572-50										
Diagonals		ROHN 2 STD		ROHN 2 EH	ROHN 2.5 STD	ROHN 2 STD		ROHN 3 STD		ROHN 3.5 X-STR		
Diagonal Grade		A572-50										
Top Girts		ROHN 1.5 STD				N.A.						
Horizontals		ROHN 1.5 STD				ROHN 2 STD		ROHN 2.5 STD		ROHN 3 STD		
Inner Bracing		L2x2x1/8				L2 1/2x2 1/2x3/16		L3x3x3/16		L3 1/2x3 1/2x1/4		
Face Width (ft)	25.3333	8.54167	8.625	8.7083	10.7917	12.9271	15.1771	17.6771	20.33	22.86		
# Panels @ (ft)		12 @ 6.66667				10 @ 10						
Weight (K)	35.4	1.3	2.0	2.4	2.9	3.7	4.5	5.0	6.0	7.5		

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 368 K
SHEAR: 46 K

UPLIFT: -323 K
SHEAR: 42 K

AXIAL 194 K
SHEAR 20 K
MOMENT 2210 kip-ft
TORQUE 34 kip-ft
50 mph WIND - 1.5000 in ICE

AXIAL 68 K
SHEAR 77 K
MOMENT 7592 kip-ft
TORQUE 141 kip-ft
REACTIONS - 128 mph WIND

Job: CTL02033			
Project:			
Client: Smartlink	Drawn by: Arturo Modesto	App'd:	
Code: TIA-222-H	Date: 05/13/22	Scale: NTS	
Path: L:\Telecom\AT&T\Smartlink\New England_2022_Cband_project\CTL02033_1003504\$\Structural\2022.04.06 - SA\Report\TNX\CTL02033.eri		Dwg No. E-1	

Phone:
FAX:

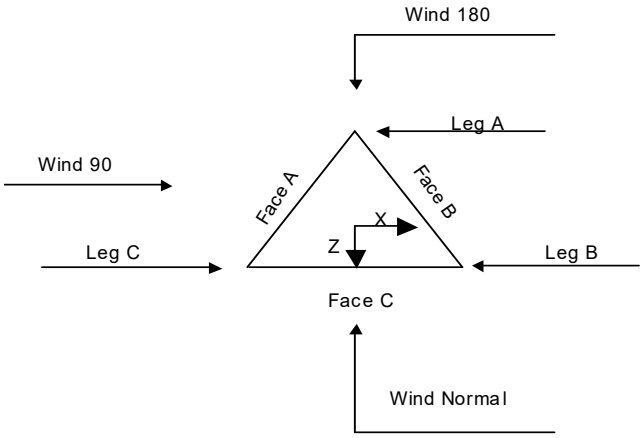
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 8.54 ft at the top and 25.33 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 291.51 ft.
Basic wind speed of 128 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	180.00-160.00			8.54	1	20.00
T2	160.00-140.00			8.63	1	20.00
T3	140.00-120.00			8.71	1	20.00
T4	120.00-100.00			10.79	1	20.00
T5	100.00-80.00			12.93	1	20.00
T6	80.00-60.00			15.18	1	20.00
T7	60.00-40.00			17.68	1	20.00
T8	40.00-20.00			20.33	1	20.00
T9	20.00-0.00			22.86	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	180.00-160.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T2	160.00-140.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T3	140.00-120.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T4	120.00-100.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T5	100.00-80.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T6	80.00-60.00	10.00	K Brace Down	No	Yes	0.0000	0.0000

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
T7	60.00-40.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T8	40.00-20.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T9	20.00-0.00	10.00	K Brace Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-160.00	Pipe	ROHN 3 STD	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T2 160.00-140.00	Pipe	ROHN 4 X-STR	A572-50 (50 ksi)	Pipe	ROHN 2 EH	A572-50 (50 ksi)
T3 140.00-120.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Pipe	ROHN 2 EH	A572-50 (50 ksi)
T4 120.00-100.00	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T5 100.00-80.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T6 80.00-60.00	Pipe	ROHN 8 X-STR	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T7 60.00-40.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T8 40.00-20.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T9 20.00-0.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3.5 X-STR	A572-50 (50 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 180.00-160.00	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 180.00-160.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T2 160.00-140.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T3 140.00-120.00	None	Flat Bar		A36	Pipe	ROHN 1.5 STD	A572-50

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T4 120.00-100.00	None	Flat Bar		(36 ksi) A36 (36 ksi)	Pipe	ROHN 2 STD	(50 ksi) A572-50 (50 ksi)
T5 100.00-80.00	None	Flat Bar		(36 ksi) A36 (36 ksi)	Pipe	ROHN 2 STD	(50 ksi) A572-50 (50 ksi)
T6 80.00-60.00	None	Flat Bar		(36 ksi) A36 (36 ksi)	Pipe	ROHN 2 STD	(50 ksi) A572-50 (50 ksi)
T7 60.00-40.00	None	Flat Bar		(36 ksi) A36 (36 ksi)	Pipe	ROHN 2.5 STD	(50 ksi) A572-50 (50 ksi)
T8 40.00-20.00	None	Flat Bar		(36 ksi) A36 (36 ksi)	Pipe	ROHN 2.5 STD	(50 ksi) A572-50 (50 ksi)
T9 20.00-0.00	None	Flat Bar		(36 ksi) A36 (36 ksi)	Pipe	ROHN 3 STD	(50 ksi) A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 180.00-160.00	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T2 160.00-140.00	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T3 140.00-120.00	Single Angle		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T4 120.00-100.00	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T5 100.00-80.00	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T6 80.00-60.00	Solid Round		A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 60.00-40.00	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T8 40.00-20.00	Solid Round		A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T9 20.00-0.00	Solid Round		A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	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 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T2 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T3	0.00	0.0000	A36	1	1.05	1.05	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
140.00-120.00			(36 ksi)						
T4	0.00	0.0000	A36	1	1.05	1.05	36.0000	36.0000	36.0000
120.00-100.00			(36 ksi)						
T5	0.00	0.0000	A36	1	1.05	1.05	36.0000	36.0000	36.0000
100.00-80.00			(36 ksi)						
T6 80.00-60.00	0.00	0.0000	A36	1	1.05	1.05	36.0000	36.0000	36.0000
			(36 ksi)						
T7 60.00-40.00	0.00	0.0000	A36	1	1.05	1.05	36.0000	36.0000	36.0000
			(36 ksi)						
T8 40.00-20.00	0.00	0.0000	A36	1	1.05	1.05	36.0000	36.0000	36.0000
			(36 ksi)						
T9 20.00-0.00	0.00	0.0000	A36	1	1.05	1.05	36.0000	36.0000	36.0000
			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	0.5	1
140.00-120.00				1	1	1	1	1	0.5	1
T4	Yes	No	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T9 20.00-0.00	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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 180.00-160.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 160.00-140.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 140.00-120.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 120.00-100.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 100.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 80.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.00-160.00	Flange	0.8750 A325N	4	0.6250 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T2 160.00-140.00	Flange	1.0000 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T3 140.00-120.00	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.5000 A325N	1
T4 120.00-100.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T5 100.00-80.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T6 80.00-60.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T7 60.00-40.00	Flange	1.0000 A325N	12	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T8 40.00-20.00	Flange	1.0000 A325N	12	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T9 20.00-0.00	Flange	1.0000 A325N	0	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Climbing Ladder (Round) *180*	B	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0	1	1	2.3400	2.3400		5.26
AL5-50(7/8")	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.45	3	3	1.1000	1.1000		0.26
HJ4-50(1/2")	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.48	1	1	0.5800	0.5800		0.25
2" Rigid Conduit	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.49	1	1	2.0000	2.0000		2.80
1" Rigid Conduit *170*	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.5	1	1	1.0000	1.0000		0.60
3' Feedline Ladder (STAAD)	C	No	No	Af (CaAa)	170.00 - 0.00	0.0000	0.4	1	1	4.9218	4.9218		4.17
AL7-50(1-5/8")	C	No	No	Ar (CaAa)	170.00 - 0.00	0.0000	0.35	14	7	1.9800	1.9800		0.52
LDF6-50A(1 1/4") *160*	C	No	No	Ar (CaAa)	170.00 - 0.00	0.0000	0.3	1	1	1.5500	1.5500		0.66
3' Feedline Ladder (STAAD)	C	No	No	Af (CaAa)	160.00 - 0.00	0.0000	-0.25	1	1	4.9218	4.9218		4.17
AL7-50(1-5/8") *150*	C	No	No	Ar (CaAa)	160.00 - 0.00	0.0000	-0.25	12	6	1.9800	1.9800		0.52
LDF6-50A(1 1/4") *140*	C	No	No	Ar (CaAa)	150.00 - 0.00	0.0000	0.3	3	3	1.5500	1.5500		0.66
3' Feedline	A	No	No	Af (CaAa)	140.00 -	0.0000	0.25	1	1	4.9218	4.9218		4.17

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Ladder (STAAD)					0.00								
AL7-50(1-5/8") *130*	A	No	No	Ar (CaAa)	140.00 - 0.00	0.0000	0.25	6	6	1.9800	1.9800		0.52
3' Feedline Ladder (STAAD)	A	No	No	Af (CaAa)	130.00 - 0.00	0.0000	-0.25	1	1	4.9218	4.9218		4.17
AL7-50(1-5/8") *125*	A	No	No	Ar (CaAa)	130.00 - 0.00	0.0000	-0.25	12	6	1.9800	1.9800		0.52
AL5-50(7/8") *90*	A	No	No	Ar (CaAa)	125.00 - 0.00	0.0000	0.3	1	1	1.1000	1.1000		0.26
AL5-50(7/8") *75*	A	No	No	Ar (CaAa)	125.00 - 0.00	0.0000	0.32	2	2	1.1000	1.1000		0.26
HJ4-50(1/2") *	A	No	No	Ar (CaAa)	125.00 - 0.00	0.0000	0.35	1	1	0.5800	0.5800		0.25

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
*								

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	180.00-160.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.680	0.000	0.11
		C	0.000	0.000	51.233	0.000	0.21
T2	160.00-140.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.680	0.000	0.11
		C	0.000	0.000	157.282	0.000	0.56
T3	140.00-120.00	A	0.000	0.000	74.069	0.000	0.25
		B	0.000	0.000	4.680	0.000	0.11
		C	0.000	0.000	161.932	0.000	0.58
T4	120.00-100.00	A	0.000	0.000	111.852	0.000	0.37
		B	0.000	0.000	4.680	0.000	0.11
		C	0.000	0.000	161.932	0.000	0.58
T5	100.00-80.00	A	0.000	0.000	111.852	0.000	0.37
		B	0.000	0.000	4.680	0.000	0.11
		C	0.000	0.000	161.932	0.000	0.58
T6	80.00-60.00	A	0.000	0.000	111.852	0.000	0.37

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
		B	0.000	0.000	4.680	0.000	0.11
		C	0.000	0.000	161.932	0.000	0.58
T7	60.00-40.00	A	0.000	0.000	111.852	0.000	0.37
		B	0.000	0.000	4.680	0.000	0.11
		C	0.000	0.000	161.932	0.000	0.58
T8	40.00-20.00	A	0.000	0.000	111.852	0.000	0.37
		B	0.000	0.000	4.680	0.000	0.11
		C	0.000	0.000	161.932	0.000	0.58
T9	20.00-0.00	A	0.000	0.000	111.852	0.000	0.37
		B	0.000	0.000	4.680	0.000	0.11
		C	0.000	0.000	161.932	0.000	0.58

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	180.00-160.00	A	1.767	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	11.749	0.000	0.28
		C		0.000	0.000	109.034	0.000	1.98
T2	160.00-140.00	A	1.745	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	11.661	0.000	0.28
		C		0.000	0.000	269.809	0.000	5.43
T3	140.00-120.00	A	1.720	0.000	0.000	142.420	0.000	2.45
		B		0.000	0.000	11.562	0.000	0.28
		C		0.000	0.000	283.966	0.000	5.56
T4	120.00-100.00	A	1.692	0.000	0.000	214.776	0.000	3.73
		B		0.000	0.000	11.448	0.000	0.27
		C		0.000	0.000	282.540	0.000	5.50
T5	100.00-80.00	A	1.658	0.000	0.000	213.590	0.000	3.67
		B		0.000	0.000	11.313	0.000	0.27
		C		0.000	0.000	280.859	0.000	5.42
T6	80.00-60.00	A	1.617	0.000	0.000	212.138	0.000	3.60
		B		0.000	0.000	11.149	0.000	0.26
		C		0.000	0.000	278.802	0.000	5.32
T7	60.00-40.00	A	1.564	0.000	0.000	210.252	0.000	3.51
		B		0.000	0.000	10.935	0.000	0.25
		C		0.000	0.000	276.129	0.000	5.20
T8	40.00-20.00	A	1.486	0.000	0.000	207.510	0.000	3.37
		B		0.000	0.000	10.623	0.000	0.24
		C		0.000	0.000	272.243	0.000	5.02
T9	20.00-0.00	A	1.331	0.000	0.000	202.075	0.000	3.12
		B		0.000	0.000	10.005	0.000	0.22
		C		0.000	0.000	264.542	0.000	4.67

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	180.00-160.00	-15.2597	6.9193	-16.2833	8.6893
T2	160.00-140.00	-7.8373	13.9064	-10.5098	14.4257
T3	140.00-120.00	-12.1435	3.8447	-14.3216	3.9763
T4	120.00-100.00	-15.9136	3.3020	-17.9030	1.7115

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T5	100.00-80.00	-18.0310	3.7002	-20.6678	1.9120
T6	80.00-60.00	-20.6735	4.2210	-23.5556	2.1046
T7	60.00-40.00	-23.1246	4.6850	-26.3666	2.2589
T8	40.00-20.00	-24.8316	4.9722	-28.4613	2.2979
T9	20.00-0.00	-26.2731	5.2070	-30.3019	2.1762

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	Climbing Ladder (Round)	160.00 - 180.00	0.6000	0.6000
T1	3	AL5-50(7/8")	160.00 - 180.00	0.6000	0.6000
T1	4	HJ4-50(1/2")	160.00 - 180.00	0.6000	0.6000
T1	5	2" Rigid Conduit	160.00 - 180.00	0.6000	0.6000
T1	6	1" Rigid Conduit	160.00 - 180.00	0.6000	0.6000
T1	8	3' Feedline Ladder (STAAD)	160.00 - 170.00	0.6000	0.6000
T1	9	AL7-50(1-5/8")	160.00 - 170.00	0.6000	0.6000
T1	10	LDF6-50A(1 1/4")	160.00 - 170.00	0.6000	0.6000
T2	1	Climbing Ladder (Round)	140.00 - 160.00	0.6000	0.6000
T2	3	AL5-50(7/8")	140.00 - 160.00	0.6000	0.6000
T2	4	HJ4-50(1/2")	140.00 - 160.00	0.6000	0.6000
T2	5	2" Rigid Conduit	140.00 - 160.00	0.6000	0.6000
T2	6	1" Rigid Conduit	140.00 - 160.00	0.6000	0.6000
T2	8	3' Feedline Ladder (STAAD)	140.00 - 160.00	0.6000	0.6000
T2	9	AL7-50(1-5/8")	140.00 - 160.00	0.6000	0.6000
T2	10	LDF6-50A(1 1/4")	140.00 - 160.00	0.6000	0.6000
T2	12	3' Feedline Ladder (STAAD)	140.00 - 160.00	0.6000	0.6000
T2	13	AL7-50(1-5/8")	140.00 - 160.00	0.6000	0.6000
T2	15	LDF6-50A(1 1/4")	140.00 - 150.00	0.6000	0.6000
T3	1	Climbing Ladder (Round)	120.00 - 140.00	0.6000	0.6000
T3	3	AL5-50(7/8")	120.00 - 140.00	0.6000	0.6000
T3	4	HJ4-50(1/2")	120.00 - 140.00	0.6000	0.6000
T3	5	2" Rigid Conduit	120.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	6	1" Rigid Conduit	120.00 - 140.00	0.6000	0.6000
T3	8	3' Feedline Ladder (STAAD)	120.00 - 140.00	0.6000	0.6000
T3	9	AL7-50(1-5/8")	120.00 - 140.00	0.6000	0.6000
T3	10	LDF6-50A(1 1/4")	120.00 - 140.00	0.6000	0.6000
T3	12	3' Feedline Ladder (STAAD)	120.00 - 140.00	0.6000	0.6000
T3	13	AL7-50(1-5/8")	120.00 - 140.00	0.6000	0.6000
T3	15	LDF6-50A(1 1/4")	120.00 - 140.00	0.6000	0.6000
T3	17	3' Feedline Ladder (STAAD)	120.00 - 140.00	0.6000	0.6000
T3	18	AL7-50(1-5/8")	120.00 - 140.00	0.6000	0.6000
T3	20	3' Feedline Ladder (STAAD)	120.00 - 130.00	0.6000	0.6000
T3	21	AL7-50(1-5/8")	120.00 - 130.00	0.6000	0.6000
T3	23	AL5-50(7/8")	120.00 - 125.00	0.6000	0.6000
T3	25	AL5-50(7/8")	120.00 - 125.00	0.6000	0.6000
T3	27	HJ4-50(1/2")	120.00 - 125.00	0.6000	0.6000
T4	1	Climbing Ladder (Round)	100.00 - 120.00	0.6000	0.6000
T4	3	AL5-50(7/8")	100.00 - 120.00	0.6000	0.6000
T4	4	HJ4-50(1/2")	100.00 - 120.00	0.6000	0.6000
T4	5	2" Rigid Conduit	100.00 - 120.00	0.6000	0.6000
T4	6	1" Rigid Conduit	100.00 - 120.00	0.6000	0.6000
T4	8	3' Feedline Ladder (STAAD)	100.00 - 120.00	0.6000	0.6000
T4	9	AL7-50(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	10	LDF6-50A(1 1/4")	100.00 - 120.00	0.6000	0.6000
T4	12	3' Feedline Ladder (STAAD)	100.00 - 120.00	0.6000	0.6000
T4	13	AL7-50(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	15	LDF6-50A(1 1/4")	100.00 - 120.00	0.6000	0.6000
T4	17	3' Feedline Ladder (STAAD)	100.00 - 120.00	0.6000	0.6000
T4	18	AL7-50(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	20	3' Feedline Ladder (STAAD)	100.00 - 120.00	0.6000	0.6000
T4	21	AL7-50(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	23	AL5-50(7/8")	100.00 - 120.00	0.6000	0.6000
T4	25	AL5-50(7/8")	100.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			120.00		
T4	27	HJ4-50(1/2")	100.00 - 120.00	0.6000	0.6000
T5	1	Climbing Ladder (Round)	80.00 - 100.00	0.6000	0.6000
T5	3	AL5-50(7/8")	80.00 - 100.00	0.6000	0.6000
T5	4	HJ4-50(1/2")	80.00 - 100.00	0.6000	0.6000
T5	5	2" Rigid Conduit	80.00 - 100.00	0.6000	0.6000
T5	6	1" Rigid Conduit	80.00 - 100.00	0.6000	0.6000
T5	8	3' Feedline Ladder (STAAD)	80.00 - 100.00	0.6000	0.6000
T5	9	AL7-50(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	10	LDF6-50A(1 1/4")	80.00 - 100.00	0.6000	0.6000
T5	12	3' Feedline Ladder (STAAD)	80.00 - 100.00	0.6000	0.6000
T5	13	AL7-50(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	15	LDF6-50A(1 1/4")	80.00 - 100.00	0.6000	0.6000
T5	17	3' Feedline Ladder (STAAD)	80.00 - 100.00	0.6000	0.6000
T5	18	AL7-50(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	20	3' Feedline Ladder (STAAD)	80.00 - 100.00	0.6000	0.6000
T5	21	AL7-50(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	23	AL5-50(7/8")	80.00 - 100.00	0.6000	0.6000
T5	25	AL5-50(7/8")	80.00 - 100.00	0.6000	0.6000
T5	27	HJ4-50(1/2")	80.00 - 100.00	0.6000	0.6000
T6	1	Climbing Ladder (Round)	60.00 - 80.00	0.6000	0.6000
T6	3	AL5-50(7/8")	60.00 - 80.00	0.6000	0.6000
T6	4	HJ4-50(1/2")	60.00 - 80.00	0.6000	0.6000
T6	5	2" Rigid Conduit	60.00 - 80.00	0.6000	0.6000
T6	6	1" Rigid Conduit	60.00 - 80.00	0.6000	0.6000
T6	8	3' Feedline Ladder (STAAD)	60.00 - 80.00	0.6000	0.6000
T6	9	AL7-50(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	10	LDF6-50A(1 1/4")	60.00 - 80.00	0.6000	0.6000
T6	12	3' Feedline Ladder (STAAD)	60.00 - 80.00	0.6000	0.6000
T6	13	AL7-50(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	15	LDF6-50A(1 1/4")	60.00 - 80.00	0.6000	0.6000
T6	17	3' Feedline Ladder (STAAD)	60.00 - 80.00	0.6000	0.6000
T6	18	AL7-50(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	20	3' Feedline Ladder (STAAD)	60.00 - 80.00	0.6000	0.6000
T6	21	AL7-50(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	23	AL5-50(7/8")	60.00 - 80.00	0.6000	0.6000
T6	25	AL5-50(7/8")	60.00 - 80.00	0.6000	0.6000
T6	27	HJ4-50(1/2")	60.00 - 80.00	0.6000	0.6000
T7	1	Climbing Ladder (Round)	40.00 - 60.00	0.6000	0.6000
T7	3	AL5-50(7/8")	40.00 - 60.00	0.6000	0.6000
T7	4	HJ4-50(1/2")	40.00 - 60.00	0.6000	0.6000
T7	5	2" Rigid Conduit	40.00 - 60.00	0.6000	0.6000
T7	6	1" Rigid Conduit	40.00 - 60.00	0.6000	0.6000
T7	8	3' Feedline Ladder (STAAD)	40.00 - 60.00	0.6000	0.6000
T7	9	AL7-50(1-5/8")	40.00 - 60.00	0.6000	0.6000
T7	10	LDF6-50A(1 1/4")	40.00 - 60.00	0.6000	0.6000
T7	12	3' Feedline Ladder (STAAD)	40.00 - 60.00	0.6000	0.6000
T7	13	AL7-50(1-5/8")	40.00 - 60.00	0.6000	0.6000
T7	15	LDF6-50A(1 1/4")	40.00 - 60.00	0.6000	0.6000
T7	17	3' Feedline Ladder (STAAD)	40.00 - 60.00	0.6000	0.6000
T7	18	AL7-50(1-5/8")	40.00 - 60.00	0.6000	0.6000
T7	20	3' Feedline Ladder (STAAD)	40.00 - 60.00	0.6000	0.6000
T7	21	AL7-50(1-5/8")	40.00 - 60.00	0.6000	0.6000
T7	23	AL5-50(7/8")	40.00 - 60.00	0.6000	0.6000
T7	25	AL5-50(7/8")	40.00 - 60.00	0.6000	0.6000
T7	27	HJ4-50(1/2")	40.00 - 60.00	0.6000	0.6000
T8	1	Climbing Ladder (Round)	20.00 - 40.00	0.6000	0.6000
T8	3	AL5-50(7/8")	20.00 - 40.00	0.6000	0.6000
T8	4	HJ4-50(1/2")	20.00 - 40.00	0.6000	0.6000
T8	5	2" Rigid Conduit	20.00 - 40.00	0.6000	0.6000
T8	6	1" Rigid Conduit	20.00 - 40.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	8	3' Feedline Ladder (STAAD)	20.00 - 40.00	0.6000	0.6000
T8	9	AL7-50(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	10	LDF6-50A(1 1/4")	20.00 - 40.00	0.6000	0.6000
T8	12	3' Feedline Ladder (STAAD)	20.00 - 40.00	0.6000	0.6000
T8	13	AL7-50(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	15	LDF6-50A(1 1/4")	20.00 - 40.00	0.6000	0.6000
T8	17	3' Feedline Ladder (STAAD)	20.00 - 40.00	0.6000	0.6000
T8	18	AL7-50(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	20	3' Feedline Ladder (STAAD)	20.00 - 40.00	0.6000	0.6000
T8	21	AL7-50(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	23	AL5-50(7/8")	20.00 - 40.00	0.6000	0.6000
T8	25	AL5-50(7/8")	20.00 - 40.00	0.6000	0.6000
T8	27	HJ4-50(1/2")	20.00 - 40.00	0.6000	0.6000
T9	1	Climbing Ladder (Round)	0.00 - 20.00	0.6000	0.6000
T9	3	AL5-50(7/8")	0.00 - 20.00	0.6000	0.6000
T9	4	HJ4-50(1/2")	0.00 - 20.00	0.6000	0.6000
T9	5	2" Rigid Conduit	0.00 - 20.00	0.6000	0.6000
T9	6	1" Rigid Conduit	0.00 - 20.00	0.6000	0.6000
T9	8	3' Feedline Ladder (STAAD)	0.00 - 20.00	0.6000	0.6000
T9	9	AL7-50(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	10	LDF6-50A(1 1/4")	0.00 - 20.00	0.6000	0.6000
T9	12	3' Feedline Ladder (STAAD)	0.00 - 20.00	0.6000	0.6000
T9	13	AL7-50(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	15	LDF6-50A(1 1/4")	0.00 - 20.00	0.6000	0.6000
T9	17	3' Feedline Ladder (STAAD)	0.00 - 20.00	0.6000	0.6000
T9	18	AL7-50(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	20	3' Feedline Ladder (STAAD)	0.00 - 20.00	0.6000	0.6000
T9	21	AL7-50(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	23	AL5-50(7/8")	0.00 - 20.00	0.6000	0.6000
T9	25	AL5-50(7/8")	0.00 - 20.00	0.6000	0.6000
T9	27	HJ4-50(1/2")	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
180									
(3) Side Arm Mounts	C	None		0.0000	180.00	No Ice	3.20	3.20	0.13
						1/2" Ice	5.57	5.57	0.19
						1" Ice	8.05	8.05	0.28
						2" Ice	13.74	13.74	0.56
(2) PD455	A	From Leg	4.00 0.00 11.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.05 8.28 10.53 15.07	6.05 8.28 10.53 15.07	0.02 0.07 0.12 0.28
10' x 2" Dipole	B	From Leg	4.00 0.00 3.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.00 3.02 4.07 5.70	2.00 3.02 4.07 5.70	0.04 0.05 0.07 0.14
20' x 2-1/2" Dipole	C	From Leg	4.00	0.0000	180.00	No Ice	5.00	5.00	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	7.03	7.03	0.11
			6.00			1" Ice	9.07	9.07	0.16
						2" Ice	13.22	13.22	0.29
170									
(3) Sector Mounts	C	None		0.0000	170.00	No Ice	29.82	29.82	1.67
						1/2" Ice	42.21	42.21	2.27
						1" Ice	54.43	54.43	3.05
						2" Ice	78.49	78.49	5.18
RRH ALU 4X45 AWS	A	From Leg	4.00	0.0000	170.00	No Ice	1.72	1.43	0.05
			0.00			1/2" Ice	1.90	1.60	0.06
			0.00			1" Ice	2.07	1.76	0.08
						2" Ice	2.45	2.13	0.13
RRH ALU 4X45 AWS	B	From Leg	4.00	0.0000	170.00	No Ice	1.72	1.43	0.05
			0.00			1/2" Ice	1.90	1.60	0.06
			0.00			1" Ice	2.07	1.76	0.08
						2" Ice	2.45	2.13	0.13
RRH ALU 4X45 AWS	C	From Leg	4.00	0.0000	170.00	No Ice	1.72	1.43	0.05
			0.00			1/2" Ice	1.90	1.60	0.06
			0.00			1" Ice	2.07	1.76	0.08
						2" Ice	2.45	2.13	0.13
RRH2X60PCS	A	From Leg	4.00	0.0000	170.00	No Ice	2.30	1.82	0.06
			0.00			1/2" Ice	2.50	2.00	0.08
			0.00			1" Ice	2.70	2.19	0.11
						2" Ice	3.13	2.59	0.17
RRH2X60PCS	B	From Leg	4.00	0.0000	170.00	No Ice	2.30	1.82	0.06
			0.00			1/2" Ice	2.50	2.00	0.08
			0.00			1" Ice	2.70	2.19	0.11
						2" Ice	3.13	2.59	0.17
RRH2X60PCS	C	From Leg	4.00	0.0000	170.00	No Ice	2.30	1.82	0.06
			0.00			1/2" Ice	2.50	2.00	0.08
			0.00			1" Ice	2.70	2.19	0.11
						2" Ice	3.13	2.59	0.17
RRH4X60LTE	A	From Leg	4.00	0.0000	170.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.36	1.59	0.06
			0.00			1" Ice	2.57	1.77	0.08
						2" Ice	3.00	2.14	0.13
RRH4X60LTE	B	From Leg	4.00	0.0000	170.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.36	1.59	0.06
			0.00			1" Ice	2.57	1.77	0.08
						2" Ice	3.00	2.14	0.13
RRH4X60LTE	C	From Leg	4.00	0.0000	170.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.36	1.59	0.06
			0.00			1" Ice	2.57	1.77	0.08
						2" Ice	3.00	2.14	0.13
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00	0.0000	170.00	No Ice	4.09	3.30	0.07
			0.00			1/2" Ice	4.49	3.68	0.13
			0.00			1" Ice	4.89	4.07	0.20
						2" Ice	5.72	4.87	0.39
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00	0.0000	170.00	No Ice	4.09	3.30	0.07
			0.00			1/2" Ice	4.49	3.68	0.13
			0.00			1" Ice	4.89	4.07	0.20
						2" Ice	5.72	4.87	0.39
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00	0.0000	170.00	No Ice	4.09	3.30	0.07
			0.00			1/2" Ice	4.49	3.68	0.13
			0.00			1" Ice	4.89	4.07	0.20
						2" Ice	5.72	4.87	0.39
LNX-6514DS-A1M w/	A	From Leg	4.00	0.0000	170.00	No Ice	4.09	3.30	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.00			1/2" Ice	4.49	3.68	0.13
			0.00			1" Ice	4.89	4.06	0.20
						2" Ice	5.71	4.87	0.38
LNX-6514DS-A1M w/ Mount Pipe	B	From Leg	4.00	0.0000	170.00	No Ice	4.09	3.30	0.06
			0.00			1/2" Ice	4.49	3.68	0.13
			0.00			1" Ice	4.89	4.06	0.20
						2" Ice	5.71	4.87	0.38
LNX-6514DS-A1M w/ Mount Pipe	C	From Leg	4.00	0.0000	170.00	No Ice	4.09	3.30	0.06
			0.00			1/2" Ice	4.49	3.68	0.13
			0.00			1" Ice	4.89	4.06	0.20
						2" Ice	5.71	4.87	0.38
BXA-70063-6CF-2 w/ Mount Pipe	A	From Leg	4.00	0.0000	170.00	No Ice	7.81	5.80	0.04
			0.00			1/2" Ice	8.36	6.95	0.10
			0.00			1" Ice	8.87	7.82	0.17
						2" Ice	9.93	9.60	0.34
BXA-70063-4CFx8 w/ Mount Pipe	B	From Leg	4.00	0.0000	170.00	No Ice	4.95	3.62	0.03
			0.00			1/2" Ice	5.32	4.22	0.07
			0.00			1" Ice	5.71	4.83	0.12
						2" Ice	6.51	6.11	0.23
BXA-70063-4CFx8 w/ Mount Pipe	C	From Leg	4.00	0.0000	170.00	No Ice	4.95	3.62	0.03
			0.00			1/2" Ice	5.32	4.22	0.07
			0.00			1" Ice	5.71	4.83	0.12
						2" Ice	6.51	6.11	0.23
(2) FD9R6004/2C-3L	A	From Leg	4.00	0.0000	170.00	No Ice	0.31	0.08	0.00
			0.00			1/2" Ice	0.39	0.12	0.01
			0.00			1" Ice	0.47	0.17	0.01
						2" Ice	0.65	0.29	0.02
(2) FD9R6004/2C-3L	B	From Leg	4.00	0.0000	170.00	No Ice	0.31	0.08	0.00
			0.00			1/2" Ice	0.39	0.12	0.01
			0.00			1" Ice	0.47	0.17	0.01
						2" Ice	0.65	0.29	0.02
(2) FD9R6004/2C-3L	C	From Leg	4.00	0.0000	170.00	No Ice	0.31	0.08	0.00
			0.00			1/2" Ice	0.39	0.12	0.01
			0.00			1" Ice	0.47	0.17	0.01
						2" Ice	0.65	0.29	0.02
DB-T1-6Z-8AB-0Z	A	From Leg	4.00	0.0000	170.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			0.00			1" Ice	5.35	2.39	0.12
						2" Ice	5.93	2.81	0.21
DB-T1-6Z-8AB-0Z	B	From Leg	4.00	0.0000	170.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			0.00			1" Ice	5.35	2.39	0.12
						2" Ice	5.93	2.81	0.21
160 (3) Sector Mounts	C	None		0.0000	160.00	No Ice	29.82	29.82	1.67
						1/2" Ice	42.21	42.21	2.27
						1" Ice	54.43	54.43	3.05
						2" Ice	78.49	78.49	5.18
(4) DB844H90E-XY w/ Mount Pipe	A	From Leg	4.00	0.0000	160.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			0.00			1" Ice	4.03	6.04	0.12
						2" Ice	4.80	7.34	0.23
(4) DB844H90E-XY w/ Mount Pipe	B	From Leg	4.00	0.0000	160.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			0.00			1" Ice	4.03	6.04	0.12
						2" Ice	4.80	7.34	0.23
(4) DB844H90E-XY w/	C	From Leg	4.00	0.0000	160.00	No Ice	3.30	4.80	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.00			1/2" Ice	3.67	5.42	0.07
			0.00			1" Ice	4.03	6.04	0.12
						2" Ice	4.80	7.34	0.23
150									
(3) Sector Mounts	C	None		0.0000	150.00	No Ice	29.82	29.82	1.67
						1/2" Ice	42.21	42.21	2.27
						1" Ice	54.43	54.43	3.05
						2" Ice	78.49	78.49	5.18
800MHz 2X50W RRH w/ Filter	A	From Leg	4.00	0.0000	150.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			0.00			1" Ice	4.03	6.04	0.12
						2" Ice	4.80	7.34	0.23
800MHz 2X50W RRH w/ Filter	B	From Leg	4.00	0.0000	150.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			0.00			1" Ice	4.03	6.04	0.12
						2" Ice	4.80	7.34	0.23
800MHz 2X50W RRH w/ Filter	C	From Leg	4.00	0.0000	150.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			0.00			1" Ice	4.03	6.04	0.12
						2" Ice	4.80	7.34	0.23
1900MHz 4X45 RRH	A	From Leg	4.00	0.0000	150.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			0.00			1" Ice	4.03	6.04	0.12
						2" Ice	4.80	7.34	0.23
1900MHz 4X45 RRH	B	From Leg	4.00	0.0000	150.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			0.00			1" Ice	4.03	6.04	0.12
						2" Ice	4.80	7.34	0.23
1900MHz 4X45 RRH	C	From Leg	4.00	0.0000	150.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			0.00			1" Ice	4.03	6.04	0.12
						2" Ice	4.80	7.34	0.23
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.0000	150.00	No Ice	4.60	4.01	0.10
			0.00			1/2" Ice	5.05	4.45	0.16
			0.00			1" Ice	5.50	4.89	0.23
						2" Ice	6.44	5.82	0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.0000	150.00	No Ice	4.60	4.01	0.10
			0.00			1/2" Ice	5.05	4.45	0.16
			0.00			1" Ice	5.50	4.89	0.23
						2" Ice	6.44	5.82	0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.0000	150.00	No Ice	4.60	4.01	0.10
			0.00			1/2" Ice	5.05	4.45	0.16
			0.00			1" Ice	5.50	4.89	0.23
						2" Ice	6.44	5.82	0.42
140									
(3) Sector Mounts	C	None		0.0000	140.00	No Ice	29.82	29.82	1.67
						1/2" Ice	42.21	42.21	2.27
						1" Ice	54.43	54.43	3.05
						2" Ice	78.49	78.49	5.18
80010965 w/ Mount Pipe	A	From Leg	4.00	0.0000	140.00	No Ice	12.26	5.79	0.14
			0.00			1/2" Ice	13.03	6.47	0.23
			0.00			1" Ice	13.80	7.17	0.33
						2" Ice	15.41	8.60	0.57
80010965 w/ Mount Pipe	B	From Leg	4.00	0.0000	140.00	No Ice	12.26	5.79	0.14
			0.00			1/2" Ice	13.03	6.47	0.23
			0.00			1" Ice	13.80	7.17	0.33
						2" Ice	15.41	8.60	0.57

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
80010965 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.26 13.03 13.80 15.41	5.79 6.47 7.17 8.60	0.14 0.23 0.33 0.57
AIR6419 B77G	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.93 7.77 8.52 9.82	4.39 5.45 6.35 7.84	0.13 0.19 0.26 0.42
AIR6419 B77G	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.93 7.77 8.52 9.82	4.39 5.45 6.35 7.84	0.13 0.19 0.26 0.42
AIR6419 B77G	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.93 7.77 8.52 9.82	4.39 5.45 6.35 7.84	0.13 0.19 0.26 0.42
AIR6449 B77D	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.93 7.77 8.52 9.82	4.39 5.45 6.35 7.84	0.13 0.19 0.26 0.42
AIR6449 B77D	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.93 7.77 8.52 9.82	4.39 5.45 6.35 7.84	0.13 0.19 0.26 0.42
AIR6449 B77D	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.93 7.77 8.52 9.82	4.39 5.45 6.35 7.84	0.13 0.19 0.26 0.42
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.95 13.55 14.11 15.26	7.26 8.43 9.31 11.13	0.10 0.20 0.30 0.53
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.95 13.55 14.11 15.26	7.26 8.43 9.31 11.13	0.10 0.20 0.30 0.53
DMP65R-BU6D w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.95 13.55 14.11 15.26	7.26 8.43 9.31 11.13	0.10 0.20 0.30 0.53
RADIO 8843 B2/B66A	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.38 1.53 1.69 2.02	0.08 0.09 0.11 0.16
RADIO 8843 B2/B66A	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.38 1.53 1.69 2.02	0.08 0.09 0.11 0.16
RADIO 8843 B2/B66A	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.38 1.53 1.69 2.02	0.08 0.09 0.11 0.16
RADIO 4478	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.63 1.78 1.95 2.31	1.00 1.13 1.27 1.57	0.06 0.07 0.09 0.14
RADIO 4478	B	From Leg	4.00	0.0000	140.00	No Ice	1.63	1.00	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	1.78	1.13	0.07
			0.00			1" Ice	1.95	1.27	0.09
						2" Ice	2.31	1.57	0.14
RADIO 4478	C	From Leg	4.00	0.0000	140.00	No Ice	1.63	1.00	0.06
			0.00			1/2" Ice	1.78	1.13	0.07
			0.00			1" Ice	1.95	1.27	0.09
						2" Ice	2.31	1.57	0.14
RADIO 4449 B5/B12	A	From Leg	4.00	0.0000	140.00	No Ice	1.64	1.30	0.07
			0.00			1/2" Ice	1.80	1.45	0.09
			0.00			1" Ice	1.97	1.60	0.11
						2" Ice	2.33	1.92	0.16
RADIO 4449 B5/B12	B	From Leg	4.00	0.0000	140.00	No Ice	1.64	1.30	0.07
			0.00			1/2" Ice	1.80	1.45	0.09
			0.00			1" Ice	1.97	1.60	0.11
						2" Ice	2.33	1.92	0.16
RADIO 4449 B5/B12	C	From Leg	4.00	0.0000	140.00	No Ice	1.64	1.30	0.07
			0.00			1/2" Ice	1.80	1.45	0.09
			0.00			1" Ice	1.97	1.60	0.11
						2" Ice	2.33	1.92	0.16
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	140.00	No Ice	0.79	0.79	0.02
			0.00			1/2" Ice	1.27	1.27	0.04
			0.00			1" Ice	1.45	1.45	0.05
						2" Ice	1.83	1.83	0.10
DC6-48-60-18-8F	B	From Leg	4.00	0.0000	140.00	No Ice	0.79	0.79	0.02
			0.00			1/2" Ice	1.27	1.27	0.04
			0.00			1" Ice	1.45	1.45	0.05
						2" Ice	1.83	1.83	0.10
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	140.00	No Ice	0.79	0.79	0.02
			0.00			1/2" Ice	1.27	1.27	0.04
			0.00			1" Ice	1.45	1.45	0.05
						2" Ice	1.83	1.83	0.10
130									
(3) T-Arm Mounts	C	None		0.0000	130.00	No Ice	13.40	13.40	0.77
						1/2" Ice	16.44	16.44	1.00
						1" Ice	19.70	19.70	1.29
						2" Ice	25.86	25.86	2.05
RR90-17-02DP w/Mount Pipe	A	From Leg	4.00	0.0000	130.00	No Ice	4.47	2.92	0.03
			0.00			1/2" Ice	5.08	3.50	0.07
			0.00			1" Ice	5.70	4.10	0.11
						2" Ice	7.01	5.35	0.22
RR90-17-02DP w/Mount Pipe	B	From Leg	4.00	0.0000	130.00	No Ice	4.47	2.92	0.03
			0.00			1/2" Ice	5.08	3.50	0.07
			0.00			1" Ice	5.70	4.10	0.11
						2" Ice	7.01	5.35	0.22
RR90-17-02DP w/Mount Pipe	C	From Leg	4.00	0.0000	130.00	No Ice	4.47	2.92	0.03
			0.00			1/2" Ice	5.08	3.50	0.07
			0.00			1" Ice	5.70	4.10	0.11
						2" Ice	7.01	5.35	0.22
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.00	0.0000	130.00	No Ice	5.31	4.27	0.08
			0.00			1/2" Ice	5.80	4.75	0.17
			0.00			1" Ice	6.30	5.24	0.26
						2" Ice	7.33	6.24	0.49
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.00	0.0000	130.00	No Ice	5.31	4.27	0.08
			0.00			1/2" Ice	5.80	4.75	0.17
			0.00			1" Ice	6.30	5.24	0.26
						2" Ice	7.33	6.24	0.49
LNX-6515DS-VTM w/	C	From Leg	4.00	0.0000	130.00	No Ice	5.31	4.27	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.00			1/2" Ice	5.80	4.75	0.17
			0.00			1" Ice	6.30	5.24	0.26
						2" Ice	7.33	6.24	0.49
ATMAP1412D-1A20	A	From Leg	4.00	0.0000	130.00	No Ice	0.41	1.00	0.01
			0.00			1/2" Ice	0.50	1.13	0.02
			0.00			1" Ice	0.59	1.26	0.03
						2" Ice	0.81	1.55	0.06
ATMAP1412D-1A20	B	From Leg	4.00	0.0000	130.00	No Ice	0.41	1.00	0.01
			0.00			1/2" Ice	0.50	1.13	0.02
			0.00			1" Ice	0.59	1.26	0.03
						2" Ice	0.81	1.55	0.06
ATMAP1412D-1A20	C	From Leg	4.00	0.0000	130.00	No Ice	0.41	1.00	0.01
			0.00			1/2" Ice	0.50	1.13	0.02
			0.00			1" Ice	0.59	1.26	0.03
						2" Ice	0.81	1.55	0.06
125									
(1) Side Arm Mount	A	None		0.0000	125.00	No Ice	0.31	0.88	0.02
						1/2" Ice	0.50	1.26	0.03
						1" Ice	0.73	1.67	0.05
						2" Ice	1.29	2.58	0.09
SC329-HF2LDF(D03-G06)	A	From Leg	2.00	0.0000	125.00	No Ice	2.31	2.31	0.01
			0.00			1/2" Ice	3.49	3.49	0.03
			0.00			1" Ice	4.68	4.68	0.05
						2" Ice	6.96	6.96	0.13
90									
(1) Side Arm Mount	B	None		0.0000	90.00	No Ice	0.31	0.88	0.02
						1/2" Ice	0.50	1.26	0.03
						1" Ice	0.73	1.67	0.05
						2" Ice	1.29	2.58	0.09
(1) Side Arm Mount	C	None		0.0000	90.00	No Ice	0.31	0.88	0.02
						1/2" Ice	0.50	1.26	0.03
						1" Ice	0.73	1.67	0.05
						2" Ice	1.29	2.58	0.09
FSA10-41-DIN	B	From Leg	4.00	0.0000	90.00	No Ice	6.10	6.10	0.03
			0.00			1/2" Ice	8.47	8.47	0.11
			0.00			1" Ice	10.87	10.87	0.22
						2" Ice	15.76	15.76	0.52
SC329-HF2LDF(D03-G06)	C	From Leg	4.00	0.0000	90.00	No Ice	2.31	2.31	0.01
			0.00			1/2" Ice	3.49	3.49	0.03
			0.00			1" Ice	4.68	4.68	0.05
						2" Ice	6.96	6.96	0.13
75									
(1) Stand OffMount	A	None		0.0000	75.00	No Ice	0.31	0.88	0.02
						1/2" Ice	0.50	1.26	0.03
						1" Ice	0.73	1.67	0.05
						2" Ice	1.29	2.58	0.09
GPS-TMG-HR-26N	A	From Leg	4.00	0.0000	75.00	No Ice	0.21	0.13	0.00
			0.00			1/2" Ice	0.27	0.18	0.00
			0.00			1" Ice	0.33	0.24	0.01
						2" Ice	0.49	0.37	0.02
*									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert (ft)	Azimuth Adjustment (°)	3 dB Beam Width (°)	Elevation (ft)	Outside Diameter (ft)		Aperture Area (ft^2)	Weight (K)
8 FT DISH	C	Paraboloid w/o Radome	From Leg	4.00 0.00 0.00	0.0000		170.00	8.00	No Ice 1/2" Ice 1" Ice 2" Ice	50.30 51.29 52.28 54.27	0.25 0.51 0.78 1.30

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service

Comb. No.	Description
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	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	180 - 160	Leg	Max Tension	7	4.72	-1.34	0.02
			Max. Compression	35	-10.25	-0.09	0.00
			Max. Mx	6	-0.54	2.74	0.02
			Max. My	8	-1.33	0.30	-2.73
			Max. Vy	6	1.24	-1.34	0.02
			Max. Vx	8	-1.23	0.30	1.32
		Diagonal	Max Tension	16	7.50	0.00	0.00
			Max. Compression	16	-7.58	0.00	0.00
			Max. Mx	34	1.86	0.06	0.00
			Max. My	14	-0.13	0.00	-0.00
			Max. Vy	34	-0.03	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	14	4.11	-0.01	0.00
			Max. Compression	17	-4.07	-0.01	-0.00
			Max. Mx	37	-0.04	-0.03	-0.00
			Max. My	6	-1.24	-0.01	-0.01
			Max. Vy	37	-0.03	-0.03	-0.00
			Max. Vx	6	0.00	-0.01	-0.01
		Top Girt	Max Tension	20	0.48	-0.01	0.00
			Max. Compression	20	-0.48	-0.01	-0.00
			Max. Mx	37	-0.12	-0.03	-0.00
			Max. My	22	0.04	-0.01	-0.00
			Max. Vy	37	-0.03	-0.03	-0.00
			Max. Vx	22	0.00	-0.01	-0.00
		Inner Bracing	Max Tension	18	0.00	0.00	0.00
			Max. Compression	16	-0.01	0.00	0.00
			Max. Mx	26	-0.00	-0.03	0.00
			Max. My	33	-0.00	0.00	0.00
			Max. Vy	26	0.03	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
T2	160 - 140	Leg	Max Tension	7	38.36	-0.55	-0.04
			Max. Compression	2	-44.58	0.09	0.21
			Max. Mx	14	21.35	0.90	-0.09
			Max. My	24	-3.83	0.00	-0.95
			Max. Vy	6	-0.48	-0.65	-0.05
			Max. Vx	24	0.56	0.00	0.68
		Diagonal	Max Tension	16	12.96	0.00	0.00
			Max. Compression	16	-13.06	0.00	0.00
			Max. Mx	34	3.50	0.07	0.00
			Max. My	14	-1.76	0.00	-0.00
			Max. Vy	34	-0.03	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	16	7.11	-0.01	-0.00
			Max. Compression	16	-7.08	-0.01	-0.00
			Max. Mx	33	-0.40	-0.04	-0.00
			Max. My	2	0.50	0.00	0.01
			Max. Vy	33	-0.03	-0.04	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-0.00	0.00	0.01
		Inner Bracing	Max Tension	12	0.01	0.00	0.00
			Max. Compression	16	-0.01	0.00	0.00
			Max. Mx	26	-0.00	-0.03	0.00
			Max. My	35	0.00	0.00	-0.00
			Max. Vy	26	0.03	0.00	0.00
			Max. Vx	35	0.00	0.00	0.00
T3	140 - 120	Leg	Max Tension	7	84.75	-0.61	0.00
			Max. Compression	2	-98.98	0.61	0.18
			Max. Mx	6	51.98	-0.64	-0.01
			Max. My	12	-9.10	-0.00	-0.76
			Max. Vy	6	-0.32	-0.64	-0.01
			Max. Vx	12	-0.43	-0.03	-0.74
		Diagonal	Max Tension	16	13.22	0.00	0.00
			Max. Compression	16	-13.34	0.00	0.00
			Max. Mx	34	3.30	0.09	0.00
			Max. My	14	-2.29	0.00	-0.00
			Max. Vy	34	-0.04	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	14	8.41	-0.01	0.01
			Max. Compression	2	-8.38	-0.02	-0.01
			Max. Mx	33	-0.62	-0.05	-0.00
			Max. My	2	2.13	0.00	0.02
			Max. Vy	33	-0.04	-0.05	-0.00
			Max. Vx	2	-0.00	0.00	0.02
		Inner Bracing	Max Tension	25	0.01	0.00	0.00
			Max. Compression	16	-0.01	0.00	0.00
			Max. Mx	26	-0.00	-0.04	0.00
			Max. My	33	-0.01	0.00	0.00
			Max. Vy	26	0.03	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
T4	120 - 100	Leg	Max Tension	15	129.07	-0.57	-0.06
			Max. Compression	2	-149.77	1.12	0.23
			Max. Mx	3	-147.35	1.12	0.23
			Max. My	12	-10.91	-0.01	-1.25
			Max. Vy	6	0.15	-1.10	-0.01
			Max. Vx	12	0.28	-0.01	-1.25
		Diagonal	Max Tension	15	12.94	0.00	0.00
			Max. Compression	14	-13.09	0.00	0.00
			Max. Mx	34	3.13	0.13	0.00
			Max. My	14	-2.27	0.00	-0.00
			Max. Vy	34	0.05	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	14	9.24	-0.01	0.01
			Max. Compression	2	-9.22	-0.04	-0.01
			Max. Mx	33	-0.64	-0.08	-0.01
			Max. My	2	1.12	0.01	0.02
			Max. Vy	33	-0.05	-0.08	-0.01
			Max. Vx	2	-0.00	0.01	0.02
		Inner Bracing	Max Tension	25	0.01	0.00	0.00
			Max. Compression	14	-0.01	0.00	0.00
			Max. Mx	26	-0.01	-0.05	0.00
			Max. My	33	-0.01	0.00	0.00
			Max. Vy	26	-0.03	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
T5	100 - 80	Leg	Max Tension	15	165.00	-1.43	-0.19
			Max. Compression	2	-189.00	1.34	0.26
			Max. Mx	6	139.09	-1.45	0.04
			Max. My	12	-11.80	-0.03	-1.62
			Max. Vy	6	-0.28	-1.45	0.04
			Max. Vx	12	-0.43	-0.03	-1.62

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max Tension	15	16.47	0.00	0.00
			Max. Compression	14	-16.68	0.00	0.00
			Max. Mx	34	3.89	0.24	0.00
			Max. My	14	-3.04	0.00	-0.00
			Max. Vy	34	-0.08	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	14	10.36	-0.02	0.01
			Max. Compression	2	-10.41	-0.04	-0.01
			Max. Mx	33	-0.90	-0.10	-0.01
			Max. My	2	-0.18	-0.00	0.02
			Max. Vy	33	-0.06	-0.10	-0.01
			Max. Vx	2	-0.00	-0.00	0.02
		Inner Bracing	Max Tension	25	0.01	0.00	0.00
			Max. Compression	24	-0.01	0.00	0.00
			Max. Mx	26	-0.01	-0.07	0.00
			Max. My	33	-0.01	0.00	0.00
			Max. Vy	26	0.04	0.00	0.00
			Max. Vx	33	-0.00	0.00	0.00
T6	80 - 60	Leg	Max Tension	15	205.00	-1.23	-0.11
			Max. Compression	2	-233.12	1.84	0.36
			Max. Mx	3	-229.70	1.85	0.36
			Max. My	12	-15.16	-0.02	-2.10
			Max. Vy	6	0.19	-1.77	-0.01
			Max. Vx	24	-0.35	-0.02	2.10
		Diagonal	Max Tension	15	15.58	0.00	0.00
			Max. Compression	14	-15.83	0.00	0.00
			Max. Mx	34	3.44	0.29	0.00
			Max. My	14	-3.05	0.00	-0.00
			Max. Vy	34	-0.09	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	14	10.67	-0.03	0.01
			Max. Compression	2	-10.68	-0.05	-0.01
			Max. Mx	33	-0.94	-0.12	-0.00
			Max. My	2	-0.17	-0.02	0.02
			Max. Vy	33	-0.07	-0.12	-0.00
			Max. Vx	2	-0.00	-0.02	0.02
		Inner Bracing	Max Tension	25	0.01	0.00	0.00
			Max. Compression	24	-0.02	0.00	0.00
			Max. Mx	26	-0.01	-0.12	0.00
			Max. My	33	-0.01	0.00	0.00
			Max. Vy	26	-0.06	0.00	0.00
			Max. Vx	33	-0.00	0.00	0.00
T7	60 - 40	Leg	Max Tension	15	240.56	-1.32	-0.11
			Max. Compression	2	-272.97	1.10	0.19
			Max. Mx	3	-249.58	1.85	0.36
			Max. My	12	-15.65	-0.02	-2.10
			Max. Vy	6	-0.18	-1.77	-0.01
			Max. Vx	24	0.33	-0.02	2.10
		Diagonal	Max Tension	15	15.26	0.00	0.00
			Max. Compression	14	-15.60	0.00	0.00
			Max. Mx	34	3.15	0.35	0.00
			Max. My	14	-3.14	0.00	-0.00
			Max. Vy	34	0.10	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	14	11.26	-0.07	0.01
			Max. Compression	3	-11.24	-0.08	-0.01
			Max. Mx	33	-0.94	-0.20	-0.01
			Max. My	2	-0.46	-0.04	0.02
			Max. Vy	33	-0.10	-0.20	-0.01
			Max. Vx	2	-0.00	-0.04	0.02
		Inner Bracing	Max Tension	25	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	24	-0.02	0.00	0.00
			Max. Mx	26	-0.01	-0.18	0.00
			Max. My	33	-0.01	0.00	0.00
			Max. Vy	26	0.07	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
T8	40 - 20	Leg	Max Tension	15	274.14	-1.93	0.01
			Max. Compression	2	-311.38	3.54	0.74
			Max. Mx	3	-306.70	3.55	0.75
			Max. My	12	-20.34	-0.03	-4.50
			Max. Vy	14	0.30	-3.52	-0.63
			Max. Vx	24	-0.54	-0.03	4.50
		Diagonal	Max Tension	15	15.95	0.00	0.00
			Max. Compression	14	-16.35	0.00	0.00
			Max. Mx	34	3.25	0.40	0.00
			Max. My	14	-3.18	0.00	-0.00
			Max. Vy	34	-0.11	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	14	12.37	-0.10	0.01
			Max. Compression	3	-12.32	-0.09	-0.01
			Max. Mx	33	-0.81	-0.24	-0.01
			Max. My	2	-1.16	-0.07	0.02
			Max. Vy	33	-0.10	-0.24	-0.01
			Max. Vx	2	-0.00	-0.07	0.02
		Inner Bracing	Max Tension	25	0.00	0.00	0.00
			Max. Compression	24	-0.02	0.00	0.00
			Max. Mx	26	-0.01	-0.28	0.00
			Max. My	2	-0.00	0.00	-0.00
			Max. Vy	26	0.10	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
T9	20 - 0	Leg	Max Tension	15	307.28	-2.33	-0.01
			Max. Compression	2	-350.12	-0.00	-0.00
			Max. Mx	35	-147.27	3.58	-0.01
			Max. My	12	-20.97	-0.03	-4.50
			Max. Vy	29	-0.49	-1.61	0.01
			Max. Vx	24	0.47	-0.03	4.50
		Diagonal	Max Tension	3	16.93	0.00	0.00
			Max. Compression	2	-17.67	0.00	0.00
			Max. Mx	27	4.51	0.63	0.00
			Max. My	14	-3.36	0.00	-0.00
			Max. Vy	27	-0.15	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	14	13.87	-0.16	0.02
			Max. Compression	3	-13.70	-0.15	-0.02
			Max. Mx	33	-1.13	-0.31	-0.01
			Max. My	3	-1.02	-0.07	0.03
			Max. Vy	33	-0.13	-0.28	-0.01
			Max. Vx	2	-0.00	-0.11	0.03
		Inner Bracing	Max Tension	25	0.00	0.00	0.00
			Max. Compression	29	-0.02	0.00	0.00
			Max. Mx	26	-0.02	-0.32	0.00
			Max. My	2	-0.00	0.00	-0.00
			Max. Vy	26	0.11	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	329.64	34.72	-19.99
	Max. H_x	18	329.64	34.72	-19.99
	Max. H_z	5	-277.75	-28.63	20.59
	Min. Vert	7	-295.62	-32.35	18.62
	Min. H_x	7	-295.62	-32.35	18.62
	Min. H_z	16	307.02	30.63	-21.86
Leg B	Max. Vert	10	342.22	-37.87	-19.55
	Max. H_x	23	-296.75	34.60	17.47
	Max. H_z	25	-279.44	31.84	18.86
	Min. Vert	23	-296.75	34.60	17.47
	Min. H_x	10	342.22	-37.87	-19.55
	Min. H_z	12	317.89	-34.83	-20.48
Leg A	Max. Vert	2	368.03	-2.10	45.82
	Max. H_x	21	15.79	5.12	1.52
	Max. H_z	2	368.03	-2.10	45.82
	Min. Vert	15	-323.01	2.28	-42.00
	Min. H_x	9	29.29	-5.42	2.63
	Min. H_z	15	-323.01	2.28	-42.00

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	56.40	0.00	0.00	15.71	21.56	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	67.68	2.75	-76.18	-7579.39	-442.75	-90.56
0.9 Dead+1.0 Wind 0 deg - No Ice	50.76	2.75	-76.18	-7578.61	-448.81	-90.54
1.2 Dead+1.0 Wind 30 deg - No Ice	67.68	37.36	-61.38	-6190.36	-3887.13	-14.08
0.9 Dead+1.0 Wind 30 deg - No Ice	50.76	37.36	-61.38	-6190.56	-3890.69	-14.07
1.2 Dead+1.0 Wind 60 deg - No Ice	67.68	57.91	-33.45	-3425.60	-5936.59	2.10
0.9 Dead+1.0 Wind 60 deg - No Ice	50.76	57.91	-33.45	-3427.79	-5938.66	2.09
1.2 Dead+1.0 Wind 90 deg - No Ice	67.68	65.12	-1.68	-267.05	-6598.20	14.99
0.9 Dead+1.0 Wind 90 deg - No Ice	50.76	65.12	-1.68	-271.52	-6599.82	14.97
1.2 Dead+1.0 Wind 120 deg - No Ice	67.68	62.45	32.89	3127.58	-6292.32	85.94
0.9 Dead+1.0 Wind 120 deg - No Ice	50.76	62.45	32.89	3120.67	-6294.17	85.91
1.2 Dead+1.0 Wind 150 deg - No Ice	67.68	38.64	66.99	6517.53	-3718.81	140.90
0.9 Dead+1.0 Wind 150 deg - No Ice	50.76	38.64	66.99	6508.16	-3722.64	140.87
1.2 Dead+1.0 Wind 180 deg - No Ice	67.68	-0.32	75.31	7467.99	79.98	98.59
0.9 Dead+1.0 Wind 180 deg - No Ice	50.76	-0.32	75.31	7457.88	73.44	98.57
1.2 Dead+1.0 Wind 210 deg -	67.68	-35.47	61.33	6218.96	3615.77	24.72

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+1.0 Wind 210 deg - No Ice	50.76	-35.47	61.33	6209.69	3606.65	24.71
1.2 Dead+1.0 Wind 240 deg - No Ice	67.68	-57.00	32.92	3373.09	5831.96	-2.10
0.9 Dead+1.0 Wind 240 deg - No Ice	50.76	-57.00	32.92	3365.88	5821.19	-2.09
1.2 Dead+1.0 Wind 270 deg - No Ice	67.68	-64.13	0.06	29.56	6480.48	-25.62
0.9 Dead+1.0 Wind 270 deg - No Ice	50.76	-64.13	0.06	24.81	6469.26	-25.61
1.2 Dead+1.0 Wind 300 deg - No Ice	67.68	-60.47	-34.56	-3374.27	6007.63	-93.96
0.9 Dead+1.0 Wind 300 deg - No Ice	50.76	-60.47	-34.56	-3376.57	5996.81	-93.94
1.2 Dead+1.0 Wind 330 deg - No Ice	67.68	-38.68	-66.97	-6475.21	3778.49	-140.90
0.9 Dead+1.0 Wind 330 deg - No Ice	50.76	-38.68	-66.97	-6475.32	3769.31	-140.87
1.2 Dead+1.0 Ice+1.0 Temp	194.09	-0.00	0.00	148.65	206.60	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	194.09	0.45	-20.42	-1926.80	129.78	-27.52
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	194.09	9.82	-16.46	-1546.65	-826.29	-10.33
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	194.09	15.71	-9.07	-797.99	-1433.03	-2.02
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	194.09	18.32	-0.27	101.78	-1677.53	3.04
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	194.09	17.17	9.40	1069.59	-1542.19	18.94
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	194.09	10.21	17.70	1914.34	-811.71	33.89
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	194.09	-0.05	20.28	2199.86	215.58	28.84
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	194.09	-9.51	16.45	1842.74	1186.71	12.07
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	194.09	-15.56	8.98	1080.72	1820.90	2.02
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	194.09	-18.15	0.01	150.49	2063.25	-4.78
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	194.09	-16.85	-9.67	-818.85	1900.43	-20.25
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	194.09	-10.22	-17.69	-1616.02	1226.57	-33.89
Dead+Wind 0 deg - Service	56.40	0.60	-17.26	-1690.63	-81.34	-19.89
Dead+Wind 30 deg - Service	56.40	8.47	-13.94	-1380.50	-856.58	-3.09
Dead+Wind 60 deg - Service	56.40	13.18	-7.61	-759.56	-1320.49	0.46
Dead+Wind 90 deg - Service	56.40	14.83	-0.37	-47.05	-1470.79	3.29
Dead+Wind 120 deg - Service	56.40	14.17	7.49	717.28	-1398.60	18.88
Dead+Wind 150 deg - Service	56.40	8.75	15.17	1475.56	-819.67	30.95
Dead+Wind 180 deg - Service	56.40	-0.07	17.07	1689.30	33.45	21.65
Dead+Wind 210 deg - Service	56.40	-8.05	13.93	1409.99	828.81	5.43
Dead+Wind 240 deg - Service	56.40	-12.98	7.49	771.16	1329.23	-0.46
Dead+Wind 270 deg - Service	56.40	-14.61	0.01	18.08	1476.75	-5.63
Dead+Wind 300 deg - Service	56.40	-13.74	-7.86	-748.27	1367.85	-20.64
Dead+Wind 330 deg - Service	56.40	-8.76	-15.17	-1443.11	864.52	-30.96

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-56.40	0.00	0.00	56.40	0.00	0.000%
2	2.75	-67.68	-76.18	-2.75	67.68	76.18	0.000%
3	2.75	-50.76	-76.18	-2.75	50.76	76.18	0.000%
4	37.36	-67.68	-61.38	-37.36	67.68	61.38	0.000%
5	37.36	-50.76	-61.38	-37.36	50.76	61.38	0.000%
6	57.91	-67.68	-33.45	-57.91	67.68	33.45	0.000%
7	57.91	-50.76	-33.45	-57.91	50.76	33.45	0.000%
8	65.12	-67.68	-1.68	-65.12	67.68	1.68	0.000%
9	65.12	-50.76	-1.68	-65.12	50.76	1.68	0.000%
10	62.45	-67.68	32.89	-62.45	67.68	-32.89	0.000%
11	62.45	-50.76	32.89	-62.45	50.76	-32.89	0.000%
12	38.64	-67.68	66.99	-38.64	67.68	-66.99	0.000%
13	38.64	-50.76	66.99	-38.64	50.76	-66.99	0.000%
14	-0.32	-67.68	75.31	0.32	67.68	-75.31	0.000%
15	-0.32	-50.76	75.31	0.32	50.76	-75.31	0.000%
16	-35.47	-67.68	61.33	35.47	67.68	-61.33	0.000%
17	-35.47	-50.76	61.33	35.47	50.76	-61.33	0.000%
18	-57.00	-67.68	32.92	57.00	67.68	-32.92	0.000%
19	-57.00	-50.76	32.92	57.00	50.76	-32.92	0.000%
20	-64.13	-67.68	0.06	64.13	67.68	-0.06	0.000%
21	-64.13	-50.76	0.06	64.13	50.76	-0.06	0.000%
22	-60.47	-67.68	-34.56	60.47	67.68	34.56	0.000%
23	-60.47	-50.76	-34.56	60.47	50.76	34.56	0.000%
24	-38.68	-67.68	-66.97	38.68	67.68	66.97	0.000%
25	-38.68	-50.76	-66.97	38.68	50.76	66.97	0.000%
26	0.00	-194.09	0.00	0.00	194.09	0.00	0.000%
27	0.45	-194.09	-20.42	-0.45	194.09	20.42	0.000%
28	9.82	-194.09	-16.46	-9.82	194.09	16.46	0.000%
29	15.71	-194.09	-9.07	-15.71	194.09	9.07	0.000%
30	18.32	-194.09	-0.27	-18.32	194.09	0.27	0.000%
31	17.17	-194.09	9.40	-17.17	194.09	-9.40	0.000%
32	10.21	-194.09	17.70	-10.21	194.09	-17.70	0.000%
33	-0.05	-194.09	20.28	0.05	194.09	-20.28	0.000%
34	-9.51	-194.09	16.45	9.51	194.09	-16.45	0.000%
35	-15.56	-194.09	8.98	15.56	194.09	-8.98	0.000%
36	-18.15	-194.09	0.01	18.15	194.09	-0.01	0.000%
37	-16.85	-194.09	-9.67	16.85	194.09	9.67	0.000%
38	-10.22	-194.09	-17.69	10.22	194.09	17.69	0.000%
39	0.60	-56.40	-17.26	-0.60	56.40	17.26	0.000%
40	8.47	-56.40	-13.94	-8.47	56.40	13.94	0.000%
41	13.18	-56.40	-7.61	-13.18	56.40	7.61	0.000%
42	14.83	-56.40	-0.37	-14.83	56.40	0.37	0.000%
43	14.17	-56.40	7.49	-14.17	56.40	-7.49	0.000%
44	8.75	-56.40	15.17	-8.75	56.40	-15.17	0.000%
45	-0.07	-56.40	17.07	0.07	56.40	-17.07	0.000%
46	-8.05	-56.40	13.93	8.05	56.40	-13.93	0.000%
47	-12.98	-56.40	7.49	12.98	56.40	-7.49	0.000%
48	-14.61	-56.40	0.01	14.61	56.40	-0.01	0.000%
49	-13.74	-56.40	-7.86	13.74	56.40	7.86	0.000%
50	-8.76	-56.40	-15.17	8.76	56.40	15.17	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	0.00000236
28	Yes	4	0.00000001	0.00000220
29	Yes	4	0.00000001	0.00000212
30	Yes	4	0.00000001	0.00000217
31	Yes	4	0.00000001	0.00000235
32	Yes	4	0.00000001	0.00000250
33	Yes	4	0.00000001	0.00000257
34	Yes	4	0.00000001	0.00000256
35	Yes	4	0.00000001	0.00000252
36	Yes	4	0.00000001	0.00000248
37	Yes	4	0.00000001	0.00000248
38	Yes	4	0.00000001	0.00000244
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

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	2.663	39	0.1236	0.0901

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T2	160 - 140	2.140	39	0.1208	0.0841
T3	140 - 120	1.626	39	0.1101	0.0715
T4	120 - 100	1.164	39	0.0932	0.0559
T5	100 - 80	0.795	39	0.0707	0.0434
T6	80 - 60	0.515	39	0.0533	0.0322
T7	60 - 40	0.298	44	0.0389	0.0216
T8	40 - 20	0.147	44	0.0239	0.0131
T9	20 - 0	0.044	50	0.0122	0.0052

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.00	(3) Side Arm Mounts	39	2.663	0.1236	0.0901	Inf
170.00	8 FT DISH	39	2.402	0.1229	0.0877	Inf
160.00	(3) Sector Mounts	39	2.140	0.1208	0.0841	544054
150.00	(3) Sector Mounts	39	1.880	0.1163	0.0786	144488
140.00	(3) Sector Mounts	39	1.626	0.1101	0.0715	81416
130.00	(3) T-Arm Mounts	39	1.385	0.1025	0.0636	60026
125.00	(1) Side Arm Mount	39	1.272	0.0981	0.0596	52630
90.00	(1) Side Arm Mount	39	0.646	0.0612	0.0378	65194
75.00	(1) Stand OffMount	39	0.455	0.0497	0.0294	82539

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	12.091	2	0.5615	0.4103
T2	160 - 140	9.693	2	0.5516	0.3832
T3	140 - 120	7.342	2	0.5029	0.3256
T4	120 - 100	5.243	2	0.4242	0.2544
T5	100 - 80	3.569	2	0.3211	0.1978
T6	80 - 60	2.303	2	0.2414	0.1465
T7	60 - 40	1.326	2	0.1760	0.0986
T8	40 - 20	0.653	12	0.1080	0.0598
T9	20 - 0	0.194	24	0.0550	0.0237

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.00	(3) Side Arm Mounts	2	12.091	0.5615	0.4103	606042
170.00	8 FT DISH	2	10.892	0.5598	0.3993	303021
160.00	(3) Sector Mounts	2	9.693	0.5516	0.3832	143909
150.00	(3) Sector Mounts	2	8.501	0.5319	0.3580	32561
140.00	(3) Sector Mounts	2	7.342	0.5029	0.3256	17156

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	(3) T-Arm Mounts	2	6.247	0.4675	0.2894	12818
125.00	(1) Side Arm Mount	2	5.732	0.4470	0.2714	11323
90.00	(1) Side Arm Mount	2	2.894	0.2777	0.1720	14195
75.00	(1) Stand OffMount	2	2.032	0.2248	0.1339	18057

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	180	Leg	A325N	0.8750	4	1.18	41.56	0.028 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	2.53	13.81	0.183 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	2.05	13.81	0.149 ✔	1	Bolt Shear
		Top Girt	A325N	0.6250	2	0.24	13.81	0.017 ✔	1	Bolt Shear
T2	160	Leg	A325N	1.0000	4	9.59	54.52	0.176 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	4.35	13.81	0.315 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	3.56	13.81	0.258 ✔	1	Bolt Shear
T3	140	Leg	A325N	1.0000	6	14.12	54.52	0.259 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	4.45	13.81	0.322 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	4.21	13.81	0.305 ✔	1	Bolt Shear
T4	120	Leg	A325N	1.0000	8	16.13	54.52	0.296 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	4.36	13.81	0.316 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	4.62	13.81	0.335 ✔	1	Bolt Shear
T5	100	Leg	A325N	1.0000	8	20.63	54.52	0.378 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	5.56	13.81	0.403 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	5.20	13.81	0.377 ✔	1	Bolt Shear
T6	80	Leg	A325N	1.0000	8	25.63	54.52	0.470 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	5.28	13.81	0.382 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	5.34	13.81	0.387 ✔	1	Bolt Shear
T7	60	Leg	A325N	1.0000	12	20.05	54.52	0.368 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	5.20	13.81	0.377 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	5.63	13.81	0.408 ✔	1	Bolt Shear
T8	40	Leg	A325N	1.0000	12	22.85	54.52	0.419 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	5.45	13.81	0.395 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	6.18	13.81	0.448 ✔	1	Bolt Shear
T9	20	Diagonal	A325N	0.7500	3	5.89	19.88	0.296 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	6.93	13.81	0.502 ✔	1	Bolt Shear

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	180 - 160	ROHN 3 STD	20.00	6.67	68.8 K=1.00	2.2285	-10.25	70.98	0.144 [1] ✔
T2	160 - 140	ROHN 4 X-STR	20.00	6.67	54.2 K=1.00	4.4074	-44.58	160.03	0.279 [1] ✔
T3	140 - 120	ROHN 5 EH	20.04	6.68	43.6 K=1.00	6.1114	-98.98	239.35	0.414 [1] ✔
T4	120 - 100	ROHN 6 EHS	20.04	6.68	36.0 K=1.00	6.7133	-149.76	274.76	0.545 [1] ✔
T5	100 - 80	ROHN 8 EHS	20.04	10.02	40.6 K=1.00	9.8666	-189.00	393.65	0.480 [1] ✔
T6	80 - 60	ROHN 8 X-STR	20.05	10.03	41.8 K=1.00	12.7627	-233.12	505.43	0.461 [1] ✔
T7	60 - 40	ROHN 8 EH	20.06	10.03	41.8 K=1.00	12.7627	-272.97	505.39	0.540 [1] ✔
T8	40 - 20	ROHN 10 EH	20.05	10.03	33.2 K=1.00	16.1007	-311.38	668.55	0.466 [1] ✔
T9	20 - 0	ROHN 10 EH	20.05	10.03	33.2 K=1.00	16.1007	-350.12	668.57	0.524 [1] ✔

[1] $P_u / \phi P_n$ 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	180 - 160	ROHN 2 STD	7.94	7.67	117.0 K=1.00	1.0745	-7.58	17.75	0.427 [1] ✔
T2	160 - 140	ROHN 2 EH	7.96	7.62	119.3 K=1.00	1.4773	-13.06	23.45	0.557 [1] ✔
T3	140 - 120	ROHN 2 EH	8.58	8.21	128.5 K=1.00	1.4773	-13.34	20.20	0.660 [1] ✔
T4	120 - 100	ROHN 2.5 STD	9.29	8.89	112.6 K=1.00	1.7040	-13.09	30.34	0.432 [1] ✔
T5	100 - 80	ROHN 3 STD	12.56	11.95	123.3 K=1.00	2.2285	-16.68	33.12	0.503 [1] ✔
T6	80 - 60	ROHN 3 STD	13.35	12.81	132.1 K=1.00	2.2285	-15.83	28.85	0.549 [1] ✔
T7	60 - 40	ROHN 3 STD	14.26	13.76	141.9 K=1.00	2.2285	-15.60	25.00	0.624 [1] ✔
T8	40 - 20	ROHN 3 STD	15.19	14.60	150.5 K=1.00	2.2285	-16.34	22.22	0.736 [1] ✔
T9	20 - 0	ROHN 3.5 X-STR	16.14	15.57	143.0	3.6784	-17.67	40.63	0.435 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
					K=1.00				✔

[1] P_u / ϕP_n controls

Horizontal 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	180 - 160	ROHN 1.5 STD	8.60	4.15	80.0 K=1.00	0.7995	-4.07	22.52	0.181 [1] ✔
T2	160 - 140	ROHN 1.5 STD	8.68	4.15	80.0 K=1.00	0.7995	-7.08	22.52	0.315 [1] ✔
T3	140 - 120	ROHN 1.5 STD	10.10	4.82	92.8 K=1.00	0.7995	-8.38	19.16	0.437 [1] ✔
T4	120 - 100	ROHN 2 STD	12.22	5.83	88.9 K=1.00	1.0745	-9.22	27.13	0.340 [1] ✔
T5	100 - 80	ROHN 2 STD	14.05	6.66	101.6 K=1.00	1.0745	-10.41	22.75	0.458 [1] ✔
T6	80 - 60	ROHN 2 STD	16.43	7.85	119.7 K=1.00	1.0745	-10.68	16.93	0.631 [1] ✔
T7	60 - 40	ROHN 2.5 STD	19.00	9.14	115.8 K=1.00	1.7040	-11.24	28.71	0.391 [1] ✔
T8	40 - 20	ROHN 2.5 STD	21.60	10.35	131.1 K=1.00	1.7040	-12.32	22.40	0.550 [1] ✔
T9	20 - 0	ROHN 3 STD	24.10	11.60	119.6 K=1.00	2.2285	-13.70	35.17	0.389 [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	180 - 160	ROHN 1.5 STD	8.54	4.13	79.5 K=1.00	0.7995	-0.48	22.66	0.021 [1] ✔

[1] P_u / ϕP_n controls

Inner Bracing 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	180 - 160	L2x2x1/8	4.30	4.30	129.8 K=1.00	0.4844	-0.01	8.23	0.001 [1] ✔
T2	160 - 140	L2x2x1/8	4.34	4.34	131.0 K=1.00	0.4844	-0.01	8.08	0.001 [1] ✔
T3	140 - 120	L2x2x1/8	5.05	5.05	152.4 K=1.00	0.4844	-0.01	5.97	0.002 [1] ✔
T4	120 - 100	L2x2x1/8	6.11	6.11	184.4 K=1.00	0.4844	-0.01	4.08	0.003 [1] ✔
T5	100 - 80	L2x2x1/8	7.03	7.03	212.1 K=1.00	0.4844	-0.01	3.08	0.005 [1] ✔
T6	80 - 60	L2 1/2x2 1/2x3/16	8.21	8.21	199.1 K=1.00	0.9020	-0.02	6.51	0.002 [1] ✔
T7	60 - 40	L3x3x3/16	9.50	9.50	191.3 K=1.00	1.0900	-0.02	8.52	0.002 [1] ✔
T8	40 - 20	L3 1/2x3 1/2x1/4	10.80	10.80	186.7 K=1.00	1.6900	-0.02	13.88	0.001 [1] ✔
T9	20 - 0	L3 1/2x3 1/2x1/4	12.05	12.05	208.3 K=1.00	1.6900	-0.02	11.15	0.002 [1] ✔

[1] $P_u / \phi P_n$ 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	180 - 160	ROHN 3 STD	20.00	6.67	68.8	2.2285	4.72	100.28	0.047 [1] ✔
T2	160 - 140	ROHN 4 X-STR	20.00	6.67	54.2	4.4074	38.36	198.34	0.193 [1] ✔
T3	140 - 120	ROHN 5 EH	20.04	6.68	43.6	6.1114	84.75	275.01	0.308 [1] ✔
T4	120 - 100	ROHN 6 EHS	20.04	6.68	36.0	6.7133	129.07	302.10	0.427 [1] ✔
T5	100 - 80	ROHN 8 EHS	20.04	10.02	40.6	9.8666	165.00	444.00	0.372 [1] ✔
T6	80 - 60	ROHN 8 X-STR	20.05	10.03	41.8	12.7627	205.01	574.32	0.357 [1] ✔
T7	60 - 40	ROHN 8 EH	20.06	10.03	41.8	12.7627	240.56	574.32	0.419 [1] ✔
T8	40 - 20	ROHN 10 EH	20.05	10.03	33.2	16.1007	274.14	724.53	0.378 [1] ✔
T9	20 - 0	ROHN 10 EH	20.05	10.03	33.2	16.1007	307.28	724.53	0.424 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

[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	180 - 160	ROHN 2 STD	7.94	7.67	117.0	1.0745	7.50	48.35	0.155 [1]
T2	160 - 140	ROHN 2 EH	7.96	7.62	119.3	1.4773	12.96	66.48	0.195 [1]
T3	140 - 120	ROHN 2 EH	8.58	8.21	128.5	1.4773	13.22	66.48	0.199 [1]
T4	120 - 100	ROHN 2.5 STD	9.29	8.89	112.6	1.7040	12.94	76.68	0.169 [1]
T5	100 - 80	ROHN 3 STD	12.56	11.95	123.3	2.2285	16.47	100.28	0.164 [1]
T6	80 - 60	ROHN 3 STD	12.95	12.40	127.9	2.2285	15.58	100.28	0.155 [1]
T7	60 - 40	ROHN 3 STD	14.26	13.76	141.9	2.2285	15.26	100.28	0.152 [1]
T8	40 - 20	ROHN 3 STD	14.72	14.13	145.7	2.2285	15.95	100.28	0.159 [1]
T9	20 - 0	ROHN 3.5 X-STR	16.14	15.57	143.0	3.6784	16.93	165.53	0.102 [1]

[1] P_u / ϕP_n controls

Horizontal 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	180 - 160	ROHN 1.5 STD	8.60	4.15	80.0	0.7995	4.11	35.98	0.114 [1]
T2	160 - 140	ROHN 1.5 STD	8.68	4.15	80.0	0.7995	7.11	35.98	0.198 [1]
T3	140 - 120	ROHN 1.5 STD	10.10	4.82	92.8	0.7995	8.41	35.98	0.234 [1]
T4	120 - 100	ROHN 2 STD	12.22	5.83	88.9	1.0745	9.24	48.35	0.191 [1]
T5	100 - 80	ROHN 2 STD	14.05	6.66	101.6	1.0745	10.36	48.35	0.214 [1]
T6	80 - 60	ROHN 2 STD	16.43	7.85	119.7	1.0745	10.67	48.35	0.221 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	60 - 40	ROHN 2.5 STD	19.00	9.14	115.8	1.7040	11.26	76.68	0.147 [1]
T8	40 - 20	ROHN 2.5 STD	21.60	10.35	131.1	1.7040	12.37	76.68	0.161 [1]
T9	20 - 0	ROHN 3 STD	24.10	11.60	119.6	2.2285	13.87	100.28	0.138 [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	180 - 160	ROHN 1.5 STD	8.54	4.13	79.5	0.7995	0.48	35.98	0.013 [1]

[1] P_u / ϕP_n controls

Inner Bracing 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	180 - 160	L2x2x1/8	4.30	4.30	82.4	0.4844	0.00	15.69	0.000 [1]
T2	160 - 140	L2x2x1/8	4.34	4.34	83.2	0.4844	0.01	15.69	0.001 [1]
T3	140 - 120	L2x2x1/8	4.35	4.35	83.4	0.4844	0.01	15.69	0.001 [1]
T4	120 - 100	L2x2x1/8	5.40	5.40	103.4	0.4844	0.01	15.69	0.001 [1]
T5	100 - 80	L2x2x1/8	6.46	6.46	123.9	0.4844	0.01	15.69	0.000 [1]
T6	80 - 60	L2 1/2x2 1/2x3/16	7.59	7.59	117.0	0.9020	0.01	29.22	0.000 [1]
T7	60 - 40	L3x3x3/16	8.84	8.84	113.0	1.0900	0.00	35.32	0.000 [1]
T8	40 - 20	L3 1/2x3 1/2x1/4	10.17	10.17	111.9	1.6900	0.00	54.76	0.000 [1]
T9	20 - 0	L3 1/2x3 1/2x1/4	11.43	11.43	125.8	1.6900	0.00	54.76	0.000 [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	180 - 160	Leg	ROHN 3 STD	1	-10.25	70.98	14.4	Pass
T2	160 - 140	Leg	ROHN 4 X-STR	42	-44.58	160.03	27.9	Pass
T3	140 - 120	Leg	ROHN 5 EH	81	-98.98	239.35	41.4	Pass
T4	120 - 100	Leg	ROHN 6 EHS	120	-149.76	274.76	54.5	Pass
T5	100 - 80	Leg	ROHN 8 EHS	159	-189.00	393.65	48.0	Pass
T6	80 - 60	Leg	ROHN 8 X-STR	186	-233.12	505.43	46.1	Pass
							47.0 (b)	
T7	60 - 40	Leg	ROHN 8 EH	213	-272.97	505.39	54.0	Pass
T8	40 - 20	Leg	ROHN 10 EH	240	-311.38	668.55	46.6	Pass
T9	20 - 0	Leg	ROHN 10 EH	267	-350.12	668.57	52.4	Pass
T1	180 - 160	Diagonal	ROHN 2 STD	15	-7.58	17.75	42.7	Pass
T2	160 - 140	Diagonal	ROHN 2 EH	51	-13.06	23.45	55.7	Pass
T3	140 - 120	Diagonal	ROHN 2 EH	90	-13.34	20.20	66.0	Pass
T4	120 - 100	Diagonal	ROHN 2.5 STD	129	-13.09	30.34	43.2	Pass
T5	100 - 80	Diagonal	ROHN 3 STD	168	-16.68	33.12	50.3	Pass
T6	80 - 60	Diagonal	ROHN 3 STD	195	-15.83	28.85	54.9	Pass
T7	60 - 40	Diagonal	ROHN 3 STD	222	-15.60	25.00	62.4	Pass
T8	40 - 20	Diagonal	ROHN 3 STD	248	-16.34	22.22	73.6	Pass
T9	20 - 0	Diagonal	ROHN 3.5 X-STR	275	-17.67	40.63	43.5	Pass
T1	180 - 160	Horizontal	ROHN 1.5 STD	13	-4.07	22.52	18.1	Pass
T2	160 - 140	Horizontal	ROHN 1.5 STD	49	-7.08	22.52	31.5	Pass
T3	140 - 120	Horizontal	ROHN 1.5 STD	88	-8.38	19.16	43.7	Pass
T4	120 - 100	Horizontal	ROHN 2 STD	127	-9.22	27.13	34.0	Pass
T5	100 - 80	Horizontal	ROHN 2 STD	166	-10.41	22.75	45.8	Pass
T6	80 - 60	Horizontal	ROHN 2 STD	193	-10.68	16.93	63.1	Pass
T7	60 - 40	Horizontal	ROHN 2.5 STD	220	-11.24	28.71	39.1	Pass
							40.8 (b)	
T8	40 - 20	Horizontal	ROHN 2.5 STD	247	-12.32	22.40	55.0	Pass
T9	20 - 0	Horizontal	ROHN 3 STD	274	-13.70	35.17	38.9	Pass
							50.2 (b)	
T1	180 - 160	Top Girt	ROHN 1.5 STD	6	-0.48	22.66	2.1	Pass
T1	180 - 160	Inner Bracing	L2x2x1/8	17	-0.01	8.23	0.5	Pass
T2	160 - 140	Inner Bracing	L2x2x1/8	52	-0.01	8.08	0.5	Pass
T3	140 - 120	Inner Bracing	L2x2x1/8	91	-0.01	5.97	0.6	Pass
T4	120 - 100	Inner Bracing	L2x2x1/8	130	-0.01	4.08	0.7	Pass
T5	100 - 80	Inner Bracing	L2x2x1/8	169	-0.01	3.08	0.8	Pass
T6	80 - 60	Inner Bracing	L2 1/2x2 1/2x3/16	196	-0.01	6.51	0.6	Pass
T7	60 - 40	Inner Bracing	L3x3x3/16	223	-0.02	8.52	0.7	Pass
T8	40 - 20	Inner Bracing	L3 1/2x3 1/2x1/4	250	-0.02	13.88	0.6	Pass
T9	20 - 0	Inner Bracing	L3 1/2x3 1/2x1/4	277	-0.02	11.15	0.6	Pass
							Summary	
						Leg (T4)	54.5	Pass
						Diagonal (T8)	73.6	Pass
						Horizontal (T6)	63.1	Pass
						Top Girt (T1)	2.1	Pass
						Inner Bracing (T5)	0.8	Pass
						Bolt Checks	50.2	Pass
						RATING =	**73.6**	**Pass**

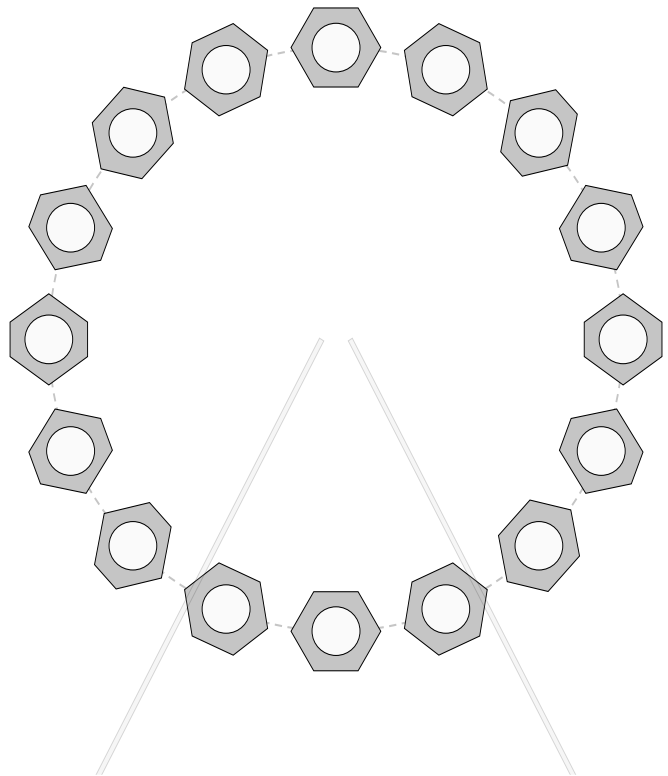
Self Support Anchor Rod Capacity

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	368.03	323.01
Shear Force (kips)	45.87	42.06

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

**Anchor Rod Eccentricity Applied*



Connection Properties

Anchor Rod Data

(16) 1" ø bolts (A354-BC N; Fy=109 ksi, Fu=125 ksi)

l_{ar} (in): 0

Analysis Results

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

Pu_c = 23	ϕPn_c = 77.05	**Stress Rating**
Vu = 2.87	ϕVn = 34.67	**30.5%**
Mu = n/a	ϕMn = n/a	**Pass**

Drilled Pier Foundation

TIA-222 Revison:	H
Tower Type:	Self Support

Applied Loads	Comp.	Uplift
Moment (kip-ft)	0	0
Axial Force (kips)	368.03	323.01
Shear Force (kips)	45.87	42.06

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	21	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 21' below grade		
Pier Diameter	5.5	ft
Rebar Quantity	30	
Rebar Size	9	
Clear Cover to Ties	3	in
Tie Size	5	

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	10.76	10.76
Soil Safety Factor	5.66	6.17
Max Moment (kip-ft)	349.04	320.04
Rating	*23.5%*	*21.6%*
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	4665.27	2332.63
End Bearing (kips)	178.19	-
Weight of Concrete (kips)	53.70	40.27
Total Capacity (kips)	4843.45	2372.90
Axial (kips)	421.73	323.01
Rating	*8.7%*	*13.6%*
Reinforced Concrete Check	*Compression*	*Uplift*
Critical Depth (ft from TOC)	11.08	10.74
Critical Moment (kip-ft)	348.58	320.04
Critical Moment Capacity	3823.04	2979.78
Rating	*9.1%*	*10.7%*

Soil Interaction Rating	**23.5%**
Structural Foundation Rating	**10.7%**

Soil Profile

Groundwater Depth	2.5	# of Layers	3

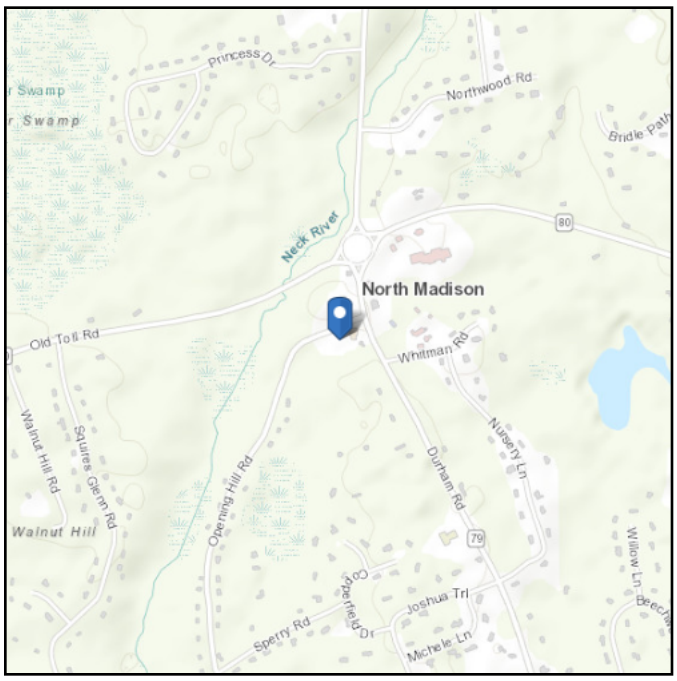
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2.75	2.75	125	87.6	0	0	0.000	0.000					Cohesionless
2	2.75	3	0.25	62.5	87.6	0	0	0.000	0.000					Cohesionless
3	3	21	18	62.5	87.6	0	35	0.000	0.000	20.00	10.00	10		Cohesionless

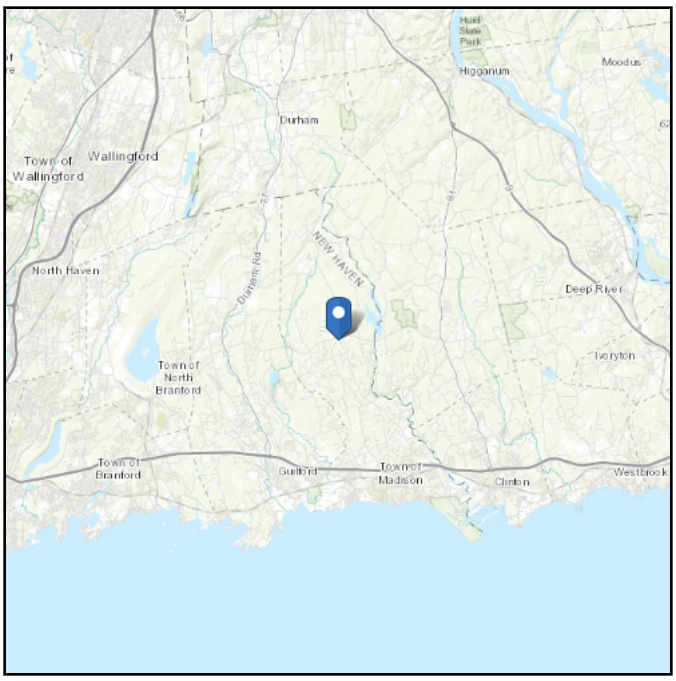
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 291.51 ft (NAVD 88)
Latitude: 41.357298
Longitude: -72.638749





Wind

Results:

Wind Speed	128 Vmph
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	95 Vmph
100-year MRI	105 Vmph

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

Date Accessed: Mon Mar 14 2022

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

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

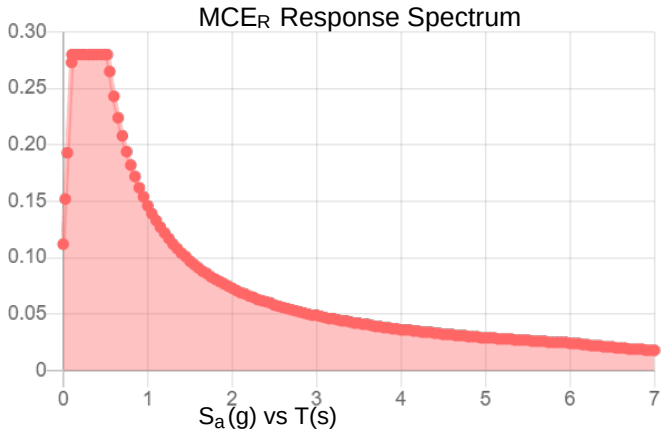
Seismic

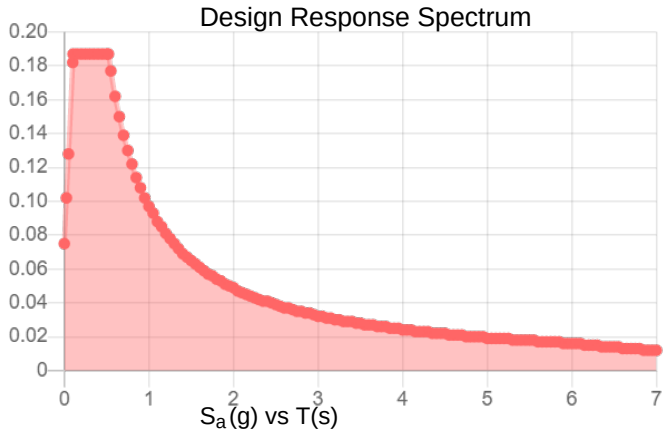
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.175	S_{DS} :	0.187
S_1 :	0.061	S_{D1} :	0.097
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.089
S_{MS} :	0.28	PGA_M :	0.143
S_{M1} :	0.146	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: **Mon Mar 14 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Mar 14 2022

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

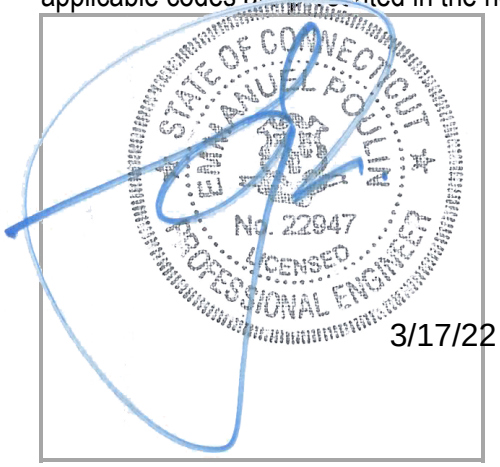
Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from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

MOUNT ANALYSIS REPORT

March 15, 2022

AT&T Mobility Site Name	MADISON-SR 79
AT&T Mobility Site Number	CTL02033
AT&T Mobility FA Number	10035048
Infinigy Job Number	1106-A0001-B
Client	Smartlink
Carrier	AT&T Mobility
Site Location	864 Opening Hill Road Madison, CT 06443 New Haven County 41° 21' 26.27" N NAD83 72° 38' 19.49" W NAD83
Structure Type	Self Support Tower
Structure Height	180.0 ft
Mount Type	15' Sector Frame
Mount Elevation	140.0 ft AGL
Structural Usage Ratio	69.1%
Overall Result	Pass

The enclosed mount structural analysis has been performed in accordance with the 2018 Connecticut State Building Code based on an ultimate 3-second gust wind speed of 128 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



Emmanuel Poulin, P.E.
structural@infinigy.com

CONTENTS

1. Introduction
2. Design/Analysis Parameters
3. Proposed Loading Configuration
4. Supporting Documentation
5. Results
6. Recommendations
7. Assumptions
8. Liability Waiver and Limitations
9. Calculations

1. INTRODUCTION

Infinigy performed a mount analysis on the AT&T Mobility existing telecommunication equipment supporting 15' Sector Frame mounted to the existing structure located at the aforementioned address. All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using Risa-3D version 19.0.4 analysis software.

2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	128 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.5 ice
Code / Standard	TIA-222-H
Adopted Code	2015 IBC / 2018 Connecticut State Building Code
Risk Category	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	S_s = 0.175 g / S_1 = 0.061 g
Live Load Wind Speed	60 mph
Man Live Load at Mid/End Points	250 lbs
Man Live Load at Mount Pipes	500 lbs
HMSL	291.51 ft

3. PROPOSED LOADING CONFIGURATION - 140.0 ft AGL 15' Sector Frame

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
140.0	3	Kathrein	800-10965
	3	Ericsson	AIR6419 B77G
	3	Ericsson	AIR6449 B77D
	3	CCI Antennas	DMP65R-BU6EA-K
	3	Ericsson	RRUS 8843 B2/B66A
	3	Ericsson	RRUS 4478 B14
	3	Ericsson	RRUS 4449 B5/B12
	3	Raycap	DC6-48-60-18-8F
	-	-	-

4. SUPPORTING DOCUMENTATION

Construction Drawings	Infinigy, Site ID: CTL02033, Rev. 0, dated March 3, 2022
Proposed Loading	AT&T Mobility RFDS ID: 4863107, Ver. 3.0, dated March 31, 2022
Post Mod Mount Analysis Report	Infinigy, Site ID: CTL02033, dated January 23, 2019
Site Walk Photos	Site Walk Photos, dated November 17, 2018

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipe(s)	45.0%	Pass
Horizontal(s)	37.7%	Pass
Standoff(s)	69.1%	Pass
Bracing(s)	23.3%	Pass
Mount Connections	11.6%	Pass
MOUNT RATING =	69.1%	Pass

Notes:
1. See additional documentation in Appendix for calculations supporting the capacity consumed and detailed mount connection calculations.

6. RECOMMENDATIONS

Infinigy recommends installing AT&T Mobility's proposed equipment loading configuration on the mount at 140.0 ft. The installation shall be performed in accordance with the construction documents issued for this site.

If you have any questions, require additional information, or believe the actual conditions differ from those detailed in this report, please contact us immediately.

Emmanuel Poulin, P.E.
Vice President of Structural Engineering | INFINIGY

7. ASSUMPTIONS

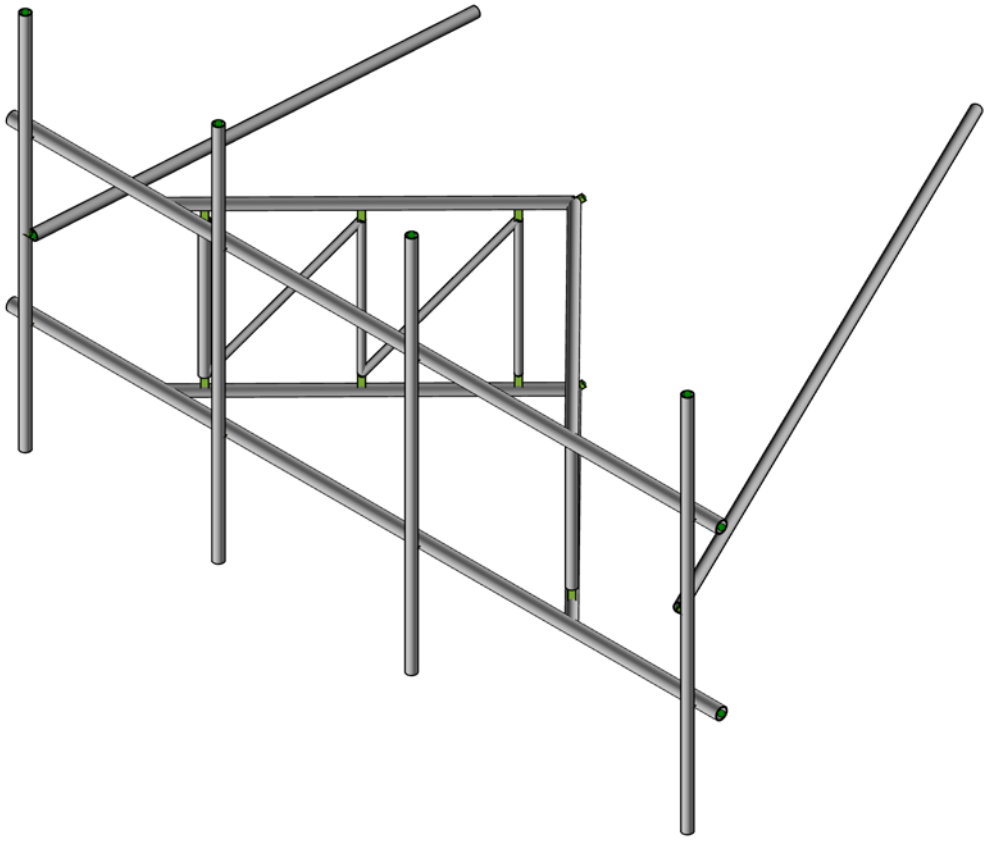
The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.
All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
The analysis will require revisions if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
Steel grades have been assumed as follows, unless noted otherwise: Channel, Solid Round, Angle, Plate — ASTM A36 HSS (Rectangular) — ASTM A500-B GR 46 HSS (Circular) — ASTM A500-B GR 42 Pipe — ASTM A53-B GR 35 Connection Bolts — ASTM A325 U-Bolts — ASTM A307
All bolted connections are pretensioned in accordance with Table 8.2 of the RCSC 2014 Standard.

8. LIABILITY WAIVER AND LIMITATIONS

Our structural calculations are completed assuming all information provided to Infinigy is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition as erected and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report, Infinigy should be notified immediately to assess the impact on the results of this report.

Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based on the stated assumptions and conclusions in this report.

This report is an evaluation of the mount structure only and does not determine the adequacy of the supporting structure, other carrier mounts or cable mounting attachments. The analysis of these elements is outside the scope of this analysis, are assumed to be adequate for the purpose of this report and to have been installed per their manufacturer requirements. This document is not for construction purposes.



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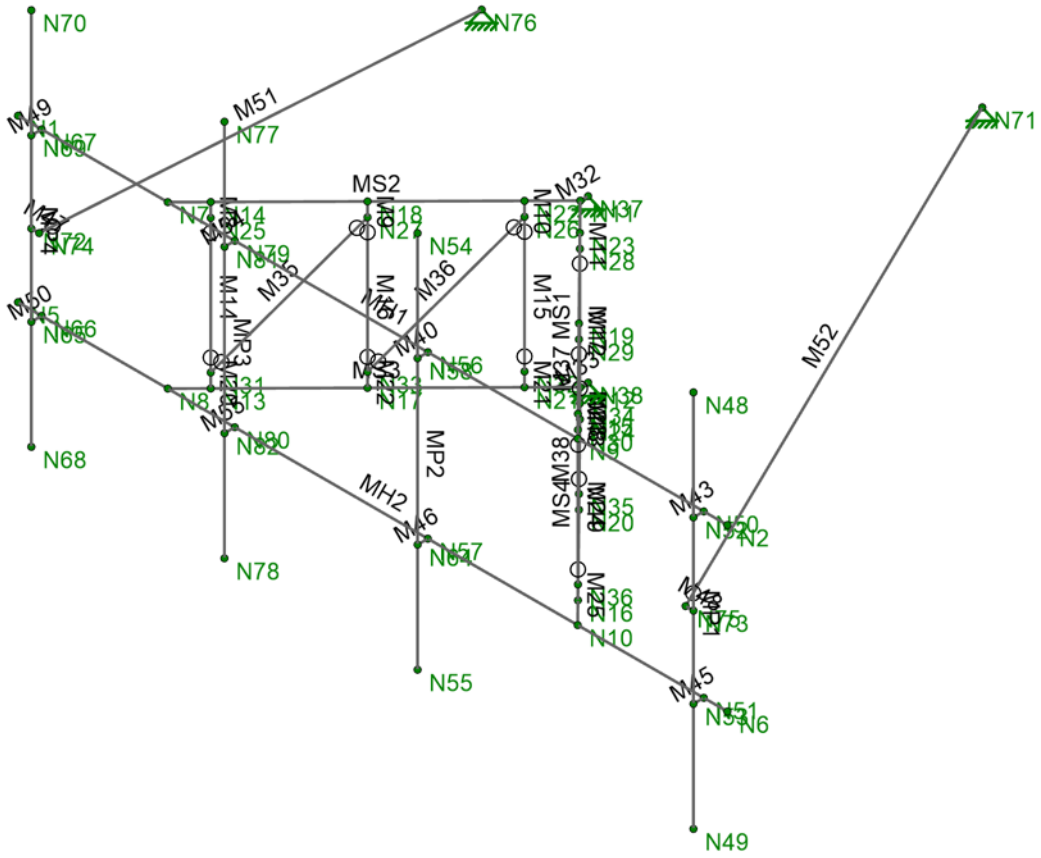

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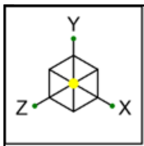

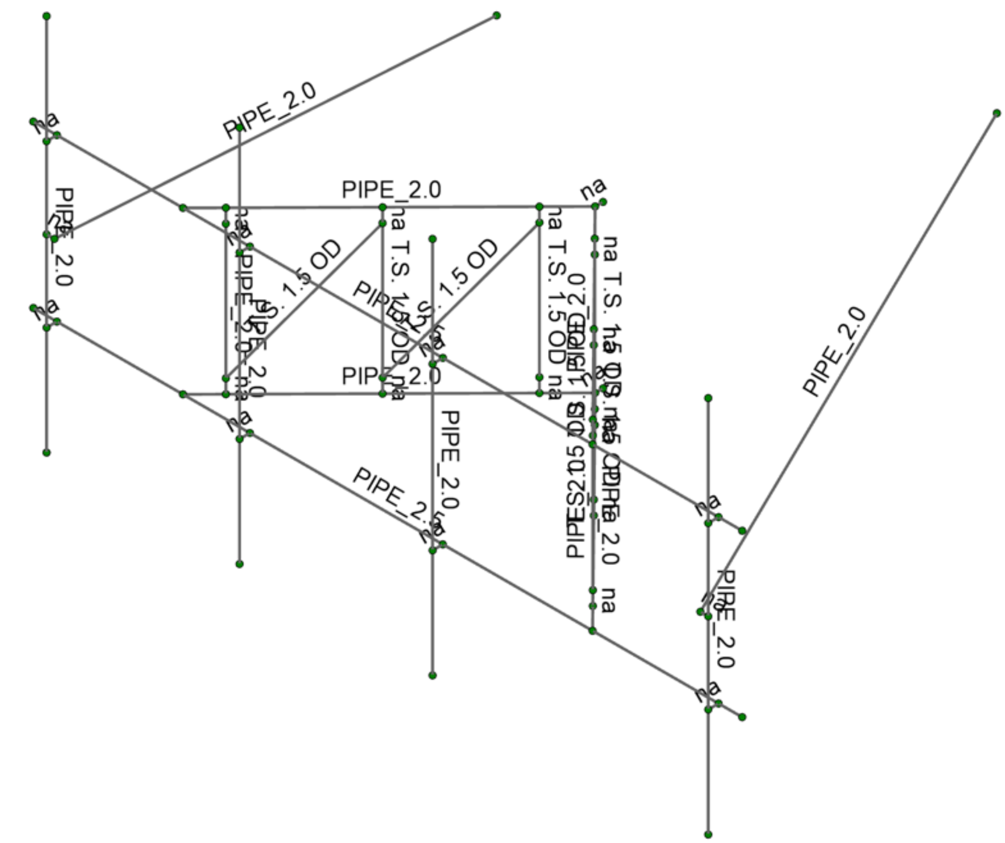

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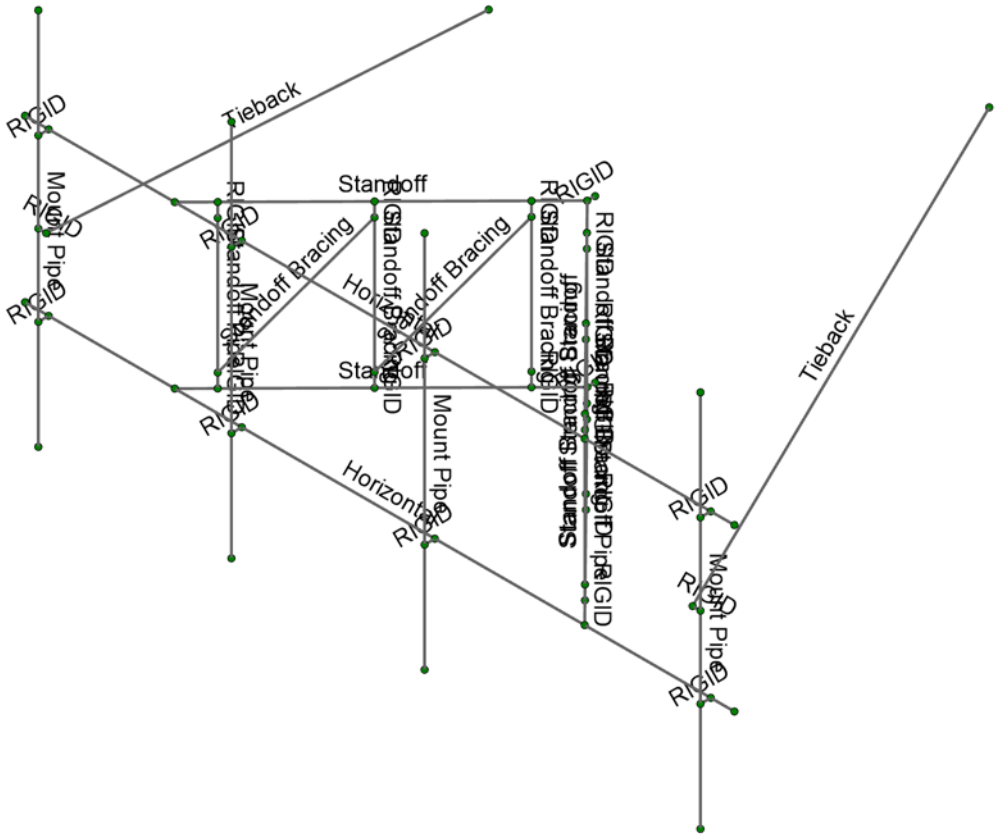

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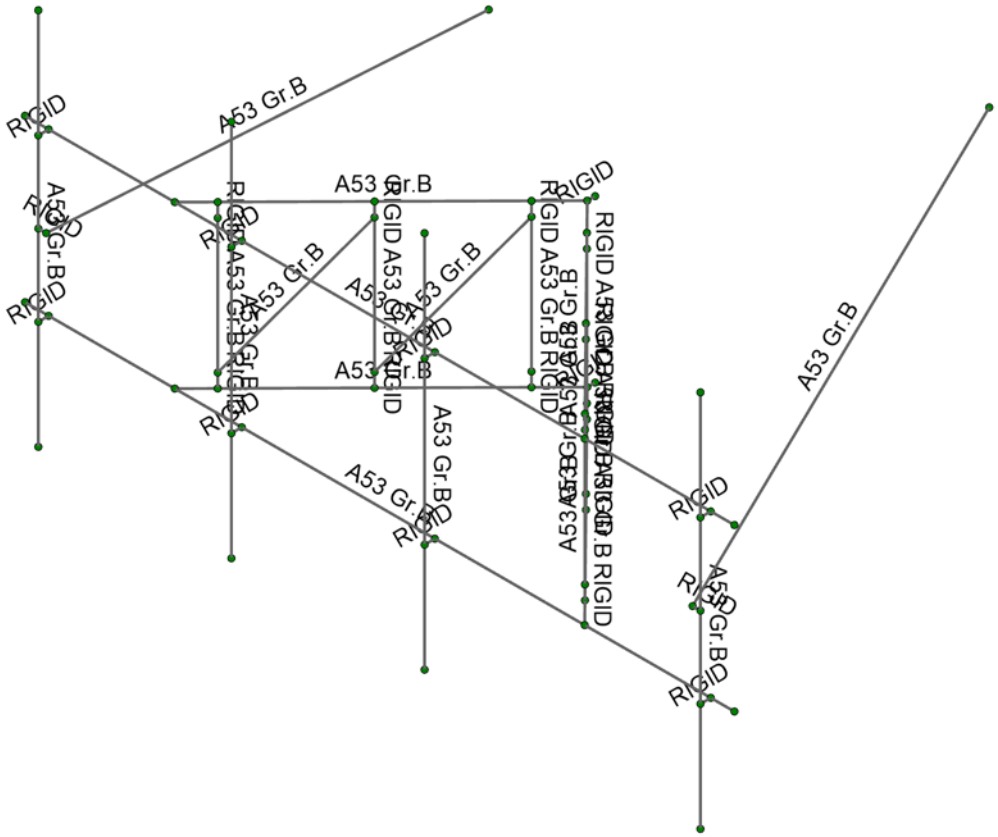

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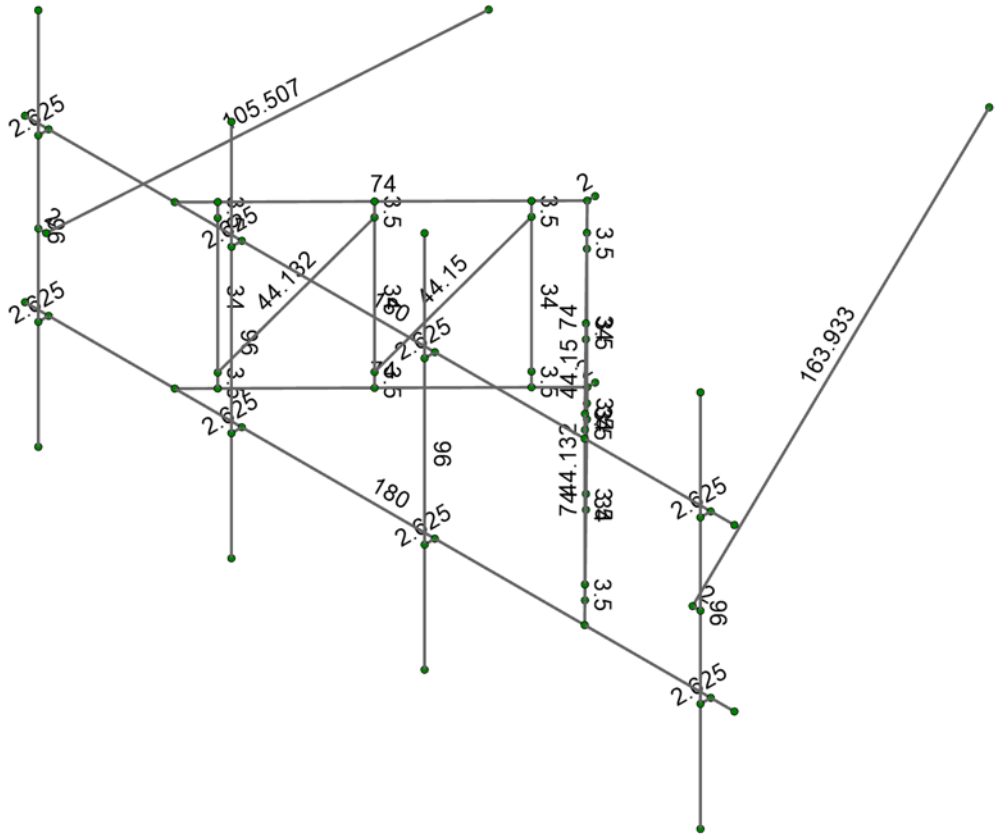

Member Length (in) Displayed

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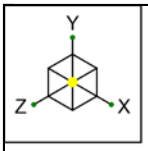

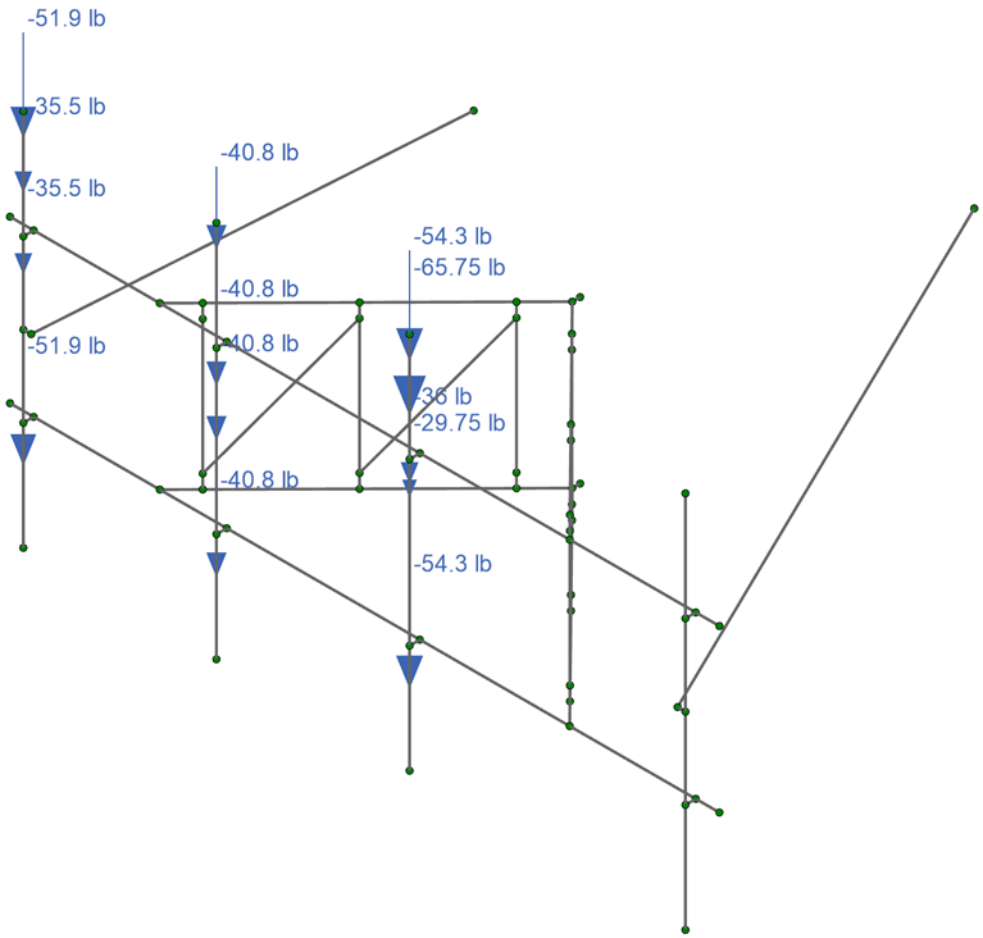

Loads: BLC 1, Self Weight

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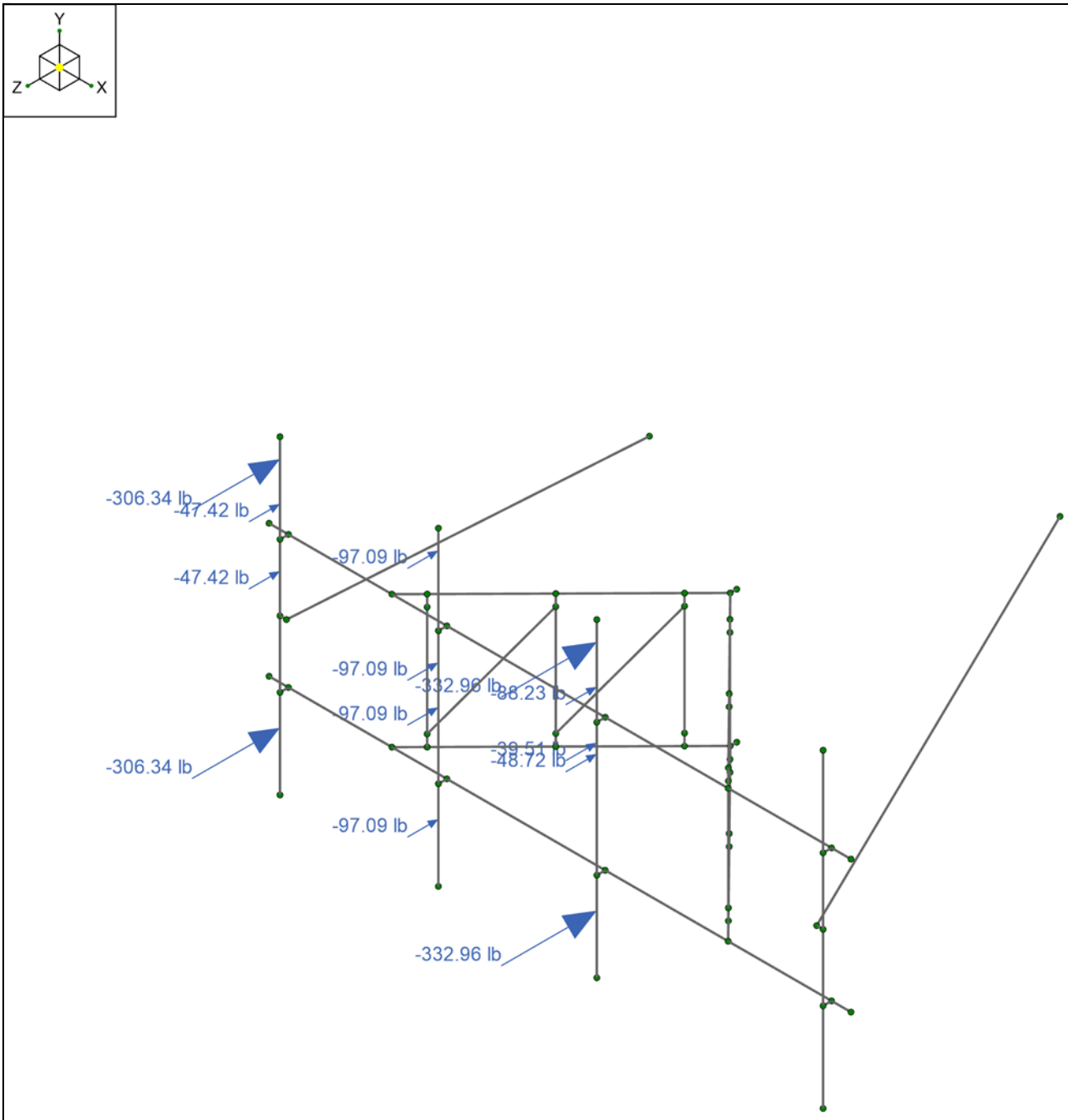

Loads: BLC 2, Wind Load AZI 0

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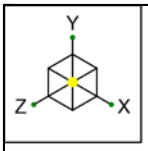

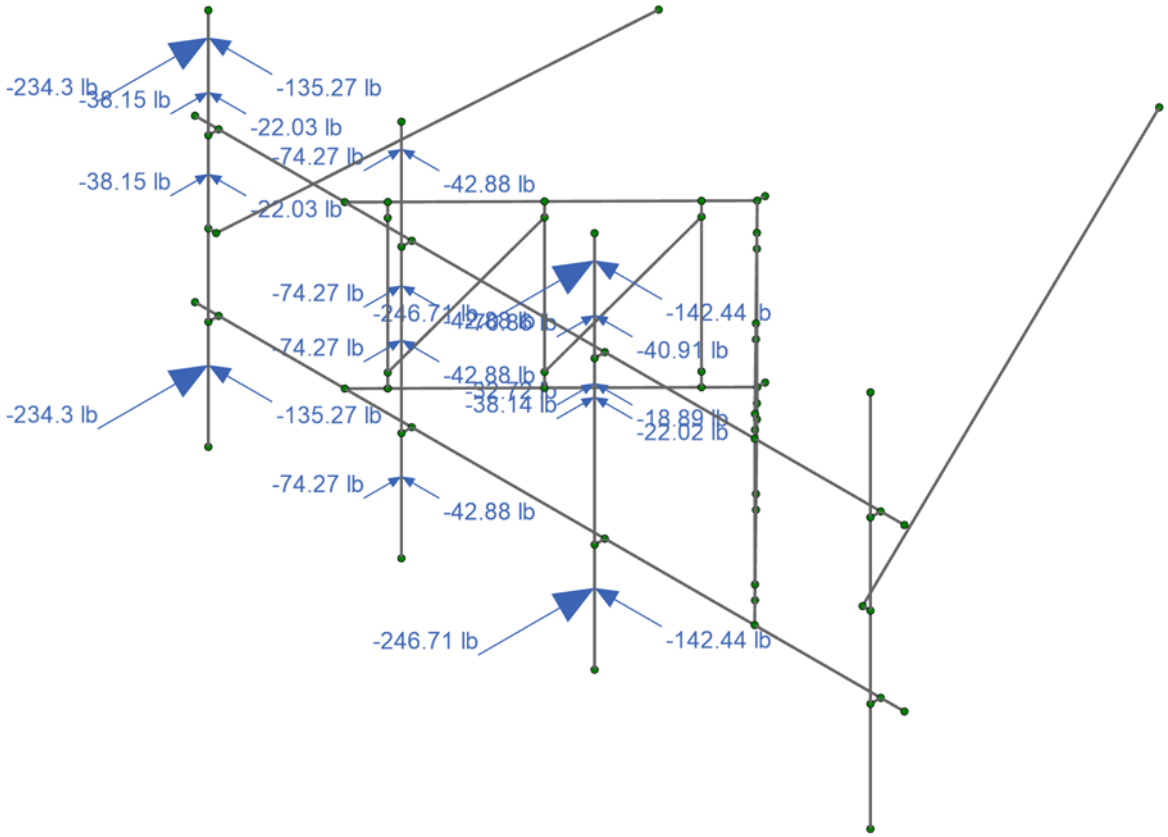

Loads: BLC 3, Wind Load AZI 30

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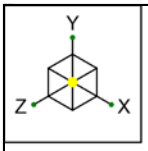

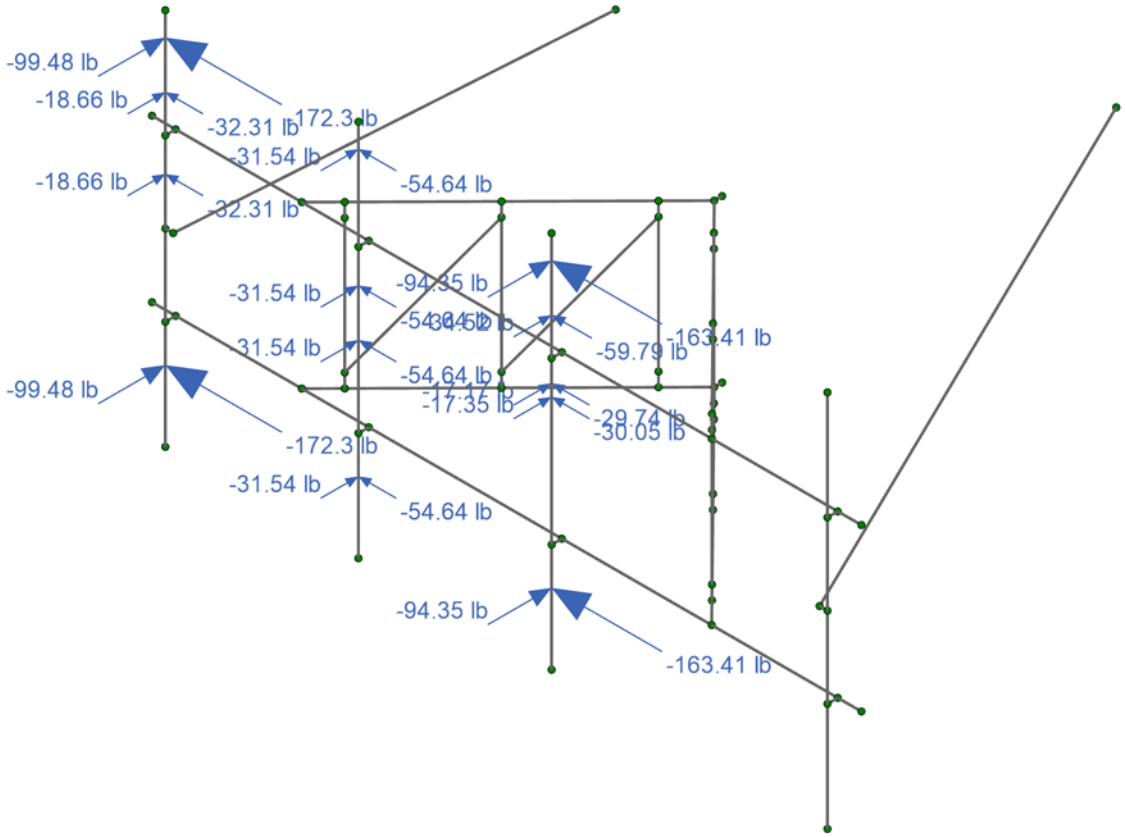

Loads: BLC 4, Wind Load AZI 60

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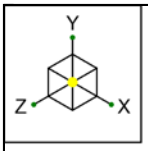

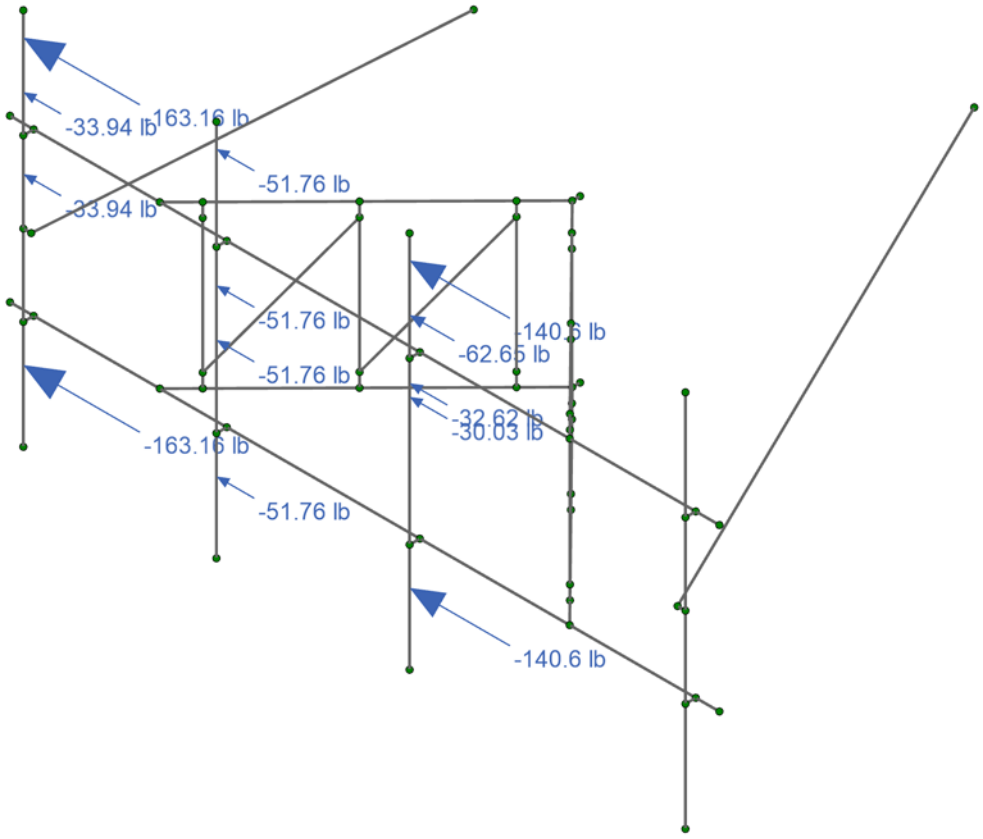

Loads: BLC 5, Wind Load AZI 90

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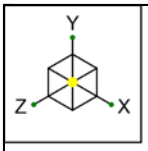

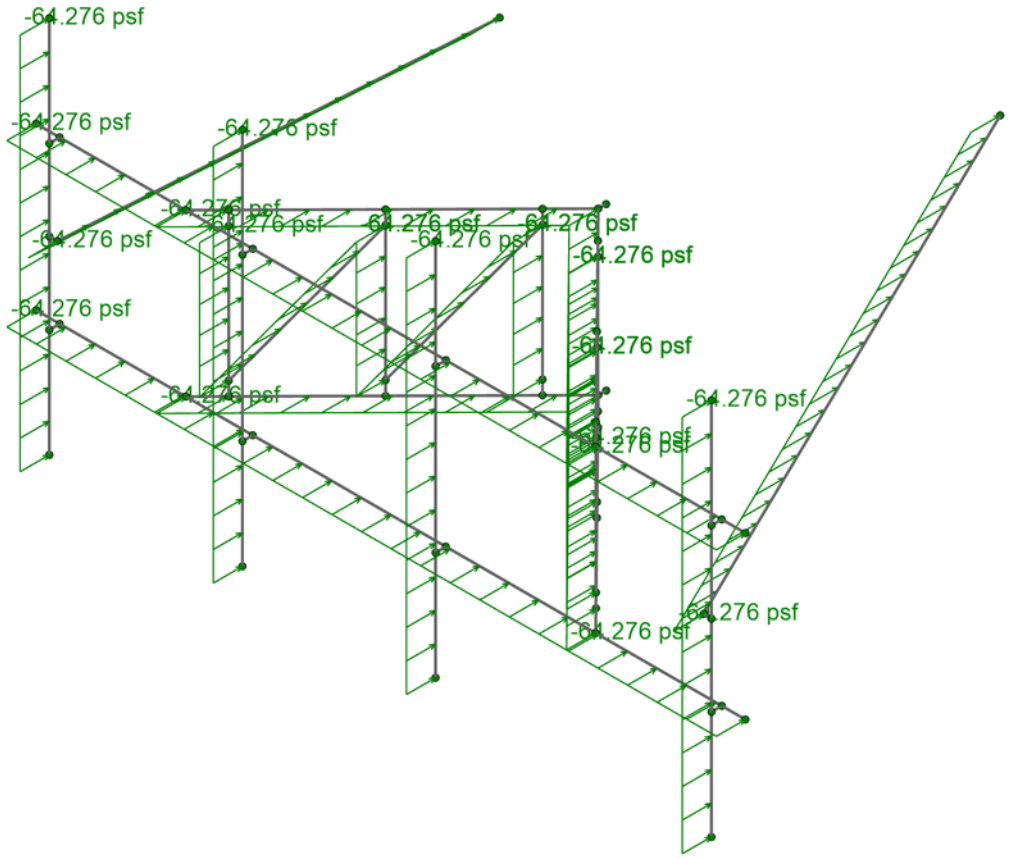

Loads: BLC 14, Distr. Wind Load Z

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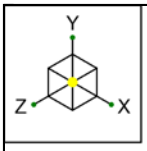

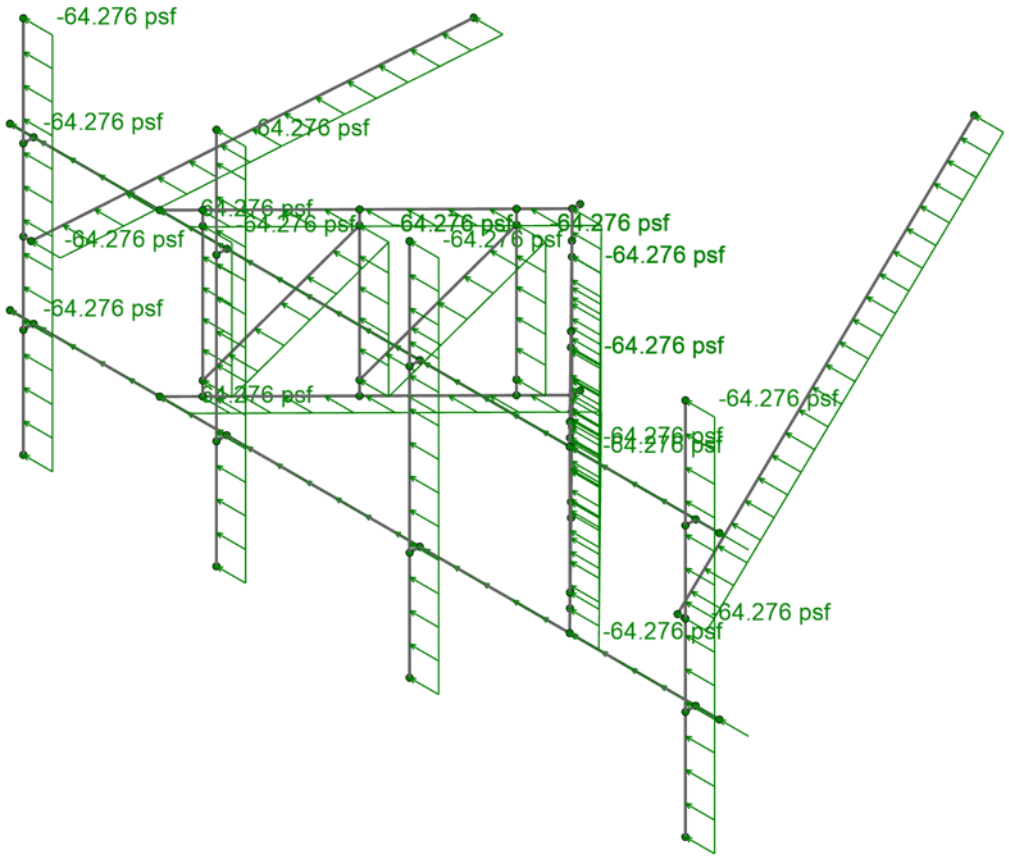

Loads: BLC 15, Distr. Wind Load X

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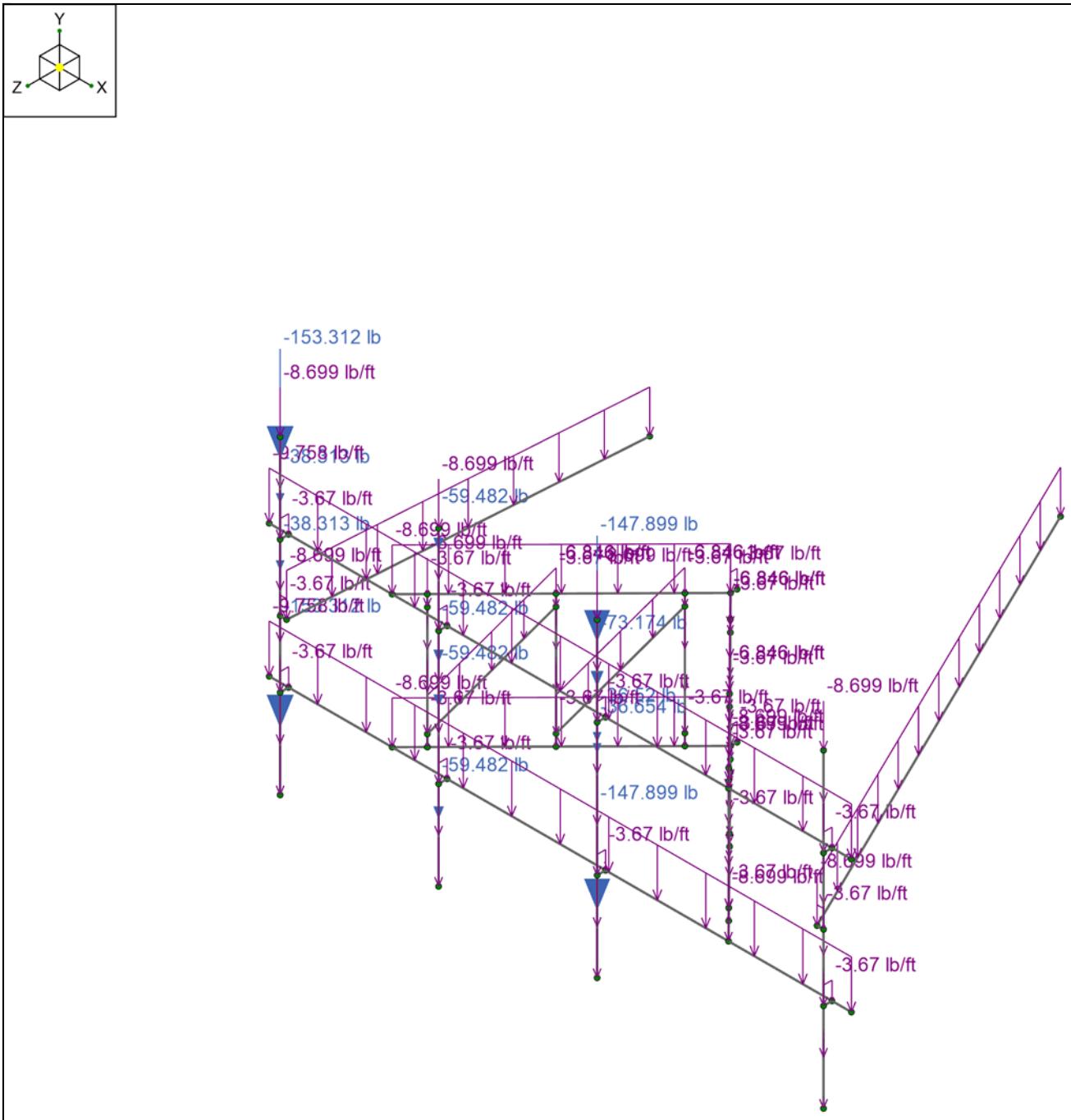

Loads: BLC 16, Ice Weight

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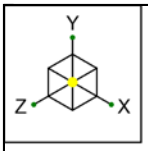

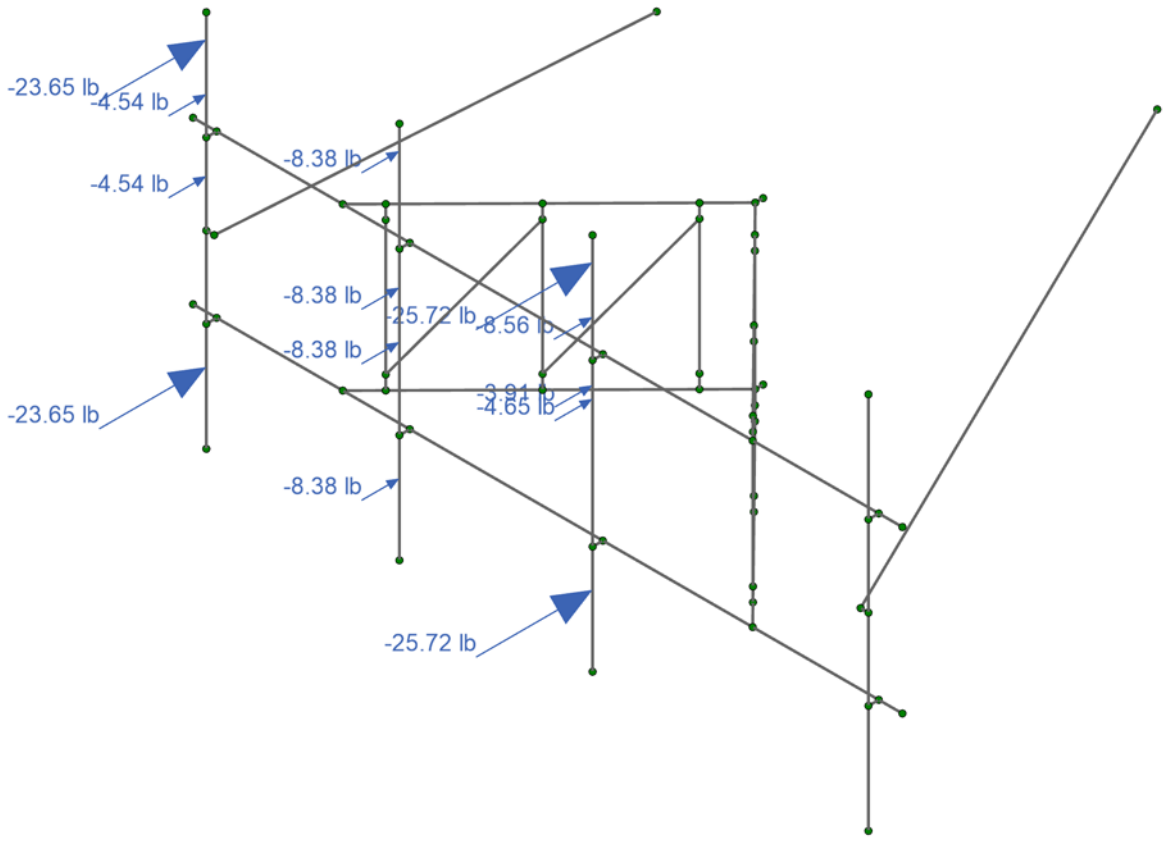

Loads: BLC 17, Ice Wind Load AZI 0

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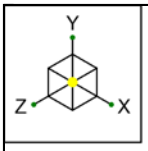

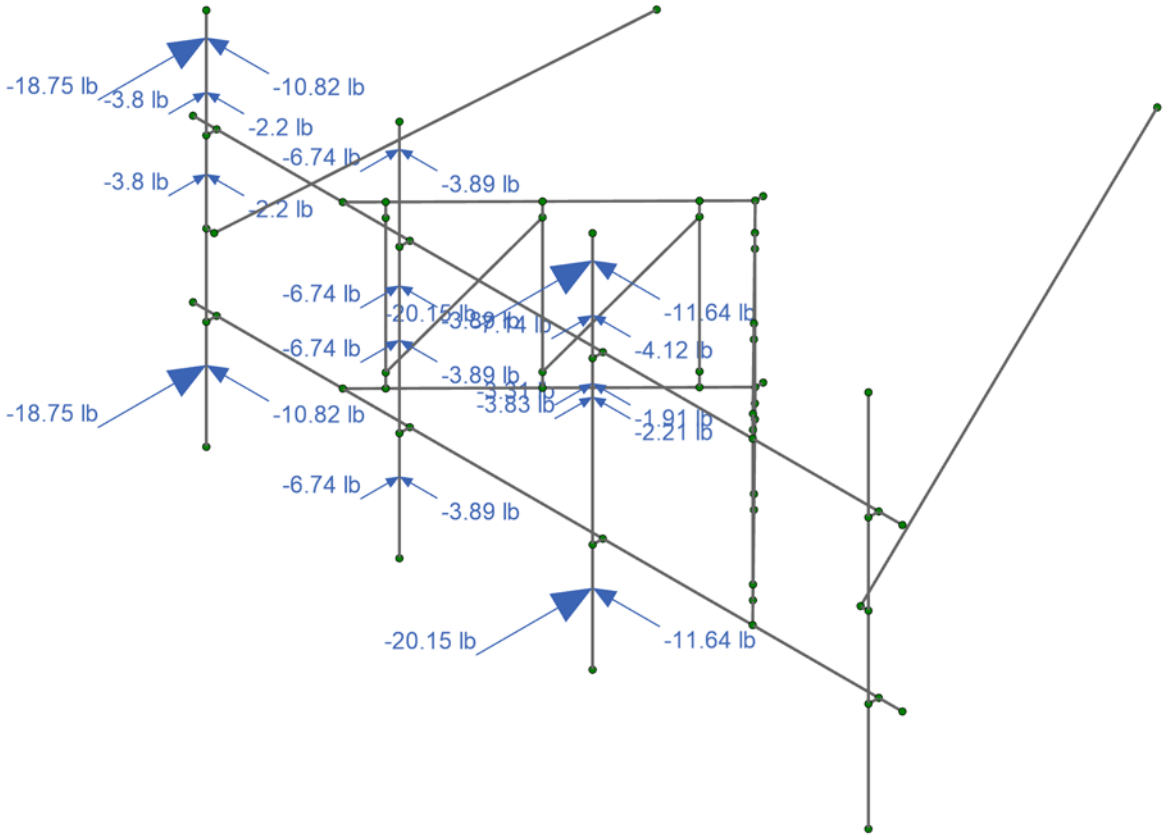

Loads: BLC 18, Ice Wind Load AZI 30

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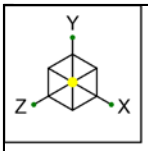

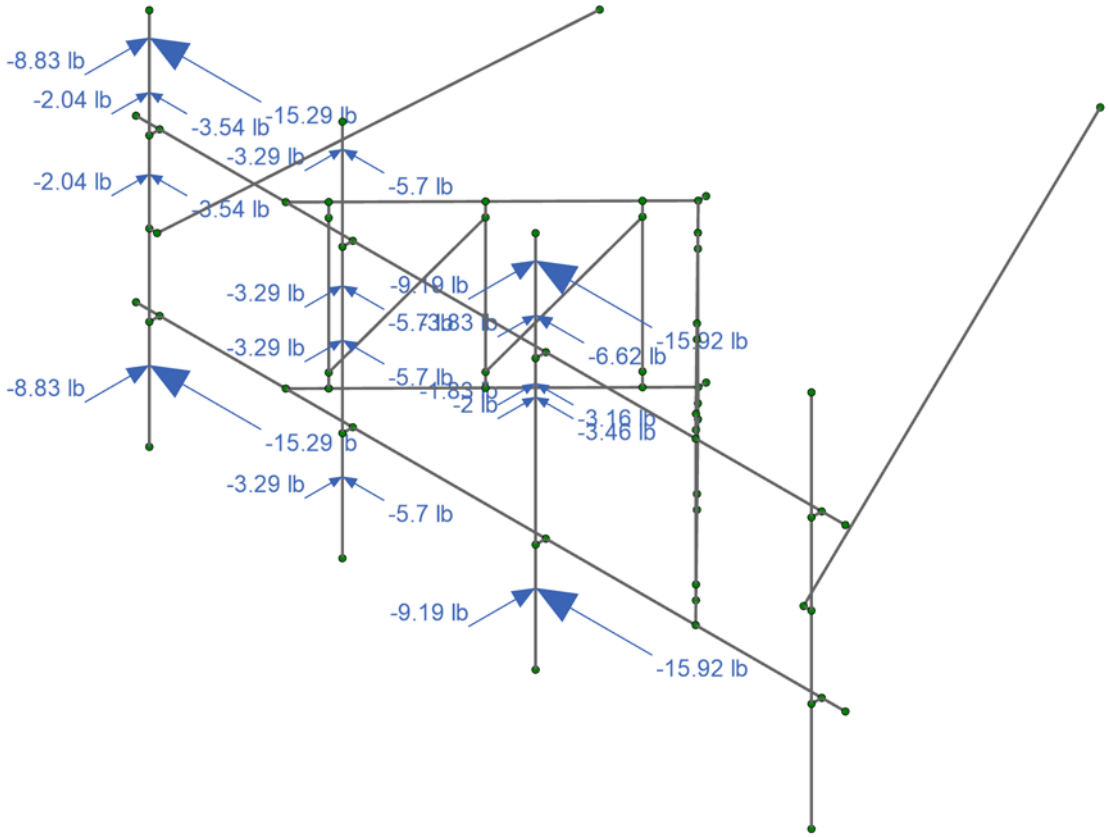

Loads: BLC 19, Ice Wind Load AZI 60

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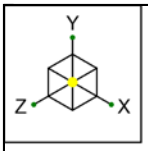

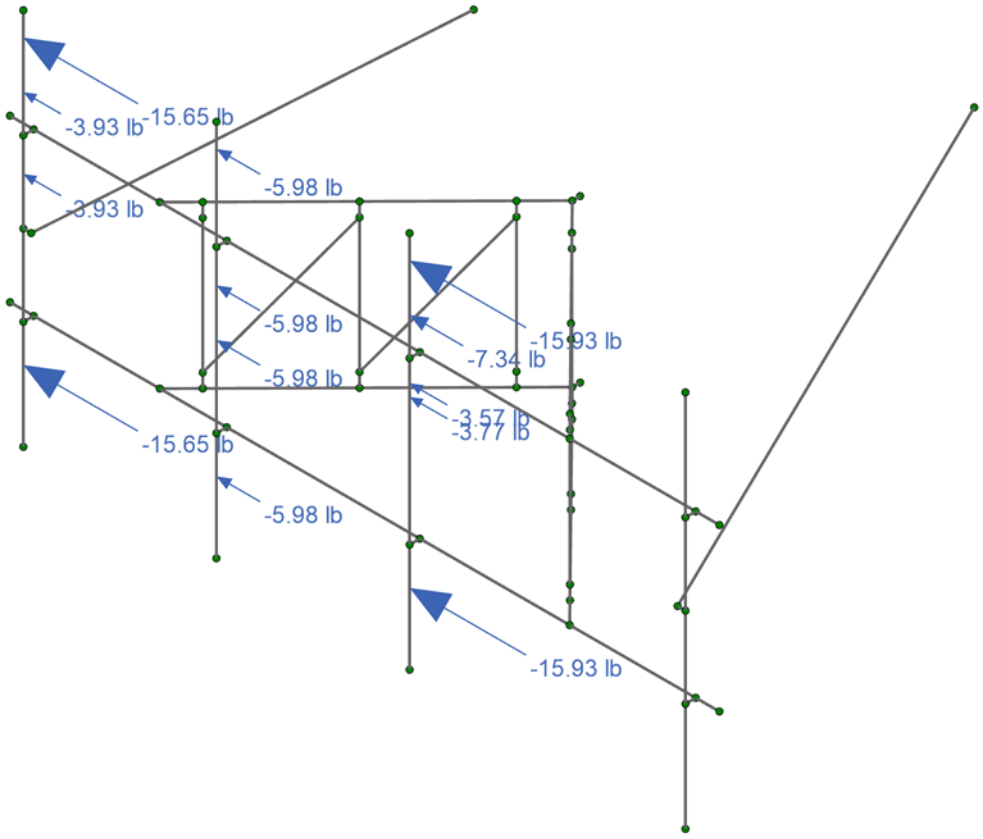

Loads: BLC 20, Ice Wind Load AZI 90

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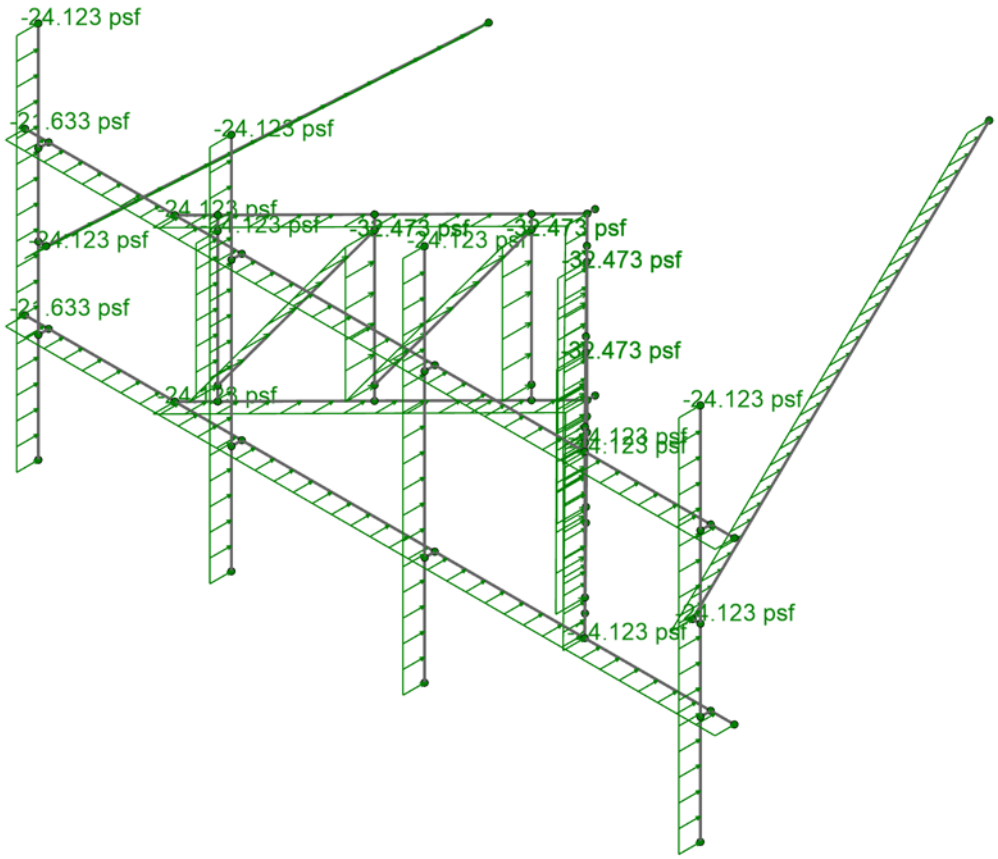

Loads: BLC 29, Distr. Ice Wind Load Z

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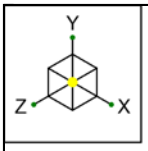

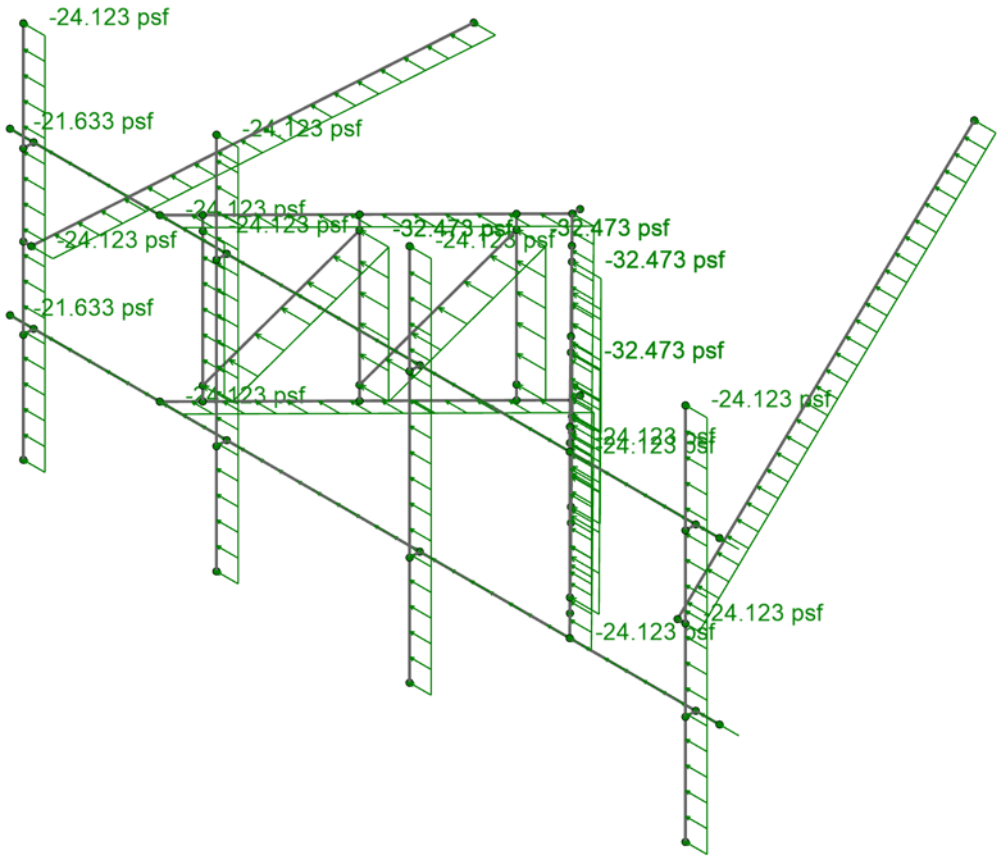

Loads: BLC 30, Distr. Ice Wind Load X

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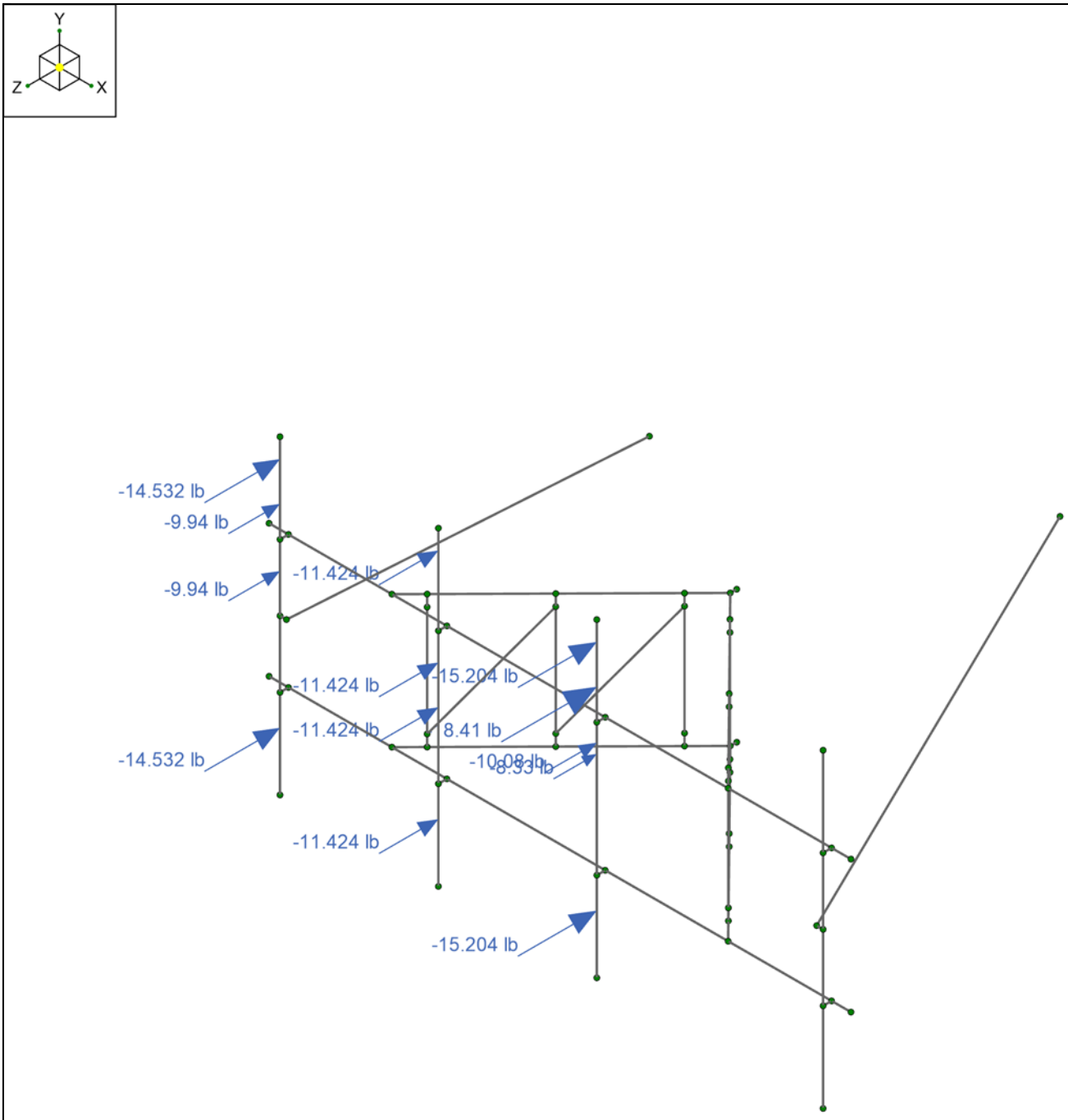

Loads: BLC 31, Seismic Load Z

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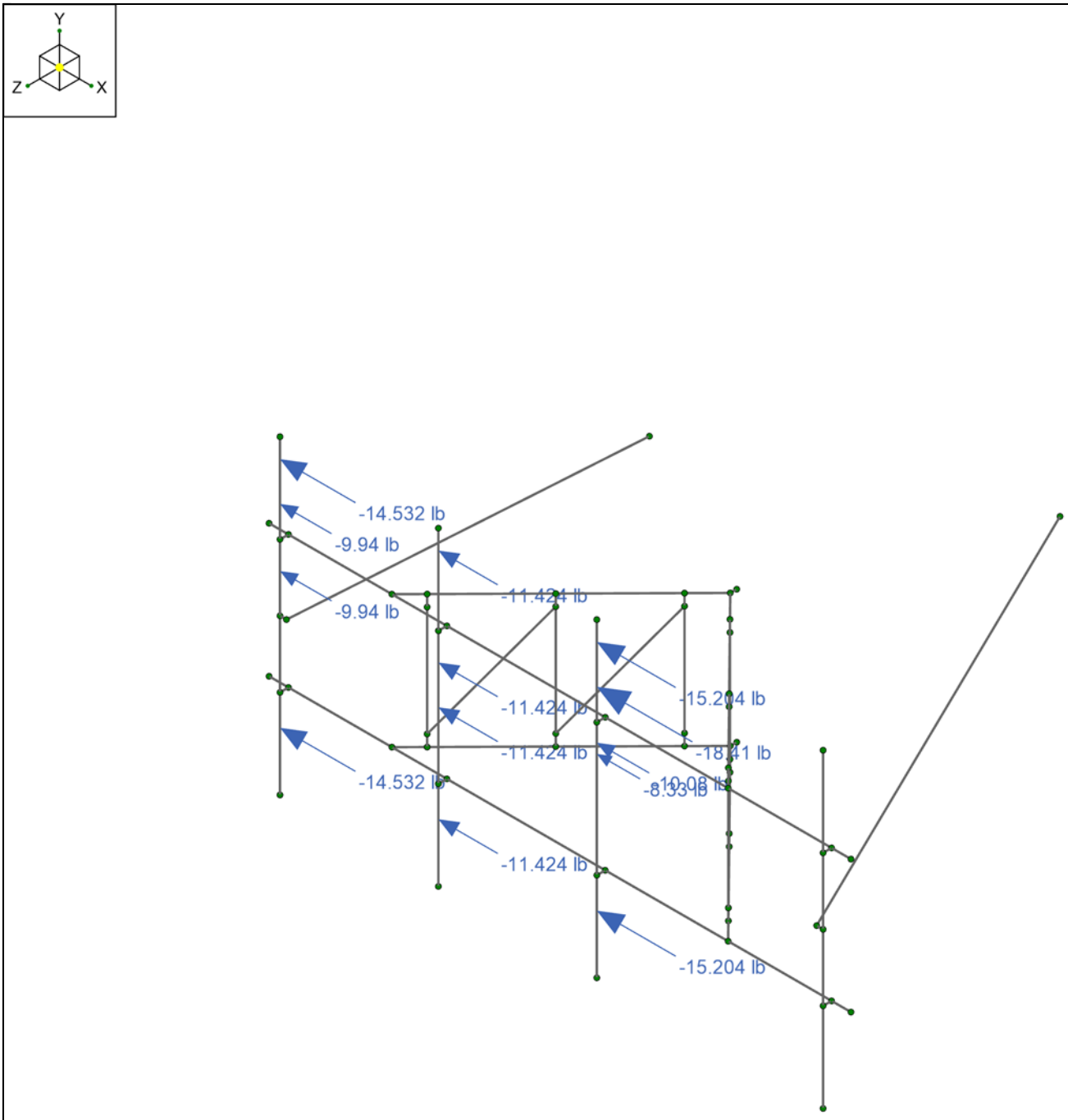

Loads: BLC 32, Seismic Load X

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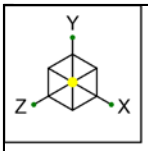

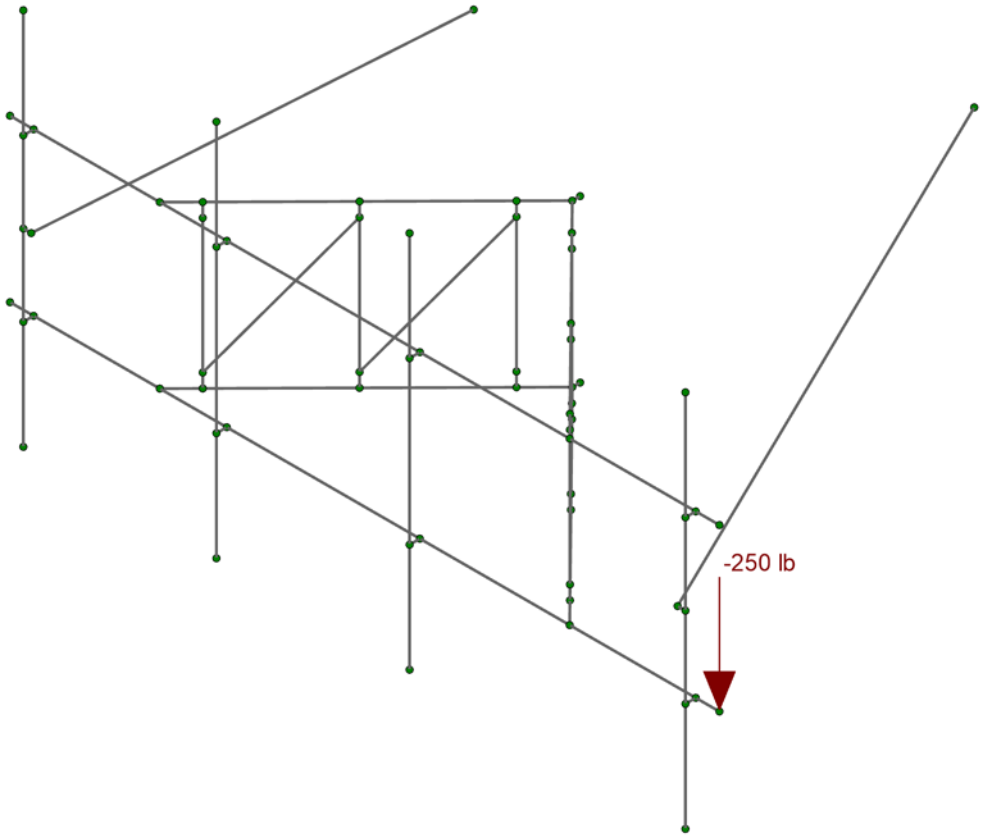

Loads: BLC 33, Service Live Loads

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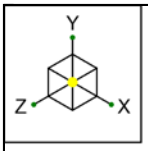
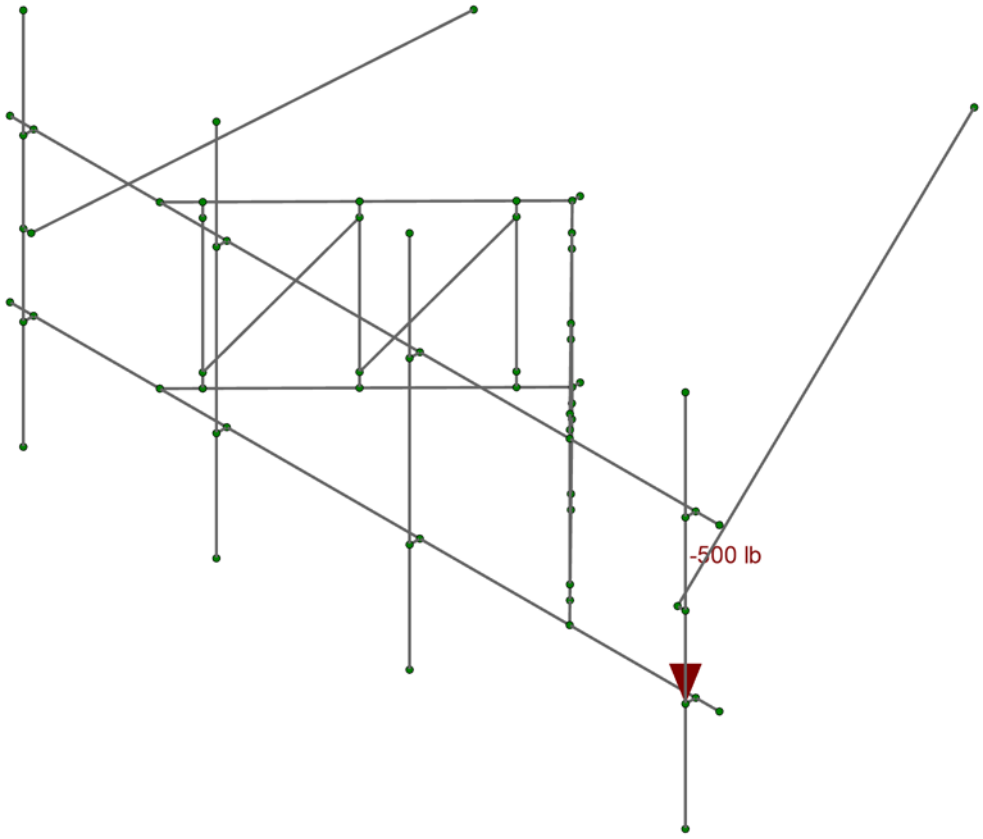
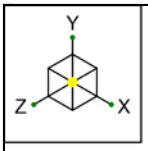
1106-A0001-B		CTL02033_loaded.r3d

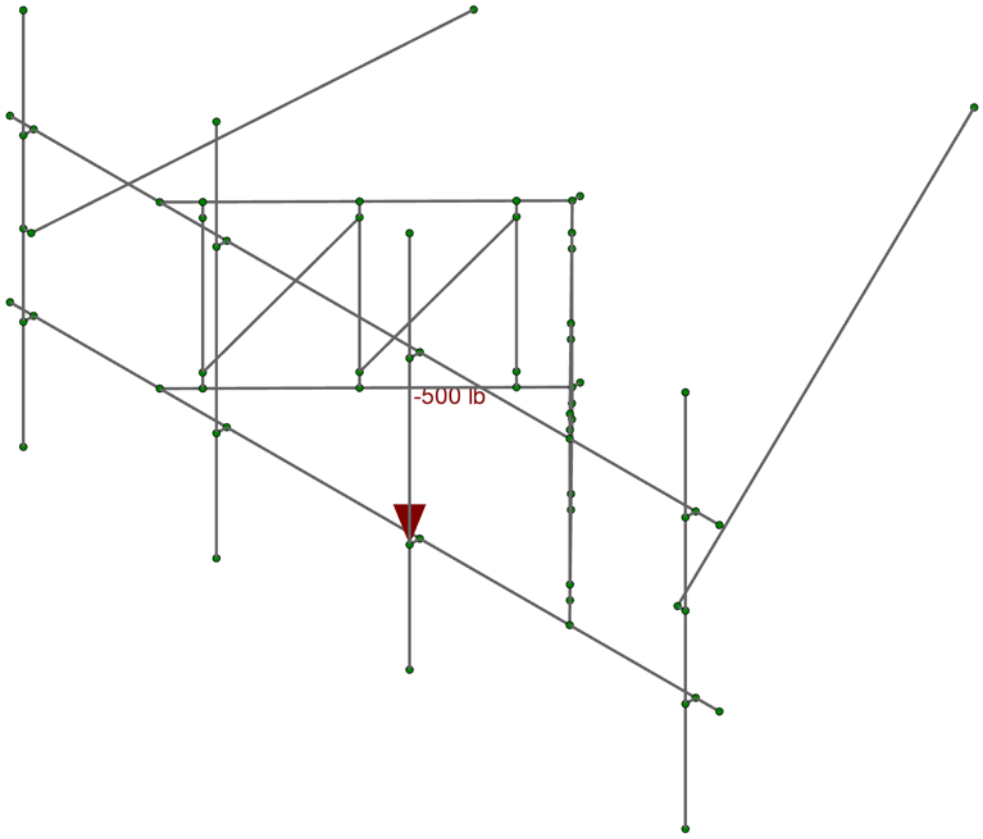




Loads: BLC 34, Maintenance Load 1

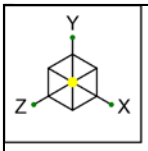
Infinigy Engineering, PLLC	CTL02033	Maintenance Load 1
EP		Mar 15, 2022
1106-A0001-B		CTL02033_loaded.r3d

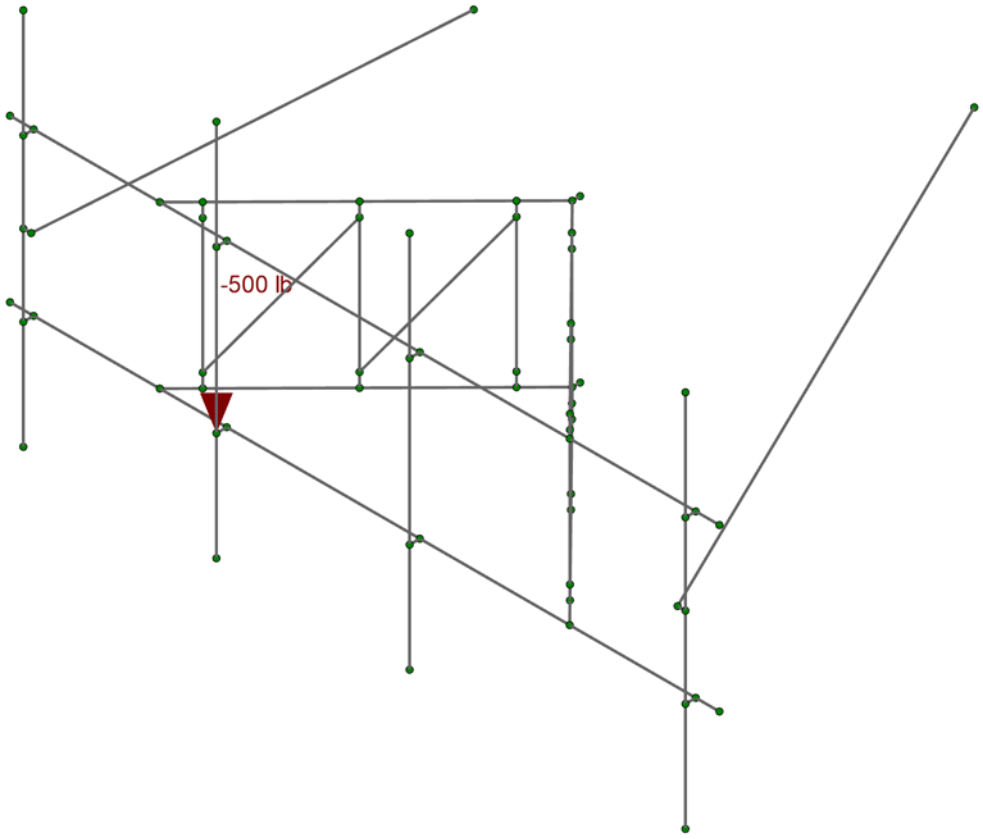




Loads: BLC 36, Maintenance Load 3

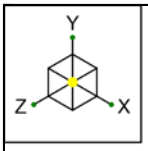
Infinigy Engineering, PLLC	CTL02033	Maintenance Load 2
EP		Mar 15, 2022
1106-A0001-B		CTL02033_loaded.r3d

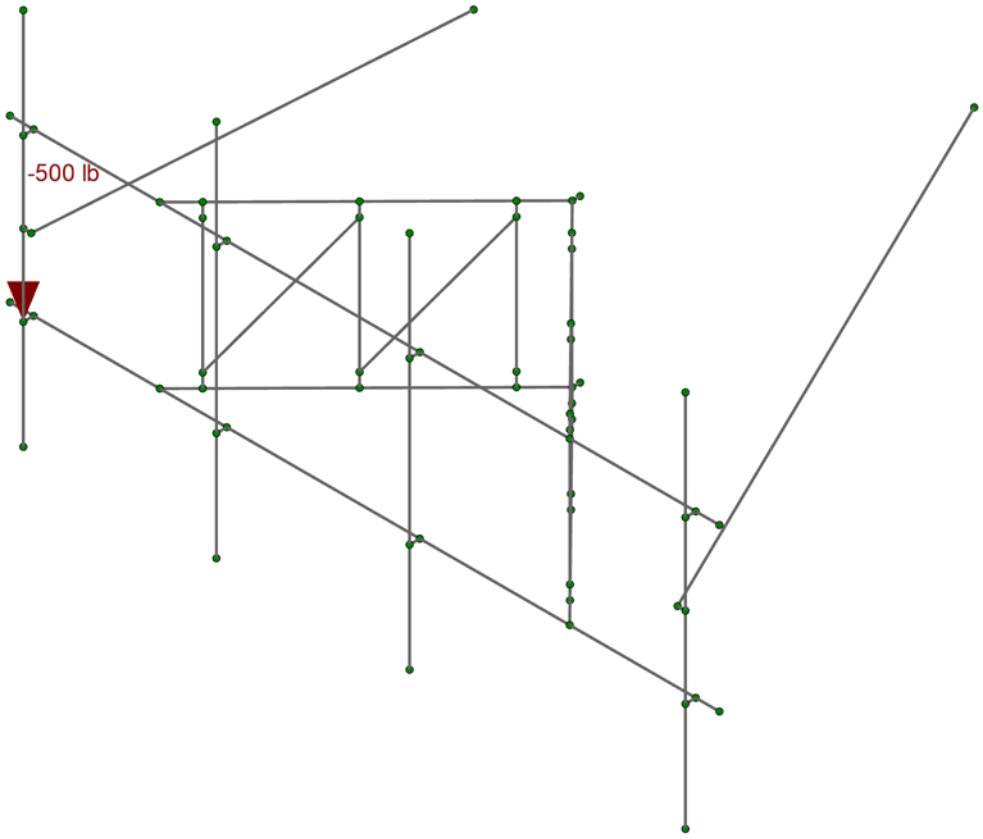




Loads: BLC 37, Maintenance Load 4

Infinigy Engineering, PLLC	CTL02033	Maintenance Load 3
EP		Mar 15, 2022
1106-A0001-B		CTL02033_loaded.r3d





Loads: BLC 35, Maintenance Load 2

Infinigy Engineering, PLLC	CTL02033	Maintenance Load 4
EP		Mar 15, 2022
1106-A0001-B		CTL02033_loaded.r3d

Program Inputs

PROJECT INFORMATION	
Client:	Smartlink
Carrier:	AT&T Mobility
Engineer:	Emmanuel Poulin, PE

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	291.51	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Sector Frame	
Num Sectors:	3	
Centerline AGL:	140.00	ft
Tower Height AGL:	180.00	ft

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

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.990	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

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

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	128	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Flat Pressure:	107.127	psf
Round Pressure:	64.276	psf
Ice Wind Pressure:	9.808	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.175	g
1-Second Accel. (S_1):	0.061	g
Short-Period Design (S_{DS}):	0.187	
1-Second Design (S_{D1}):	0.098	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

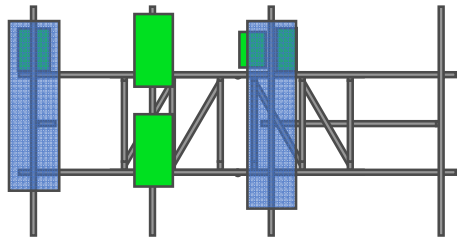
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

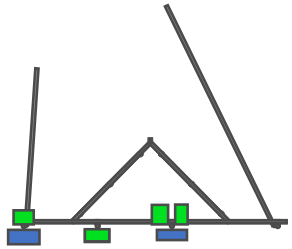
CT allows ASCE 7-16 Wind Speed of 122 MPH... Conservative

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION

Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
KATHREIN 800-10965	140.0	3	0.90	53.56	13.81	5.83	665.92	281.20	108.60	30.41	MP2
ERICSSON AIR6419 B77G	140.0	3	0.90	53.56	4.03	2.15	194.18	103.51	81.60	22.85	MP3
ERICSSON AIR6449 B77D	140.0	3	0.90	53.56	4.03	2.15	194.18	103.51	81.60	22.85	MP3
CCI ANTENNAS DMP65R-BU6EA-K	140.0	3	0.90	53.56	12.71	6.77	612.68	326.31	103.80	29.06	MP4
ERICSSON RRUS 8843 B2/B66A	140.0	3	0.90	53.56	1.64	1.35	79.01	65.24	72.00	20.16	MP2
ERICSSON RRUS 4478 B14	140.0	3	0.90	53.56	2.02	1.25	97.43	60.06	59.50	16.66	MP2
ERICSSON RRUS 4449 B5/B12	140.0	3	0.90	53.56	1.97	1.41	94.85	67.88	71.00	19.88	MP4
RAYCAP TME-DC6-48-60-18-8F	140.0	2	0.90	53.56	1.21	1.21	58.41	58.41	32.80	9.18	Leg/Flush
RAYCAP DC9-48-60-24-PC16-EV	140.0	1	0.90	53.56	1.03	1.03	49.71	49.71	32.80	9.18	Leg/Flush

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	MH1	N1	N2	Horizontal	None	None	A53 Gr.B	Typical
2	MH2	N5	N6	Horizontal	None	None	A53 Gr.B	Typical
3	MS2	N7	N11	Standoff	None	None	A53 Gr.B	Typical
4	MS1	N9	N11	Standoff	None	None	A53 Gr.B	Typical
5	MS3	N8	N12	Standoff	None	None	A53 Gr.B	Typical
6	MS4	N10	N12	Standoff	None	None	A53 Gr.B	Typical
7	M8	N14	N25	RIGID	None	None	RIGID	Typical
8	M9	N18	N27	RIGID	None	None	RIGID	Typical
9	M10	N22	N26	RIGID	None	None	RIGID	Typical
10	M11	N23	N28	RIGID	None	None	RIGID	Typical
11	M12	N19	N29	RIGID	None	None	RIGID	Typical
12	M13	N15	N30	RIGID	None	None	RIGID	Typical
13	M14	N25	N31	Standoff Pipe	None	None	A53 Gr.B	Typical
14	M15	N26	N32	Standoff Bracing	None	None	A53 Gr.B	Typical
15	M16	N27	N33	Standoff Bracing	None	None	A53 Gr.B	Typical
16	M17	N28	N34	Standoff Bracing	None	None	A53 Gr.B	Typical
17	M18	N29	N35	Standoff Bracing	None	None	A53 Gr.B	Typical
18	M19	N30	N36	Standoff Pipe	None	None	A53 Gr.B	Typical
19	M20	N31	N13	RIGID	None	None	RIGID	Typical
20	M21	N32	N21	RIGID	None	None	RIGID	Typical
21	M22	N33	N17	RIGID	None	None	RIGID	Typical
22	M23	N34	N24	RIGID	None	None	RIGID	Typical
23	M24	N35	N20	RIGID	None	None	RIGID	Typical
24	M25	N36	N16	RIGID	None	None	RIGID	Typical
25	M32	N37	N11	RIGID	None	None	RIGID	Typical
26	M33	N38	N12	RIGID	None	None	RIGID	Typical
27	M35	N27	N31	Standoff Bracing	None	None	A53 Gr.B	Typical
28	M36	N26	N33	Standoff Bracing	None	None	A53 Gr.B	Typical
29	M37	N28	N35	Standoff Bracing	None	None	A53 Gr.B	Typical
30	M38	N29	N36	Standoff Bracing	None	None	A53 Gr.B	Typical
31	MP1	N48	N49	Mount Pipe	None	None	A53 Gr.B	Typical
32	M43	N50	N52	RIGID	None	None	RIGID	Typical
33	M45	N51	N53	RIGID	None	None	RIGID	Typical
34	M49	N67	N69	RIGID	None	None	RIGID	Typical
35	M50	N66	N65	RIGID	None	None	RIGID	Typical
36	MP4	N70	N68	Mount Pipe	None	None	A53 Gr.B	Typical
37	M40	N56	N58	RIGID	None	None	RIGID	Typical
38	M46	N57	N64	RIGID	None	None	RIGID	Typical
39	MP2	N54	N55	Mount Pipe	None	None	A53 Gr.B	Typical
40	M54	N79	N81	RIGID	None	None	RIGID	Typical
41	M55	N80	N82	RIGID	None	None	RIGID	Typical
42	MP3	N77	N78	Mount Pipe	None	None	A53 Gr.B	Typical
43	M47	N74	N72	RIGID	None	None	RIGID	Typical
44	M48	N73	N75	RIGID	None	None	RIGID	Typical
45	M51	N74	N76	Tieback	None	None	A53 Gr.B	Typical
46	M52	N75	N71	Tieback	None	None	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	MH1			Yes	** NA **	None
2	MH2			Yes	** NA **	None
3	MS2			Yes	** NA **	None
4	MS1			Yes	** NA **	None
5	MS3			Yes	** NA **	None
6	MS4			Yes	** NA **	None
7	M8			Yes	** NA **	None
8	M9			Yes	** NA **	None
9	M10			Yes	** NA **	None
10	M11			Yes	** NA **	None
11	M12			Yes	** NA **	None
12	M13			Yes	** NA **	None
13	M14	BenPIN	BenPIN	Yes	** NA **	None
14	M15	BenPIN	BenPIN	Yes	** NA **	None
15	M16	BenPIN	BenPIN	Yes	** NA **	None
16	M17	BenPIN	BenPIN	Yes	** NA **	None
17	M18	BenPIN	BenPIN	Yes	** NA **	None
18	M19	BenPIN	BenPIN	Yes	** NA **	None
19	M20			Yes	** NA **	None
20	M21			Yes	** NA **	None
21	M22			Yes	** NA **	None
22	M23			Yes	** NA **	None
23	M24			Yes	** NA **	None
24	M25			Yes	** NA **	None
25	M32			Yes	** NA **	None
26	M33			Yes	** NA **	None
27	M35	BenPIN	BenPIN	Yes	** NA **	None
28	M36	BenPIN	BenPIN	Yes	** NA **	None
29	M37	BenPIN	BenPIN	Yes	** NA **	None
30	M38	BenPIN	BenPIN	Yes	** NA **	None
31	MP1			Yes	** NA **	None
32	M43			Yes	** NA **	None
33	M45			Yes	** NA **	None
34	M49			Yes	** NA **	None
35	M50			Yes	** NA **	None
36	MP4			Yes	** NA **	None
37	M40			Yes	** NA **	None
38	M46			Yes	** NA **	None
39	MP2			Yes	** NA **	None
40	M54			Yes	** NA **	None
41	M55			Yes	** NA **	None
42	MP3			Yes	** NA **	None
43	M47			Yes	** NA **	None
44	M48			Yes	** NA **	None
45	M51	BenPIN		Yes	** NA **	None
46	M52	BenPIN		Yes	** NA **	None

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]
1	N37	Reaction	Reaction	Reaction
2	N38	Reaction	Reaction	Reaction
3	N71	Reaction	Reaction	Reaction
4	N76	Reaction	Reaction	Reaction

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[K]
1	General Members				
2	RIGID		24	71	0
3	Total General		24	71	0
4					
5	Hot Rolled Steel				
6	A53 Gr.B	PIPE_2.0	12	1017.4	0.294
7	A53 Gr.B	PIPE_2.5	2	360	0.164
8	A53 Gr.B	T.S. 1.5 OD	8	312.6	0.046
9	Total HR Steel		22	1690	0.505

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed
1	Self Weight	DL		-1			14	
2	Wind Load AZI 0	WLZ					28	
3	Wind Load AZI 30	None					28	
4	Wind Load AZI 60	None					28	
5	Wind Load AZI 90	WLX					28	
6	Wind Load AZI 120	None					28	
7	Wind Load AZI 150	None					28	
8	Wind Load AZI 180	None					28	
9	Wind Load AZI 210	None					28	
10	Wind Load AZI 240	None					28	
11	Wind Load AZI 270	None					28	
12	Wind Load AZI 300	None					28	
13	Wind Load AZI 330	None					28	
14	Distr. Wind Load Z	WLZ						46
15	Distr. Wind Load X	WLX						46
16	Ice Weight	OL1					14	46
17	Ice Wind Load AZI 0	OL2					28	
18	Ice Wind Load AZI 30	None					28	
19	Ice Wind Load AZI 60	None					28	
20	Ice Wind Load AZI 90	OL3					28	
21	Ice Wind Load AZI 120	None					28	
22	Ice Wind Load AZI 150	None					28	
23	Ice Wind Load AZI 180	None					28	
24	Ice Wind Load AZI 210	None					28	

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed
25	Ice Wind Load AZI 240	None					28	
26	Ice Wind Load AZI 270	None					28	
27	Ice Wind Load AZI 300	None					28	
28	Ice Wind Load AZI 330	None					28	
29	Distr. Ice Wind Load Z	OL2						46
30	Distr. Ice Wind Load X	OL3						46
31	Seismic Load Z	ELZ			-0.28		14	
32	Seismic Load X	ELX	-0.28				14	
33	Service Live Loads	LL				1		
34	Maintenance Load 1	LL				1		
35	Maintenance Load 2	LL				1		
36	Maintenance Load 3	LL				1		
37	Maintenance Load 4	LL				1		

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4DL	Yes	Y	1	1.4								
2	1.2DL + 1WL AZI 0	Yes	Y	1	1.2	2	1	14	1	15			
3	1.2DL + 1WL AZI 30	Yes	Y	1	1.2	3	1	14	0.866	15	0.5		
4	1.2DL + 1WL AZI 60	Yes	Y	1	1.2	4	1	14	0.5	15	0.866		
5	1.2DL + 1WL AZI 90	Yes	Y	1	1.2	5	1	14		15	1		
6	1.2DL + 1WL AZI 120	Yes	Y	1	1.2	6	1	14	-0.5	15	0.866		
7	1.2DL + 1WL AZI 150	Yes	Y	1	1.2	7	1	14	-0.866	15	0.5		
8	1.2DL + 1WL AZI 180	Yes	Y	1	1.2	8	1	14	-1	15			
9	1.2DL + 1WL AZI 210	Yes	Y	1	1.2	9	1	14	-0.866	15	-0.5		
10	1.2DL + 1WL AZI 240	Yes	Y	1	1.2	10	1	14	-0.5	15	-0.866		
11	1.2DL + 1WL AZI 270	Yes	Y	1	1.2	11	1	14		15	-1		
12	1.2DL + 1WL AZI 300	Yes	Y	1	1.2	12	1	14	0.5	15	-0.866		
13	1.2DL + 1WL AZI 330	Yes	Y	1	1.2	13	1	14	0.866	15	-0.5		
14	0.9DL + 1WL AZI 0	Yes	Y	1	0.9	2	1	14	1	15			
15	0.9DL + 1WL AZI 30	Yes	Y	1	0.9	3	1	14	0.866	15	0.5		
16	0.9DL + 1WL AZI 60	Yes	Y	1	0.9	4	1	14	0.5	15	0.866		
17	0.9DL + 1WL AZI 90	Yes	Y	1	0.9	5	1	14		15	1		
18	0.9DL + 1WL AZI 120	Yes	Y	1	0.9	6	1	14	-0.5	15	0.866		
19	0.9DL + 1WL AZI 150	Yes	Y	1	0.9	7	1	14	-0.866	15	0.5		
20	0.9DL + 1WL AZI 180	Yes	Y	1	0.9	8	1	14	-1	15			
21	0.9DL + 1WL AZI 210	Yes	Y	1	0.9	9	1	14	-0.866	15	-0.5		
22	0.9DL + 1WL AZI 240	Yes	Y	1	0.9	10	1	14	-0.5	15	-0.866		
23	0.9DL + 1WL AZI 270	Yes	Y	1	0.9	11	1	14		15	-1		
24	0.9DL + 1WL AZI 300	Yes	Y	1	0.9	12	1	14	0.5	15	-0.866		
25	0.9DL + 1WL AZI 330	Yes	Y	1	0.9	13	1	14	0.866	15	-0.5		
26	1.2D + 1.0Di	Yes	Y	1	1.2	16	1						
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y	1	1.2	16	1	17	1	29	1	30	
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y	1	1.2	16	1	18	1	29	0.866	30	0.5
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y	1	1.2	16	1	19	1	29	0.5	30	0.866
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y	1	1.2	16	1	20	1	29		30	1

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y	1	1.2	16	1	21	1	29	-0.5	30	0.866
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y	1	1.2	16	1	22	1	29	-0.866	30	0.5
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y	1	1.2	16	1	23	1	29	-1	30	
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y	1	1.2	16	1	24	1	29	-0.866	30	-0.5
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y	1	1.2	16	1	25	1	29	-0.5	30	-0.866
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y	1	1.2	16	1	26	1	29		30	-1
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y	1	1.2	16	1	27	1	29	0.5	30	-0.866
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y	1	1.2	16	1	28	1	29	0.866	30	-0.5
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.237	31	1	32					
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.237	31	0.866	32	0.5				
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.237	31	0.5	32	0.866				
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.237	31		32	1				
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.237	31	-0.5	32	0.866				
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.237	31	-0.866	32	0.5				
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.237	31	-1	32					
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.237	31	-0.866	32	-0.5				
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.237	31	-0.5	32	-0.866				
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.237	31		32	-1				
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.237	31	0.5	32	-0.866				
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.237	31	0.866	32	-0.5				
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.863	31	1	32					
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.863	31	0.866	32	0.5				
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.863	31	0.5	32	0.866				
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.863	31		32	1				
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.863	31	-0.5	32	0.866				
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.863	31	-0.866	32	0.5				
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.863	31	-1	32					
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.863	31	-0.866	32	-0.5				
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.863	31	-0.5	32	-0.866				
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.863	31		32	-1				
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.863	31	0.5	32	-0.866				
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.863	31	0.866	32	-0.5				
63	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 0	Yes	Y	1	1	2	0.22	14	0.22	15		33	1.5
64	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 30	Yes	Y	1	1	3	0.22	14	0.19	15	0.11	33	1.5
65	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 60	Yes	Y	1	1	4	0.22	14	0.11	15	0.19	33	1.5
66	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 90	Yes	Y	1	1	5	0.22	14		15	0.22	33	1.5
67	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 120	Yes	Y	1	1	6	0.22	14	-0.11	15	0.19	33	1.5
68	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 150	Yes	Y	1	1	7	0.22	14	-0.19	15	0.11	33	1.5
69	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 180	Yes	Y	1	1	8	0.22	14	-0.22	15		33	1.5
70	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 210	Yes	Y	1	1	9	0.22	14	-0.19	15	-0.11	33	1.5
71	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 240	Yes	Y	1	1	10	0.22	14	-0.11	15	-0.19	33	1.5
72	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 270	Yes	Y	1	1	11	0.22	14		15	-0.22	33	1.5
73	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 300	Yes	Y	1	1	12	0.22	14	0.11	15	-0.19	33	1.5
74	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 330	Yes	Y	1	1	13	0.22	14	0.19	15	-0.11	33	1.5
75	1.2DL + 1.5LL	Yes	Y	1	1.2	33	1.5						
76	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	34	1.5	2	0.055	14	0.055	15	

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
77	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	34	1.5	3	0.055	14	0.048	15	0.027
78	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	34	1.5	4	0.055	14	0.027	15	0.048
79	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	34	1.5	5	0.055	14		15	0.055
80	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	34	1.5	6	0.055	14	-0.027	15	0.048
81	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	34	1.5	7	0.055	14	-0.048	15	0.027
82	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	34	1.5	8	0.055	14	-0.055	15	
83	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	34	1.5	9	0.055	14	-0.048	15	-0.027
84	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	34	1.5	10	0.055	14	-0.027	15	-0.048
85	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	34	1.5	11	0.055	14		15	-0.055
86	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	34	1.5	12	0.055	14	0.027	15	-0.048
87	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	34	1.5	13	0.055	14	0.048	15	-0.027
88	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	35	1.5	2	0.055	14	0.055	15	
89	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	35	1.5	3	0.055	14	0.048	15	0.027
90	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	35	1.5	4	0.055	14	0.027	15	0.048
91	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	35	1.5	5	0.055	14		15	0.055
92	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	35	1.5	6	0.055	14	-0.027	15	0.048
93	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	35	1.5	7	0.055	14	-0.048	15	0.027
94	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	35	1.5	8	0.055	14	-0.055	15	
95	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	35	1.5	9	0.055	14	-0.048	15	-0.027
96	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	35	1.5	10	0.055	14	-0.027	15	-0.048
97	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	35	1.5	11	0.055	14		15	-0.055
98	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	35	1.5	12	0.055	14	0.027	15	-0.048
99	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	35	1.5	13	0.055	14	0.048	15	-0.027
100	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	36	1.5	2	0.055	14	0.055	15	
101	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	36	1.5	3	0.055	14	0.048	15	0.027
102	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	36	1.5	4	0.055	14	0.027	15	0.048
103	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	36	1.5	5	0.055	14		15	0.055
104	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	36	1.5	6	0.055	14	-0.027	15	0.048
105	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	36	1.5	7	0.055	14	-0.048	15	0.027
106	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	36	1.5	8	0.055	14	-0.055	15	
107	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	36	1.5	9	0.055	14	-0.048	15	-0.027
108	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	36	1.5	10	0.055	14	-0.027	15	-0.048
109	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	36	1.5	11	0.055	14		15	-0.055
110	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	36	1.5	12	0.055	14	0.027	15	-0.048
111	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	36	1.5	13	0.055	14	0.048	15	-0.027
112	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	37	1.5	2	0.055	14	0.055	15	
113	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	37	1.5	3	0.055	14	0.048	15	0.027
114	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	37	1.5	4	0.055	14	0.027	15	0.048
115	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	37	1.5	5	0.055	14		15	0.055
116	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	37	1.5	6	0.055	14	-0.027	15	0.048
117	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	37	1.5	7	0.055	14	-0.048	15	0.027
118	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	37	1.5	8	0.055	14	-0.055	15	
119	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	37	1.5	9	0.055	14	-0.048	15	-0.027
120	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	37	1.5	10	0.055	14	-0.027	15	-0.048
121	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	37	1.5	11	0.055	14		15	-0.055
122	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	37	1.5	12	0.055	14	0.027	15	-0.048

Load Combinations (Continued)

Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	Y	-54.3	6
2	MP2	Y	-54.3	78
3	MP3	Y	-40.8	6
4	MP3	Y	-40.8	36
5	MP3	Y	-40.8	48
6	MP3	Y	-40.8	78
7	MP4	Y	-51.9	6
8	MP4	Y	-51.9	78
9	MP2	Y	-36	18
10	MP2	Y	-36	33
11	MP2	Y	-29.75	18
12	MP2	Y	-29.75	36
13	MP4	Y	-35.5	18
14	MP4	Y	-35.5	36

Member Point Loads (BLC 2 : Wind Load AZI 0)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	0	6
2	MP2	Z	-332.96	6
3	MP2	X	0	78
4	MP2	Z	-332.96	78
5	MP3	X	0	6
6	MP3	Z	-97.09	6
7	MP3	X	0	36
8	MP3	Z	-97.09	36
9	MP3	X	0	48
10	MP3	Z	-97.09	48
11	MP3	X	0	78
12	MP3	Z	-97.09	78
13	MP4	X	0	6
14	MP4	Z	-306.34	6
15	MP4	X	0	78
16	MP4	Z	-306.34	78
17	MP2	X	0	18
18	MP2	Z	-39.51	18
19	MP2	X	0	33
20	MP2	Z	-39.51	33
21	MP2	X	0	18
22	MP2	Z	-48.72	18
23	MP2	X	0	36
24	MP2	Z	-48.72	36
25	MP4	X	0	18
26	MP4	Z	-47.42	18
27	MP4	X	0	36
28	MP4	Z	-47.42	36

Member Point Loads (BLC 3 : Wind Load AZI 30)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-142.44	6
2	MP2	Z	-246.71	6
3	MP2	X	-142.44	78
4	MP2	Z	-246.71	78
5	MP3	X	-42.88	6
6	MP3	Z	-74.27	6
7	MP3	X	-42.88	36
8	MP3	Z	-74.27	36
9	MP3	X	-42.88	48
10	MP3	Z	-74.27	48
11	MP3	X	-42.88	78
12	MP3	Z	-74.27	78
13	MP4	X	-135.27	6
14	MP4	Z	-234.3	6
15	MP4	X	-135.27	78
16	MP4	Z	-234.3	78
17	MP2	X	-18.89	18
18	MP2	Z	-32.72	18
19	MP2	X	-18.89	33
20	MP2	Z	-32.72	33
21	MP2	X	-22.02	18
22	MP2	Z	-38.14	18
23	MP2	X	-22.02	36
24	MP2	Z	-38.14	36
25	MP4	X	-22.03	18
26	MP4	Z	-38.15	18
27	MP4	X	-22.03	36
28	MP4	Z	-38.15	36

Member Point Loads (BLC 4 : Wind Load AZI 60)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-163.41	6
2	MP2	Z	-94.35	6
3	MP2	X	-163.41	78
4	MP2	Z	-94.35	78
5	MP3	X	-54.64	6
6	MP3	Z	-31.54	6
7	MP3	X	-54.64	36
8	MP3	Z	-31.54	36
9	MP3	X	-54.64	48
10	MP3	Z	-31.54	48
11	MP3	X	-54.64	78
12	MP3	Z	-31.54	78
13	MP4	X	-172.3	6
14	MP4	Z	-99.48	6

Member Point Loads (BLC 4 : Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
15	MP4	X	-172.3	78
16	MP4	Z	-99.48	78
17	MP2	X	-29.74	18
18	MP2	Z	-17.17	18
19	MP2	X	-29.74	33
20	MP2	Z	-17.17	33
21	MP2	X	-30.05	18
22	MP2	Z	-17.35	18
23	MP2	X	-30.05	36
24	MP2	Z	-17.35	36
25	MP4	X	-32.31	18
26	MP4	Z	-18.66	18
27	MP4	X	-32.31	36
28	MP4	Z	-18.66	36

Member Point Loads (BLC 5 : Wind Load AZI 90)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-140.6	6
2	MP2	Z	0	6
3	MP2	X	-140.6	78
4	MP2	Z	0	78
5	MP3	X	-51.76	6
6	MP3	Z	0	6
7	MP3	X	-51.76	36
8	MP3	Z	0	36
9	MP3	X	-51.76	48
10	MP3	Z	0	48
11	MP3	X	-51.76	78
12	MP3	Z	0	78
13	MP4	X	-163.16	6
14	MP4	Z	0	6
15	MP4	X	-163.16	78
16	MP4	Z	0	78
17	MP2	X	-32.62	18
18	MP2	Z	0	18
19	MP2	X	-32.62	33
20	MP2	Z	0	33
21	MP2	X	-30.03	18
22	MP2	Z	0	18
23	MP2	X	-30.03	36
24	MP2	Z	0	36
25	MP4	X	-33.94	18
26	MP4	Z	0	18
27	MP4	X	-33.94	36
28	MP4	Z	0	36

Member Point Loads (BLC 6 : Wind Load AZI 120)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-163.41	6
2	MP2	Z	94.35	6
3	MP2	X	-163.41	78
4	MP2	Z	94.35	78
5	MP3	X	-54.64	6
6	MP3	Z	31.54	6
7	MP3	X	-54.64	36
8	MP3	Z	31.54	36
9	MP3	X	-54.64	48
10	MP3	Z	31.54	48
11	MP3	X	-54.64	78
12	MP3	Z	31.54	78
13	MP4	X	-172.3	6
14	MP4	Z	99.48	6
15	MP4	X	-172.3	78
16	MP4	Z	99.48	78
17	MP2	X	-29.74	18
18	MP2	Z	17.17	18
19	MP2	X	-29.74	33
20	MP2	Z	17.17	33
21	MP2	X	-30.05	18
22	MP2	Z	17.35	18
23	MP2	X	-30.05	36
24	MP2	Z	17.35	36
25	MP4	X	-32.31	18
26	MP4	Z	18.66	18
27	MP4	X	-32.31	36
28	MP4	Z	18.66	36

Member Point Loads (BLC 7 : Wind Load AZI 150)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-142.44	6
2	MP2	Z	246.71	6
3	MP2	X	-142.44	78
4	MP2	Z	246.71	78
5	MP3	X	-42.88	6
6	MP3	Z	74.27	6
7	MP3	X	-42.88	36
8	MP3	Z	74.27	36
9	MP3	X	-42.88	48
10	MP3	Z	74.27	48
11	MP3	X	-42.88	78
12	MP3	Z	74.27	78
13	MP4	X	-135.27	6
14	MP4	Z	234.3	6

Member Point Loads (BLC 7 : Wind Load AZI 150) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
15	MP4	X	-135.27	78
16	MP4	Z	234.3	78
17	MP2	X	-18.89	18
18	MP2	Z	32.72	18
19	MP2	X	-18.89	33
20	MP2	Z	32.72	33
21	MP2	X	-22.02	18
22	MP2	Z	38.14	18
23	MP2	X	-22.02	36
24	MP2	Z	38.14	36
25	MP4	X	-22.03	18
26	MP4	Z	38.15	18
27	MP4	X	-22.03	36
28	MP4	Z	38.15	36

Member Point Loads (BLC 8 : Wind Load AZI 180)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	0	6
2	MP2	Z	332.96	6
3	MP2	X	0	78
4	MP2	Z	332.96	78
5	MP3	X	0	6
6	MP3	Z	97.09	6
7	MP3	X	0	36
8	MP3	Z	97.09	36
9	MP3	X	0	48
10	MP3	Z	97.09	48
11	MP3	X	0	78
12	MP3	Z	97.09	78
13	MP4	X	0	6
14	MP4	Z	306.34	6
15	MP4	X	0	78
16	MP4	Z	306.34	78
17	MP2	X	0	18
18	MP2	Z	39.51	18
19	MP2	X	0	33
20	MP2	Z	39.51	33
21	MP2	X	0	18
22	MP2	Z	48.72	18
23	MP2	X	0	36
24	MP2	Z	48.72	36
25	MP4	X	0	18
26	MP4	Z	47.42	18
27	MP4	X	0	36
28	MP4	Z	47.42	36

Member Point Loads (BLC 9 : Wind Load AZI 210)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	142.44	6
2	MP2	Z	246.71	6
3	MP2	X	142.44	78
4	MP2	Z	246.71	78
5	MP3	X	42.88	6
6	MP3	Z	74.27	6
7	MP3	X	42.88	36
8	MP3	Z	74.27	36
9	MP3	X	42.88	48
10	MP3	Z	74.27	48
11	MP3	X	42.88	78
12	MP3	Z	74.27	78
13	MP4	X	135.27	6
14	MP4	Z	234.3	6
15	MP4	X	135.27	78
16	MP4	Z	234.3	78
17	MP2	X	18.89	18
18	MP2	Z	32.72	18
19	MP2	X	18.89	33
20	MP2	Z	32.72	33
21	MP2	X	22.02	18
22	MP2	Z	38.14	18
23	MP2	X	22.02	36
24	MP2	Z	38.14	36
25	MP4	X	22.03	18
26	MP4	Z	38.15	18
27	MP4	X	22.03	36
28	MP4	Z	38.15	36

Member Point Loads (BLC 10 : Wind Load AZI 240)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	163.41	6
2	MP2	Z	94.35	6
3	MP2	X	163.41	78
4	MP2	Z	94.35	78
5	MP3	X	54.64	6
6	MP3	Z	31.54	6
7	MP3	X	54.64	36
8	MP3	Z	31.54	36
9	MP3	X	54.64	48
10	MP3	Z	31.54	48
11	MP3	X	54.64	78
12	MP3	Z	31.54	78
13	MP4	X	172.3	6
14	MP4	Z	99.48	6

Member Point Loads (BLC 10 : Wind Load AZI 240) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
15	MP4	X	172.3	78
16	MP4	Z	99.48	78
17	MP2	X	29.74	18
18	MP2	Z	17.17	18
19	MP2	X	29.74	33
20	MP2	Z	17.17	33
21	MP2	X	30.05	18
22	MP2	Z	17.35	18
23	MP2	X	30.05	36
24	MP2	Z	17.35	36
25	MP4	X	32.31	18
26	MP4	Z	18.66	18
27	MP4	X	32.31	36
28	MP4	Z	18.66	36

Member Point Loads (BLC 11 : Wind Load AZI 270)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	140.6	6
2	MP2	Z	0	6
3	MP2	X	140.6	78
4	MP2	Z	0	78
5	MP3	X	51.76	6
6	MP3	Z	0	6
7	MP3	X	51.76	36
8	MP3	Z	0	36
9	MP3	X	51.76	48
10	MP3	Z	0	48
11	MP3	X	51.76	78
12	MP3	Z	0	78
13	MP4	X	163.16	6
14	MP4	Z	0	6
15	MP4	X	163.16	78
16	MP4	Z	0	78
17	MP2	X	32.62	18
18	MP2	Z	0	18
19	MP2	X	32.62	33
20	MP2	Z	0	33
21	MP2	X	30.03	18
22	MP2	Z	0	18
23	MP2	X	30.03	36
24	MP2	Z	0	36
25	MP4	X	33.94	18
26	MP4	Z	0	18
27	MP4	X	33.94	36
28	MP4	Z	0	36

Member Point Loads (BLC 12 : Wind Load AZI 300)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	163.41	6
2	MP2	Z	-94.35	6
3	MP2	X	163.41	78
4	MP2	Z	-94.35	78
5	MP3	X	54.64	6
6	MP3	Z	-31.54	6
7	MP3	X	54.64	36
8	MP3	Z	-31.54	36
9	MP3	X	54.64	48
10	MP3	Z	-31.54	48
11	MP3	X	54.64	78
12	MP3	Z	-31.54	78
13	MP4	X	172.3	6
14	MP4	Z	-99.48	6
15	MP4	X	172.3	78
16	MP4	Z	-99.48	78
17	MP2	X	29.74	18
18	MP2	Z	-17.17	18
19	MP2	X	29.74	33
20	MP2	Z	-17.17	33
21	MP2	X	30.05	18
22	MP2	Z	-17.35	18
23	MP2	X	30.05	36
24	MP2	Z	-17.35	36
25	MP4	X	32.31	18
26	MP4	Z	-18.66	18
27	MP4	X	32.31	36
28	MP4	Z	-18.66	36

Member Point Loads (BLC 13 : Wind Load AZI 330)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	142.44	6
2	MP2	Z	-246.71	6
3	MP2	X	142.44	78
4	MP2	Z	-246.71	78
5	MP3	X	42.88	6
6	MP3	Z	-74.27	6
7	MP3	X	42.88	36
8	MP3	Z	-74.27	36
9	MP3	X	42.88	48
10	MP3	Z	-74.27	48
11	MP3	X	42.88	78
12	MP3	Z	-74.27	78
13	MP4	X	135.27	6
14	MP4	Z	-234.3	6

Member Point Loads (BLC 13 : Wind Load AZI 330) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
15	MP4	X	135.27	78
16	MP4	Z	-234.3	78
17	MP2	X	18.89	18
18	MP2	Z	-32.72	18
19	MP2	X	18.89	33
20	MP2	Z	-32.72	33
21	MP2	X	22.02	18
22	MP2	Z	-38.14	18
23	MP2	X	22.02	36
24	MP2	Z	-38.14	36
25	MP4	X	22.03	18
26	MP4	Z	-38.15	18
27	MP4	X	22.03	36
28	MP4	Z	-38.15	36

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	Y	-147.899	6
2	MP2	Y	-147.899	78
3	MP3	Y	-59.482	6
4	MP3	Y	-59.482	36
5	MP3	Y	-59.482	48
6	MP3	Y	-59.482	78
7	MP4	Y	-153.312	6
8	MP4	Y	-153.312	78
9	MP2	Y	-36.52	18
10	MP2	Y	-36.52	33
11	MP2	Y	-36.654	18
12	MP2	Y	-36.654	36
13	MP4	Y	-38.313	18
14	MP4	Y	-38.313	36

Member Point Loads (BLC 17 : Ice Wind Load AZI 0)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	0	6
2	MP2	Z	-25.72	6
3	MP2	X	0	78
4	MP2	Z	-25.72	78
5	MP3	X	0	6
6	MP3	Z	-8.38	6
7	MP3	X	0	36
8	MP3	Z	-8.38	36
9	MP3	X	0	48
10	MP3	Z	-8.38	48

Member Point Loads (BLC 17 : Ice Wind Load AZI 0) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
11	MP3	X	0	78
12	MP3	Z	-8.38	78
13	MP4	X	0	6
14	MP4	Z	-23.65	6
15	MP4	X	0	78
16	MP4	Z	-23.65	78
17	MP2	X	0	18
18	MP2	Z	-3.91	18
19	MP2	X	0	33
20	MP2	Z	-3.91	33
21	MP2	X	0	18
22	MP2	Z	-4.65	18
23	MP2	X	0	36
24	MP2	Z	-4.65	36
25	MP4	X	0	18
26	MP4	Z	-4.54	18
27	MP4	X	0	36
28	MP4	Z	-4.54	36

Member Point Loads (BLC 18 : Ice Wind Load AZI 30)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-11.64	6
2	MP2	Z	-20.15	6
3	MP2	X	-11.64	78
4	MP2	Z	-20.15	78
5	MP3	X	-3.89	6
6	MP3	Z	-6.74	6
7	MP3	X	-3.89	36
8	MP3	Z	-6.74	36
9	MP3	X	-3.89	48
10	MP3	Z	-6.74	48
11	MP3	X	-3.89	78
12	MP3	Z	-6.74	78
13	MP4	X	-10.82	6
14	MP4	Z	-18.75	6
15	MP4	X	-10.82	78
16	MP4	Z	-18.75	78
17	MP2	X	-1.91	18
18	MP2	Z	-3.31	18
19	MP2	X	-1.91	33
20	MP2	Z	-3.31	33
21	MP2	X	-2.21	18
22	MP2	Z	-3.83	18
23	MP2	X	-2.21	36
24	MP2	Z	-3.83	36
25	MP4	X	-2.2	18

Member Point Loads (BLC 18 : Ice Wind Load AZI 30) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
26	MP4	Z	-3.8	18
27	MP4	X	-2.2	36
28	MP4	Z	-3.8	36

Member Point Loads (BLC 19 : Ice Wind Load AZI 60)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-15.92	6
2	MP2	Z	-9.19	6
3	MP2	X	-15.92	78
4	MP2	Z	-9.19	78
5	MP3	X	-5.7	6
6	MP3	Z	-3.29	6
7	MP3	X	-5.7	36
8	MP3	Z	-3.29	36
9	MP3	X	-5.7	48
10	MP3	Z	-3.29	48
11	MP3	X	-5.7	78
12	MP3	Z	-3.29	78
13	MP4	X	-15.29	6
14	MP4	Z	-8.83	6
15	MP4	X	-15.29	78
16	MP4	Z	-8.83	78
17	MP2	X	-3.16	18
18	MP2	Z	-1.83	18
19	MP2	X	-3.16	33
20	MP2	Z	-1.83	33
21	MP2	X	-3.46	18
22	MP2	Z	-2	18
23	MP2	X	-3.46	36
24	MP2	Z	-2	36
25	MP4	X	-3.54	18
26	MP4	Z	-2.04	18
27	MP4	X	-3.54	36
28	MP4	Z	-2.04	36

Member Point Loads (BLC 20 : Ice Wind Load AZI 90)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-15.93	6
2	MP2	Z	0	6
3	MP2	X	-15.93	78
4	MP2	Z	0	78
5	MP3	X	-5.98	6
6	MP3	Z	0	6
7	MP3	X	-5.98	36

Member Point Loads (BLC 20 : Ice Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
8	MP3	Z	0	36
9	MP3	X	-5.98	48
10	MP3	Z	0	48
11	MP3	X	-5.98	78
12	MP3	Z	0	78
13	MP4	X	-15.65	6
14	MP4	Z	0	6
15	MP4	X	-15.65	78
16	MP4	Z	0	78
17	MP2	X	-3.57	18
18	MP2	Z	0	18
19	MP2	X	-3.57	33
20	MP2	Z	0	33
21	MP2	X	-3.77	18
22	MP2	Z	0	18
23	MP2	X	-3.77	36
24	MP2	Z	0	36
25	MP4	X	-3.93	18
26	MP4	Z	0	18
27	MP4	X	-3.93	36
28	MP4	Z	0	36

Member Point Loads (BLC 21 : Ice Wind Load AZI 120)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-15.92	6
2	MP2	Z	9.19	6
3	MP2	X	-15.92	78
4	MP2	Z	9.19	78
5	MP3	X	-5.7	6
6	MP3	Z	3.29	6
7	MP3	X	-5.7	36
8	MP3	Z	3.29	36
9	MP3	X	-5.7	48
10	MP3	Z	3.29	48
11	MP3	X	-5.7	78
12	MP3	Z	3.29	78
13	MP4	X	-15.29	6
14	MP4	Z	8.83	6
15	MP4	X	-15.29	78
16	MP4	Z	8.83	78
17	MP2	X	-3.16	18
18	MP2	Z	1.83	18
19	MP2	X	-3.16	33
20	MP2	Z	1.83	33
21	MP2	X	-3.46	18
22	MP2	Z	2	18

Member Point Loads (BLC 21 : Ice Wind Load AZI 120) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
23	MP2	X	-3.46	36
24	MP2	Z	2	36
25	MP4	X	-3.54	18
26	MP4	Z	2.04	18
27	MP4	X	-3.54	36
28	MP4	Z	2.04	36

Member Point Loads (BLC 22 : Ice Wind Load AZI 150)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-11.64	6
2	MP2	Z	20.15	6
3	MP2	X	-11.64	78
4	MP2	Z	20.15	78
5	MP3	X	-3.89	6
6	MP3	Z	6.74	6
7	MP3	X	-3.89	36
8	MP3	Z	6.74	36
9	MP3	X	-3.89	48
10	MP3	Z	6.74	48
11	MP3	X	-3.89	78
12	MP3	Z	6.74	78
13	MP4	X	-10.82	6
14	MP4	Z	18.75	6
15	MP4	X	-10.82	78
16	MP4	Z	18.75	78
17	MP2	X	-1.91	18
18	MP2	Z	3.31	18
19	MP2	X	-1.91	33
20	MP2	Z	3.31	33
21	MP2	X	-2.21	18
22	MP2	Z	3.83	18
23	MP2	X	-2.21	36
24	MP2	Z	3.83	36
25	MP4	X	-2.2	18
26	MP4	Z	3.8	18
27	MP4	X	-2.2	36
28	MP4	Z	3.8	36

Member Point Loads (BLC 23 : Ice Wind Load AZI 180)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	0	6
2	MP2	Z	25.72	6
3	MP2	X	0	78
4	MP2	Z	25.72	78

Member Point Loads (BLC 23 : Ice Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
5	MP3	X	0	6
6	MP3	Z	8.38	6
7	MP3	X	0	36
8	MP3	Z	8.38	36
9	MP3	X	0	48
10	MP3	Z	8.38	48
11	MP3	X	0	78
12	MP3	Z	8.38	78
13	MP4	X	0	6
14	MP4	Z	23.65	6
15	MP4	X	0	78
16	MP4	Z	23.65	78
17	MP2	X	0	18
18	MP2	Z	3.91	18
19	MP2	X	0	33
20	MP2	Z	3.91	33
21	MP2	X	0	18
22	MP2	Z	4.65	18
23	MP2	X	0	36
24	MP2	Z	4.65	36
25	MP4	X	0	18
26	MP4	Z	4.54	18
27	MP4	X	0	36
28	MP4	Z	4.54	36

Member Point Loads (BLC 24 : Ice Wind Load AZI 210)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	11.64	6
2	MP2	Z	20.15	6
3	MP2	X	11.64	78
4	MP2	Z	20.15	78
5	MP3	X	3.89	6
6	MP3	Z	6.74	6
7	MP3	X	3.89	36
8	MP3	Z	6.74	36
9	MP3	X	3.89	48
10	MP3	Z	6.74	48
11	MP3	X	3.89	78
12	MP3	Z	6.74	78
13	MP4	X	10.82	6
14	MP4	Z	18.75	6
15	MP4	X	10.82	78
16	MP4	Z	18.75	78
17	MP2	X	1.91	18
18	MP2	Z	3.31	18
19	MP2	X	1.91	33

Member Point Loads (BLC 24 : Ice Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
20	MP2	Z	3.31	33
21	MP2	X	2.21	18
22	MP2	Z	3.83	18
23	MP2	X	2.21	36
24	MP2	Z	3.83	36
25	MP4	X	2.2	18
26	MP4	Z	3.8	18
27	MP4	X	2.2	36
28	MP4	Z	3.8	36

Member Point Loads (BLC 25 : Ice Wind Load AZI 240)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	15.92	6
2	MP2	Z	9.19	6
3	MP2	X	15.92	78
4	MP2	Z	9.19	78
5	MP3	X	5.7	6
6	MP3	Z	3.29	6
7	MP3	X	5.7	36
8	MP3	Z	3.29	36
9	MP3	X	5.7	48
10	MP3	Z	3.29	48
11	MP3	X	5.7	78
12	MP3	Z	3.29	78
13	MP4	X	15.29	6
14	MP4	Z	8.83	6
15	MP4	X	15.29	78
16	MP4	Z	8.83	78
17	MP2	X	3.16	18
18	MP2	Z	1.83	18
19	MP2	X	3.16	33
20	MP2	Z	1.83	33
21	MP2	X	3.46	18
22	MP2	Z	2	18
23	MP2	X	3.46	36
24	MP2	Z	2	36
25	MP4	X	3.54	18
26	MP4	Z	2.04	18
27	MP4	X	3.54	36
28	MP4	Z	2.04	36

Member Point Loads (BLC 26 : Ice Wind Load AZI 270)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	15.93	6
2	MP2	Z	0	6
3	MP2	X	15.93	78
4	MP2	Z	0	78
5	MP3	X	5.98	6
6	MP3	Z	0	6
7	MP3	X	5.98	36
8	MP3	Z	0	36
9	MP3	X	5.98	48
10	MP3	Z	0	48
11	MP3	X	5.98	78
12	MP3	Z	0	78
13	MP4	X	15.65	6
14	MP4	Z	0	6
15	MP4	X	15.65	78
16	MP4	Z	0	78
17	MP2	X	3.57	18
18	MP2	Z	0	18
19	MP2	X	3.57	33
20	MP2	Z	0	33
21	MP2	X	3.77	18
22	MP2	Z	0	18
23	MP2	X	3.77	36
24	MP2	Z	0	36
25	MP4	X	3.93	18
26	MP4	Z	0	18
27	MP4	X	3.93	36
28	MP4	Z	0	36

Member Point Loads (BLC 27 : Ice Wind Load AZI 300)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	15.92	6
2	MP2	Z	-9.19	6
3	MP2	X	15.92	78
4	MP2	Z	-9.19	78
5	MP3	X	5.7	6
6	MP3	Z	-3.29	6
7	MP3	X	5.7	36
8	MP3	Z	-3.29	36
9	MP3	X	5.7	48
10	MP3	Z	-3.29	48
11	MP3	X	5.7	78
12	MP3	Z	-3.29	78
13	MP4	X	15.29	6
14	MP4	Z	-8.83	6

Member Point Loads (BLC 27 : Ice Wind Load AZI 300) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
15	MP4	X	15.29	78
16	MP4	Z	-8.83	78
17	MP2	X	3.16	18
18	MP2	Z	-1.83	18
19	MP2	X	3.16	33
20	MP2	Z	-1.83	33
21	MP2	X	3.46	18
22	MP2	Z	-2	18
23	MP2	X	3.46	36
24	MP2	Z	-2	36
25	MP4	X	3.54	18
26	MP4	Z	-2.04	18
27	MP4	X	3.54	36
28	MP4	Z	-2.04	36

Member Point Loads (BLC 28 : Ice Wind Load AZI 330)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	11.64	6
2	MP2	Z	-20.15	6
3	MP2	X	11.64	78
4	MP2	Z	-20.15	78
5	MP3	X	3.89	6
6	MP3	Z	-6.74	6
7	MP3	X	3.89	36
8	MP3	Z	-6.74	36
9	MP3	X	3.89	48
10	MP3	Z	-6.74	48
11	MP3	X	3.89	78
12	MP3	Z	-6.74	78
13	MP4	X	10.82	6
14	MP4	Z	-18.75	6
15	MP4	X	10.82	78
16	MP4	Z	-18.75	78
17	MP2	X	1.91	18
18	MP2	Z	-3.31	18
19	MP2	X	1.91	33
20	MP2	Z	-3.31	33
21	MP2	X	2.21	18
22	MP2	Z	-3.83	18
23	MP2	X	2.21	36
24	MP2	Z	-3.83	36
25	MP4	X	2.2	18
26	MP4	Z	-3.8	18
27	MP4	X	2.2	36
28	MP4	Z	-3.8	36

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	Z	-15.204	6
2	MP2	Z	-15.204	78
3	MP3	Z	-11.424	6
4	MP3	Z	-11.424	36
5	MP3	Z	-11.424	48
6	MP3	Z	-11.424	78
7	MP4	Z	-14.532	6
8	MP4	Z	-14.532	78
9	MP2	Z	-10.08	18
10	MP2	Z	-10.08	33
11	MP2	Z	-8.33	18
12	MP2	Z	-8.33	36
13	MP4	Z	-9.94	18
14	MP4	Z	-9.94	36

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-15.204	6
2	MP2	X	-15.204	78
3	MP3	X	-11.424	6
4	MP3	X	-11.424	36
5	MP3	X	-11.424	48
6	MP3	X	-11.424	78
7	MP4	X	-14.532	6
8	MP4	X	-14.532	78
9	MP2	X	-10.08	18
10	MP2	X	-10.08	33
11	MP2	X	-8.33	18
12	MP2	X	-8.33	36
13	MP4	X	-9.94	18
14	MP4	X	-9.94	36

Member Area Loads

No Data to Print...

Node Loads and Enforced Displacements (BLC 33 : Service Live Loads)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N6	L	Y	-250

Node Loads and Enforced Displacements (BLC 34 : Maintenance Load 1)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N53	L	Y	-500

Node Loads and Enforced Displacements (BLC 35 : Maintenance Load 2)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N65	L	Y	-500

Node Loads and Enforced Displacements (BLC 36 : Maintenance Load 3)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N64	L	Y	-500

Node Loads and Enforced Displacements (BLC 37 : Maintenance Load 4)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N82	L	Y	-500

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N37	max	2110.499	91	2136.657	33	744.262	14	0	122	0	122	0	122
2		min	-1121.709	85	545.557	57	-4718.604	33	0	1	0	1	0	1
3	N38	max	1094.984	79	1321.789	27	4648.335	27	0	122	0	122	0	122
4		min	-2086.649	97	349.81	14	17.951	20	0	1	0	1	0	1
5	N71	max	300.424	9	87.939	30	714.048	10	0	122	0	122	0	122
6		min	-295.317	15	20.44	60	-703.243	16	0	1	0	1	0	1
7	N76	max	39.16	21	57.212	35	1072.848	4	0	122	0	122	0	122
8		min	-44.201	3	12.566	16	-1058.452	22	0	1	0	1	0	1
9	Totals:	max	2217.054	17	3593.047	34	3422.564	14						
10		min	-2217.054	23	934.12	60	-3422.567	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	MS2	PIPE_2.0	0.691	64.75	31	0.21	74	35	31863.579	32130	1871.625	1871.625	1.56	H1-1b
2	MS3	PIPE_2.0	0.5	63.979	37	0.18	6.938	35	30076.534	32130	1871.625	1871.625	1.516	H1-1b
3	MP4	PIPE_2.0	0.45	48	3	0.149	48	9	14916.096	32130	1871.625	1871.625	2.112	H1-1b
4	MS1	PIPE_2.0	0.417	64.75	83	0.151	74	31	31863.579	32130	1871.625	1871.625	1.598	H1-1b
5	MH1	PIPE_2.5	0.377	37.5	6	0.167	7.5	3	10110.272	50715	3596.25	3596.25	1.825	H1-1b
6	MP2	PIPE_2.0	0.37	27	8	0.047	27	8	14916.096	32130	1871.625	1871.625	3	H1-1b
7	MH2	PIPE_2.5	0.347	37.5	12	0.126	7.5	9	10110.272	50715	3596.25	3596.25	1.982	H1-1b
8	MS4	PIPE_2.0	0.302	63.979	78	0.124	6.938	31	30076.534	32130	1871.625	1871.625	1.47	H1-1b
9	MP1	PIPE_2.0	0.299	68	78	0.1	28	10	14916.096	32130	1871.625	1871.625	3	H1-1b
10	M36	T.S. 1.5 OD	0.233	22.075	38	0.039	44.15	10	10811.281	16387.812	601.398	601.398	1.136	H1-1a

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
11	MP3	PIPE_2.0	0.223	28	8	0.05	28	8	14916.096	32130	1871.625	1871.625	3	H1-1b
12	M52	PIPE_2.0	0.208	80.259	11	0.01	163.933	36	5270.797	32130	1871.625	1871.625	1.136	H1-1b
13	M16	T.S. 1.5 OD	0.161	34	29	0.009	34	9	12805.256	16387.812	601.398	601.398	1.136	H1-1b*
14	M35	T.S. 1.5 OD	0.139	0	31	0.058	44.132	10	10814.918	16387.812	601.398	601.398	1.136	H1-1b*
15	M37	T.S. 1.5 OD	0.13	0	83	0.045	44.15	5	10811.281	16387.812	601.398	601.398	1.136	H1-1b*
16	M18	T.S. 1.5 OD	0.106	34	84	0.007	34	89	12805.256	16387.812	601.398	601.398	1.136	H1-1b*
17	M51	PIPE_2.0	0.104	52.754	5	0.006	105.507	36	12716.801	32130	1871.625	1871.625	1.136	H1-1b
18	M38	T.S. 1.5 OD	0.102	0	83	0.039	44.132	6	10814.918	16387.812	601.398	601.398	1.136	H1-1b*
19	M15	T.S. 1.5 OD	0.087	34	37	0.055	34	89	12805.256	16387.812	601.398	601.398	1.136	H1-1b*
20	M17	T.S. 1.5 OD	0.054	34	83	0.056	34	90	12805.256	16387.812	601.398	601.398	1.136	H1-1b*
21	M14	PIPE_2.0	0.033	34	28	0.011	34	9	29181.602	32130	1871.625	1871.625	1.136	H1-1b*
22	M19	PIPE_2.0	0.024	34	84	0.015	34	8	29181.602	32130	1871.625	1871.625	1.136	H1-1b*

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	MADISON-SR 79
Site Number:	CTL02033
Connection Description:	Sector Frame to Tower Leg

MAXIMUM BOLT LOADS		
Bolt Tension:	2359.30	lbs
Bolt Shear:	1325.86	lbs

WORST CASE BOLT LOADS[1]		
Bolt Tension:	2359.30	lbs
Bolt Shear:	1227.82	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	2	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #33 on member M32 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of M32, M33, 0

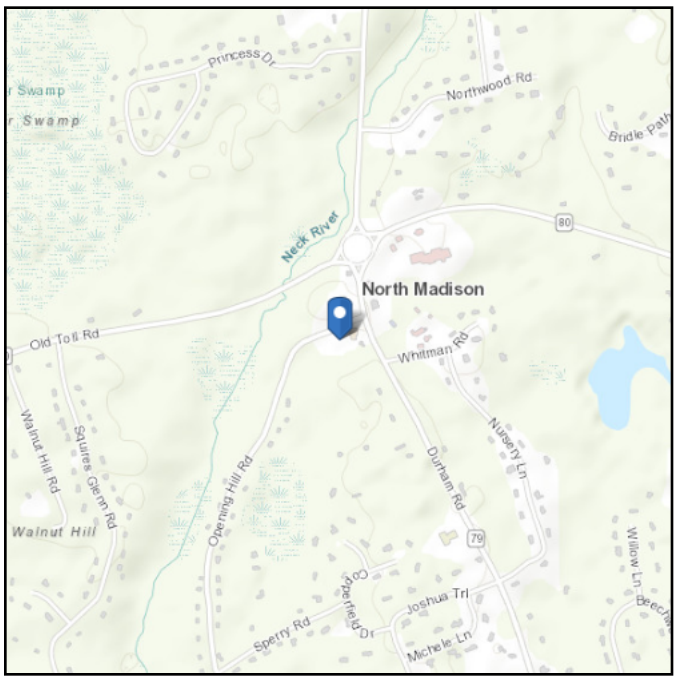
BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	11.6%	
Max Shear Usage	9.6%	
Interaction Check (Worst Case)	0.02	***≤1.05***
Result	Pass	

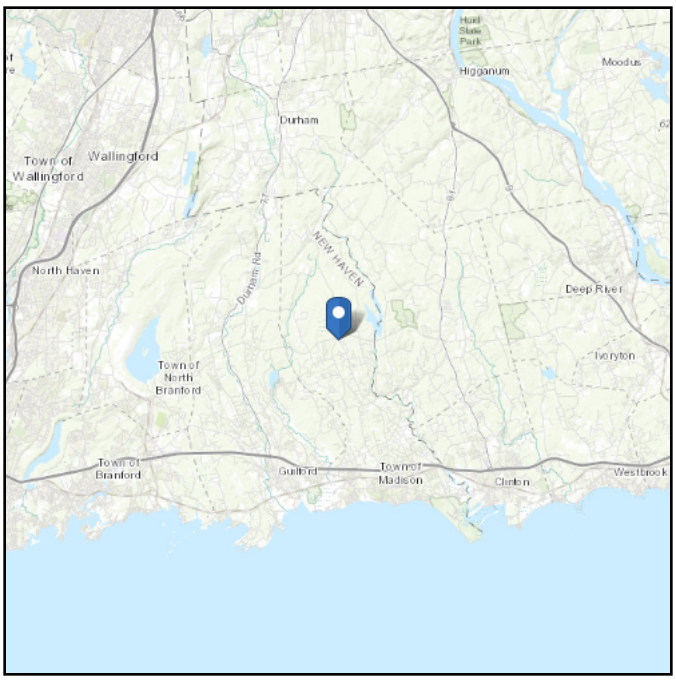
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 291.51 ft (NAVD 88)
Latitude: 41.357298
Longitude: -72.638749





Wind

Results:

Wind Speed	128 Vmph
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	95 Vmph
100-year MRI	105 Vmph

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

Date Accessed: Mon Mar 14 2022

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

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

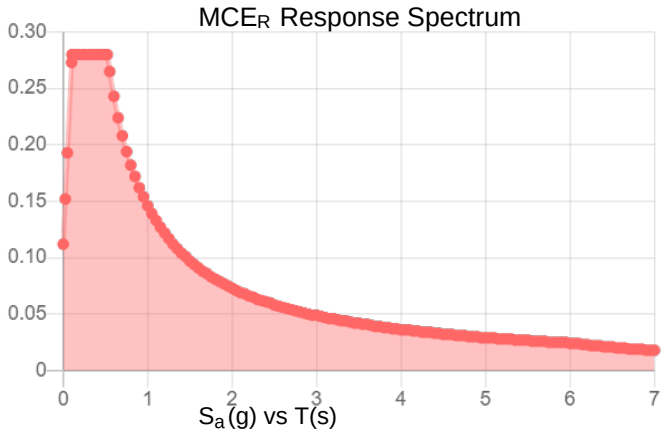
Seismic

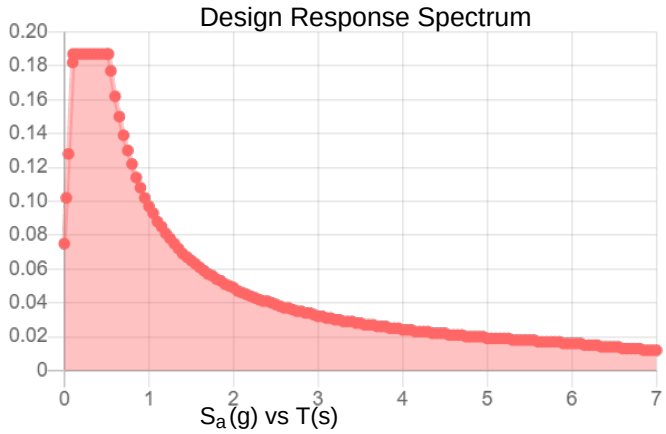
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.175	S_{DS} :	0.187
S_1 :	0.061	S_{D1} :	0.097
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.089
S_{MS} :	0.28	PGA_M :	0.143
S_{M1} :	0.146	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: **Mon Mar 14 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Mar 14 2022

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

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

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Monday, July 11, 2022 10:33 AM
To: Kristina Cottone
Subject: FedEx Shipment 777328744043: Your package has been delivered

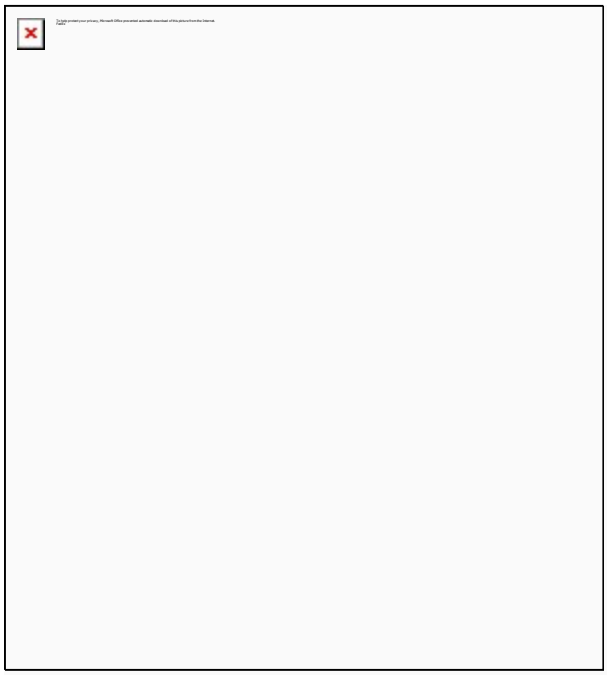
Hi. Your package was delivered Mon, 07/11/2022 at 10:29am.

Delivered to 8 CAMPUS DR, MADISON, CT 06443
Received by C.CHRISTINE

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777328744043
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	Town of Madison ATTN: First Selectwoman Peggy L.

	8 Campus Drive MADISON, CT, US, 06443
REFERENCE	CTL02033 - Madison
SHIPPER REFERENCE	CTL02033 - Madison
SHIP DATE	Thu 7/07/2022 06:22 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	MADISON, CT, US, 06443
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx 2Day



FOLLOW FEDEX

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Monday, July 11, 2022 10:33 AM
To: Kristina Cottone
Subject: FedEx Shipment 777328721178: Your package has been delivered

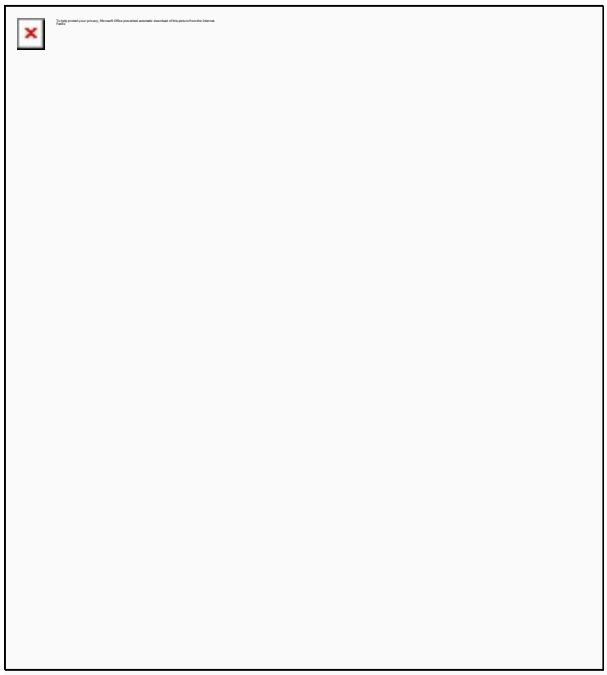
Hi. Your package was delivered Mon, 07/11/2022 at 10:29am.

Delivered to 8 CAMPUS DR, MADISON, CT 06443
Received by C.CHRISTINE

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777328721178
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	Town of Madison ATTN: Town Planner Erin Mannix

	8 Campus Drive MADISON, CT, US, 06443
REFERENCE	CTL02033 - Madison
SHIPPER REFERENCE	CTL02033 - Madison
SHIP DATE	Thu 7/07/2022 06:22 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	MADISON, CT, US, 06443
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx 2Day



FOLLOW FEDEX

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Monday, July 11, 2022 2:39 PM
To: Kristina Cottone
Subject: FedEx Shipment 777328793361: Your package has been delivered

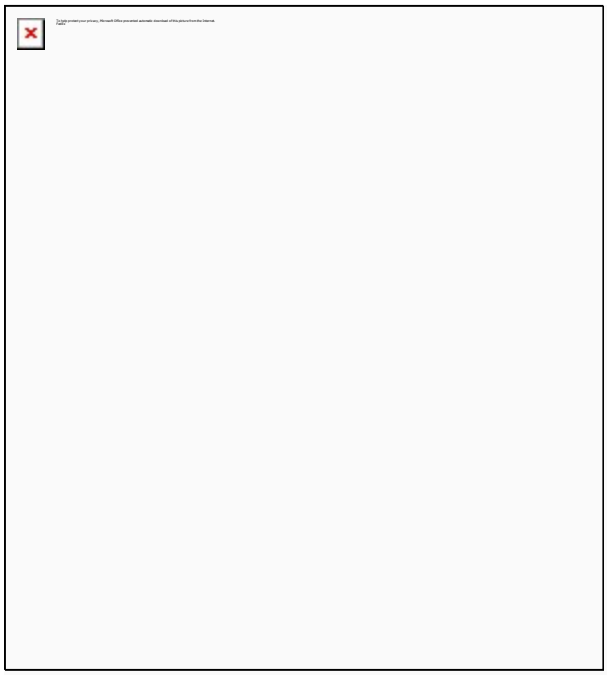
Hi. Your package was delivered Mon, 07/11/2022 at 2:37pm.

Delivered to 864 OPENING HILL RD, MADISON, CT 06443

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777328793361
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	North Madison Volunteer Fire Compan ATTN: Paul Harris 864 Opening Hill Road MADISON, CT, US, 06443

REFERENCE	CTL02033 - Madison
SHIPPER REFERENCE	CTL02033 - Madison
SHIP DATE	Thu 7/07/2022 06:22 PM
DELIVERED TO	Residence
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	MADISON, CT, US, 06443
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx 2Day



SHEET INDEX

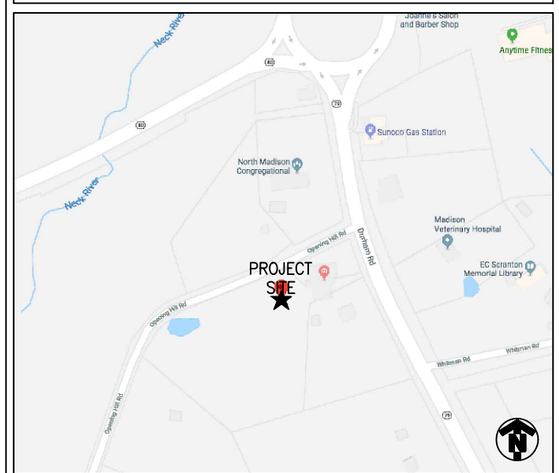
NO.	DESCRIPTION
T1	TITLE SHEET
C1	GENERAL NOTES
C2	OVERALL & ENLARGED SITE PLAN
C3	ELEVATION VIEW
C4	ANTENNA ORIENTATION PLAN
C5	EQUIPMENT DETAILS
C5A	EQUIPMENT DETAILS
C6	PLUMBING DIAGRAM
C7	GROUNDING DETAILS

DRIVING DIRECTIONS

FROM 550 COCHITUATE RD.:

GET ON I-90 WEST/MASSACHUSETTS TURNPIKE FROM SPEEN STREET. HEAD NORTHEAST TOWARD SPEEN STREET. TURN RIGHT TOWARD SPEEN STREET. TURN RIGHT ONTO SPEEN STREET. TURN RIGHT ONTO COCHITUATE ROAD. USE THE RIGHT LANE TO TAKE THE RAMP TO I-90/MASSPIKE/SPRINGFIELD/BOSTON. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR I-90 WEST/MASSACHUSETTS TURNPIKE/WORCESTER/SPRINGFIELD AND MERGE ONTO I-90 WEST/MASSACHUSETTS TURNPIKE. FOLLOW I-90 WEST/MASSACHUSETTS TURNPIKE, I-395 SOUTH AND I-95 SOUTH TO STATE HWY 450 IN MADISON. TAKE EXIT 62 FROM I-95 SOUTH. MERGE ONTO I-90 WEST/MASSACHUSETTS TURNPIKE. TAKE EXIT 10 TOWARD MA-12 NORTH/AUBURN/WORCESTER. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR I-395 SOUTH/NORWICH CT. CONTINUE ONTO I-395 SOUTH. MERGE ONTO I-95 SOUTH. TAKE EXIT 62 TOWARD HAMMONASSET/STATE PARK. FOLLOW STATE HWY 450 AND CT-79 NORTH TO OPENING HILL ROAD. TURN RIGHT ONTO STATE HWY 450. TURN RIGHT ONTO CT-79 NORTH. TURN LEFT ONTO OPENING HILL ROAD.

LOCATION MAP



PROJECT

5G NR 1SR CBAND/5G NR ACTIVATION/BBU RECONFIGURATION WITH NEW IDS/
5G NR ACTIVATION/5G NR 1SR CBAND/LTE 5C

SITE NAME

MADISON-SR 79

CELL SITE ID

CTL02033

FA SITE NUMBER

10035048

PACE ID

MRCTB054479/MRCTB053300/MRCTB056166
MRCTB054068/MRCTB056523/MRCTB054653

SITE ADDRESS

864 OPENING HILL ROAD
MADISON, CT 06443

STRUCTURE TYPE

SELF SUPPORT TOWER

PROJECT TEAM

PROJECT MANAGER

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

ENGINEER

SCOPE OF WORK (PER LTE RFDS, DATED: 03/31/2022, V3.00):

- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED.
- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
- FACILITY HAS NO PLUMBING OR REFRIGERANTS.
- THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.
- ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. EQUIPMENT, ANTENNAS/RRU AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.

TOWER

- REMOVE (3) PANEL ANTENNAS (7770)
- REMOVE (3) PANEL ANTENNAS (HPA-65R-BU6AA)
- INSTALL (3) PANEL ANTENNAS (DMP65R-BU6EA-K)
- INSTALL (6) PANEL ANTENNAS (AIR6419 B77G+AIR6449 B77D STACKED)
- REMOVE (6) POWERWAVE - LGP 21401 TMAS
- INSTALL (3) RRUS-4478 B14
- INSTALL (1) DC/FIBER SQUID WITH (2) 6AWG6 DC TRUNKS AND (1) 18-PAIR FIBER TRUNK
- ADD (6) Y-CABLES
- REPLACE (E) (4) 8AWG6 DC TRUNKS WITH (N) (4) 6AWG6 DC TRUNKS

GROUND

- ADD (4) RECTIFIER IN POWER PLANT
- ADD (1) INDOOR DC12
- ADD (1) 6648 FHG WITH XCEDE CABLE

PROJECT SUMMARY

SITE NAME:	MADISON-SR 79	
CELL SITE ID:	CTL02033	
FA SITE #:	10035048	
SITE ADDRESS:	864 OPENING HILL ROAD MADISON, CT 06443	
COUNTY:	NEW HAVEN	
SITE COORDINATES: LATITUDE:	41.3572981° N	(NAD 83)
LONGITUDE:	72.6387489° W	(NAD 83)
ELEVATION:	±313'	(AMSL)
RAD CENTER	±140'	(AGL)
LANDLORD:	AMERICAN TOWER	
APPLICANT:	AT&T MOBILITY 550 COCHITUATE RD. FRAMINGHAM, MA 01701	
CLIENT REPRESENTATIVE:	SMARTLINK, LLC 85 RANGEWAY RD. SUITE 102 NORTH BILLERICA, MA 01862	
CONTACT:	KRISTINA COTTONE KRISTINA.COTTONE@SMARTLINKGROUP.COM	
ENGINEER:	INFINIGY 1033 WATERVLIET SHAKER ROAD ALBANY, NY 12205	
CONTACT:	ALEXANDRE MATOUT AMATOUT@INFINIGY.COM	
BUILDING CODE:	CT BUILDING CODE UNIFORM BUILDING CODE BUILDING OFFICIALS & CODE ADMINISTRATORS UNIFORM MECHANICAL CODE UNIFORM PLUMBING CODE LOCAL BUILDING CODE CITY/COUNTY ORDINANCES	
ELECTRICAL CODE:	NATIONAL ELECTRICAL CODE (LATEST EDITION)	

811 Know what's below. Call before you dig.

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN CONNECTICUT, CONTACT CALL BEFORE YOU DIG
TOLL FREE: 1-800-922-4455 OR www.cbyd.com
CONNECTICUT STATUTE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

STATE OF CONNECTICUT · SHUHEI SAKAMOTO · 34916 · LICENSED PROFESSIONAL ENGINEER

5/19/2022

No.	Submittal / Revision	App'd	Date
2	ISSUED FOR CONSTUCTION	AM	05/10/22
1	ISSUED FOR CONSTUCTION	AM	04/04/22
0	ISSUED FOR REVIEW	BMM	03/11/22

Drawn: RCD Date: 03/11/22
Designed: ASW Date: 03/11/22
Checked: AJD Date: 03/11/22

Project Number: 1106-A0001-C

Project Title:
MADISON-SR 79
CTL02033
FA# 10035048
864 OPENING HILL ROAD
MADISON, CT 06443

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 03/11/22

CD

Drawing Title
TITLE PAGE

Drawing Number
T1

GENERAL NOTES

PART 1 – GENERAL REQUIREMENTS

1.1 THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
C. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC").
D. AND NFPA 101 (LIFE SAFETY CODE).
E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM).
F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE).

1.2 DEFINITIONS:
A: WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B: COMPANY: AT&T CORPORATION
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D: CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
E: THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

1.3 POINT OF CONTACT: COMMUNICATION BETWEEN THE COMPANY AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE COMPANY SITE DEVELOPMENT SPECIALIST OR OTHER PROJECT COORDINATOR APPOINTED TO MANAGE THE PROJECT FOR THE COMPANY.

1.4 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.5 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES, AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

1.6 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.7 NOTICE TO PROCEED:
A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED.
B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE AT&T WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – EXECUTION

2.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE, POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

2.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

2.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

2.4 COMPANY FURNISHED MATERIAL AND EQUIPMENT: ALL HANDLING, STORAGE AND INSTALLATION OF COMPANY FURNISHED MATERIAL AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
A. CONTRACTOR SHALL PROCURE ALL OTHER REQUIRED WORK RELATED MATERIALS NOT PROVIDED BY AT&T TO SUCCESSFULLY CONSTRUCT A WIRELESS FACILITY.

2.5 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

2.6 EXISTING CONDITIONS: NOTIFY THE COMPANY REPRESENTATIVE OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

PART 3 – RECEIPT OF MATERIAL & EQUIPMENT

3.1 RECEIPT OF MATERIAL AND EQUIPMENT: CONTRACTOR IS RESPONSIBLE FOR AT&T PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
A. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
B. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
C. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
D. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO AT&T OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
E. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
F. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

PART 4 – GENERAL REQUIREMENTS FOR CONSTRUCTION

4.1 CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

4.2 EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

4.3 CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
A. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
B. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

4.4 CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION.

4.5 CONDUCT TESTING AS REQUIRED HEREIN.

PART 5 – TESTS AND INSPECTIONS

5.1 TESTS AND INSPECTIONS:
A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL COORDINATE TEST AND INSPECTION SCHEDULES WITH COMPANY'S REPRESENTATIVE WHO MUST BE ON SITE TO WITNESS SUCH TESTS AND INSPECTIONS.

C. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.

D. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.

E. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.

F. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.

G. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

PART 6 – TRENCHING AND BACKFILLING

6.1 TRENCHING AND BACKFILLING: THE CONTRACTOR SHALL PERFORM ALL EXCAVATION OF EVERY DESCRIPTION AND OF WHATEVER SUBSTANCES ENCOUNTERED, TO THE DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS OTHERWISE SPECIFIED.

A. PROTECTION OF EXISTING UTILITIES: THE CONTRACTOR SHALL CHECK WITH THE LOCAL UTILITIES AND THE RESPECTIVE UTILITY LOCATOR COMPANIES PRIOR TO STARTING EXCAVATION OPERATIONS IN EACH RESPECTIVE AREA TO ASCERTAIN THE LOCATIONS OF KNOWN UTILITY LINES. THE LOCATIONS, NUMBER AND TYPES OF EXISTING UTILITY LINES DETAILED ON THE CONSTRUCTION DRAWINGS ARE APPROXIMATE AND DO NOT REPRESENT EXACT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL LINES DAMAGED DURING EXCAVATION AND ALL ASSOCIATED OPERATIONS. ALL UTILITY LINES UNCOVERED DURING THE EXCAVATION OPERATIONS, SHALL BE PROTECTED FROM DAMAGE DURING EXCAVATION AND ASSOCIATED OPERATIONS. ALL REPAIRS SHALL BE APPROVED BY THE UTILITY COMPANY.

B. HAND DIGGING: UNLESS APPROVED IN WRITING OTHERWISE, ALL DIGGING WITHIN AN EXISTING CELL SITE COMPOUND IS TO BE DONE BY HAND.

C. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE STOCKPILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF THE TRENCH TO AVOID OVERLOADING AND TO PREVENT SLIDES OR CAVE-INS. ALL EXCAVATED MATERIALS NOT REQUIRED OR SUITABLE FOR BACKFILL SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.

D. GRADING SHALL BE DONE AS MAY BE NECESSARY TO PREVENT SURFACE WATER FROM FLOWING INTO TRENCHES OR OTHER EXCAVATIONS, AND ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED BY PUMPING OR BY OTHER APPROVED METHOD.

E. SHEETING AND SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. UNLESS OTHERWISE INDICATED, EXCAVATION SHALL BE BY OPEN CUT, EXCEPT THAT SHORT SECTIONS OF A TRENCH MAY BE TUNNELED IF, THE CONDUIT CAN BE SAFELY AND PROPERLY INSTALLED AND BACKFILL CAN BE PROPERLY TAMPED IN SUCH TUNNEL SECTIONS. EARTH EXCAVATION SHALL COMPRISE ALL MATERIALS AND SHALL INCLUDE CLAY, SILT, SAND, MUCK, GRAVEL, HARDPAN, LOOSE SHALE, AND LOOSE STONE.

F. TRENCHES SHALL BE OF NECESSARY WIDTH FOR THE PROPER LAYING OF THE CONDUIT OR CABLE, AND THE BANKS SHALL BE AS NEARLY VERTICAL AS PRACTICABLE. THE BOTTOM OF THE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM BEARING AND SUPPORT FOR EACH SECTION OF THE CONDUIT OR CABLE ON UNDISTURBED SOIL AT EVERY POINT ALONG ITS ENTIRE LENGTH. EXCEPT WHERE ROCK IS ENCOUNTERED, CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED. WHERE ROCK EXCAVATIONS ARE NECESSARY, THE ROCK SHALL BE EXCAVATED TO A MINIMUM OVER DEPTH OF 6 INCHES BELOW THE TRENCH DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR SPECIFIED. OVER DEPTHS IN THE ROCK EXCAVATION AND UNAUTHORIZED OVER DEPTHS SHALL BE THOROUGHLY BACK FILLED AND TAMPED TO THE APPROPRIATE GRADE. WHENEVER WET OR OTHERWISE UNSTABLE SOIL THAT IS INCAPABLE OF PROPERLY SUPPORTING THE CONDUIT OR CABLE IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, SUCH SOLID SHALL BE REMOVED TO A MINIMUM OVER DEPTH OF 6 INCHES AND THE TRENCH BACKFILLED TO THE PROPER GRADE WITH EARTH OF OTHER SUITABLE MATERIAL, AS HEREINAFTER SPECIFIED.

G. BACKFILLING OF TRENCHES. TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL SPECIFIED TESTS HAVE BEEN PERFORMED AND ACCEPTED. WHERE COMPACTED BACKFILL IS NOT INDICATED THE TRENCHES SHALL BE CAREFULLY BACKFILLED WITH SELECT MATERIAL SUCH AS EXCAVATED SOILS THAT ARE FREE OF ROOTS, SOD, RUBBISH OR STONES, DEPOSITED IN 6 INCH LAYERS AND THOROUGHLY AND CAREFULLY RAMMED UNTIL THE CONDUIT OR CABLE HAS A COVER OF NOT LESS THAN 1 FOOT. THE REMAINDER OF THE BACKFILL MATERIAL SHALL BE GRANULAR IN NATURE AND SHALL NOT CONTAIN ROOTS, SOD, RUBBING, OR STONES OF 2-1/2 INCH MAXIMUM DIMENSION. BACKFILL SHALL BE CAREFULLY PLACED IN THE TRENCH AND IN 1 FOOT LAYERS AND EACH LAYER TAMPED. SETTLING THE BACKFILL WITH WATER WILL BE PERMITTED. THE SURFACE SHALL BE GRADED TO A REASONABLE UNIFORMITY AND THE MOUNDING OVER THE TRENCHES LEFT IN A UNIFORM AND NEAT CONDITION.

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH
F	FUSIBLE DISCONNECT SWITCH
	SURFACE MOUNTED PANEL BOARD
T	TRANSFORMER
M	KILOWATT HOUR METER
JB	JUNCTION BOX
PB	PULL BOX TO NEC/TELCO STANDARDS
----------	UNDERGROUND UTILITIES
	EXOTHERMIC WELD CONNECTION
	MECHANICAL CONNECTION
OR ⊗	GROUND ROD
OR ⊠	GROUND ROD WITH INSPECTION SLEEVE
	GROUND BAR
	120AC DUPLEX RECEPTACLE
G	GROUND CONDUCTOR
	DC POWER AND FIBER OPTIC TRUNK CABLES
	DC POWER CABLES
# / #	REPRESENTS DETAIL NUMBER / REF. DRAWING NUMBER

ABBREVIATIONS

CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MIGB	MASTER ISOLATED GROUND BAR
SST	SELF SUPPORTING TOWER
GPS	GLOBAL POSITIONING SYSTEM
TYP.	TYPICAL
DWG	DRAWING
BCW	BARE COPPER WIRE
BFG	BELOW FINISH GRADE
PVC	POLYVINYL CHLORIDE
CAB	CABINET
C	CONDUIT
SS	STAINLESS STEEL
G	GROUND
AWG	AMERICAN WIRE GAUGE
RGS	RIGID GALVANIZED STEEL
AHJ	AUTHORITY HAVING JURISDICTION
TTLNA	TOWER TOP LOW NOISE AMPLIFIER
UNO	UNLESS NOTED OTHERWISE
EMT	ELECTRICAL METALLIC TUBING
AGL	ABOVE GROUND LEVEL

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STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
5/19/2022

No.	Submittal / Revision	App'd	Date
2	ISSUED FOR CONSTUCTION	AM	05/10/22
1	ISSUED FOR CONSTUCTION	AM	04/04/22
0	ISSUED FOR REVIEW	BMM	03/11/22

Drawn: RCD Date: 03/11/22
Designed: ASW Date: 03/11/22
Checked: AJD Date: 03/11/22

Project Number: 1106-A0001-C

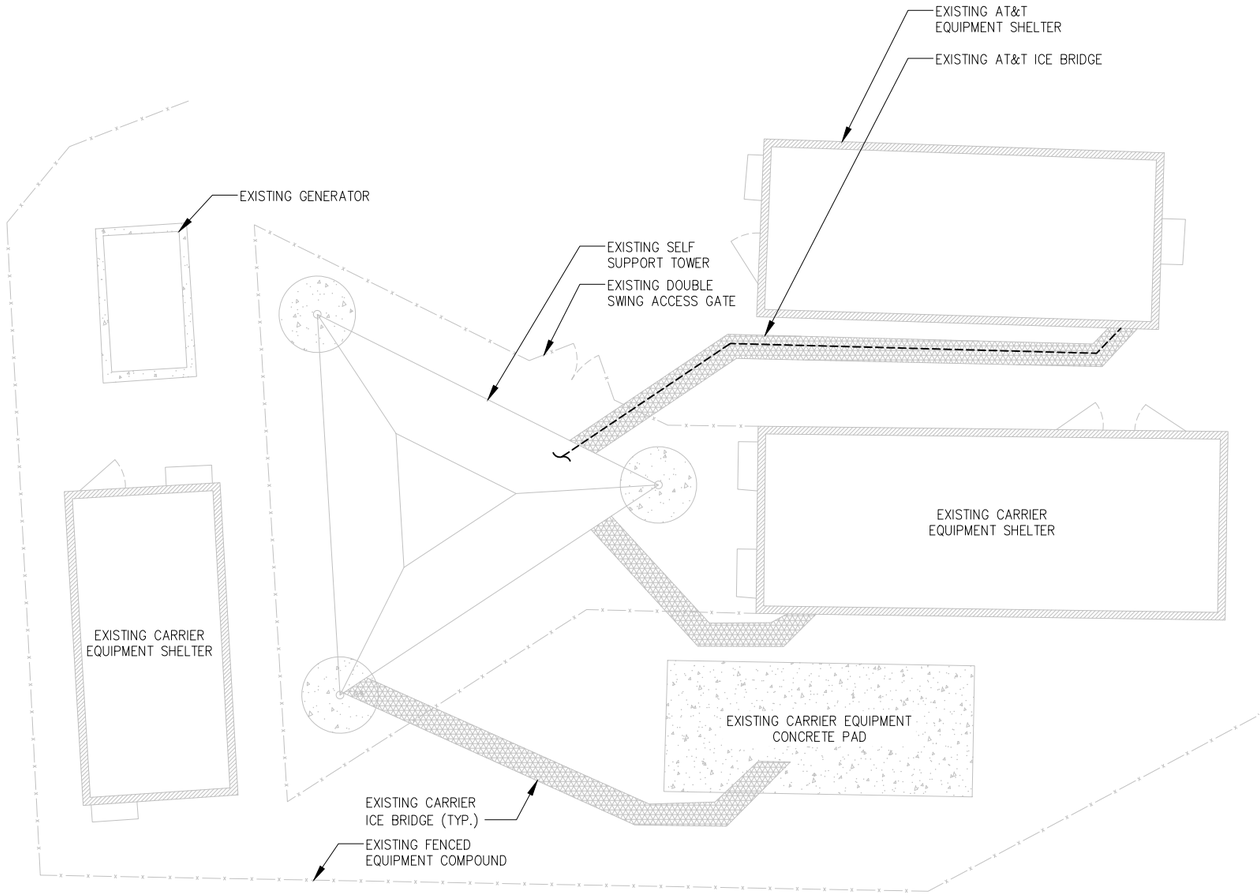
Project Title:
MADISON-SR 79
CTL02033
FA# 10035048
864 OPENING HILL ROAD
MADISON, CT 06443

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 03/11/22
CD

Drawing Title
GENERAL NOTES

Drawing Number
C1

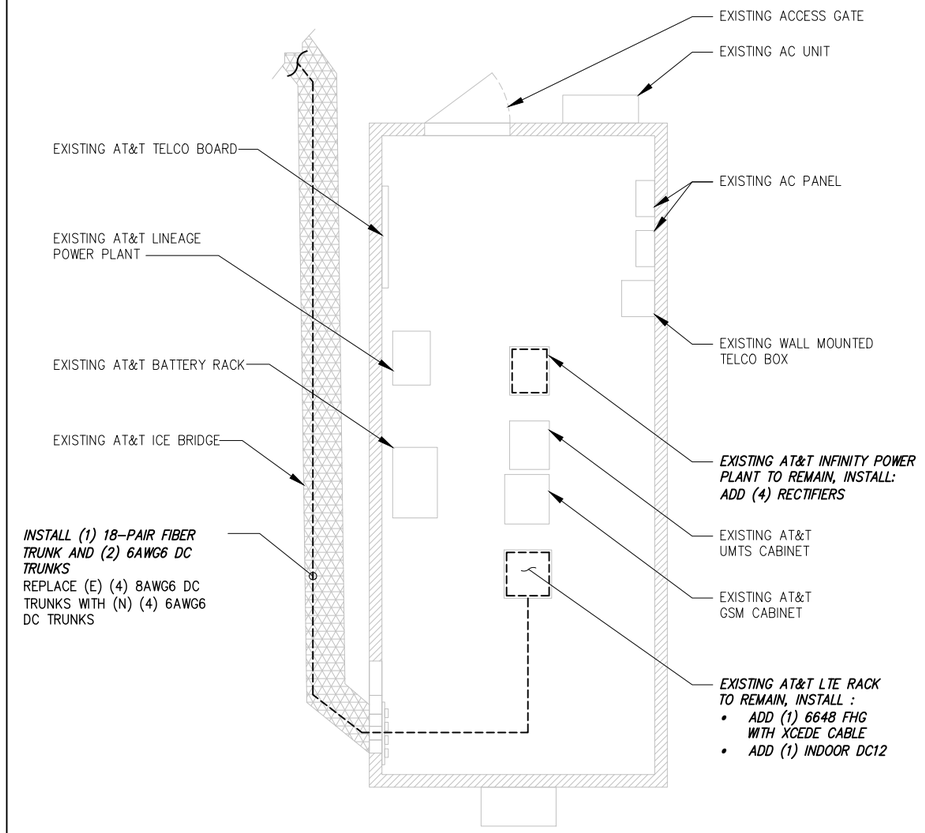


BASEMAPPING PREPARED FROM A SITE WALK PERFORMED BY INFINIGY ENGINEERING ON 11/26/18 AND PROVIDED INFORMATION, AND DOES NOT REPRESENT AN ACTUAL FIELD SURVEY.

TRUE NORTH

1 SITE PLAN
SCALE: AS NOTED

GRAPHIC SCALE:
10' 5' 0 5' 10'
SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"



TRUE NORTH

2 ENLARGED EQUIPMENT PLAN
SCALE: AS NOTED

GRAPHIC SCALE:
6' 3' 0 3' 6'
SCALE (11x17): 1" = 6'-0"
SCALE (22x34): 1" = 3'-0"

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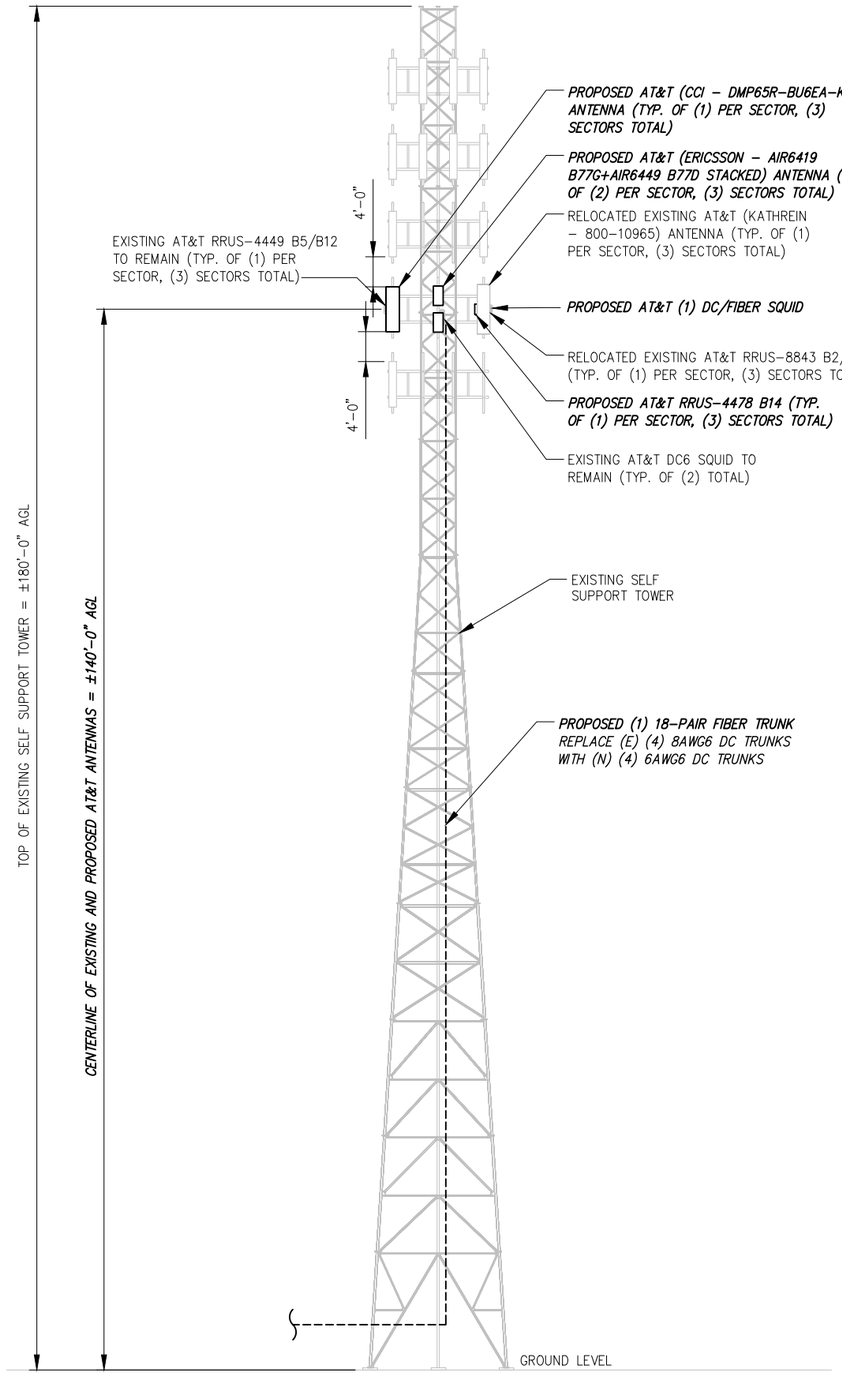
Drawing Scale: AS NOTED
Date: 03/11/22
CD

Drawing Title
OVERALL & ENLARGED SITE PLAN

Drawing Number
C2



1 ELEVATION VIEW
NOT TO SCALE

SEPARATION NOTE:
- 3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNA
- 6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE

FINAL ANTENNA CONFIGURATION & CABLE SCHEDULE BASED ON LTE RFDS DATED 03/31/22, V3.00

SECTOR	ANTENNA POSITION	ANTENNA STATUS & TECHNOLOGY	ANTENNA MANF/MODEL	TMA/ DIPLEXER	RRUS	AZIMUTH	ANTENNA ℄ HEIGHT	CABLE FEEDER TYPE	CABLE FEEDER LENGTH	RAYCAP UNIT
ALPHA	A–1	--	--	--	--	--	--	*(2) (P) Y CABLES*	--	*(2) (E) DC6 'SQUID', (1) (P) DC/FIBER SQUID'*
	A–2	(E) LTE 700/AWS/ 5G AWS	KATHREIN 800–10965	--	(1) (E) 8843 B2/B66A *(1) (P) 4478 B14*	80°	±140'	(1) (E) FIBER CABLE *(2) (P) 6AWG6 DC TRUNK*	±141'	
	A–3	*(P) 5G DOD/5G CBAND*	*ERICSSON AIR6419 B77G+AIR6449 B77D STACKED*	--	--	*80°*	*±140'*	*(1) (P) 18–PAIR FIBER TRUNK (2) (P) 6AWG6 DC TRUNK*	*±141'*	
	A–4	*(P) LTE 700/1900/5G 850/1900*	*CCI DMP65R–BU6EA–K*	--	(1) (E) 4449 B5/B12	*80°*	*±140'*	(1) (E) FIBER CABLE *(2) (P) 6AWG6 DC TRUNK*	±141'	
BETA	B–1	--	--	--	--	--	--	*(2) (P) Y CABLES*	--	
	B–2	(E) LTE 700/AWS/ 5G AWS	KATHREIN 800–10965	--	(1) (E) 8843 B2/B66A *(1) (P) 4478 B14*	200°	±140'	SEE A–2 FOR CABLE INFORMATION	--	
	B–3	*(P) 5G DOD/5G CBAND*	*ERICSSON AIR6419 B77G+AIR6449 B77D STACKED*	--	--	*200°*	*±140'*	SEE A–3 FOR CABLE INFORMATION	--	
	B–4	*(P) LTE 700/1900/5G 850/1900*	*CCI DMP65R–BU6EA–K*	--	(1) (E) 4449 B5/B12	*200°*	*±140'*	SEE A–4 FOR CABLE INFORMATION	--	
GAMMA	G–1	--	--	--	--	--	--	*(2) (P) Y CABLES*	--	
	G–2	(E) LTE 700/AWS/ 5G AWS	KATHREIN 800–10965	--	(1) (E) 8843 B2/B66A *(1) (P) 4478 B14*	330°	±140'	SEE A–2 FOR CABLE INFORMATION	--	
	G–3	*(P) 5G DOD/5G CBAND*	*ERICSSON AIR6419 B77G+AIR6449 B77D STACKED*	--	--	*330°*	*±140'*	SEE A–3 FOR CABLE INFORMATION	--	
	G–4	*(P) LTE 700/1900/5G 850/1900*	*CCI DMP65R–BU6EA–K*	--	(1) (E) 4449 B5/B12	*330°*	*±140'*	SEE A–4 FOR CABLE INFORMATION	--	

2 AT&T ANTENNA SCHEDULE
NOT TO SCALE

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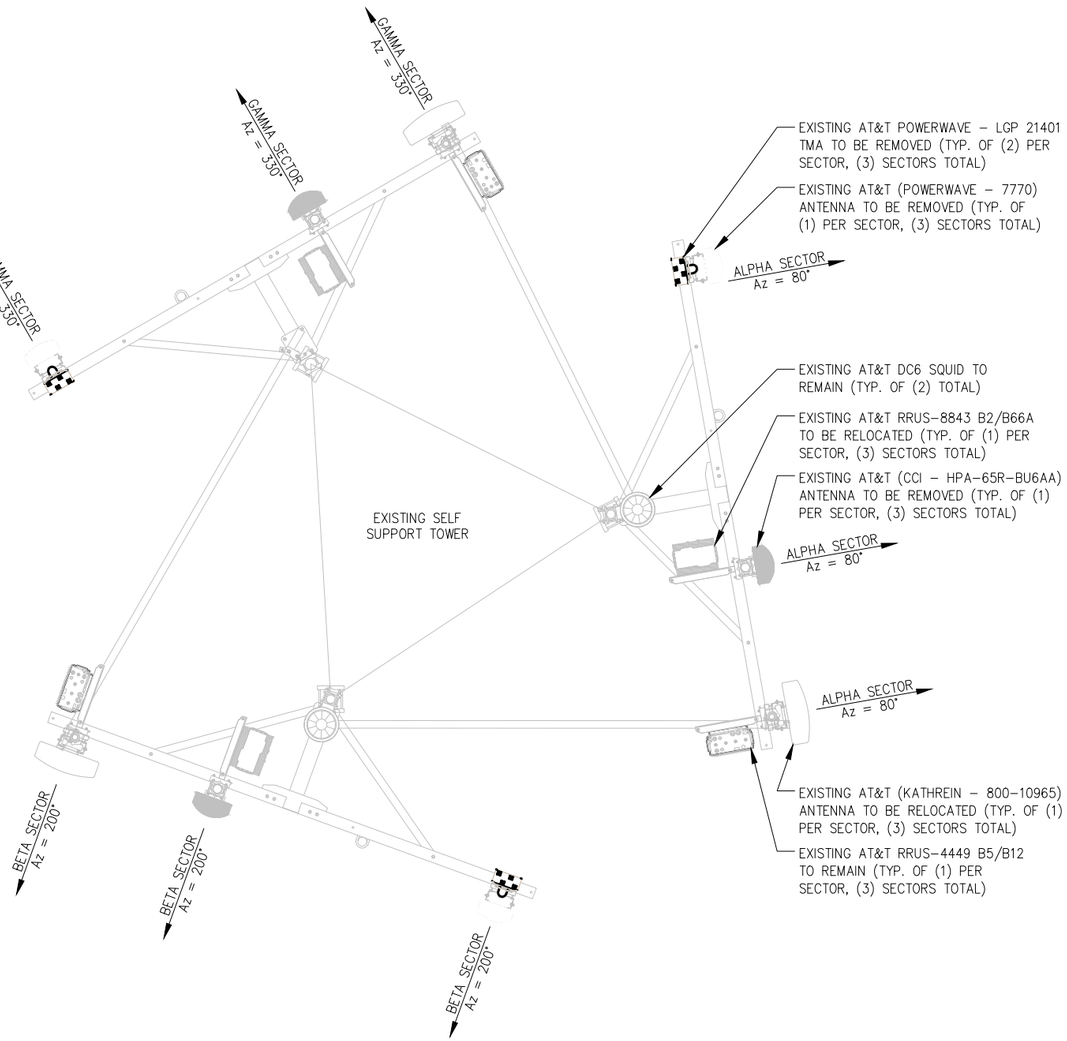
CTL02033
FA# 10035048
864 OPENING HILL ROAD
MADISON, CT 06443

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 03/11/22
CD

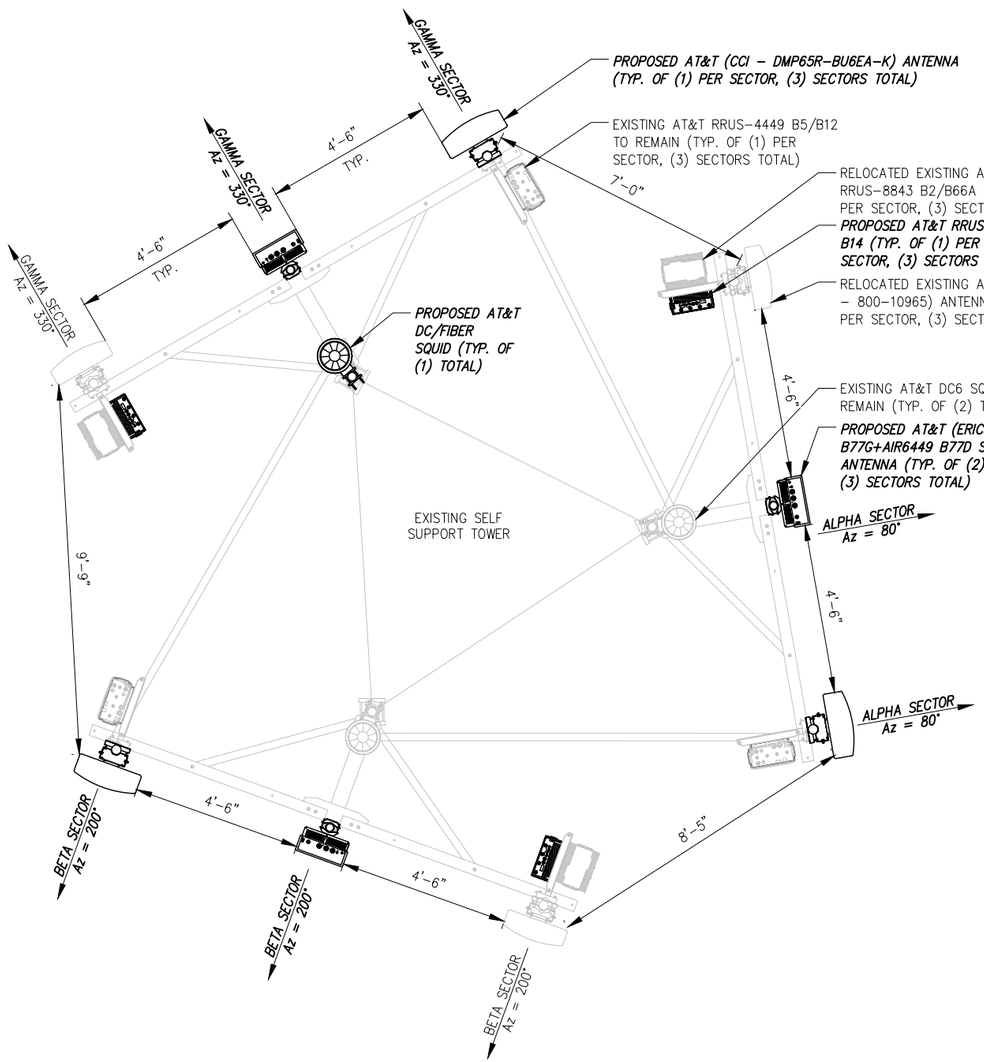
Drawing Title
ELEVATION VIEW

Drawing Number
C3



1 ANTENNA ORIENTATION PLAN (EXISTING)
NOT TO SCALE

SEPARATION NOTE:
- 3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNA
- 6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE



2 PROPOSED ANTENNA ORIENTATION PLAN
NOT TO SCALE

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STATE OF CONNECTICUT
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LICENSED PROFESSIONAL ENGINEER

5/19/2022

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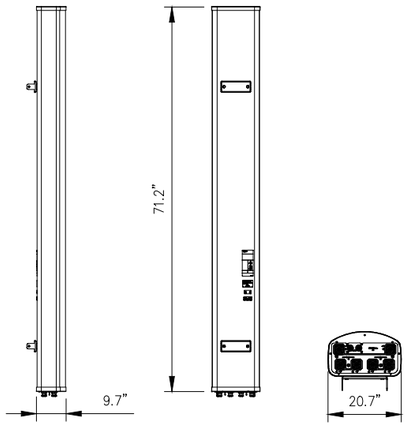
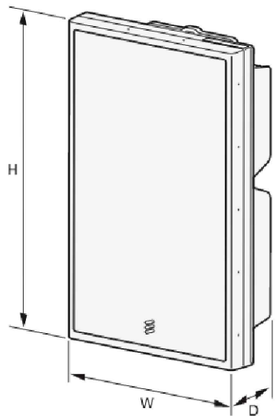
Drawing Title
ANTENNA ORIENTATION PLAN

Drawing Number
C4



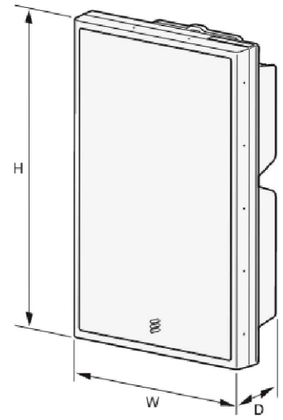
CCI MODEL NO.:	DMP65R-BU6EA-K
RADOME MATERIAL:	FIBERGLASS, UV RESISTANT
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	71.2"x20.7"x9.7"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	103.8 LBS
CONNECTOR:	7-16 DIN FEMALE

1 ANTENNA DETAIL
-- NOT TO SCALE



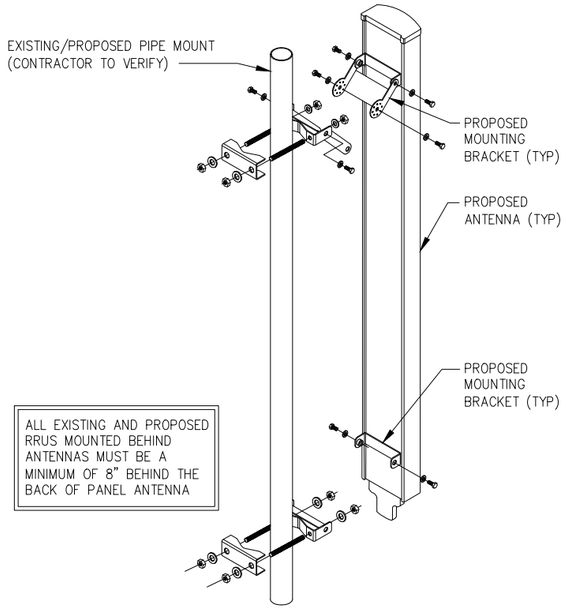
ERICSSON MODEL NO.:	AIR6419 B77G
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	30.4"x15.9"x8.1"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	81.6 LBS
CONNECTOR:	7-16 DIN FEMALE

2 ANTENNA DETAIL
-- NOT TO SCALE

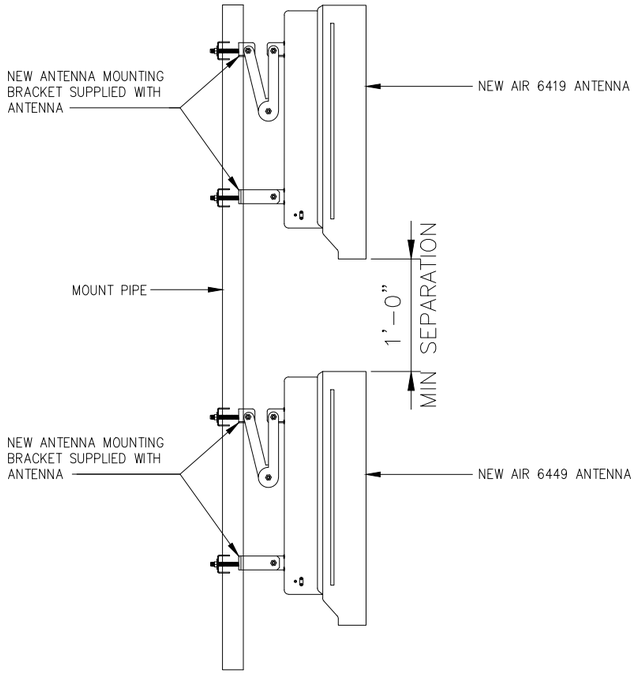


ERICSSON MODEL NO.:	AIR6449 B77D
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	30.4"x15.9"x8.1"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	81.6 LBS
CONNECTOR:	7-16 DIN FEMALE

3 ANTENNA DETAIL
-- NOT TO SCALE



4 ANTENNA MOUNTING DETAIL
-- NOT TO SCALE



5 STACKED ANTENNA DETAIL
-- NOT TO SCALE

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STATE OF CONNECTICUT
MICHAEL SAKALOSKIE
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LICENSED PROFESSIONAL ENGINEER

5/19/2022

No.	Submittal / Revision	App'd	Date
2	ISSUED FOR CONSTUCTION	AM	05/10/22
1	ISSUED FOR CONSTUCTION	AM	04/04/22
0	ISSUED FOR REVIEW	BMM	03/11/22

Drawn: RCD Date: 03/11/22
Designed: ASW Date: 03/11/22
Checked: AJD Date: 03/11/22

Project Number: 1106-A0001-C

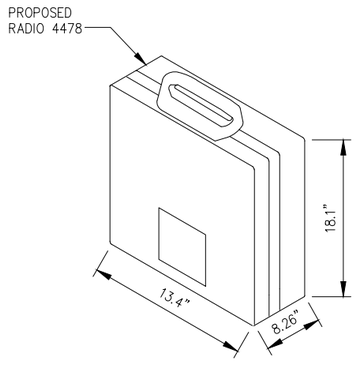
Project Title:
MADISON-SR 79
CTL02033
FA# 10035048
864 OPENING HILL ROAD
MADISON, CT 06443

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 03/11/22
CD

Drawing Title
EQUIPMENT DETAILS

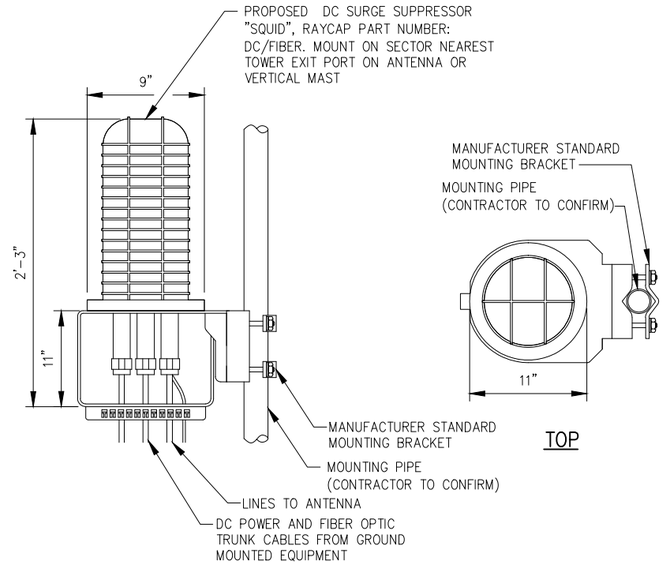
Drawing Number
C5



RADIO 4478 SPECIFICATIONS

- HxWxD, (INCHES) : 18.1"x13.4"x8.26"
- WEIGHT (LBS) : 59.5
- COLOR : GRAY

1 ERICSSON RADIO 4478 DETAIL
NOT TO SCALE



2 DC ONLY SQUID DETAIL
NOT TO SCALE

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Drawing Title
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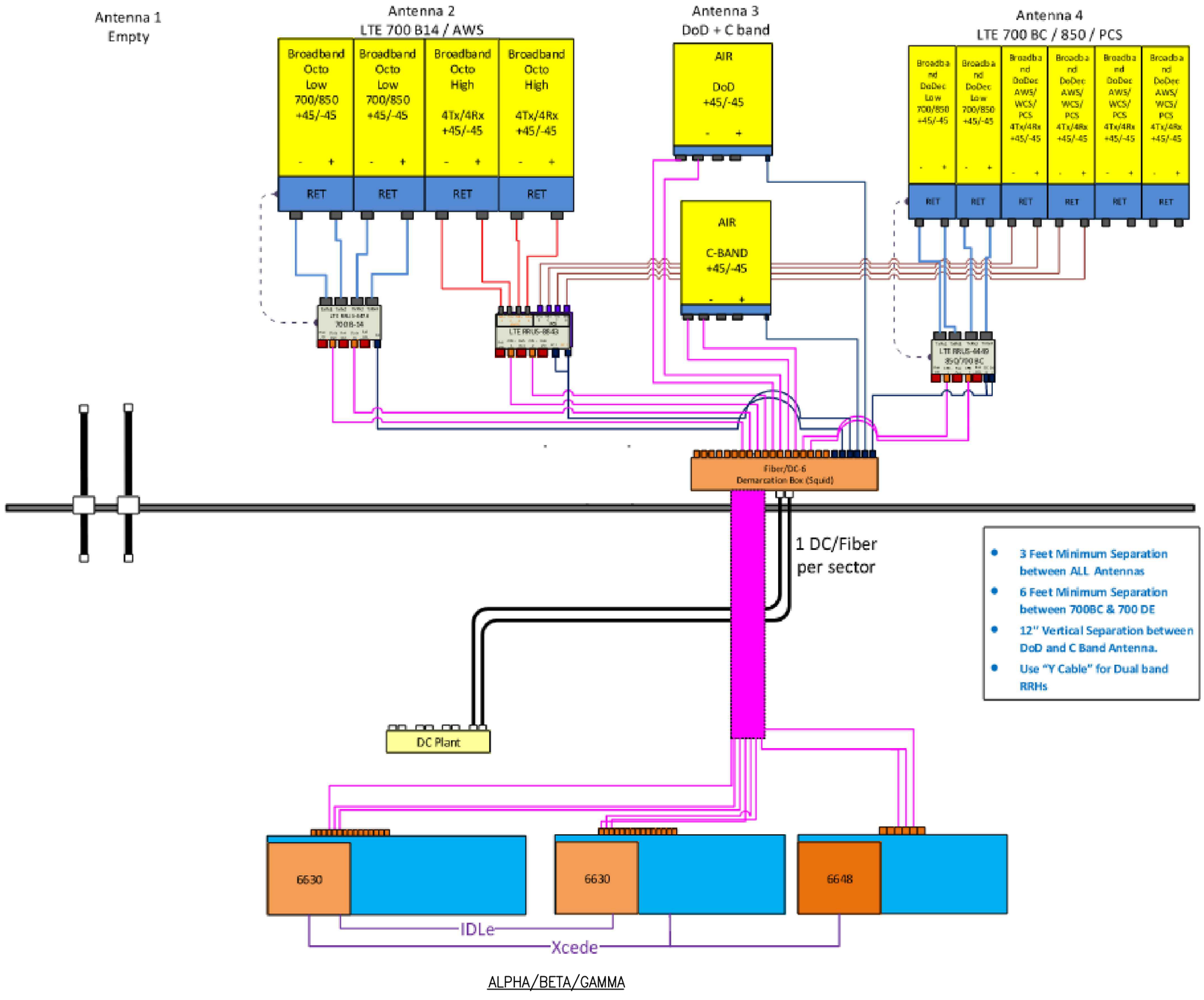
Drawing Number
C5A



1 PLUMBING DIAGRAM (FINAL CONFIGURATION)
NOT TO SCALE

*BASED ON LTE RFDS, DATED 03/31/2022, V3.00

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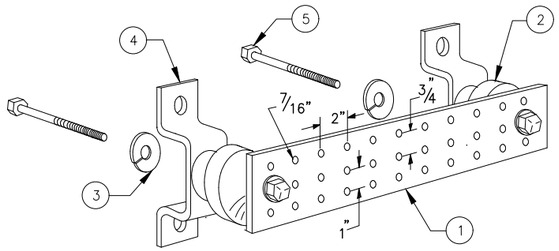
Drawing Title
PLUMBING DIAGRAM

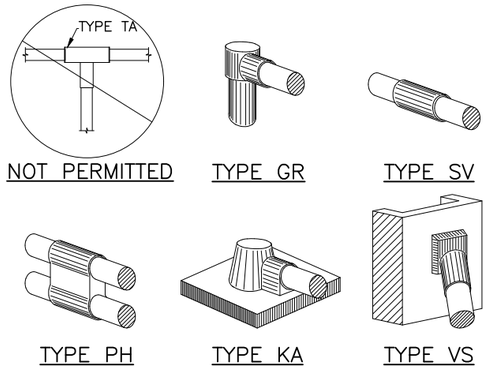
Drawing Number
C6



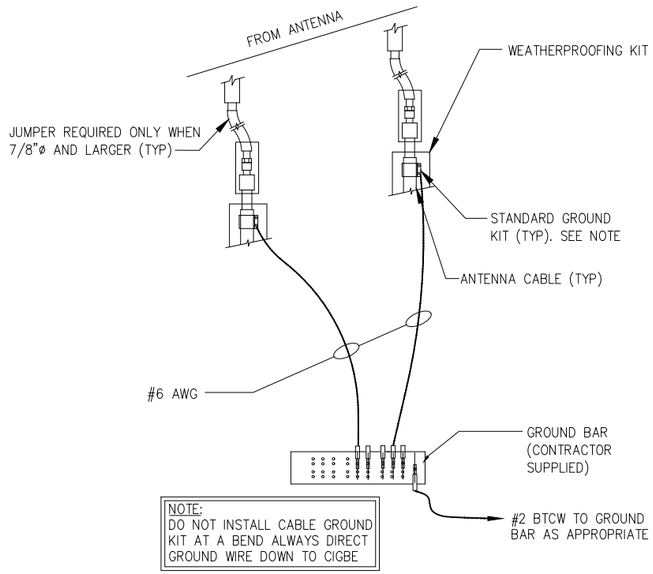
LEGEND

1 – SOLID TINNED COPPER GROUND BAR, 1/4"x 4"x 20" MIN., NEWTON INSTRUMENT CO. 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
6 – GROUND BAR SHALL BE SIZED TO ACCOMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY
7 – GROUND BARS SHALL NEITHER BE FIELD FABRICATED NOR NEW HOLES DRILLED
8 – GROUND LUGS SHALL MATCH THE HOLE SPACING ON THE BAR
9 – HARDWARE DIAMETER SHALL BE MINIMUM 3/8"

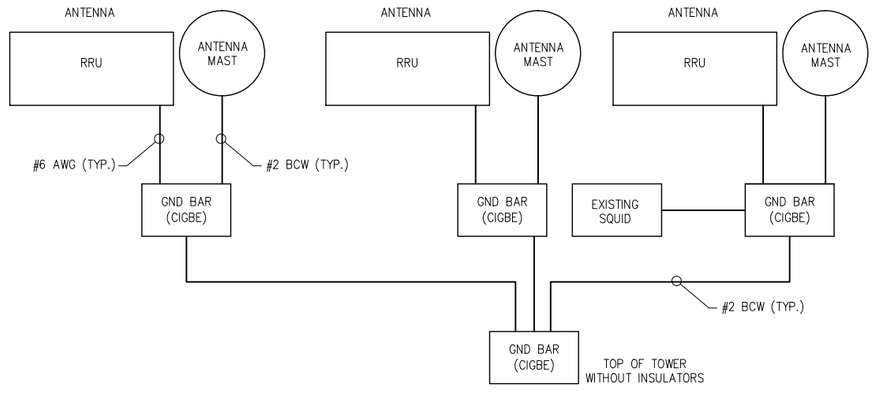
1 — GROUND BAR
NOT TO SCALE



2 — CADWELDS (TYPICAL)
NOT TO SCALE



3 — CONNECTION OF GROUND WIRES TO GROUNDING BARS @ ANTENNAS
NOT TO SCALE



4 — SCHEMATIC DIAGRAM GROUNDING SYSTEM
NOT TO SCALE

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Drawing Title
GROUNDING DETAILS

Drawing Number
C7