



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950A
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

May 27, 2021

Ryan Clark
Site Acquisition Consultant
Centerline Communication, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379

RE: **EM-T-MOBILE-047-210430** - T-Mobile notice of intent to modify an existing telecommunications facility located at 232 South Main Street, East Windsor, Connecticut.

Dear Mr. Clark:

The Connecticut Siting Council (Council) is in receipt of your correspondence of May 25, 2021 submitted in response to the Council's May 25, 2021 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

s/ Melanie A. Bachman

Melanie A. Bachman
Executive Director

MAB/IN/emr

From: Ryan Clark <rclark@clinellc.com>

Sent: Tuesday, May 25, 2021 11:06 AM

To: Fontaine, Lisa <Lisa.Fontaine@ct.gov>

Cc: CSC-DL Siting Council <Siting.Council@ct.gov>

Subject: RE: EM-T-MOBILE-047-210430 Council Incomplete Letter -T-Mobile#CT11402A- 232 South Main Street East Windsor, CT-

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Good Morning,

Per the letter, please find the stamped Structural and Mount Analysis. Let me know if you need anything else.



Ryan Clark | Site Acquisition Consultant

750 W Center St, Suite 301 | West Bridgewater, MA 02379

Mobile: 203.300.7310

rclark@clinellc.com | www.centerlinecommunications.com

Structural Analysis Report

Site ID: CT11402A
Site Name: East Windsor/RT-191_1
Project Name: ANCHOR
Address: 232 South Main St
East Windsor, CT 06088

Client:

T - Mobile
NORTHEAST, LLC
15 Commerce Way, Suite B
Norton, MA 02766



Date: 4/28/2021

DN: CN = Derek J. Creaser, P.E.
email = dcreaser@clinellc.com C
= US O = Centerline
Communications OU = Director -
A&E Services
Date: 2021.04.28 18:12:02 -04'00'

Scope of Work:

Centerline Communications was authorized by T-Mobile Northeast LLC to perform an analysis of the existing structure to determine its capacity to support the proposed and existing T-Mobile equipment/appurtenances listed in this report.

Existing & Proposed Equipment:

Carrier	Mounting Level (ft)	Center Line Elevation (ft)	Number of Appurtenances	Antenna Manufacturer	Appurtenance Model	Feed Lines (in)
-	188.0	202.5	1	-	BCD-87010	(1) 1-1/4
-	186.0	188.0	1	Rohn	14' Platform	-
-	172.0	172.0	6	-	AM-X-CD-16-65-00T-RET	(12) 1-1/4 (2) 5/8 (1) 3/8
			3	-	800 10121	
			3	-	RRUS 11	
			3	-	RRUS 12	
			3	-	TT19-08BP111-001	
			3	-	DTMABP7819VG12A	
			1	-	DC6-48-60-18-8F	
T-Mobile	155.0	155.0	3	RFS	APX16DWV-16DWV-S-E-A20	(2) 6x24 Hybrid (3) 6x24 Hybrid
			3	RFS	APXVAARR24_43-U-NA20	
			3	Ericsson	AIR 6449 B41	
			3	Ericsson	4415 B66A RRH	
			3	Ericsson	Radio 4449 B71+B85 RRH	
			3	Ericsson	4424 B25 RRH	
			3	-	Sector Mount	
-	145.5	145.5	9	-	SBNHH-1D85B	(17) 1-5/8
			3	-	BXA-70063-6CF-EDIN-6	
			3	-	B66A RRH4x45	
			3	-	B25 RRH4x30-4R	
			3	-	RRH2x60-1900	
			2	-	DB-B1-6C-12AB-0Z	
			3	Site Pro 1	VFA10-RRU Sector Mount	

-	123.0	123.0	3	-	APXVSP18-C-A20	(3) 1-1/4 (1) Hybrid
			3	-	DT465B-2XR	
			3	-	RRH2x50-800	
			3	-	RRH4x45-1900	
			3	-	TD-RRH8x20-25	
			3	-	RRH2x50-800	
			3	-	Sector Mount	

Note: Proposed equipment shown in **bold**.

Design Criteria:

Design Codes:

2018 Connecticut State Building Code
 2015 International Building Code
 ASCE 7-10
 TIA-222-G Standards

Ultimate Design Wind Speed (V_{ult})	125 mph
Wind Speed with Ice	50 mph
Ice Thickness	1.00 in.
Exposure Category	C
Topographic Category	1
Risk Category	II
Site Soil Class (Assumed)	D – Stiff Soil
Seismic Design Category	B
Spectral Response Acceleration Parameter at a Short Periods, S_s	0.177 g
Spectral Response Acceleration Parameter at a Period of 1 Second, S_1	0.064 g
Short Period Site Coefficient, F_a	1.60
Long Period Site Coefficient, F_v	2.40

*Refer to calculations for additional design criteria.

Conclusion:

Section Capacity (Summary)

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	188 - 180	Leg	P3x.216	2	-3798.38	88548.60	4.3	Pass
T2	180 - 160	Leg	P3x.216	21	-20740.70	82502.90	25.1	Pass
T3	160 - 140	Leg	ROHN 3 EH	60	-53602.60	94349.80	56.8	Pass
T4	140 - 120	Leg	ROHN 4 EH	81	-97329.20	159905.00	60.9	Pass
T5	120 - 100	Leg	ROHN 5 EH	102	-	239326.00	59.4	Pass
T6	100 - 80	Leg	ROHN 6 EHS	123	-	244126.00	76.2	Pass
T7	80 - 60	Leg	ROHN 6 EH	138	-	303759.00	77.1	Pass
T8	60 - 40	Leg	ROHN 8 EHS	153	-	386368.00	72.1	Pass
T9	40 - 20	Leg	ROHN 8 EH	168	-	505544.00	63.8	Pass
T10	20 - 0	Leg	ROHN 8 EH	183	-	505565.00	65.7 (b)	Pass
T1	188 - 180	Diagonal	L1 3/4x1 3/4x3/16	10	-1128.41	8824.45	72.6	Pass
T2	180 - 160	Diagonal	L1 3/4x1 3/4x3/16	38	-3322.51	5512.95	12.8	Pass
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	65	-7143.41	12209.80	18.3 (b)	Pass
T4	140 - 120	Diagonal	L3x3x1/4	86	-8448.30	16593.20	58.5	Pass
T5	120 - 100	Diagonal	L3x3x1/4	107	-8517.09	12404.00	67.9 (b)	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	127	-12629.80	14408.10	50.9	Pass
T7	80 - 60	Diagonal	L4x4x5/16	142	-12290.10	22316.40	57.1 (b)	Pass
T8	60 - 40	Diagonal	L4x4x5/16	157	-12347.10	18939.00	68.7 (b)	Pass
T9	40 - 20	Diagonal	L4x4x5/16	172	-13774.50	16141.50	65.2	Pass
T10	20 - 0	Diagonal	L4x4x3/8	187	-15387.70	16543.30	69.0 (b)	Pass
T2	180 - 160	Horizontal	L2x2x1/8	32	-359.74	2031.49	85.3	Pass
T1	188 - 180	Top Girt	L3x3x1/4	4	-96.65	20868.70	17.7	Pass
							0.6	Pass
							0.8 (b)	Pass
							Summary	
							Leg (T7)	Pass
							77.1	Pass
							Diagonal (T10)	Pass
							93.0	Pass
							Horizontal (T2)	Pass
							17.7	Pass
							Top Girt (T1)	Pass
							0.8	Pass
							Bolt Checks	Pass
							86.0	Pass
							Anchor Rods	Pass
							73.6	Pass
							RATING =	Pass
							93.0	

Structure Rating (max from all components) =	93.0%
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Note) Foundation information was not available at the time of analysis and has been excluded from the results.

Recommendations:

The existing tower has sufficient capacity to support the existing and proposed loading for the final loading configuration. Modifications to the tower structure are not required.

Reference Documents:

- T-Mobile RFDS CT11402A_Anchor_5, dated February 23, 2021
- Construction Drawings by ForeSite LLC, dated August 1, 2018
- Structural Analysis by Destek Engineering, dated August 14, 2018
- Mount Analysis by Destek Engineering, dated June 1, 2018
- Construction Drawings by Atlantis Group, dated April 23, 2009
- Structural Assessment by Velocitel, dated April 17, 2009
- Construction Drawings by Arcnet Architects, dated August 14, 1997

Assumptions and Limitations:

- The tower and structures were built and maintained with the manufacturer's specifications.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in this report and the referenced drawings.

Design Calculations

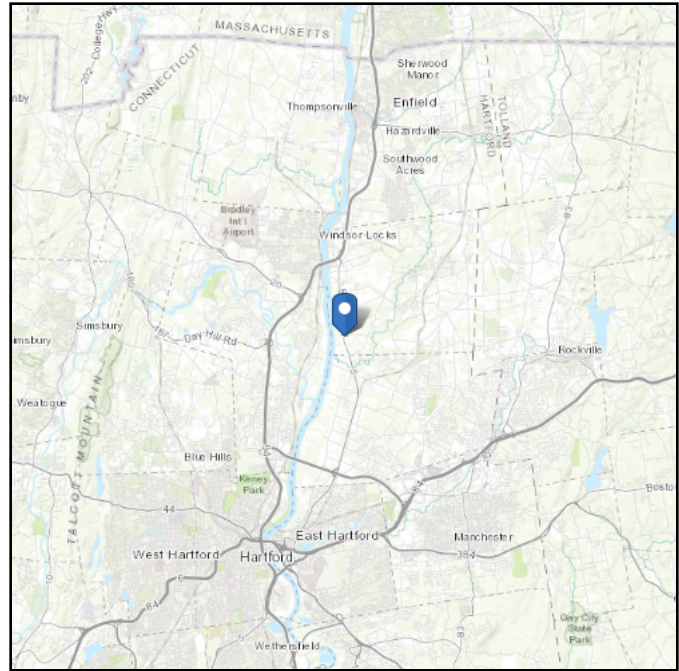


ASCE 7 Hazards Report

Address:
232 S Main St
East Windsor, Connecticut
06088

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

Elevation: 51.35 ft (NAVD 88)
Latitude: 41.877936
Longitude: -72.6094



Wind

Results:

Wind Speed:	122 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 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

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).

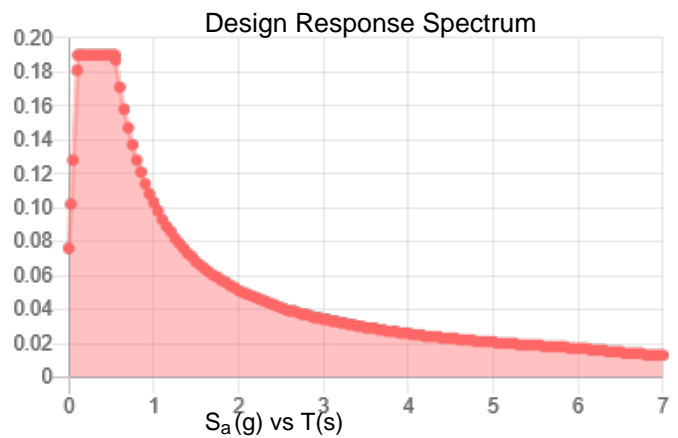
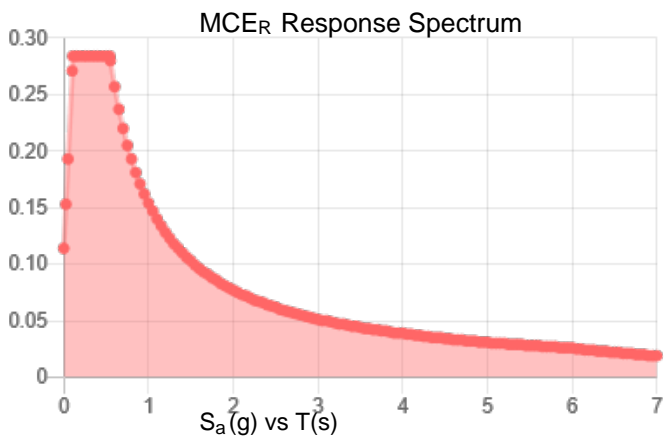
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.178	S_{DS} :	0.19
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.088
S_{MS} :	0.284	PGA _M :	0.141
S_{M1} :	0.154	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Tue Apr 06 2021

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Tue Apr 06 2021

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

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

Snow

Results:

Ground Snow Load, p_g : 30 lb/ft²

Elevation: 51.4 ft

Data Source: ASCE/SEI 7-10, Fig. 7-1.

Date Accessed: Tue Apr 06 2021

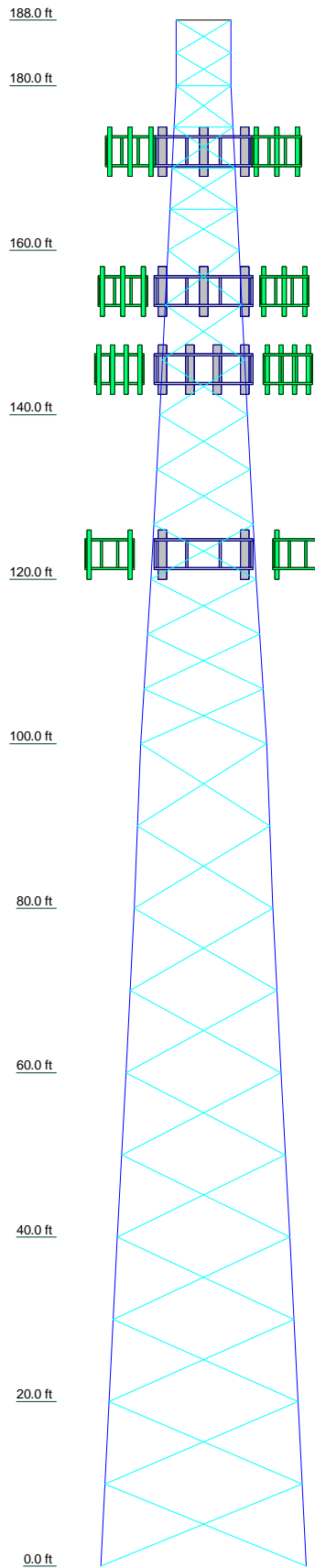
Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	
Legs		P3x.216	ROHN 3 EH	ROHN 4 EH	ROHN 5 EH	ROHN 6 EHS	ROHN 6 EH	ROHN 8 EHS	ROHN 8 EH	ROHN 8 EH	
Leg Grade						A572-50					
Diagonals			L1 3/4x1 3/4x3/16			L3 1/2x3 1/2x1/4	L4x4x5/16			L4x4x3/8	
Diagonal Grade							A572-50				
Top Girts											
Horizontals											
Face Width (ft)				8.75	10.71	12.79	15.29	16.88	18.83	21	23.05
# Panels @ (ft)					9 @ 6.66667			10 @ 10			
Weight (lb) 30390.5					1560.7	2793.5	2813.2	3910.8	4381.1	5230.1	5931.6



MATERIAL STRENGTH

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

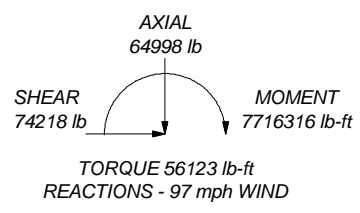
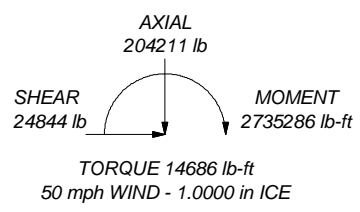
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 93%

ALL REACTIONS
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 378067 lb
SHEAR: 45003 lb

UPLIFT: -324924 lb
SHEAR: 39832 lb

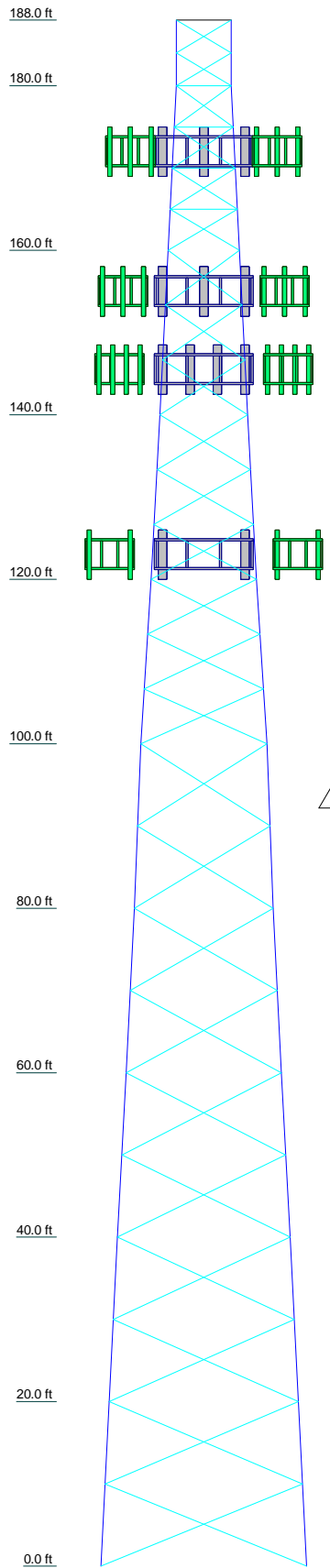


Centerline Communications
750 West Center Street, Suite 301
West Bridgewater, MA 02379
Phone: 781-713-4725
FAX:

Job: CT11402A	Project: Anchor	
Client: T-Mobile	Drawn by: Arielle Novak	App'd:
Code: TIA-222-G	Date: 04/28/21	Scale: NTS
Path:	Dwg No. E-1	

C:\Users\Arielle_Novak\Desktop\Projects\TMO\In Progress\CT11402A\Working Files\Anchor.dwg/CT11402A.dwg

Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 8 EH	ROHN 8 EH	ROHN 6 EH	ROHN 6 EH	ROHN 6 EHS	ROHN 5 EH	ROHN 4 EH	ROHN 3 EH	P3x.216	
Leg Grade					A572-50					
Diagonals	L4x4x3/8		L4x4x5/16		L3 1/2x3 1/2x1/4	L3x3x1/4	L2 1/2x2 1/2x1/4	L1 3/4x1 3/4x3/16		
Diagonal Grade			A572-50						A36	
Top Girts					N.A.				L2x2x1/8	L3x3x1/4
Horizontals					N.A.					N.A.
Face Width (ft)	25	23.05	21	18.83	16.88	15.29	12.79	10.71	8.75	6.63
# Panels @ (ft)			10 @ 10					9 @ 6.66667	4 @ 5	2 @ 4
Weight (lb) 30390.5	5931.6	5230.1	4381.1	3910.8	2813.2	2793.5	2198.1	1560.7	1121.7	498.6



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
BCD-87010	195	4415 B66A (TMO)	155
Rohn 14' Platform	186	4415 B66A (TMO)	155
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	172	4415 B66A (TMO)	155
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	172	Reinforced Sector Mount (TMO)	155
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	172	Reinforced Sector Mount (TMO)	155
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	172	Reinforced Sector Mount (TMO)	155
800 10121 w/ Mount Pipe	172	RRH2X60-1900	145.5
800 10121 w/ Mount Pipe	172	RRH2X60-1900	145.5
800 10121 w/ Mount Pipe	172	RRH2X60-1900	145.5
RRUS 11	172	RRH2X60-1900	145.5
RRUS 11	172	DB-B1-6C-12AB-0Z	145.5
RRUS 11	172	DB-B1-6C-12AB-0Z	145.5
RRUS 12	172	SitePro VFA10-RRU	145.5
RRUS 12	172	SitePro VFA10-RRU	145.5
RRUS 12	172	SitePro VFA10-RRU	145.5
RRUS 12	172	(3) SBNHH-1D85B w/ Mount Pipe	145.5
RRUS 12	172	(3) SBNHH-1D85B w/ Mount Pipe	145.5
RRUS 12	172	(3) SBNHH-1D85B w/ Mount Pipe	145.5
TT19-08BP111-001	172	BXA-70063-6CF-EDIN-6 w/ Mount Pipe	145.5
TT19-08BP111-001	172	BXA-70063-6CF-EDIN-6 w/ Mount Pipe	145.5
TT19-08BP111-001	172	BXA-70063-6CF-EDIN-6 w/ Mount Pipe	145.5
DTMABP7819VG12A	172	BXA-70063-6CF-EDIN-6 w/ Mount Pipe	145.5
DTMABP7819VG12A	172	BXA-70063-6CF-EDIN-6 w/ Mount Pipe	145.5
DTMABP7819VG12A	172	BXA-70063-6CF-EDIN-6 w/ Mount Pipe	145.5
DC6-48-60-18-8F	172	B66A RRH4X45	145.5
6' x 2" Mount Pipe	172	B66A RRH4X45	145.5
6' x 2" Mount Pipe	172	B66A RRH4X45	145.5
6' x 2" Mount Pipe	172	B25 RRH4x30-4R	145.5
Sector Mount [SM 503-3]	172	B25 RRH4x30-4R	145.5
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe (TMO)	155	B25 RRH4x30-4R	145.5
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe (TMO)	155	TD-RRH8x20-25	123
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe (TMO)	155	TD-RRH8x20-25	123
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe (TMO)	155	TD-RRH8x20-25	123
APXVAARR24_43-U-NA20 w/ Mount Pipe (TMO)	155	RRH2x50-800	123
APXVAARR24_43-U-NA20 w/ Mount Pipe (TMO)	155	RRH2x50-800	123
APXVAARR24_43-U-NA20 w/ Mount Pipe (TMO)	155	RRH2x50-800	123
APXVAARR24_43-U-NA20 w/ Mount Pipe (TMO)	155	Sector Mount [SM 503-3]	123
APXVSP18-C-A20 w/ Mount Pipe	155	APXVSP18-C-A20 w/ Mount Pipe	123
APXVSP18-C-A20 w/ Mount Pipe	155	APXVSP18-C-A20 w/ Mount Pipe	123
APXVSP18-C-A20 w/ Mount Pipe	155	APXVSP18-C-A20 w/ Mount Pipe	123
RADIO 4449 (TMO)	155	DT465V-2XR w/ Mount Pipe	123
RADIO 4449 (TMO)	155	DT465V-2XR w/ Mount Pipe	123
RADIO 4449 (TMO)	155	DT465V-2XR w/ Mount Pipe	123
AIR 6449 B41 W/ MOUNT PIPE (TMO)	155	RRH2x50-800	123
AIR 6449 B41 W/ MOUNT PIPE (TMO)	155	RRH2x50-800	123
AIR 6449 B41 W/ MOUNT PIPE (TMO)	155	RRH2x50-800	123
4424 B25 (TMO)	155	RRH4x45-19	123
4424 B25 (TMO)	155	RRH4x45-19	123
4424 B25 (TMO)	155	RRH4x45-19	123

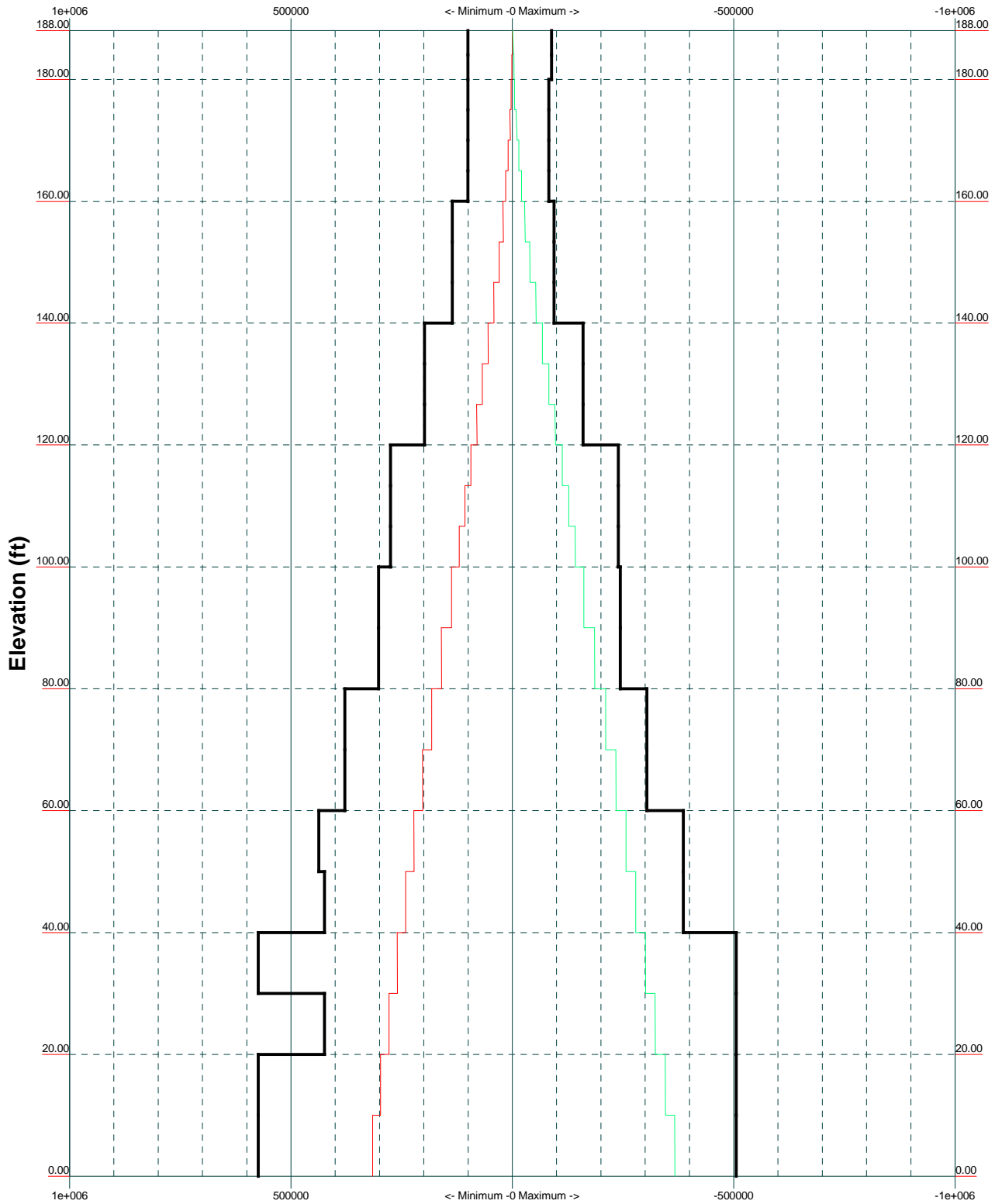
Centerline Communications
 750 West Center Street, Suite 301
 West Bridgewater, MA 02379
 Phone: 781-713-4725
 FAX:

Job: **CT11402A**
 Project: **Anchor**
 Client: T-Mobile Drawn by: Arielle Novak App'd:
 Code: TIA-222-G Date: 04/28/21 Scale: NTS
 Path: Dwg No. E-1

C:\Users\Anille_Novak\Desktop\Projects\TMO\In Progress\CT11402A\Working Files\Anchor\dwg\CT11402A.dwg

TIA-222-G - 97 mph/50 mph 1.000 in Ice Exposure C

Leg Capacity ———
Leg Compression (lb)

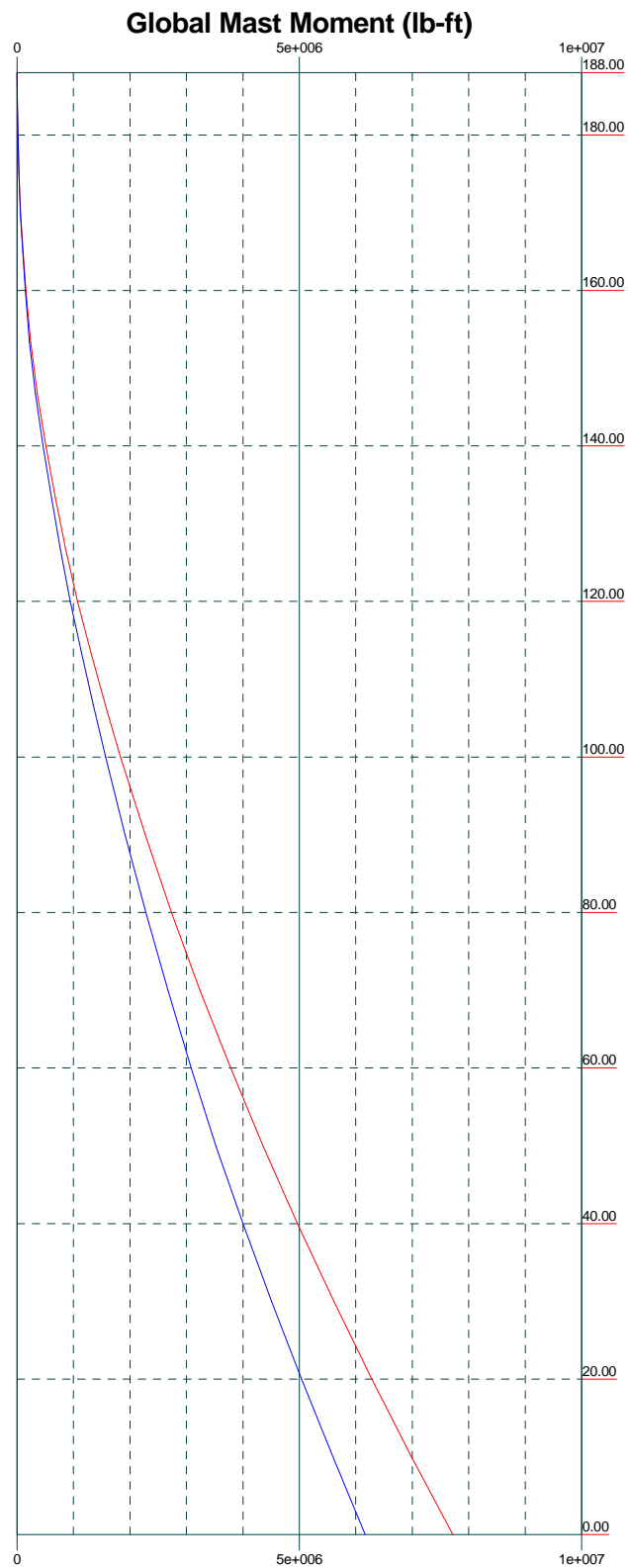
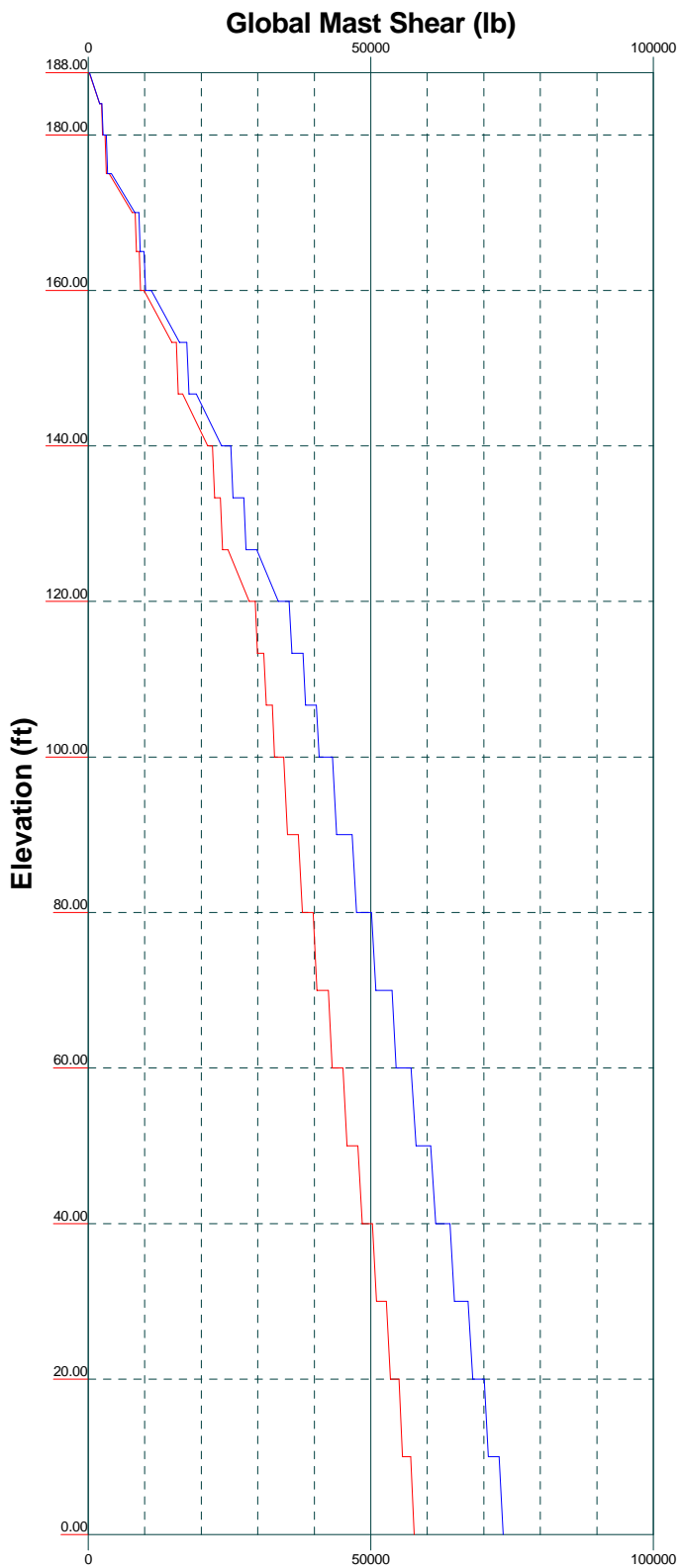


Centerline Communications			Job: CT11402A
750 West Center Street, Suite 301			Project: Anchor
West Bridgewater, MA 02379			Client: T-Mobile
Phone: 781-713-4725			Drawn by: Arielle Novak
FAX:			Date: 04/28/21
			Scale: NTS
			Dwg No. E-3

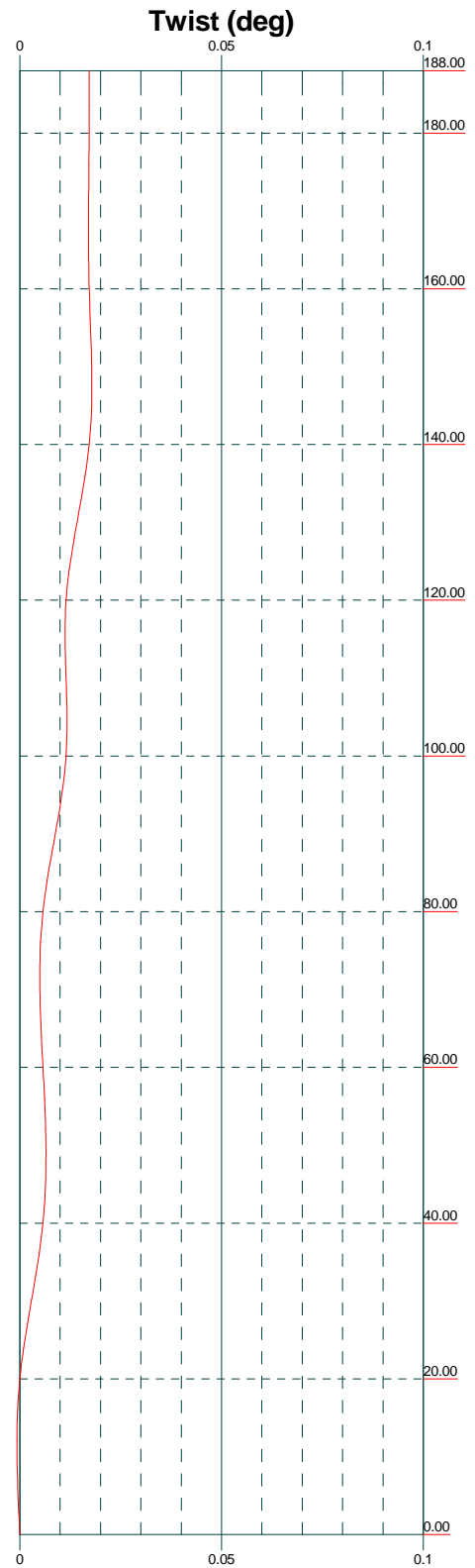
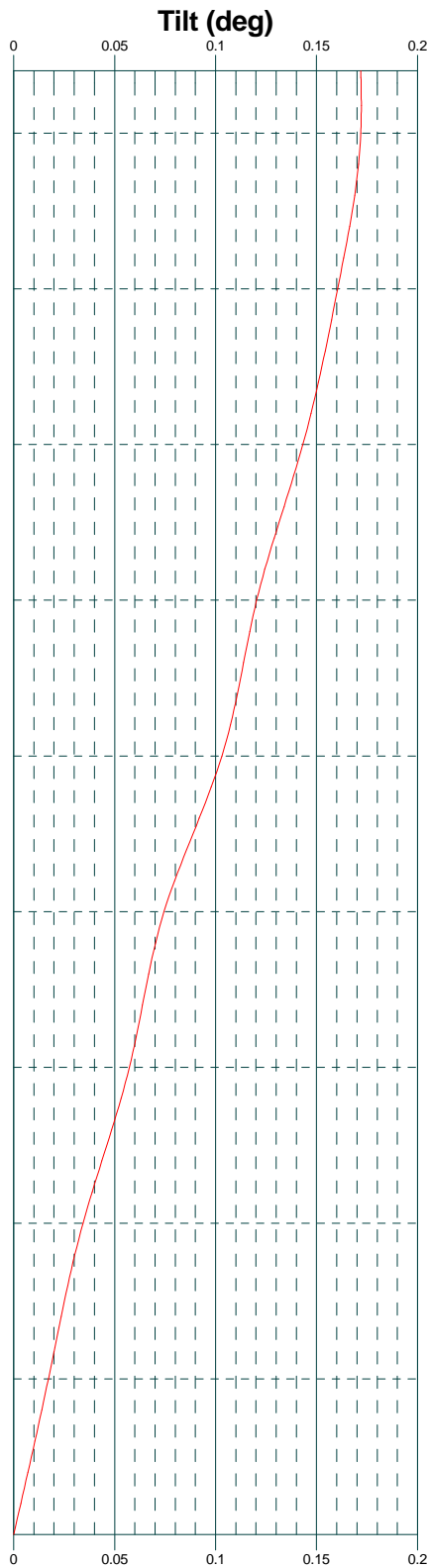
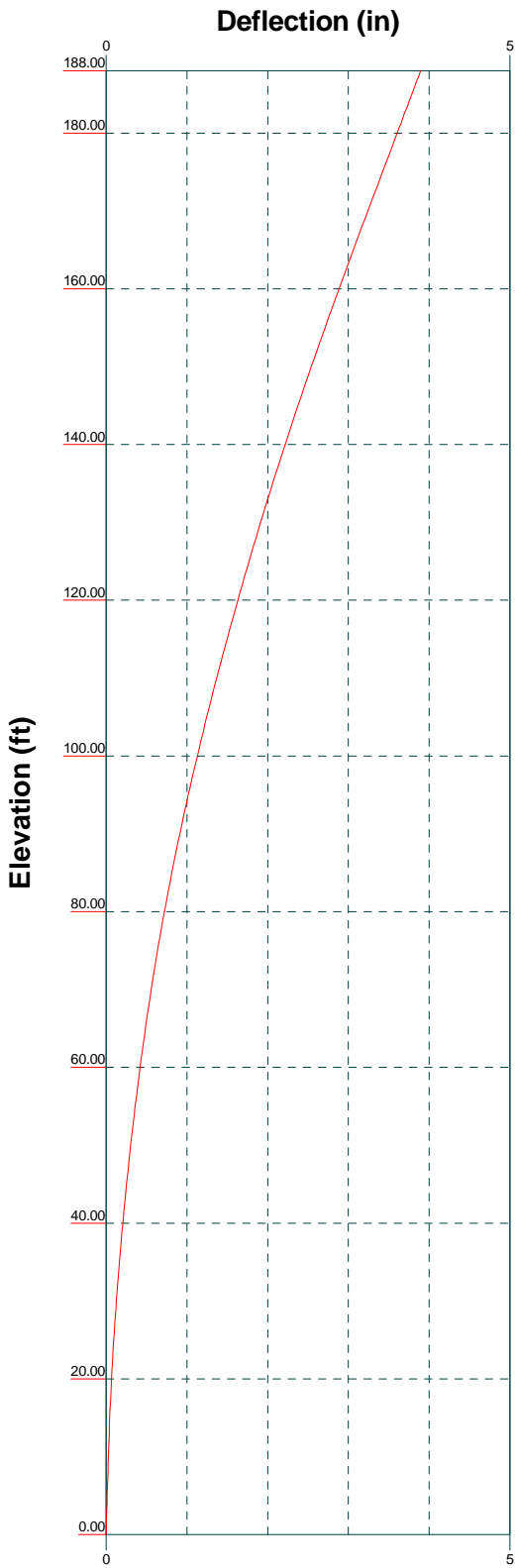
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Vx Vz

Mx Mz



Centerline Communications		Job: CT11402A	
750 West Center Street, Suite 301		Project: Anchor	
West Bridgewater, MA 02379		Client: T-Mobile	Drawn by: Arielle Novak
Phone: 781-713-4725		Code: TIA-222-G	Date: 04/28/21
FAX:		Path:	Scale: NTS
		Dwg No. E-4	



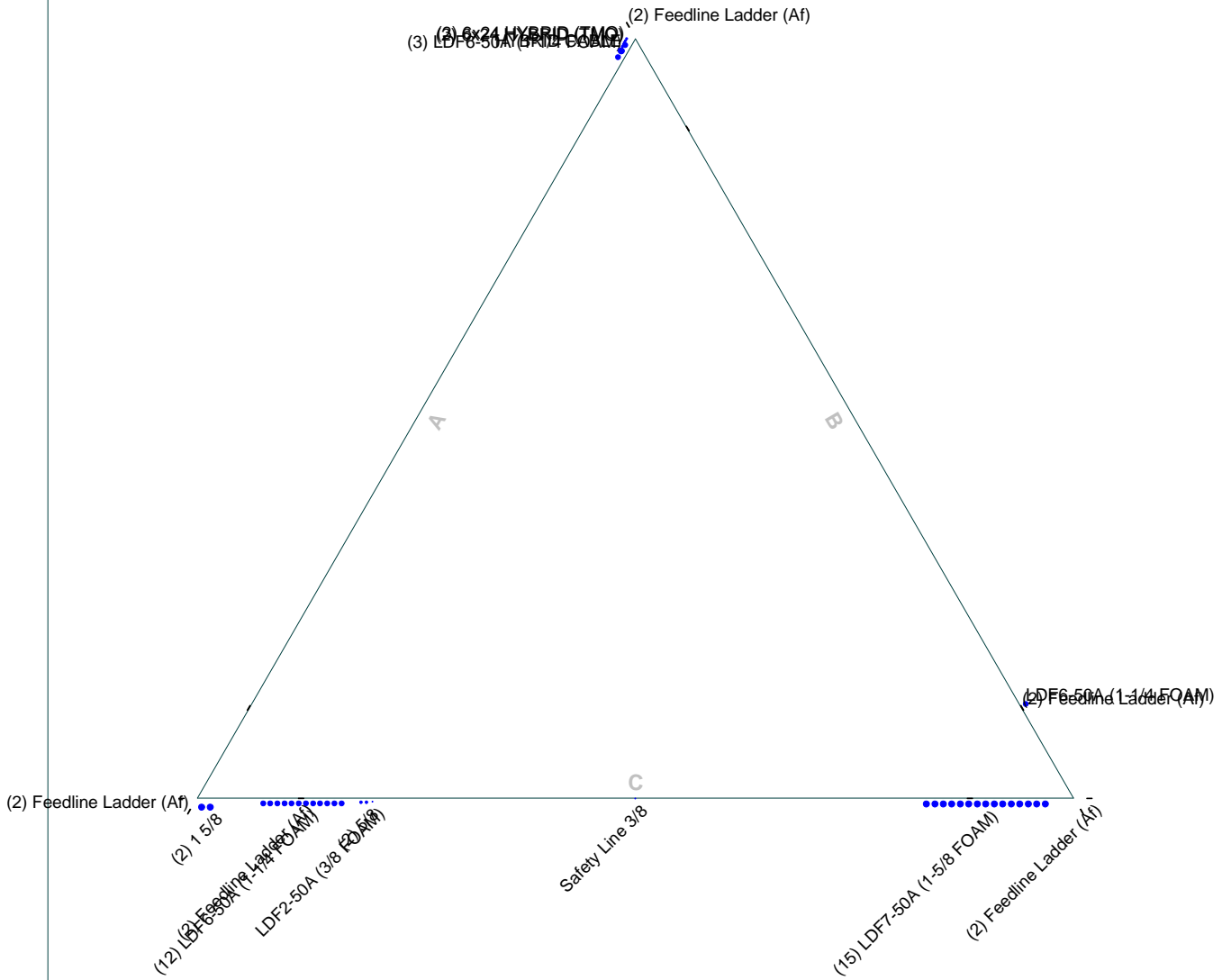
Centerline Communications 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781-713-4725 FAX:			Job: CT11402A		
			Project: Anchor		
Client: T-Mobile		Drawn by: Arielle Novak		App'd:	
Code: TIA-222-G		Date: 04/28/21		Scale: NTS	
Path:			Dwg No. E-5		

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Feed Line Plan 20'

— Round
 — Flat
 — App In Face
 — App Out Face

Section @ 20'



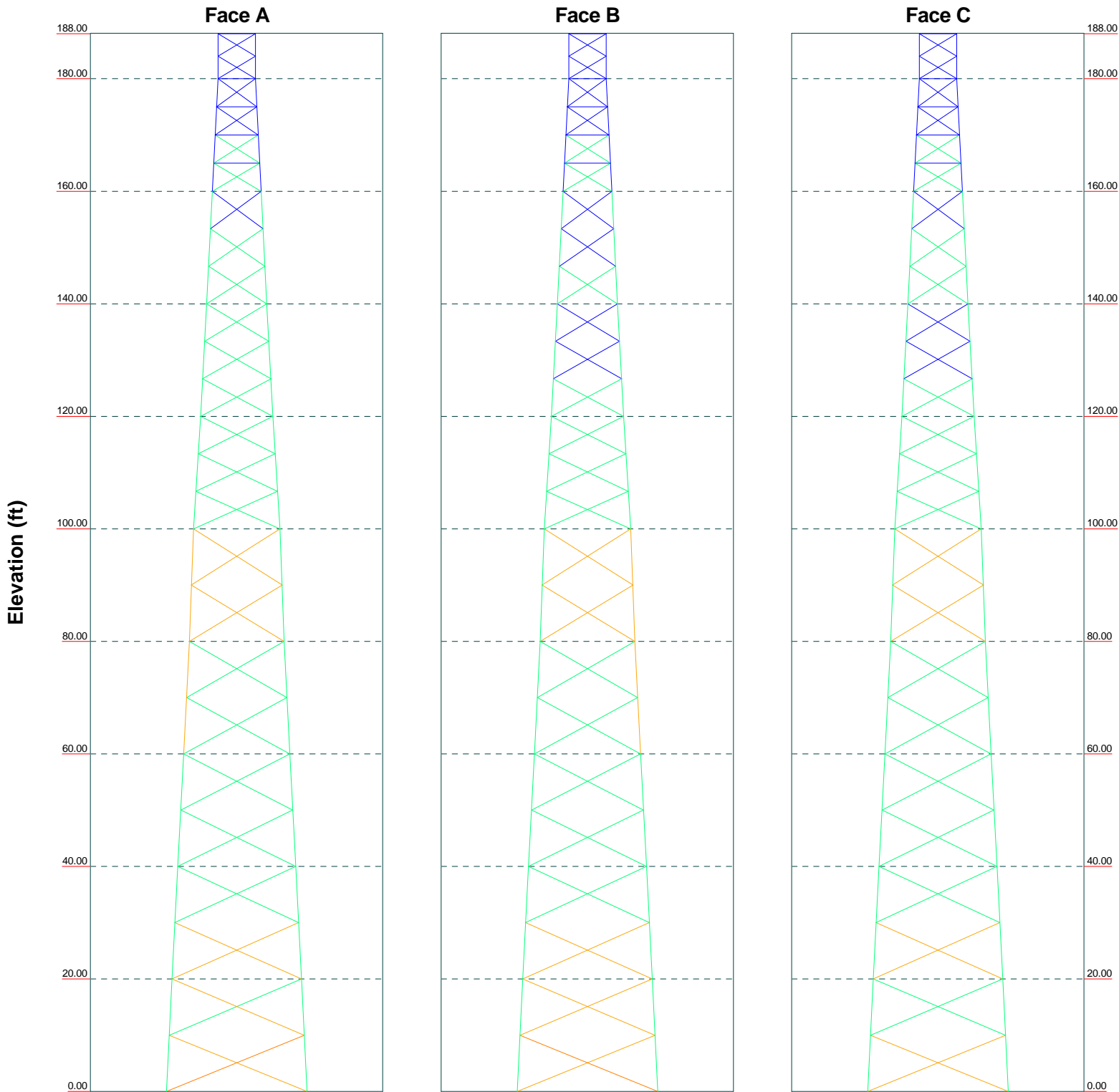
Centerline Communications		Job: CT11402A	
750 West Center Street, Suite 301		Project: Anchor	
West Bridgewater, MA 02379		Client: T-Mobile	Drawn by: Arielle Novak
Phone: 781-713-4725		Code: TIA-222-G	Date: 04/28/21
FAX:		Path:	Scale: NTS
		Dwg No. E-7	

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Stress Distribution Chart

0' - 188'

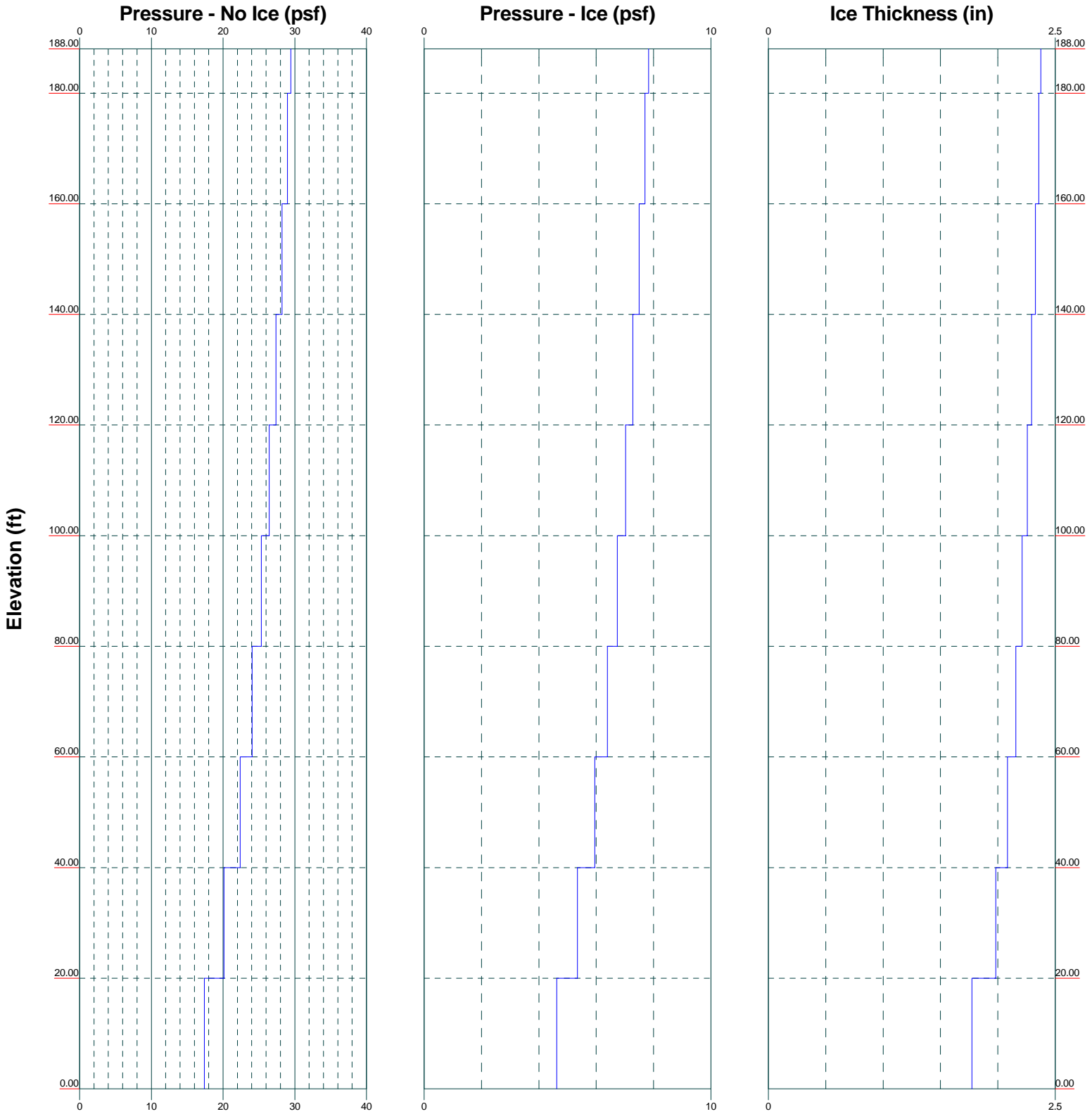
■ > 100%
 ■ 90%-100%
 ■ 75%-90%
 ■ 50%-75%
 ■ < 50% Overstress



Centerline Communications		Job: CT11402A	
750 West Center Street, Suite 301		Project: Anchor	
West Bridgewater, MA 02379		Client: T-Mobile	Drawn by: Arielle Novak
Phone: 781-713-4725		Code: TIA-222-G	Date: 04/28/21
FAX:		Path:	App'd:
			Scale: NTS
			Dwg No. E-8

C:\Users\Arielle_Novak\Desktop\Projects\TMO\In Progress\CT11402A\Working Files\Analysis\Drawings\CT11402A.dwg

Wind Pressures and Ice Thickness
TIA-222-G - 97 mph/50 mph 1.0000 in Ice Exposure C



Centerline Communications			Job: CT11402A
750 West Center Street, Suite 301			Project: Anchor
West Bridgewater, MA 02379			Client: T-Mobile
Phone: 781-713-4725			Drawn by: Arielle Novak
FAX:			Date: 04/28/21
			App'd:
			Scale: NTS
			Dwg No. E-9

tnxTower Centerline Communications 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781-713-4725 FAX:	Job CT11402A	Page 1 of 28
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	Client T-Mobile	Designed by Arielle Novak

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 188.00 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 6.63 ft at the top and 25.00 ft at the base.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.0000 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.

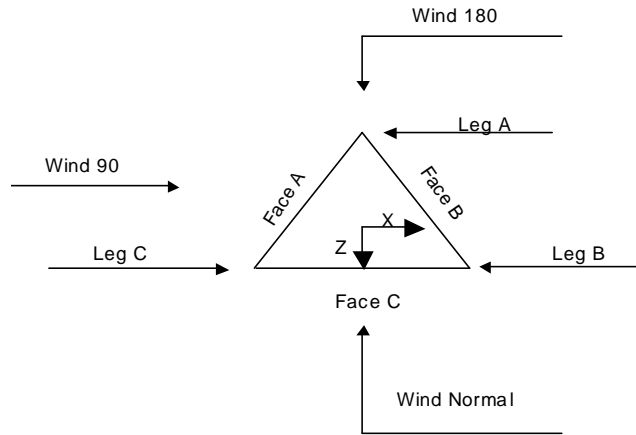
Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) √ SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA √ SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque √ Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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tnxTower Centerline Communications 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781-713-4725 FAX:	Job CT11402A	Page 2 of 28
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Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	188.00-180.00			6.63	1	8.00
T2	180.00-160.00			6.63	1	20.00
T3	160.00-140.00			8.75	1	20.00
T4	140.00-120.00			10.71	1	20.00
T5	120.00-100.00			12.79	1	20.00
T6	100.00-80.00			15.29	1	20.00
T7	80.00-60.00			16.88	1	20.00
T8	60.00-40.00			18.83	1	20.00
T9	40.00-20.00			21.00	1	20.00
T10	20.00-0.00			23.05	1	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	188.00-180.00	4.00	X Brace	No	No	0.0000	0.0000
T2	180.00-160.00	5.00	X Brace	No	Yes	0.0000	0.0000
T3	160.00-140.00	6.67	X Brace	No	No	0.0000	0.0000
T4	140.00-120.00	6.67	X Brace	No	No	0.0000	0.0000
T5	120.00-100.00	6.67	X Brace	No	No	0.0000	0.0000

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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
T6	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T7	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T8	60.00-40.00	10.00	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	10.00	X Brace	No	No	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 188.00-180.00	Pipe	P3x.216	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 180.00-160.00	Pipe	P3x.216	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T3 160.00-140.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 140.00-120.00	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T5 120.00-100.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T6 100.00-80.00	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T7 80.00-60.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T8 60.00-40.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T9 40.00-20.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T10 20.00-0.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	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 188.00-180.00	Equal Angle	L3x3x1/4	A36 (36 ksi)	Pipe		A36 (36 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
T2 180.00-160.00	None	Flat Bar		A36	Equal Angle	L2x2x1/8	A36

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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
T5 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
T6 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
T7 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
T8 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
T9 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
T10 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 188.00-180.00	Flange	0.8750	4	0.6250	1	0.6250	1	0.5000	0	0.6250	0	0.6250	0	0.6250	0
T2 180.00-160.00	Flange	0.8750	4	0.6250	1	0.5000	0	0.5000	0	0.6250	0	0.6250	1	0.6250	0
T3 160.00-140.00	Flange	0.8750	4	0.6250	1	0.5000	0	0.5000	0	0.6250	0	0.6250	0	0.6250	0
T4 140.00-120.00	Flange	1.0000	4	0.7500	1	0.5000	0	0.5000	0	0.6250	0	0.6250	0	0.6250	0
T5 120.00-100.00	Flange	1.0000	6	0.7500	1	0.5000	0	0.5000	0	0.6250	0	0.6250	0	0.6250	0
T6 100.00-80.00	Flange	1.0000	6	0.7500	1	0.5000	0	0.5000	0	0.6250	0	0.6250	0	0.6250	0
T7 80.00-60.00	Flange	1.0000	8	0.7500	1	0.5000	0	0.5000	0	0.6250	0	0.6250	0	0.6250	0
T8 60.00-40.00	Flange	1.0000	8	0.7500	1	0.5000	0	0.5000	0	0.6250	0	0.6250	0	0.6250	0
T9 40.00-20.00	Flange	1.0000	8	0.7500	1	0.5000	0	0.5000	0	0.6250	0	0.6250	0	0.6250	0
T10 20.00-0.00	Flange	0.7500	0	0.7500	1	0.5000	0	0.5000	0	0.6250	0	0.6250	0	0.6250	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
Safety Line 3/8 ***	C	No	No	Ar (CaAa)	188.00 - 0.00	0.0000	0	1	1	0.3750	0.3750		0.22
LDF6-50A (1-1/4 FOAM)	B	No	No	Ar (CaAa)	188.00 - 8.00	1.0000	0.38	1	1	1.5500	1.5500		0.66

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	Client	T-Mobile	Designed by	Arielle Novak

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

LDF6-50A (1-1/4 FOAM)	C	No	No	Ar (CaAa)	172.00 - 8.00	1.0000	0.38	12	12	0.7000	1.5500		0.66
5/8	C	No	No	Ar (CaAa)	172.00 - 8.00	1.0000	0.31	2	2	0.8800	0.8800		0.40
LDF2-50A (3/8 FOAM)	C	No	No	Ar (CaAa)	172.00 - 8.00	1.0000	0.3	1	1	0.4400	0.4400		0.08

LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	145.50 - 8.00	1.0000	-0.4	15	15	0.7000	1.9800		0.82
1 5/8	C	No	No	Ar (CaAa)	145.50 - 8.00	2.0000	0.49	2	2	0.7000	1.9800		1.04

LDF6-50A (1-1/4 FOAM)	A	No	No	Ar (CaAa)	123.00 - 8.00	1.0000	0.48	3	3	0.7000	1.5500		0.66
HYBRID CABLE	A	No	No	Ar (CaAa)	123.00 - 8.00	1.0000	0.48	1	1	0.7000	1.9800		1.04

Feedline Ladder (Af)	A	No	No	Af (CaAa)	157.00 - 0.00	0.0000	-0.45	2	2	36.0000	1.7500		3.00
Feedline Ladder (Af)	B	No	No	Af (CaAa)	188.00 - 0.00	0.0000	0.45	2	2	36.0000	1.7500		3.00
Feedline Ladder (Af)	B	No	No	Af (CaAa)	188.00 - 0.00	0.0000	-0.45	2	2	36.0000	1.7500		3.00
Feedline Ladder (Af)	C	No	No	Af (CaAa)	172.00 - 0.00	0.0000	0.45	2	2	36.0000	1.7500		3.00
Feedline Ladder (Af)	C	No	No	Af (CaAa)	145.00 - 0.00	0.0000	-0.45	2	2	36.0000	1.7500		3.00

6x24 HYBRID (TMO)	A	No	No	Ar (CaAa)	155.00 - 8.00	2.0000	0.49	3	3	1.5500	0.7000		1.04
6x24 HYBRID (TMO)	A	No	No	Ar (CaAa)	155.00 - 8.00	2.0000	0.49	2	2	1.5500	0.7000		1.04

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} ft ² /ft	Weight plf

Feed Line/Linear Appurtenances Section Areas

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Centerline Communications 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781-713-4725 FAX:</p>	Job	CT11402A	Page	8 of 28
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Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
T1	188.00-180.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	10.573	0.000	101.28
		C	0.000	0.000	0.300	0.000	1.76
T2	180.00-160.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	32.710	0.000	182.00
T3	160.00-140.00	A	0.000	0.000	15.167	0.000	180.00
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	75.446	0.000	409.49
T4	140.00-120.00	A	0.000	0.000	20.656	0.000	233.06
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T5	120.00-100.00	A	0.000	0.000	31.927	0.000	284.40
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T6	100.00-80.00	A	0.000	0.000	31.927	0.000	284.40
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T7	80.00-60.00	A	0.000	0.000	31.927	0.000	284.40
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T8	60.00-40.00	A	0.000	0.000	31.927	0.000	284.40
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T9	40.00-20.00	A	0.000	0.000	31.927	0.000	284.40
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T10	20.00-0.00	A	0.000	0.000	23.823	0.000	218.64
		B	0.000	0.000	25.193	0.000	247.92
		C	0.000	0.000	89.435	0.000	522.56

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} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
T1	188.00-180.00	A	2.375	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	29.573	0.000	576.32
		C		0.000	0.000	4.100	0.000	65.59
T2	180.00-160.00	A	2.356	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	73.559	0.000	1425.17
		C		0.000	0.000	95.983	0.000	1636.26
T3	160.00-140.00	A	2.327	0.000	0.000	60.189	0.000	956.68
		B		0.000	0.000	72.972	0.000	1400.89
		C		0.000	0.000	198.469	0.000	3412.90
T4	140.00-120.00	A	2.294	0.000	0.000	82.065	0.000	1281.08
		B		0.000	0.000	72.311	0.000	1373.80
		C		0.000	0.000	321.196	0.000	5572.94
T5	120.00-100.00	A	2.256	0.000	0.000	118.083	0.000	1837.66
		B		0.000	0.000	71.551	0.000	1343.05
		C		0.000	0.000	319.314	0.000	5476.37
T6	100.00-80.00	A	2.211	0.000	0.000	116.615	0.000	1792.05
		B		0.000	0.000	70.655	0.000	1307.30
		C		0.000	0.000	317.095	0.000	5363.47
T7	80.00-60.00	A	2.156	0.000	0.000	114.818	0.000	1737.06
		B		0.000	0.000	69.557	0.000	1264.32
		C		0.000	0.000	314.379	0.000	5226.68
T8	60.00-40.00	A	2.085	0.000	0.000	112.483	0.000	1666.98

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
T9	40.00-20.00	B		0.000	0.000	68.130	0.000	1209.71
		C		0.000	0.000	310.851	0.000	5051.21
		A	1.981	0.000	0.000	109.087	0.000	1567.85
		B		0.000	0.000	66.054	0.000	1132.83
T10	20.00-0.00	C		0.000	0.000	305.720	0.000	4800.67
		A	1.775	0.000	0.000	71.760	0.000	995.01
		B		0.000	0.000	57.852	0.000	926.33
		C		0.000	0.000	201.164	0.000	2963.93

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
T1	188.00-180.00	4.7449	-1.8635	5.2316	-0.9472
T2	180.00-160.00	-3.4095	-0.8913	-2.7869	1.7359
T3	160.00-140.00	-5.9687	-0.0231	-7.3178	2.1614
T4	140.00-120.00	2.7062	0.3728	0.0939	2.9281
T5	120.00-100.00	2.8809	-4.6711	0.0242	-2.7706
T6	100.00-80.00	3.3140	-5.3516	0.0880	-3.2423
T7	80.00-60.00	3.4281	-5.3909	0.1631	-3.5030
T8	60.00-40.00	3.6381	-5.5895	0.2672	-3.7923
T9	40.00-20.00	3.8890	-5.9083	0.4274	-4.1960
T10	20.00-0.00	2.8731	-3.8469	0.6448	-1.4783

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	1	Safety Line 3/8	180.00 - 188.00	0.6000	0.4652
T1	3	LDF6-50A (1-1/4 FOAM)	180.00 - 188.00	0.6000	0.4652
T1	19	Feedline Ladder (Af)	180.00 - 188.00	0.6000	0.4652
T1	20	Feedline Ladder (Af)	180.00 - 188.00	0.6000	0.4652
T2	1	Safety Line 3/8	160.00 - 180.00	0.6000	0.5112
T2	3	LDF6-50A (1-1/4 FOAM)	160.00 - 180.00	0.6000	0.5112
T2	5	LDF6-50A (1-1/4 FOAM)	160.00 - 172.00	0.6000	0.5112
T2	6	5/8	160.00 - 172.00	0.6000	0.5112
T2	7	LDF2-50A (3/8 FOAM)	160.00 - 172.00	0.6000	0.5112
T2	19	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.5112
T2	20	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.5112

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T2	21	Feedline Ladder (Af)	160.00 - 172.00	0.6000	0.5112
T3	1	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T3	3	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.6000
T3	5	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.6000
T3	6	5/8	140.00 - 160.00	0.6000	0.6000
T3	7	LDF2-50A (3/8 FOAM)	140.00 - 160.00	0.6000	0.6000
T3	12	LDF7-50A (1-5/8 FOAM)	140.00 - 145.50	0.6000	0.6000
T3	13	1 5/8	140.00 - 145.50	0.6000	0.6000
T3	18	Feedline Ladder (Af)	140.00 - 157.00	0.6000	0.6000
T3	19	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	20	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	21	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	22	Feedline Ladder (Af)	140.00 - 145.00	0.6000	0.6000
T3	24	6x24 HYBRID	140.00 - 155.00	0.6000	0.6000
T3	25	6x24 HYBRID	140.00 - 155.00	0.6000	0.6000
T4	1	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T4	3	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.6000
T4	5	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.6000
T4	6	5/8	120.00 - 140.00	0.6000	0.6000
T4	7	LDF2-50A (3/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T4	12	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T4	13	1 5/8	120.00 - 140.00	0.6000	0.6000
T4	15	LDF6-50A (1-1/4 FOAM)	120.00 - 123.00	0.6000	0.6000
T4	16	HYBRID CABLE	120.00 - 123.00	0.6000	0.6000
T4	18	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	19	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	20	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	21	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	22	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	24	6x24 HYBRID	120.00 - 140.00	0.6000	0.6000
T4	25	6x24 HYBRID	120.00 - 140.00	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	1	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T5	3	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.6000
T5	5	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.6000
T5	6	5/8	100.00 - 120.00	0.6000	0.6000
T5	7	LDF2-50A (3/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T5	12	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T5	13	1 5/8	100.00 - 120.00	0.6000	0.6000
T5	15	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.6000
T5	16	HYBRID CABLE	100.00 - 120.00	0.6000	0.6000
T5	18	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	19	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	20	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	21	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	22	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	24	6x24 HYBRID	100.00 - 120.00	0.6000	0.6000
T5	25	6x24 HYBRID	100.00 - 120.00	0.6000	0.6000
T6	1	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T6	3	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.6000
T6	5	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.6000
T6	6	5/8	80.00 - 100.00	0.6000	0.6000
T6	7	LDF2-50A (3/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T6	12	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T6	13	1 5/8	80.00 - 100.00	0.6000	0.6000
T6	15	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.6000
T6	16	HYBRID CABLE	80.00 - 100.00	0.6000	0.6000
T6	18	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	19	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	20	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	21	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	22	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	24	6x24 HYBRID	80.00 - 100.00	0.6000	0.6000
T6	25	6x24 HYBRID	80.00 - 100.00	0.6000	0.6000
T7	1	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T7	3	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	5	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	6	5/8	60.00 - 80.00	0.6000	0.6000
T7	7	LDF2-50A (3/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	12	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	13	1 5/8	60.00 - 80.00	0.6000	0.6000
T7	15	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	16	HYBRID CABLE	60.00 - 80.00	0.6000	0.6000
T7	18	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	19	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	20	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	21	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	22	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000

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<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K_a No Ice</i>	<i>K_a Ice</i>
T7	24	6x24 HYBRID	60.00 - 80.00	0.6000	0.6000
T7	25	6x24 HYBRID	60.00 - 80.00	0.6000	0.6000
T8	1	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T8	3	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	5	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	6	5/8	40.00 - 60.00	0.6000	0.6000
T8	7	LDF2-50A (3/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	12	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	13	1 5/8	40.00 - 60.00	0.6000	0.6000
T8	15	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	16	HYBRID CABLE	40.00 - 60.00	0.6000	0.6000
T8	18	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	19	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	20	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	21	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	22	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	24	6x24 HYBRID	40.00 - 60.00	0.6000	0.6000
T8	25	6x24 HYBRID	40.00 - 60.00	0.6000	0.6000
T9	1	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T9	3	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	5	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	6	5/8	20.00 - 40.00	0.6000	0.6000
T9	7	LDF2-50A (3/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	12	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	13	1 5/8	20.00 - 40.00	0.6000	0.6000
T9	15	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	16	HYBRID CABLE	20.00 - 40.00	0.6000	0.6000
T9	18	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	19	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	20	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	21	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	22	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	24	6x24 HYBRID	20.00 - 40.00	0.6000	0.6000
T9	25	6x24 HYBRID	20.00 - 40.00	0.6000	0.6000
T10	1	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000
T10	3	LDF6-50A (1-1/4 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	5	LDF6-50A (1-1/4 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	6	5/8	8.00 - 20.00	0.6000	0.6000
T10	7	LDF2-50A (3/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	12	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	13	1 5/8	8.00 - 20.00	0.6000	0.6000
T10	15	LDF6-50A (1-1/4 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	16	HYBRID CABLE	8.00 - 20.00	0.6000	0.6000
T10	18	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	19	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	20	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	21	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	22	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	24	6x24 HYBRID	8.00 - 20.00	0.6000	0.6000
T10	25	6x24 HYBRID	8.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight lb
BCD-87010	B	From Leg	0.00 0.00 7.50	0.0000	195.00	No Ice 2.90 1/2" Ice 4.05 1" Ice 5.21	2.90 4.05 5.21	30.00 50.00 80.00

Rohn 14' Platform	C	None		0.0000	186.00	No Ice 41.00 1/2" Ice 56.00 1" Ice 71.00	41.00 56.00 71.00	2500.00 3000.00 3500.00

(2)	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 8.26 1/2" Ice 8.82 1" Ice 9.35	6.30 7.48 8.37	70.00 140.00 210.00
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 8.26 1/2" Ice 8.82 1" Ice 9.35	6.30 7.48 8.37	70.00 140.00 210.00
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 8.26 1/2" Ice 8.82 1" Ice 9.35	6.30 7.48 8.37	70.00 140.00 210.00
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 5.39 1/2" Ice 5.81 1" Ice 6.23	4.60 5.35 6.05	70.00 110.00 170.00
800 10121 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 5.39 1/2" Ice 5.81 1" Ice 6.23	4.60 5.35 6.05	70.00 110.00 170.00
800 10121 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 5.39 1/2" Ice 5.81 1" Ice 6.23	4.60 5.35 6.05	70.00 110.00 170.00
800 10121 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 2.78 1/2" Ice 2.99 1" Ice 3.21	1.19 1.33 1.49	50.00 70.00 100.00
RRUS 11	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 2.78 1/2" Ice 2.99 1" Ice 3.21	1.19 1.33 1.49	50.00 70.00 100.00
RRUS 11	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 2.78 1/2" Ice 2.99 1" Ice 3.21	1.19 1.33 1.49	50.00 70.00 100.00
RRUS 11	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 3.15 1/2" Ice 3.36 1" Ice 3.59	1.29 1.44 1.60	60.00 80.00 110.00
RRUS 12	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 3.15 1/2" Ice 3.36 1" Ice 3.59	1.29 1.44 1.60	60.00 80.00 110.00
RRUS 12	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 3.15 1/2" Ice 3.36 1" Ice 3.59	1.29 1.44 1.60	60.00 80.00 110.00
RRUS 12	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 0.55 1/2" Ice 0.65 1" Ice 0.75	0.45 0.53 0.63	20.00 20.00 30.00
TT19-08BP111-001	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 0.55 1/2" Ice 0.65 1" Ice 0.75	0.45 0.53 0.63	20.00 20.00 30.00
TT19-08BP111-001	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 0.55 1/2" Ice 0.65 1" Ice 0.75	0.45 0.53 0.63	20.00 20.00 30.00
TT19-08BP111-001	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 0.98 1/2" Ice 1.10 1" Ice 1.23	0.34 0.42 0.51	20.00 30.00 40.00
DTMABP7819VG12A	B	From Leg	4.00	0.0000	172.00	No Ice 0.98	0.34	20.00

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
			0.00						
			0.00			1/2" Ice	1.10	0.42	30.00
			0.00			1" Ice	1.23	0.51	40.00
DTMABP7819VG12A	C	From Leg	4.00	0.0000	172.00	No Ice	0.98	0.34	20.00
			0.00			1/2" Ice	1.10	0.42	30.00
			0.00			1" Ice	1.23	0.51	40.00
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	172.00	No Ice	0.79	0.79	20.00
			0.00			1/2" Ice	1.27	1.27	30.00
			0.00			1" Ice	1.45	1.45	50.00
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	172.00	No Ice	1.43	1.43	20.00
			0.00			1/2" Ice	1.92	1.92	30.00
			0.00			1" Ice	2.29	2.29	50.00
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	172.00	No Ice	1.43	1.43	20.00
			0.00			1/2" Ice	1.92	1.92	30.00
			0.00			1" Ice	2.29	2.29	50.00
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	172.00	No Ice	1.43	1.43	20.00
			0.00			1/2" Ice	1.92	1.92	30.00
			0.00			1" Ice	2.29	2.29	50.00
Sector Mount [SM 503-3]	C	None		0.0000	172.00	No Ice	33.64	33.64	1690.00
						1/2" Ice	48.17	48.17	2260.00
						1" Ice	62.70	62.70	2820.00

APX16DWV-16DWV-S-E-A	A	From Leg	4.00	0.0000	155.00	No Ice	6.82	3.49	60.00
20 w/ Mount Pipe			0.00			1/2" Ice	7.28	4.26	110.00
(TMO)			0.00			1" Ice	7.72	4.96	160.00
APX16DWV-16DWV-S-E-A	B	From Leg	4.00	0.0000	155.00	No Ice	6.82	3.49	60.00
20 w/ Mount Pipe			0.00			1/2" Ice	7.28	4.26	110.00
(TMO)			0.00			1" Ice	7.72	4.96	160.00
APX16DWV-16DWV-S-E-A	C	From Leg	4.00	0.0000	155.00	No Ice	6.82	3.49	60.00
20 w/ Mount Pipe			0.00			1/2" Ice	7.28	4.26	110.00
(TMO)			0.00			1" Ice	7.72	4.96	160.00
APXVAARR24_43-U-NA20	A	From Leg	4.00	0.0000	155.00	No Ice	20.48	11.02	160.00
w/ Mount Pipe			0.00			1/2" Ice	21.23	12.55	300.00
(TMO)			0.00			1" Ice	21.99	14.10	440.00
APXVAARR24_43-U-NA20	B	From Leg	4.00	0.0000	155.00	No Ice	20.48	11.02	160.00
w/ Mount Pipe			0.00			1/2" Ice	21.23	12.55	300.00
(TMO)			0.00			1" Ice	21.99	14.10	440.00
APXVAARR24_43-U-NA20	C	From Leg	4.00	0.0000	155.00	No Ice	20.48	11.02	160.00
w/ Mount Pipe			0.00			1/2" Ice	21.23	12.55	300.00
(TMO)			0.00			1" Ice	21.99	14.10	440.00
RADIO 4449	A	From Leg	4.00	0.0000	155.00	No Ice	3.50	2.36	90.00
(TMO)			0.00			1/2" Ice	3.74	2.57	110.00
			0.00			1" Ice	3.99	2.78	150.00
RADIO 4449	B	From Leg	4.00	0.0000	155.00	No Ice	3.50	2.36	90.00
(TMO)			0.00			1/2" Ice	3.74	2.57	110.00
			0.00			1" Ice	3.99	2.78	150.00
RADIO 4449	C	From Leg	4.00	0.0000	155.00	No Ice	3.50	2.36	90.00
(TMO)			0.00			1/2" Ice	3.74	2.57	110.00
			0.00			1" Ice	3.99	2.78	150.00

(3) SBNHH-1D85B w/	A	From Leg	4.00	0.0000	145.50	No Ice	8.32	7.00	70.00
Mount Pipe			0.00			1/2" Ice	8.88	8.19	140.00
			0.00			1" Ice	9.40	9.08	210.00
(3) SBNHH-1D85B w/	B	From Leg	4.00	0.0000	145.50	No Ice	8.32	7.00	70.00
Mount Pipe			0.00			1/2" Ice	8.88	8.19	140.00
			0.00			1" Ice	9.40	9.08	210.00
(3) SBNHH-1D85B w/	C	From Leg	4.00	0.0000	145.50	No Ice	8.32	7.00	70.00
Mount Pipe			0.00			1/2" Ice	8.88	8.19	140.00

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	lb	
BXA-70063-6CF-EDIN-6 w/ Mount Pipe	A	From Leg	0.00		0.0000	145.50	1" Ice	9.40	9.08	210.00
			4.00				No Ice	7.81	5.80	40.00
			0.00				1/2" Ice	8.36	6.95	100.00
BXA-70063-6CF-EDIN-6 w/ Mount Pipe	B	From Leg	0.00		0.0000	145.50	1" Ice	8.87	7.82	170.00
			4.00				No Ice	7.81	5.80	40.00
			0.00				1/2" Ice	8.36	6.95	100.00
BXA-70063-6CF-EDIN-6 w/ Mount Pipe	C	From Leg	0.00		0.0000	145.50	1" Ice	8.87	7.82	170.00
			4.00				No Ice	7.81	5.80	40.00
			0.00				1/2" Ice	8.36	6.95	100.00
B66A RRH4X45	A	From Leg	0.00		0.0000	145.50	1" Ice	8.87	7.82	170.00
			4.00				No Ice	2.58	1.63	60.00
			0.00				1/2" Ice	2.79	1.81	80.00
B66A RRH4X45	B	From Leg	0.00		0.0000	145.50	1" Ice	3.01	2.00	100.00
			4.00				No Ice	2.58	1.63	60.00
			0.00				1/2" Ice	2.79	1.81	80.00
B66A RRH4X45	C	From Leg	0.00		0.0000	145.50	1" Ice	3.01	2.00	100.00
			4.00				No Ice	2.58	1.63	60.00
			0.00				1/2" Ice	2.79	1.81	80.00
B25 RRH4x30-4R	A	From Leg	0.00		0.0000	145.50	1" Ice	3.01	2.00	100.00
			4.00				No Ice	2.14	1.31	50.00
			0.00				1/2" Ice	2.33	1.46	70.00
B25 RRH4x30-4R	B	From Leg	0.00		0.0000	145.50	1" Ice	2.53	1.63	90.00
			4.00				No Ice	2.14	1.31	50.00
			0.00				1/2" Ice	2.33	1.46	70.00
B25 RRH4x30-4R	C	From Leg	0.00		0.0000	145.50	1" Ice	2.53	1.63	90.00
			4.00				No Ice	2.14	1.31	50.00
			0.00				1/2" Ice	2.33	1.46	70.00
RRH2X60-1900	A	From Leg	0.00		0.0000	145.50	1" Ice	2.53	1.63	90.00
			4.00				No Ice	1.87	1.22	40.00
			0.00				1/2" Ice	2.05	1.37	60.00
RRH2X60-1900	B	From Leg	0.00		0.0000	145.50	1" Ice	2.24	1.52	80.00
			4.00				No Ice	1.87	1.22	40.00
			0.00				1/2" Ice	2.05	1.37	60.00
RRH2X60-1900	C	From Leg	0.00		0.0000	145.50	1" Ice	2.24	1.52	80.00
			4.00				No Ice	1.87	1.22	40.00
			0.00				1/2" Ice	2.05	1.37	60.00
DB-B1-6C-12AB-0Z	A	From Leg	0.00		0.0000	145.50	1" Ice	2.24	1.52	80.00
			4.00				No Ice	3.36	2.19	20.00
			0.00				1/2" Ice	3.60	2.39	50.00
DB-B1-6C-12AB-0Z	C	From Leg	0.00		0.0000	145.50	1" Ice	3.84	2.61	80.00
			4.00				No Ice	3.36	2.19	20.00
			0.00				1/2" Ice	3.60	2.39	50.00
SitePro VFA10-RRU	A	None	0.00		0.0000	145.50	1" Ice	3.84	2.61	80.00
			4.00				No Ice	7.53	3.80	310.00
			0.00				1/2" Ice	10.77	5.38	370.00
SitePro VFA10-RRU	B	None	0.00		0.0000	145.50	1" Ice	14.01	6.96	430.00
			4.00				No Ice	7.53	3.80	310.00
			0.00				1/2" Ice	10.77	5.38	370.00
SitePro VFA10-RRU	C	None	0.00		0.0000	145.50	1" Ice	14.01	6.96	430.00
			4.00				No Ice	7.53	3.80	310.00
			0.00				1/2" Ice	10.77	5.38	370.00

APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00		0.0000	123.00	No Ice	8.26	6.95	80.00
			0.00				1/2" Ice	8.82	8.13	150.00
			0.00				1" Ice	9.35	9.02	230.00
APXVSPP18-C-A20 w/	B	From Leg	4.00		0.0000	123.00	No Ice	8.26	6.95	80.00

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i>	<i>Azimuth Adjustment</i>	<i>Placement</i>	<i>C_{AA} Front</i>	<i>C_{AA} Side</i>	<i>Weight</i>
			<i>ft</i> <i>ft</i> <i>ft</i>	<i>°</i>	<i>ft</i>	<i>ft²</i>	<i>ft²</i>	<i>lb</i>
Mount Pipe			0.00		1/2" Ice	8.82	8.13	150.00
			0.00		1" Ice	9.35	9.02	230.00
APXVSP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.0000	123.00	No Ice	8.26	80.00
			0.00			1/2" Ice	8.82	150.00
			0.00			1" Ice	9.35	230.00
DT465V-2XR w/ Mount Pipe	A	From Leg	4.00	0.0000	123.00	No Ice	9.34	80.00
			0.00			1/2" Ice	9.91	160.00
			0.00			1" Ice	10.44	240.00
DT465V-2XR w/ Mount Pipe	B	From Leg	4.00	0.0000	123.00	No Ice	9.34	80.00
			0.00			1/2" Ice	9.91	160.00
			0.00			1" Ice	10.44	240.00
DT465V-2XR w/ Mount Pipe	C	From Leg	4.00	0.0000	123.00	No Ice	9.34	80.00
			0.00			1/2" Ice	9.91	160.00
			0.00			1" Ice	10.44	240.00
RRH2x50-800	A	From Leg	4.00	0.0000	123.00	No Ice	1.70	50.00
			0.00			1/2" Ice	1.86	70.00
			0.00			1" Ice	2.03	90.00
RRH2x50-800	B	From Leg	4.00	0.0000	123.00	No Ice	1.70	50.00
			0.00			1/2" Ice	1.86	70.00
			0.00			1" Ice	2.03	90.00
RRH2x50-800	C	From Leg	4.00	0.0000	123.00	No Ice	1.70	50.00
			0.00			1/2" Ice	1.86	70.00
			0.00			1" Ice	2.03	90.00
RRH4x45-19	A	From Leg	4.00	0.0000	123.00	No Ice	2.31	60.00
			0.00			1/2" Ice	2.52	80.00
			0.00			1" Ice	2.73	110.00
RRH4x45-19	B	From Leg	4.00	0.0000	123.00	No Ice	2.31	60.00
			0.00			1/2" Ice	2.52	80.00
			0.00			1" Ice	2.73	110.00
RRH4x45-19	C	From Leg	4.00	0.0000	123.00	No Ice	2.31	60.00
			0.00			1/2" Ice	2.52	80.00
			0.00			1" Ice	2.73	110.00
TD-RRH8x20-25	A	From Leg	4.00	0.0000	123.00	No Ice	4.05	70.00
			0.00			1/2" Ice	4.30	100.00
			0.00			1" Ice	4.56	130.00
TD-RRH8x20-25	B	From Leg	4.00	0.0000	123.00	No Ice	4.05	70.00
			0.00			1/2" Ice	4.30	100.00
			0.00			1" Ice	4.56	130.00
TD-RRH8x20-25	C	From Leg	4.00	0.0000	123.00	No Ice	4.05	70.00
			0.00			1/2" Ice	4.30	100.00
			0.00			1" Ice	4.56	130.00
RRH2x50-800	A	From Leg	4.00	0.0000	123.00	No Ice	1.70	50.00
			0.00			1/2" Ice	1.86	70.00
			0.00			1" Ice	2.03	90.00
RRH2x50-800	B	From Leg	4.00	0.0000	123.00	No Ice	1.70	50.00
			0.00			1/2" Ice	1.86	70.00
			0.00			1" Ice	2.03	90.00
RRH2x50-800	C	From Leg	4.00	0.0000	123.00	No Ice	1.70	50.00
			0.00			1/2" Ice	1.86	70.00
			0.00			1" Ice	2.03	90.00
Sector Mount [SM 503-3]	C	None		0.0000	123.00	No Ice	33.64	1690.00
						1/2" Ice	48.17	2260.00
						1" Ice	62.70	2820.00

AIR 6449 B41 W/ MOUNT PIPE (TMO)	A	From Leg	4.00	0.0000	155.00	No Ice	5.95	118.60
			0.00			1/2" Ice	6.33	168.39
			0.00			1" Ice	6.72	223.69

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	CAAA		Weight lb	
			Horz Lateral ft	Vert ft			Front ft ²	Side ft ²		
AIR 6449 B41 W/ MOUNT PIPE (TMO)	B	From Leg	4.00 0.00 0.00		0.0000	155.00	No Ice 1/2" Ice 1" Ice	5.95 6.33 6.72	3.36 3.83 4.32	118.60 168.39 223.69
AIR 6449 B41 W/ MOUNT PIPE (TMO)	C	From Leg	4.00 0.00 0.00		0.0000	155.00	No Ice 1/2" Ice 1" Ice	5.95 6.33 6.72	3.36 3.83 4.32	118.60 168.39 223.69
4424 B25 (TMO)	A	From Leg	4.00 0.00 0.00		0.0000	155.00	No Ice 1/2" Ice 1" Ice	2.05 2.23 2.42	1.61 1.77 1.94	86.00 106.93 130.84
4424 B25 (TMO)	B	From Leg	4.00 0.00 0.00		0.0000	155.00	No Ice 1/2" Ice 1" Ice	2.05 2.23 2.42	1.61 1.77 1.94	86.00 106.93 130.84
4424 B25 (TMO)	C	From Leg	4.00 0.00 0.00		0.0000	155.00	No Ice 1/2" Ice 1" Ice	2.05 2.23 2.42	1.61 1.77 1.94	86.00 106.93 130.84
4415 B66A (TMO)	A	From Leg	4.00 0.00 0.00		0.0000	155.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	46.00 60.07 76.66
4415 B66A (TMO)	B	From Leg	4.00 0.00 0.00		0.0000	155.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	46.00 60.07 76.66
4415 B66A (TMO)	C	From Leg	4.00 0.00 0.00		0.0000	155.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	46.00 60.07 76.66
Reinforced Sector Mount (TMO)	A	None			0.0000	155.00	No Ice 1/2" Ice 1" Ice	17.90 23.30 28.60	12.70 16.60 20.50	630.00 870.00 1110.00
Reinforced Sector Mount (TMO)	B	None			0.0000	155.00	No Ice 1/2" Ice 1" Ice	17.90 23.30 28.60	12.70 16.60 20.50	630.00 870.00 1110.00
Reinforced Sector Mount (TMO)	C	None			0.0000	155.00	No Ice 1/2" Ice 1" Ice	17.90 23.30 28.60	12.70 16.60 20.50	630.00 870.00 1110.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Centerline Communications 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781-713-4725 FAX:</p>	Job	CT11402A	Page	18 of 28
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Comb. No.	Description
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 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
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 Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	18	349550.52	35796.67	-19789.10
	Max. H _x	18	349550.52	35796.67	-19789.10
	Max. H _z	5	-274084.38	-28343.67	18137.60
	Min. Vert	7	-294389.97	-31230.85	17149.80
	Min. H _x	7	-294389.97	-31230.85	17149.80
	Min. H _z	18	349550.52	35796.67	-19789.10
Leg B	Max. Vert	10	350931.55	-35940.82	-19966.65
	Max. H _x	23	-295525.87	31373.92	17326.93
	Max. H _z	25	-265828.95	27559.38	17954.68
	Min. Vert	23	-295525.87	31373.92	17326.93
	Min. H _x	10	350931.55	-35940.82	-19966.65
	Min. H _z	10	350931.55	-35940.82	-19966.65
Leg A	Max. Vert	2	378067.20	210.16	45002.50
	Max. H _x	21	15528.32	4520.04	1318.64
	Max. H _z	2	378067.20	210.16	45002.50

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Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. Vert	15	-324924.46	-215.61	-39831.76
	Min. H _x	9	15736.73	-4517.86	1337.75
	Min. H _z	15	-324924.46	-215.61	-39831.76

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead Only	54164.65	-0.00	0.00	14821.37	-1453.24	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	64997.58	15.46	-74217.77	-7716315.28	-4017.24	9247.87
0.9 Dead+1.6 Wind 0 deg - No Ice	48748.19	15.46	-74218.00	-7713182.64	-3578.02	9247.20
1.2 Dead+1.6 Wind 30 deg - No Ice	64997.58	34402.24	-59586.51	-6279720.43	-3637804.15	56122.73
0.9 Dead+1.6 Wind 30 deg - No Ice	48747.26	34401.43	-59586.88	-6277944.74	-3633763.62	56085.11
1.2 Dead+1.6 Wind 60 deg - No Ice	64997.58	54425.02	-31440.15	-3352959.99	-5835809.90	32988.11
0.9 Dead+1.6 Wind 60 deg - No Ice	48748.19	54425.20	-31440.25	-3354054.82	-5829519.58	32969.68
1.2 Dead+1.6 Wind 90 deg - No Ice	64997.58	54760.89	-15.43	15579.22	-6018811.13	-11370.00
0.9 Dead+1.6 Wind 90 deg - No Ice	48748.19	54761.08	-15.43	11099.46	-6012225.95	-11381.51
1.2 Dead+1.6 Wind 120 deg - No Ice	64997.58	58288.28	33652.75	3577114.13	-6166394.39	29424.42
0.9 Dead+1.6 Wind 120 deg - No Ice	48748.19	58288.46	33652.86	3569089.17	-6159830.61	29414.26
1.2 Dead+1.6 Wind 150 deg - No Ice	64997.58	33674.60	58356.95	6141154.54	-3534300.86	44474.06
0.9 Dead+1.6 Wind 150 deg - No Ice	48749.59	33674.27	58358.31	6130634.20	-3530375.78	44450.34
1.2 Dead+1.6 Wind 180 deg - No Ice	64997.58	-15.46	70148.87	7398397.49	503.23	-9246.15
0.9 Dead+1.6 Wind 180 deg - No Ice	48748.19	-15.46	70149.09	7386630.66	936.80	-9245.96
1.2 Dead+1.6 Wind 210 deg - No Ice	64997.58	-34402.31	59586.47	6315550.94	3634098.79	-56122.73
0.9 Dead+1.6 Wind 210 deg - No Ice	48747.27	-34403.04	59585.95	6304829.65	3630919.29	-56085.12
1.2 Dead+1.6 Wind 240 deg - No Ice	64997.58	-57948.78	33474.59	3565633.55	6138497.02	-32991.78
0.9 Dead+1.6 Wind 240 deg - No Ice	48748.19	-57948.97	33474.70	3557615.15	6132822.80	-32981.50
1.2 Dead+1.6 Wind 270 deg - No Ice	64997.58	-54760.89	15.49	20096.29	6015320.76	11370.21
0.9 Dead+1.6 Wind 270 deg - No Ice	48748.19	-54761.08	15.49	15611.72	6009608.64	11381.73
1.2 Dead+1.6 Wind 300 deg - No Ice	64997.58	-54764.52	-31618.31	-3364444.26	5856724.24	-29421.19
0.9 Dead+1.6 Wind 300 deg - No Ice	48748.19	-54764.69	-31618.41	-3365532.45	5851290.52	-29403.22
1.2 Dead+1.6 Wind 330 deg - No Ice	64997.58	-33674.53	-58356.99	-6105330.70	3531013.86	-44474.28
0.9 Dead+1.6 Wind 330 deg - No Ice	48749.59	-33675.87	-58357.39	-6103763.42	3527960.97	-44450.58

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Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	204210.78	0.08	-0.80	119446.07	-1876.85	0.07
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	204210.78	2.82	-24843.51	-2543116.53	-2269.73	-1026.49
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	204210.78	11429.24	-19796.04	-2036866.23	-1247074.27	10983.74
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	204210.78	18412.75	-10633.87	-1054166.95	-2034538.46	7022.41
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	204210.78	19729.65	-2.83	119437.76	-2210474.66	-1492.44
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	204210.78	19194.59	11081.99	1330608.50	-2098945.60	7054.04
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	204210.78	11279.53	19542.33	2238109.30	-1224357.30	14685.64
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	204210.78	-2.81	24278.58	2735285.80	-1444.04	1026.09
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	204210.78	-11429.24	19796.01	2276588.77	1243333.10	-10983.73
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	204210.78	-18901.97	10916.29	1317678.60	2072003.35	-7026.09
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	204210.78	-19729.65	2.80	120268.05	2206755.05	1492.46
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	204210.78	-18705.36	-10799.56	-1067096.03	2054043.67	-7050.06
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	204210.78	-11279.53	-19542.36	-1998381.67	1220667.90	-14685.70
Dead+Wind 0 deg - Service	54164.65	3.70	-18084.23	-1854725.24	-1994.64	2211.19
Dead+Wind 30 deg - Service	54164.65	8394.87	-14540.36	-1508553.80	-881013.38	13417.70
Dead+Wind 60 deg - Service	54164.65	13306.08	-7686.54	-801327.60	-1414077.29	7885.69
Dead+Wind 90 deg - Service	54164.65	13431.45	-3.70	14326.33	-1460646.32	-2720.12
Dead+Wind 120 deg - Service	54164.65	14229.90	8215.64	876076.98	-1493103.18	7034.06
Dead+Wind 150 deg - Service	54164.65	8220.86	14246.33	1496626.65	-856317.76	10632.65
Dead+Wind 180 deg - Service	54164.65	-3.70	17111.23	1799943.70	-914.66	-2211.05
Dead+Wind 210 deg - Service	54164.65	-8394.88	14540.35	1538299.01	878091.82	-13417.67
Dead+Wind 240 deg - Service	54164.65	-14148.72	8173.03	873332.21	1484361.15	-7887.01
Dead+Wind 270 deg - Service	54164.65	-13431.45	3.70	15405.75	1457738.05	2720.14
Dead+Wind 300 deg - Service	54164.65	-13387.27	-7729.14	-804072.49	1417002.72	-7032.82
Dead+Wind 330 deg - Service	54164.65	-8220.85	-14246.34	-1466881.85	853422.06	-10632.69

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-54164.65	0.00	0.00	54164.65	-0.00	0.000%
2	15.46	-64997.59	-74218.60	-15.46	64997.58	74217.77	0.001%
3	15.46	-48748.19	-74218.60	-15.46	48748.19	74218.00	0.001%
4	34402.69	-64997.59	-59587.21	-34402.24	64997.58	59586.51	0.001%
5	34402.69	-48748.19	-59587.21	-34401.43	48747.26	59586.88	0.002%
6	54425.74	-64997.59	-31440.56	-54425.02	64997.58	31440.15	0.001%
7	54425.74	-48748.19	-31440.56	-54425.20	48748.19	31440.25	0.001%
8	54761.62	-64997.59	-15.46	-54760.89	64997.58	15.43	0.001%
9	54761.62	-48748.19	-15.46	-54761.08	48748.19	15.43	0.001%
10	58288.95	-64997.59	33653.14	-58288.28	64997.58	-33652.75	0.001%
11	58288.95	-48748.19	33653.14	-58288.46	48748.19	-33652.86	0.001%
12	33674.97	-64997.59	58357.67	-33674.60	64997.58	-58356.95	0.001%
13	33674.97	-48748.19	58357.67	-33674.27	48749.59	-58358.31	0.002%
14	-15.46	-64997.59	70149.76	15.46	64997.58	-70148.87	0.001%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
15	-15.46	-48748.19	70149.76	15.46	48748.19	-70149.09	0.001%
16	-34402.69	-64997.59	59587.21	34402.31	64997.58	-59586.47	0.001%
17	-34402.69	-48748.19	59587.21	34403.04	48747.27	-59585.95	0.002%
18	-57949.46	-64997.59	33474.98	57948.78	64997.58	-33474.59	0.001%
19	-57949.46	-48748.19	33474.98	57948.97	48748.19	-33474.70	0.001%
20	-54761.62	-64997.59	15.46	54760.89	64997.58	-15.49	0.001%
21	-54761.62	-48748.19	15.46	54761.08	48748.19	-15.49	0.001%
22	-54765.23	-64997.59	-31618.72	54764.52	64997.58	31618.31	0.001%
23	-54765.23	-48748.19	-31618.72	54764.69	48748.19	31618.41	0.001%
24	-33674.97	-64997.59	-58357.67	33674.53	64997.58	58356.99	0.001%
25	-33674.97	-48748.19	-58357.67	33675.87	48749.59	58357.39	0.002%
26	-0.00	-204210.78	0.00	-0.08	204210.78	0.80	0.000%
27	2.81	-204210.78	-24843.73	-2.82	204210.78	24843.51	0.000%
28	11429.35	-204210.78	-19796.22	-11429.24	204210.78	19796.04	0.000%
29	18412.93	-204210.78	-10633.96	-18412.75	204210.78	10633.87	0.000%
30	19729.86	-204210.78	-2.81	-19729.65	204210.78	2.83	0.000%
31	19194.78	-204210.78	11082.11	-19194.59	204210.78	-11081.99	0.000%
32	11279.64	-204210.78	19542.53	-11279.53	204210.78	-19542.33	0.000%
33	-2.81	-204210.78	24278.82	2.81	204210.78	-24278.58	0.000%
34	-11429.35	-204210.78	19796.22	11429.24	204210.78	-19796.01	0.000%
35	-18902.16	-204210.78	10916.41	18901.97	204210.78	-10916.29	0.000%
36	-19729.86	-204210.78	2.81	19729.65	204210.78	-2.80	0.000%
37	-18705.55	-204210.78	-10799.66	18705.36	204210.78	10799.56	0.000%
38	-11279.64	-204210.78	-19542.53	11279.53	204210.78	19542.36	0.000%
39	3.70	-54164.65	-18084.40	-3.70	54164.65	18084.23	0.000%
40	8394.96	-54164.65	-14540.50	-8394.87	54164.65	14540.36	0.000%
41	13306.22	-54164.65	-7686.62	-13306.08	54164.65	7686.54	0.000%
42	13431.60	-54164.65	-3.70	-13431.45	54164.65	3.70	0.000%
43	14230.04	-54164.65	8215.72	-14229.90	54164.65	-8215.64	0.000%
44	8220.94	-54164.65	14246.47	-8220.86	54164.65	-14246.33	0.000%
45	-3.70	-54164.65	17111.40	3.70	54164.65	-17111.23	0.000%
46	-8394.96	-54164.65	14540.50	8394.88	54164.65	-14540.35	0.000%
47	-14148.86	-54164.65	8173.11	14148.72	54164.65	-8173.03	0.000%
48	-13431.60	-54164.65	3.70	13431.45	54164.65	-3.70	0.000%
49	-13387.40	-54164.65	-7729.22	13387.27	54164.65	7729.14	0.000%
50	-8220.94	-54164.65	-14246.47	8220.85	54164.65	14246.34	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.0000001	0.0000001
2	Yes	9	0.0000001	0.00006761
3	Yes	9	0.0000001	0.00004934
4	Yes	9	0.0000001	0.00007208
5	Yes	9	0.0000001	0.00005369
6	Yes	9	0.0000001	0.00007604
7	Yes	9	0.0000001	0.00005744
8	Yes	9	0.0000001	0.00007314
9	Yes	9	0.0000001	0.00005450
10	Yes	9	0.0000001	0.00006835
11	Yes	9	0.0000001	0.00004996
12	Yes	9	0.0000001	0.00007180
13	Yes	9	0.0000001	0.00005352
14	Yes	9	0.0000001	0.00007570
15	Yes	9	0.0000001	0.00005721

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16	Yes	9	0.0000001	0.00007210
17	Yes	9	0.0000001	0.00005370
18	Yes	9	0.0000001	0.00006842
19	Yes	9	0.0000001	0.00005000
20	Yes	9	0.0000001	0.00007315
21	Yes	9	0.0000001	0.00005450
22	Yes	9	0.0000001	0.00007602
23	Yes	9	0.0000001	0.00005741
24	Yes	9	0.0000001	0.00007179
25	Yes	9	0.0000001	0.00005351
26	Yes	7	0.0000001	0.00012554
27	Yes	10	0.0000001	0.00004794
28	Yes	10	0.0000001	0.00004736
29	Yes	10	0.0000001	0.00004719
30	Yes	10	0.0000001	0.00004657
31	Yes	10	0.0000001	0.00004838
32	Yes	10	0.0000001	0.00004912
33	Yes	10	0.0000001	0.00005085
34	Yes	10	0.0000001	0.00004983
35	Yes	10	0.0000001	0.00004859
36	Yes	10	0.0000001	0.00004699
37	Yes	10	0.0000001	0.00004770
38	Yes	10	0.0000001	0.00004697
39	Yes	9	0.0000001	0.00005591
40	Yes	9	0.0000001	0.00005679
41	Yes	9	0.0000001	0.00005756
42	Yes	9	0.0000001	0.00005671
43	Yes	9	0.0000001	0.00005607
44	Yes	9	0.0000001	0.00005649
45	Yes	9	0.0000001	0.00005769
46	Yes	9	0.0000001	0.00005691
47	Yes	9	0.0000001	0.00005613
48	Yes	9	0.0000001	0.00005676
49	Yes	9	0.0000001	0.00005759
50	Yes	9	0.0000001	0.00005640

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	188 - 180	3.894	39	0.1715	0.0185
T2	180 - 160	3.604	39	0.1710	0.0188
T3	160 - 140	2.884	39	0.1627	0.0174
T4	140 - 120	2.216	39	0.1441	0.0150
T5	120 - 100	1.631	39	0.1216	0.0122
T6	100 - 80	1.129	39	0.1006	0.0101
T7	80 - 60	0.722	39	0.0769	0.0079
T8	60 - 40	0.420	39	0.0546	0.0061
T9	40 - 20	0.207	39	0.0339	0.0040
T10	20 - 0	0.067	39	0.0174	0.0019

Critical Deflections and Radius of Curvature - Service Wind

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Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
195.00	BCD-87010	39	3.894	0.1715	0.0185	503679
186.00	Rohn 14' Platform	39	3.821	0.1715	0.0186	503679
172.00	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	39	3.314	0.1690	0.0185	308940
155.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	39	2.710	0.1589	0.0168	71039
145.50	(3) SBNHH-1D85B w/ Mount Pipe	39	2.392	0.1500	0.0157	58492
123.00	APXVSPP18-C-A20 w/ Mount Pipe	39	1.713	0.1249	0.0126	59671

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	188 - 180	16.290	2	0.7196	0.0776
T2	180 - 160	15.077	2	0.7173	0.0785
T3	160 - 140	12.055	2	0.6825	0.0728
T4	140 - 120	9.253	2	0.6042	0.0629
T5	120 - 100	6.803	2	0.5095	0.0513
T6	100 - 80	4.704	2	0.4209	0.0423
T7	80 - 60	3.002	2	0.3212	0.0331
T8	60 - 40	1.744	2	0.2281	0.0254
T9	40 - 20	0.855	2	0.1414	0.0169
T10	20 - 0	0.275	2	0.0726	0.0078

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
195.00	BCD-87010	2	16.290	0.7196	0.0776	121866
186.00	Rohn 14' Platform	2	15.987	0.7193	0.0779	121866
172.00	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	2	13.858	0.7090	0.0774	75853
155.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	2	11.326	0.6663	0.0705	16909
145.50	(3) SBNHH-1D85B w/ Mount Pipe	2	9.991	0.6288	0.0658	13901
123.00	APXVSPP18-C-A20 w/ Mount Pipe	2	7.148	0.5234	0.0529	14098

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load Allowable	Allowable Ratio	Criteria
T1	188	Leg	A325N	0.8750	4	316.53	40589.10	0.008 ✓	1	Bolt Tension
		Diagonal	A325N	0.6250	1	1062.57	5811.33	0.183 ✓	1	Member Block Shear

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load Allowable	Allowable Ratio	Criteria	
T2	180	Top Girt	A325N	0.6250	1	96.90	12425.20	0.008	✓	1	Bolt Shear
		Leg	A325N	0.8750	4	3738.87	40589.10	0.092	✓	1	Bolt Tension
		Diagonal	A325N	0.6250	1	3119.31	5811.33	0.537	✓	1	Member Block Shear
T3	160	Horizontal	A325N	0.6250	1	457.13	4553.91	0.100	✓	1	Member Block Shear
		Leg	A325N	0.8750	4	10475.00	40589.10	0.258	✓	1	Bolt Tension
T4	140	Diagonal	A325N	0.6250	1	7088.58	10440.00	0.679	✓	1	Member Bearing
		Leg	A325N	1.0000	4	20131.20	53014.40	0.380	✓	1	Bolt Tension
T5	120	Diagonal	A325N	0.7500	1	8070.78	14137.50	0.571	✓	1	Member Bearing
		Leg	A325N	1.0000	6	20012.40	53014.40	0.377	✓	1	Bolt Tension
T6	100	Diagonal	A325N	0.7500	1	8534.66	14137.50	0.604	✓	1	Member Bearing
		Leg	A325N	1.0000	6	26677.60	53014.40	0.503	✓	1	Bolt Tension
T7	80	Diagonal	A325N	0.7500	1	11831.70	14137.50	0.837	✓	1	Member Bearing
		Leg	A325N	1.0000	8	25336.50	53014.40	0.478	✓	1	Bolt Tension
T8	60	Diagonal	A325N	0.7500	1	12290.10	17892.40	0.687	✓	1	Bolt Shear
		Leg	A325N	1.0000	8	30149.80	53014.40	0.569	✓	1	Bolt Tension
T9	40	Diagonal	A325N	0.7500	1	12347.10	17892.40	0.690	✓	1	Bolt Shear
		Leg	A325N	1.0000	8	34840.90	53014.40	0.657	✓	1	Bolt Tension
T10	20	Diagonal	A325N	0.7500	1	13774.50	17892.40	0.770	✓	1	Bolt Shear
								0.860	✓	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 lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	P3x.216	8.00	4.00	41.3 K=1.00	2.2285	-3798.38	88548.60	0.043 ¹ ✓
T2	180 - 160	P3x.216	20.04	5.01	51.7 K=1.00	2.2285	-20740.70	82502.90	0.251 ¹ ✓
T3	160 - 140	ROHN 3 EH	20.03	6.68	70.5 K=1.00	3.0159	-53602.60	94349.80	0.568 ¹ ✓
T4	140 - 120	ROHN 4 EH	20.04	6.68	54.3 K=1.00	4.4074	-97329.20	159905.00	0.609 ¹ ✓
T5	120 - 100	ROHN 5 EH	20.05	6.68	43.6 K=1.00	6.1120	-142068.00	239326.00	0.594 ¹ ✓
T6	100 - 80	ROHN 6 EHS	20.02	10.01	54.0 K=1.00	6.7133	-185956.00	244126.00	0.762 ¹ ✓
T7	80 - 60	ROHN 6 EH	20.03	10.02	54.8	8.4049	-234234.00	303759.00	0.771 ¹ ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T8	60 - 40	ROHN 8 EHS	20.04	10.02	K=1.00 41.2	9.7193	-278728.00	386368.00	0.721 ¹ ✓
T9	40 - 20	ROHN 8 EH	20.03	10.02	K=1.00 41.8	12.7627	-322774.00	505544.00	0.638 ¹ ✓
T10	20 - 0	ROHN 8 EH	20.03	10.02	K=1.00 41.8	12.7627	-366963.00	505565.00	0.726 ¹ ✓

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	L1 3/4x1 3/4x3/16	7.74	3.58	K=1.00 125.1	0.6211	-1128.41	8824.45	0.128 ¹ ✓
T2	180 - 160	L1 3/4x1 3/4x3/16	9.40	4.57	K=1.00 159.5	0.6211	-3322.51	5512.95	0.603 ¹ ✓
T3	160 - 140	L2 1/2x2 1/2x1/4	12.34	6.07	K=1.00 148.4	1.1900	-7143.41	12209.80	0.585 ¹ ✓
T4	140 - 120	L3x3x1/4	14.12	6.91	K=1.00 140.0	1.4400	-8448.30	16593.20	0.509 ¹ ✓
T5	120 - 100	L3x3x1/4	16.30	7.99	K=1.00 161.9	1.4400	-8517.09	12404.00	0.687 ¹ ✓
T6	100 - 80	L3 1/2x3 1/2x1/4	19.28	9.41	K=1.00 162.8	1.6900	-12629.80	14408.10	0.877 ¹ ✓
T7	80 - 60	L4x4x5/16	20.89	10.27	K=1.00 155.9	2.4000	-12290.10	22316.40	0.551 ¹ ✓
T8	60 - 40	L4x4x5/16	22.77	11.15	K=1.00 169.2	2.4000	-12347.10	18939.00	0.652 ¹ ✓
T9	40 - 20	L4x4x5/16	24.66	12.08	K=1.00 183.3	2.4000	-13774.50	16141.50	0.853 ¹ ✓
T10	20 - 0	L4x4x3/8	26.48	12.98	K=1.00 197.6	2.8600	-15387.70	16543.30	0.930 ¹ ✓

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 lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L2x2x1/8	8.22	7.69	K=1.00 232.1	0.4844	-359.74	2031.49	0.177 ¹ ✓

KL/R > 200 (C) - 32

tnxTower Centerline Communications 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781-713-4725 FAX:	Job	CT11402A	Page	26 of 28
	Project	Anchor	Date	09:55:14 04/28/21
	Client	T-Mobile	Designed by	Arielle Novak

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
-------------	-----------------	------	---------	----------------------	------	----------------------	----------------------	-----------------------	---------------------------------

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 lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	L3x3x1/4	6.63	6.10	123.6 K=1.00	1.4400	-96.90	20868.70	0.005 ¹ ✓

¹ P_u / φP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	P3x.216	8.00	4.00	41.3	2.2285	977.65	100281.00	0.010 ¹ ✓
T2	180 - 160	P3x.216	20.04	5.01	51.7	2.2285	14955.50	100281.00	0.149 ¹ ✓
T3	160 - 140	ROHN 3 EH	20.03	6.68	70.5	3.0159	41900.10	135717.00	0.309 ¹ ✓
T4	140 - 120	ROHN 4 EH	20.04	6.68	54.3	4.4074	80524.70	198335.00	0.406 ¹ ✓
T5	120 - 100	ROHN 5 EH	20.05	6.68	43.6	6.1120	120074.00	275039.00	0.437 ¹ ✓
T6	100 - 80	ROHN 6 EHS	20.02	10.01	54.0	6.7133	160066.00	302097.00	0.530 ¹ ✓
T7	80 - 60	ROHN 6 EH	20.03	10.02	54.8	8.4049	202692.00	378222.00	0.536 ¹ ✓
T8	60 - 40	ROHN 8 EHS	20.04	10.02	41.2	9.7193	241199.00	437369.00	0.551 ¹ ✓
T9	40 - 20	ROHN 8 EH	20.03	10.02	41.8	12.7627	278727.00	574322.00	0.485 ¹ ✓
T10	20 - 0	ROHN 8 EH	20.03	10.02	41.8	12.7627	315847.00	574322.00	0.550 ¹ ✓

¹ P_u / φP_n controls

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	Project Anchor	Date 09:55:14 04/28/21
	Client T-Mobile	Designed by Arielle Novak

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	L1 3/4x1 3/4x3/16	7.74	3.58	82.7	0.3604	1062.57	15675.30	0.068 ¹
T2	180 - 160	L1 3/4x1 3/4x3/16	9.40	4.57	104.7	0.3604	3119.31	15675.30	0.199 ¹
T3	160 - 140	L2 1/2x2 1/2x1/4	12.34	6.07	96.6	0.7519	7088.58	32706.60	0.217 ¹
T4	140 - 120	L3x3x1/4	14.12	6.91	90.9	0.9159	8070.78	44652.00	0.181 ¹
T5	120 - 100	L3x3x1/4	16.30	7.99	104.8	0.9159	8534.66	44652.00	0.191 ¹
T6	100 - 80	L3 1/2x3 1/2x1/4	19.28	9.41	105.1	1.1034	11831.70	53792.60	0.220 ¹
T7	80 - 60	L4x4x5/16	20.89	10.27	100.7	1.5949	11590.60	77752.40	0.149 ¹
T8	60 - 40	L4x4x5/16	22.77	11.15	109.2	1.5949	11832.40	77752.40	0.152 ¹
T9	40 - 20	L4x4x5/16	23.73	11.62	113.7	1.5949	12845.80	77752.40	0.165 ¹
T10	20 - 0	L4x4x3/8	25.58	12.53	123.6	1.8989	14211.10	92571.70	0.154 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 lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L2x2x1/8	8.22	7.69	151.9	0.2930	457.13	12744.10	0.036 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 lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	L3x3x1/4	6.63	6.10	81.8	0.9394	10.85	40862.80	0.000 ¹

¹ P_u / φP_n controls

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	Client	T-Mobile	Designed by	Arielle Novak

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	188 - 180	Leg	P3x.216	2	-3798.38	88548.60	4.3	Pass
T2	180 - 160	Leg	P3x.216	21	-20740.70	82502.90	25.1	Pass
T3	160 - 140	Leg	ROHN 3 EH	60	-53602.60	94349.80	56.8	Pass
T4	140 - 120	Leg	ROHN 4 EH	81	-97329.20	159905.00	60.9	Pass
T5	120 - 100	Leg	ROHN 5 EH	102	-142068.00	239326.00	59.4	Pass
T6	100 - 80	Leg	ROHN 6 EHS	123	-185956.00	244126.00	76.2	Pass
T7	80 - 60	Leg	ROHN 6 EH	138	-234234.00	303759.00	77.1	Pass
T8	60 - 40	Leg	ROHN 8 EHS	153	-278728.00	386368.00	72.1	Pass
T9	40 - 20	Leg	ROHN 8 EH	168	-322774.00	505544.00	63.8	Pass
							65.7 (b)	
T10	20 - 0	Leg	ROHN 8 EH	183	-366963.00	505565.00	72.6	Pass
T1	188 - 180	Diagonal	L1 3/4x1 3/4x3/16	10	-1128.41	8824.45	12.8	Pass
							18.3 (b)	
T2	180 - 160	Diagonal	L1 3/4x1 3/4x3/16	38	-3322.51	5512.95	60.3	Pass
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	65	-7143.41	12209.80	58.5	Pass
							67.9 (b)	
T4	140 - 120	Diagonal	L3x3x1/4	86	-8448.30	16593.20	50.9	Pass
							57.1 (b)	
T5	120 - 100	Diagonal	L3x3x1/4	107	-8517.09	12404.00	68.7	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	127	-12629.80	14408.10	87.7	Pass
T7	80 - 60	Diagonal	L4x4x5/16	142	-12290.10	22316.40	55.1	Pass
							68.7 (b)	
T8	60 - 40	Diagonal	L4x4x5/16	157	-12347.10	18939.00	65.2	Pass
							69.0 (b)	
T9	40 - 20	Diagonal	L4x4x5/16	172	-13774.50	16141.50	85.3	Pass
T10	20 - 0	Diagonal	L4x4x3/8	187	-15387.70	16543.30	93.0	Pass
T2	180 - 160	Horizontal	L2x2x1/8	32	-359.74	2031.49	17.7	Pass
T1	188 - 180	Top Girt	L3x3x1/4	4	-96.65	20868.70	0.6	Pass
							0.8 (b)	
							Summary	
							Leg (T7)	77.1 Pass
							Diagonal (T10)	93.0 Pass
							Horizontal (T2)	17.7 Pass
							Top Girt (T1)	0.8 Pass
							Bolt Checks	86.0 Pass
							RATING =	93.0 Pass

Project Information

BU #	
Site Name	CT11402A
Order #	

Tower Information

Tower Type	Self Support
TIA-222 Rev	G

Load Z Normalization

Applied Loads

	Comp.	Uplift
Axial (k)	378.07	324.92
Shear (k)	45.00	39.83

Anchor Rod Data

Quantity:	10
Diameter (in):	1
Material Grade:	A354-BC
Grout Considered:	No
l_{ar} (in):	0
Eta Factor, η :	0.5
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=109 ksi Fu=125 ksi

Anchor Rod Results

Axial, Pu_c (kips)	37.81
Shear, Vu (kips)	4.50
Moment, Mu (kip-in)	-
Axial Cap., ϕPn_t (kips)	60.60
Shear Cap., ϕVn (kips)	-
Moment Cap., ϕMn (kip-in)	-
Stress Rating	73.6%


Pass

Mount Analysis Report

Site Address	232 South Main St. East Windsor, CT 06088
Site Name	East Windsor/Rt-191_1
Site ID	CT11402A
Project Name	Anchor
Design Codes	2015 International Building Code ASCE 7-10 TIA-222-G Standards 2018 CT State Building Code

	Stress Ratio	Overall Result
Existing Mount with Modifications	85%	PASS

Client:


T - Mobile
NORTHEAST, LLC
15 Commerce Way, Suite B
Norton, MA 02766



Date: 04/28/2021

DN: CN = Derek J. Creaser, P.E.
 email = dcreaser@clinellc.com
 C = US O = Centerline
 Communications OU = Director -
 A&E Services
 Date: 2021.04.28 18:12:53 -
 34'00'

Scope of Work:

Centerline Communications was authorized by T-Mobile Northeast LLC to perform an analysis of the existing antenna mounts to determine their capacity to support the existing and proposed T-Mobile equipment listed in this report. These mounts were analyzed using RISA 3D v17.0.4.

Final Appurtenances Configuration:

Elevation (ft)	Position ¹	Azimuth (degrees)	Quantity	Appurtenance	Sector
155	MP2	60	1	APXVAARR24_43-U-NA20 Antenna	Sector 1
155	MP3	60	1	APX16DWV-16DWV-S-E-A20 Antenna	
155	MP4	60	1	AIR6449 B41 Antenna	
155	MP2	60	1	4449 B71+B85 RRH	
155	MP2	60	1	4424 B25 RRH	
155	MP3	60	1	4415 B66A RRH	
155	-	180	1	APXVAARR24_43-U-NA20 Antenna	Sector 2
155	-	180	1	APX16DWV-16DWV-S-E-A20 Antenna	
155	-	180	1	AIR6449 B41 Antenna	
155	-	180	1	4449 B71+B85 RRH	
155	-	180	1	4424 B25 RRH	
155	-	180	1	4415 B66A RRH	
155	-	280	1	APXVAARR24_43-U-NA20 Antenna	Sector 3
155	-	280	1	APX16DWV-16DWV-S-E-A20 Antenna	
155	-	280	1	AIR6449 B41 Antenna	
155	-	280	1	4449 B71+B85 RRH	
155	-	280	1	4424 B25 RRH	
155	-	280	1	4415 B66A RRH	

Notes:

1. MP represent Mount Pipe.
2. Existing Appurtenance
3. **Proposed Appurtenance**

Design Criteria:

Design Codes:

2015 International Building Code
 ASCE 7-10
 TIA-222-G Standards
 2018 CT State Building Code

Ultimate Wind Speed	125 mph
Nominal Wind Speed	97 mph
Wind Speed with Ice	50 mph
Ice Thickness	1.0 in.
Exposure Category	C
Topographic Category	1
Structure Class	II
Site Soil Class (Assumed)	D-Stiff Soil
Seismic Design Category	B
Spectral Response Acceleration Parameter at a Short Periods, S_s	0.177 g
Spectral Response Acceleration Parameter at a Period of 1 Second, S_1	0.064 g
Short Period Site Coefficient, F_a	1.6
Long Period Site Coefficient, F_v	2.4

*Refer to calculations for additional design criteria.

Conclusion:

The results of the analysis concluded that the existing T-Mobile mounts are adequate to support the existing and proposed T-Mobile equipment loading upon completion of the following modifications. Centerline recommends the following:

Alpha, Beta & Gamma:

- Install (1) Site Pro 1 SFR-K-L stabilizer kit on the existing top horizontal.
- Install (1) Site Pro 1 SFS-H-L stabilizer kit on the existing bottom horizontal.

	Stress Ratio	Overall Result
Existing Mount with Modifications	85%	PASS

Reference Documents:

- T-Mobile RFDS CT11402A_Anchor_5_draft, dated 02/23/2021
- Structural Analysis by Destek Engineering, dated 08/14/2018
- Mount Assessment by Destek Engineering, dated 06/01/2018
- Construction Drawings by Foresite, LLC, dated 08/01/2018

Assumptions and Limitations:


- The calculations performed by Centerline Communications are limited to the structural members in these calculations only.
- Structural calculations in this report do not check the adequacy of the supporting structure, other mounts, or coax mounting attachments.
- The calculation assumes all structural members to be in good condition i.e. no damage, rust, or other defects.

Photos:



Existing Mount

Design Calculations



Site Details	
Site Name	East Windsor/Rt-191_1
Carrier	T-Mobile
City, State	East Windsor, CT
Project	Anchor

Mount Details	
Mount Type	Sector Frame
Mount Height, z	155 ft
Number of Sectors	3
Tower Type	SST
Tower Height, h	188 ft

Topographic Factors	
Topographic Category	1
Feature	Flat
Crest Height, H	N/A ft
Distance from Crest, x	N/A ft
Slope (H/L)	N/A
Topographic Factor, K_{zt}	1.00

Seismic Factors	
Importance Factor, I_E	1
Short Period Spectral Acceleration, S_s	0.177 g
1 Second Period Spectral Acceleration, S_1	0.064 g
Long-Period Transition Period, T_L	6
Design Category	B
Short Period Site Coefficient, F_a	1.60
Long-Period Site Coefficient, F_v	2.4

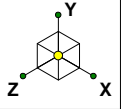
Site Parameters	
Ultimate Wind Speed, V_{ULT}	125 mph
Nominal Wind Speed, V	97 mph
Wind Speed with Ice, V_i	50 mph
Design Ice Thickness, t_i	1 in
Structural Class	II
Exposure Category	C
Site Soil Class	D-Stiff Soil (Assumed)

Code	
Building Code	2015 IBC
TIA Code	TIA-222-G
ASCE Code	7-10

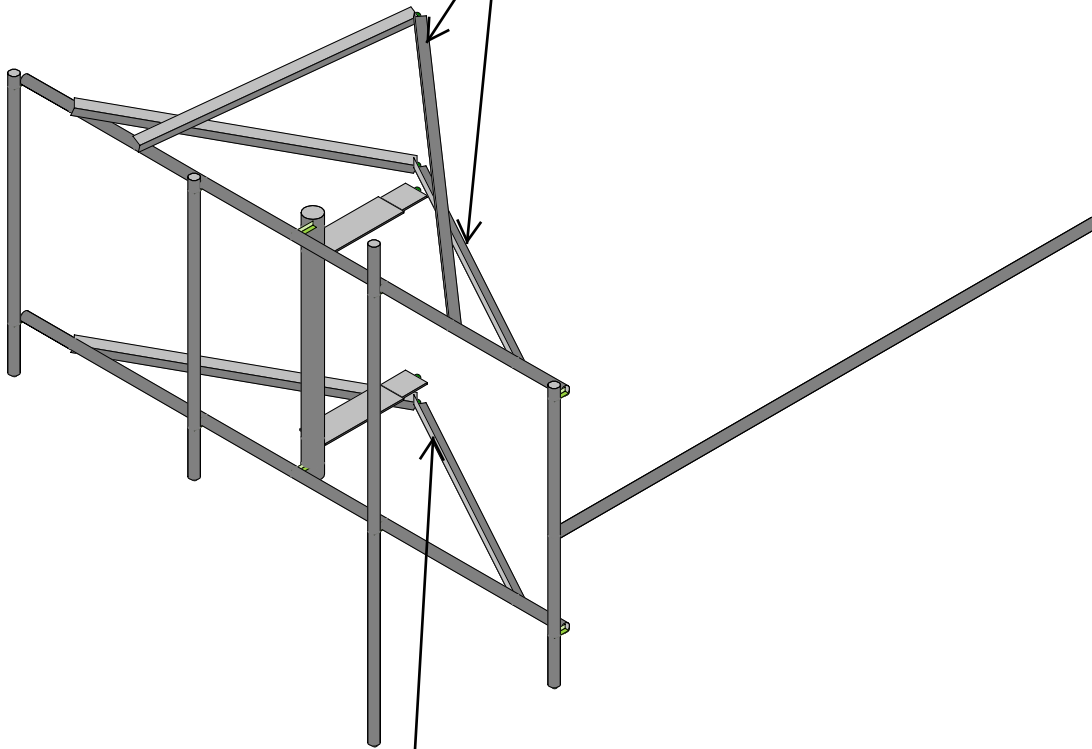
Site Constants	
Importance Factor, I (Wind no Ice)	1.00
Importance Factor, I (Ice Thickness)	1.00
Importance Factor, I (wind with Ice)	1.00
Wind Direction Prob. Factor, K_d	0.95
Velocity Pressure Coefficient, K_z	1.39
Gust Effect Factor, G_h	1.00
Design Ice Thickness, t_{iz}	2.33 in
Velocity Pressure, q_z	31.76 psf
Velocity Pressure with Ice, q_{zi}	8.44 psf
Shielding Factor, K_a	1.00
Flat Velocity Pressure ($Ca = 2.0$)	63.52 psf
Round Velocity Pressure ($Ca = 1.2$)	38.11 psf
Round Velocity Pressure with Ice ($Ca = 1.2$)	10.13 psf
Engineer Initials	AP

Existing Mount with Modifications Results

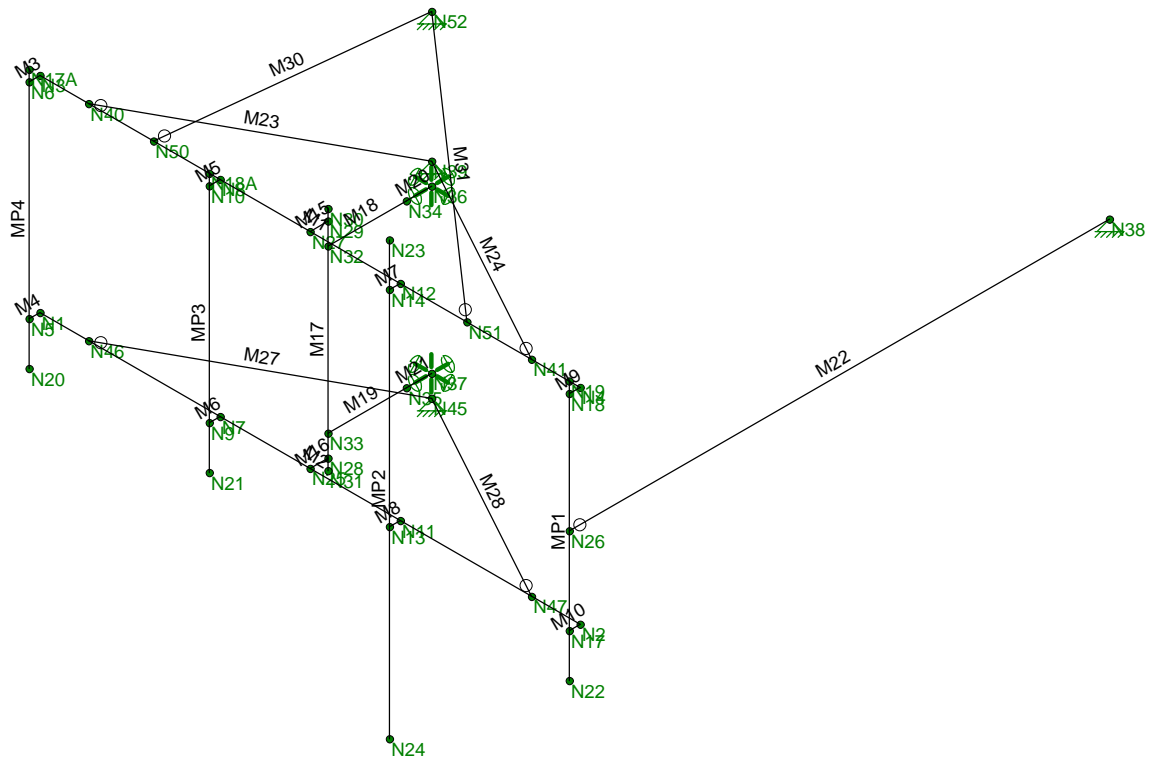
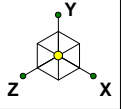




Install (1) Site Pro 1 SFR-K-L stabilizer kit on the existing top horizontal.



Install (1) Site Pro 1 SFS-H stabilizer kit on the existing bottom horizontal.



Centerline Communcation...

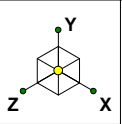
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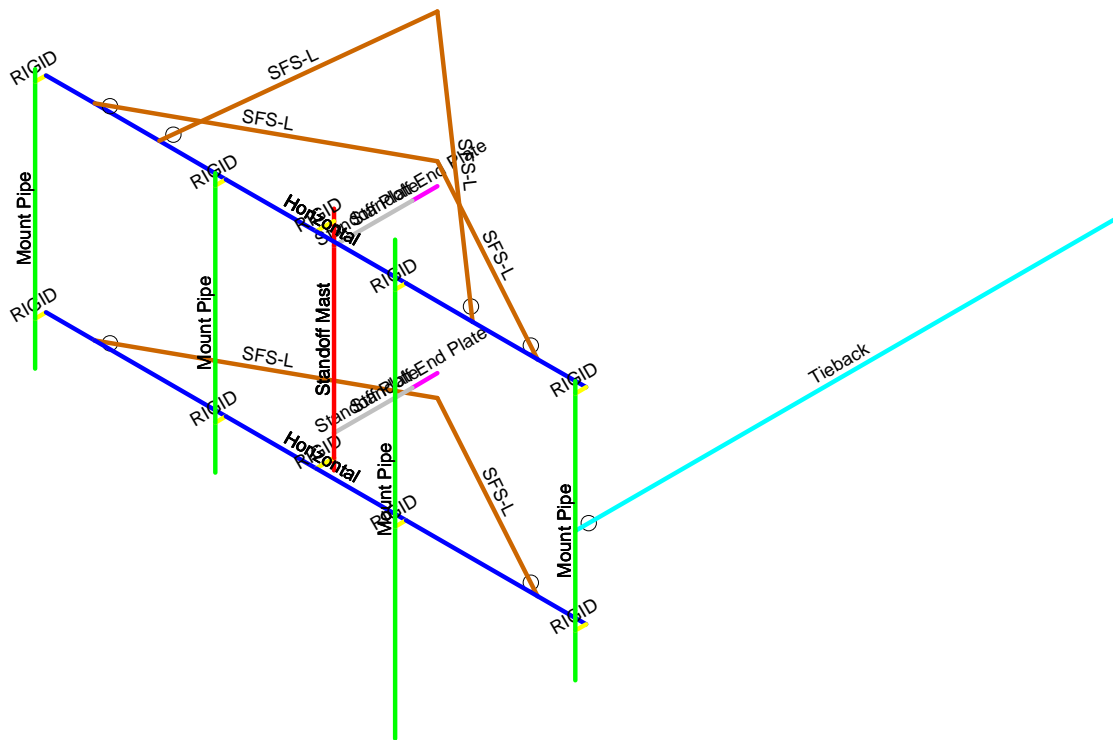
Wireframe

Apr 27, 2021 at 10:01 AM

CT11402A_MA_Modified.r3d



Section Sets	
█	Horizontal
█	Mount Pipe
█	Standoff Mast
█	Standoff Plate
█	Standoff End Plate
█	Tieback
█	SFS-L
█	RIGID



Centerline Communcation...

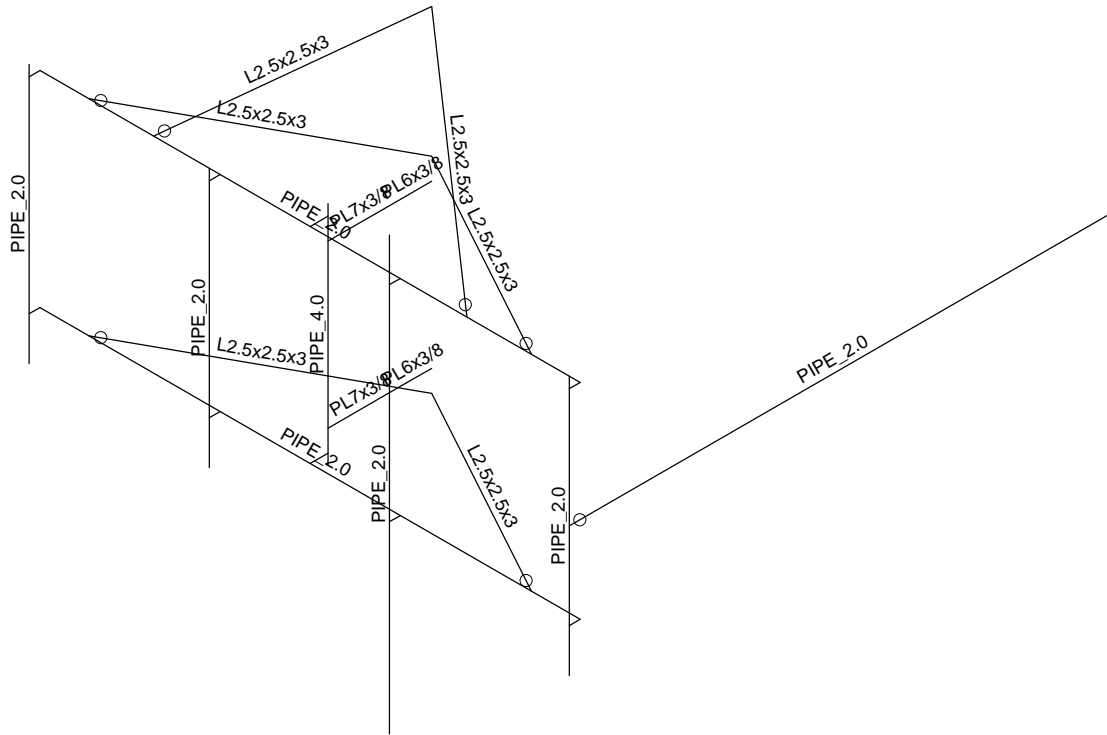
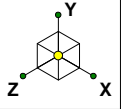
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CT11402A_MA

Section Sets

Apr 27, 2021 at 10:01 AM

CT11402A_MA_Modified.r3d



Centerline Communcation...

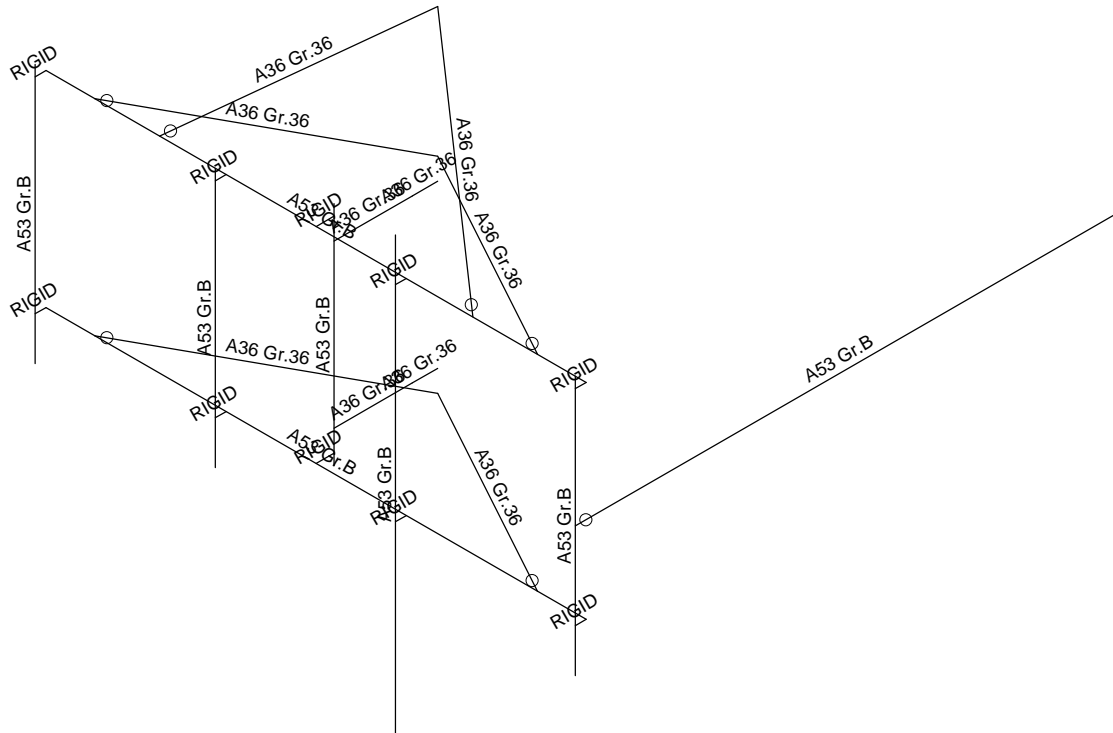
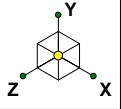
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Member Shape

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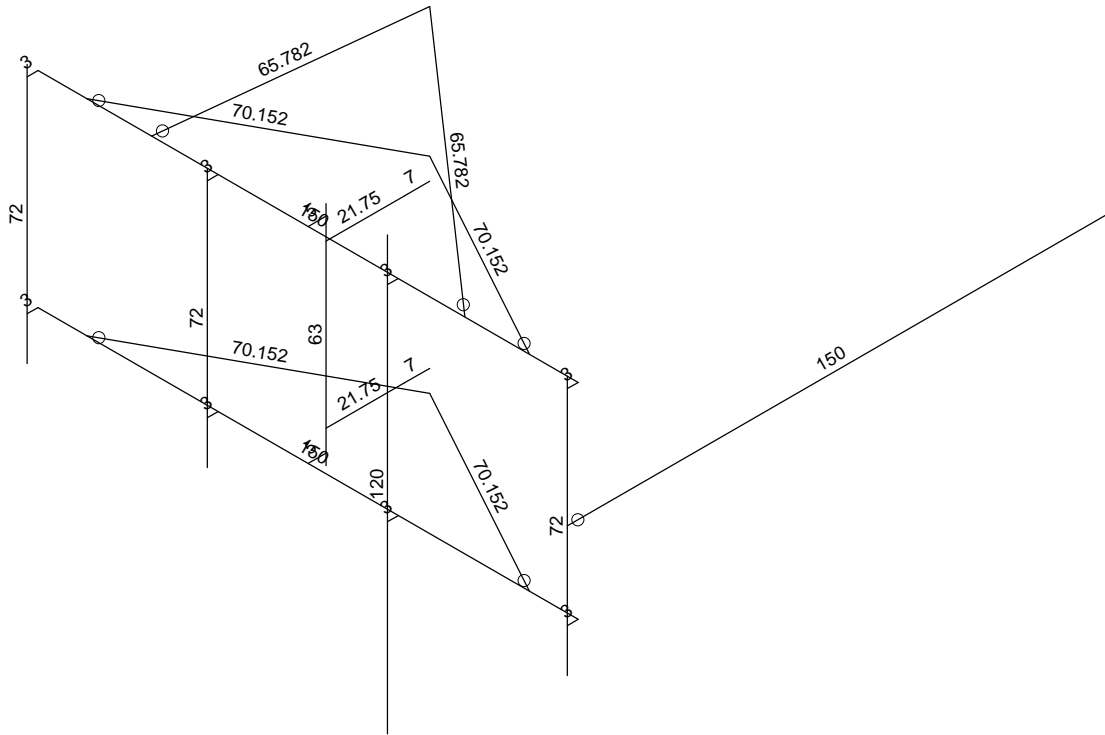
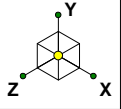
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Centerline Communcation...
AP

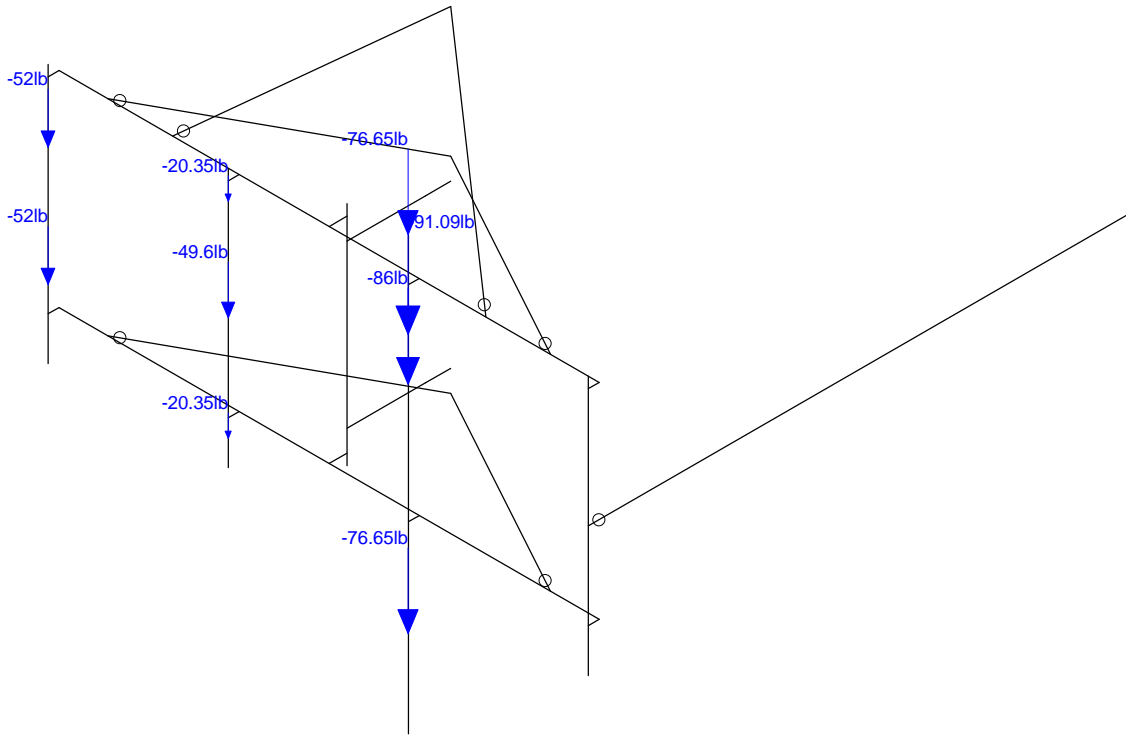
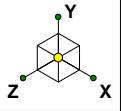
CT11402A_MA

Material Sets
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CT11402A_MA_Modified.r3d



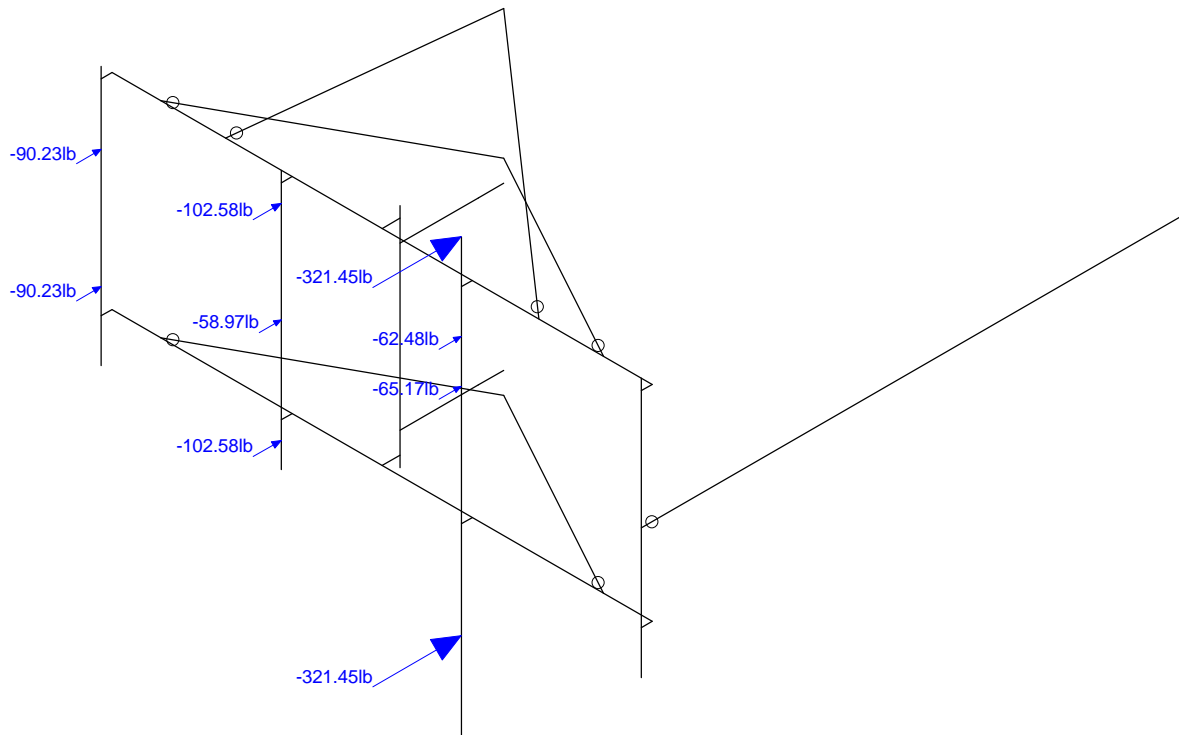
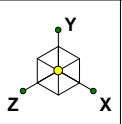
Member Length (in) Displayed

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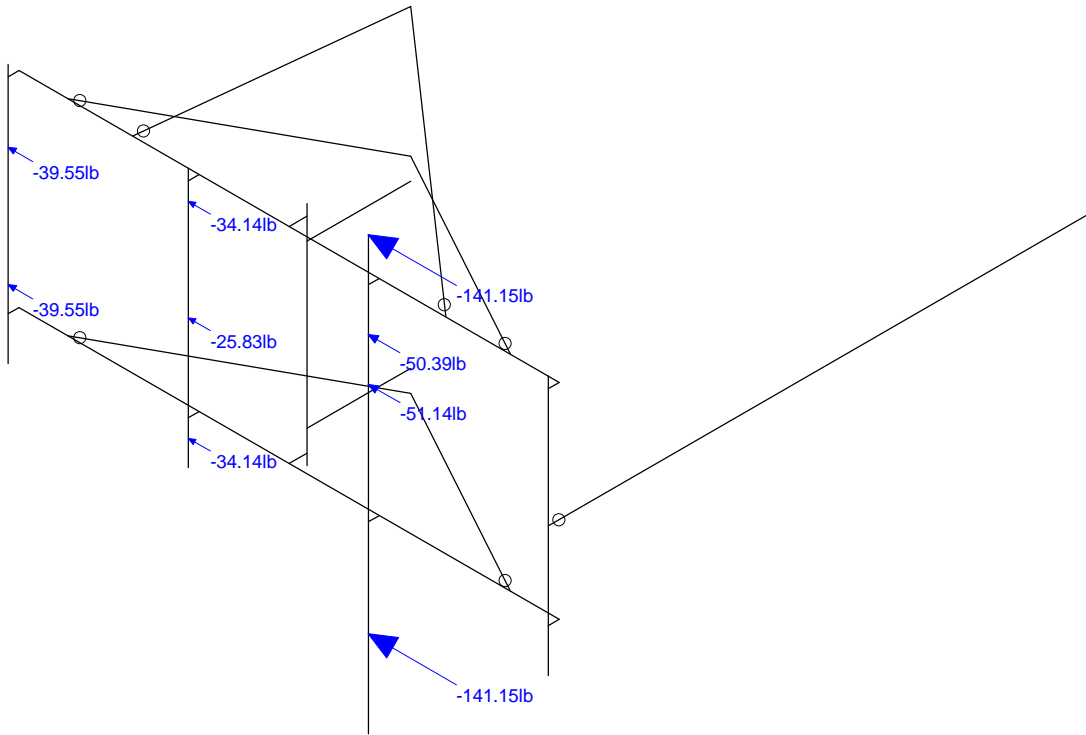
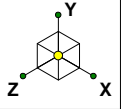
Loads: BLC 1, Dead Load

Centerline Communcation...	CT11402A_MA	Dead Load
AP		Apr 27, 2021 at 10:02 AM
		CT11402A_MA_Modified.r3d



Loads: BLC 2, Wind 0

Centerline Communcation...	CT11402A_MA	Wind 0
AP		Apr 27, 2021 at 10:02 AM
		CT11402A_MA_Modified.r3d



Loads: BLC 5, Wind 90

Centerline Communcation...

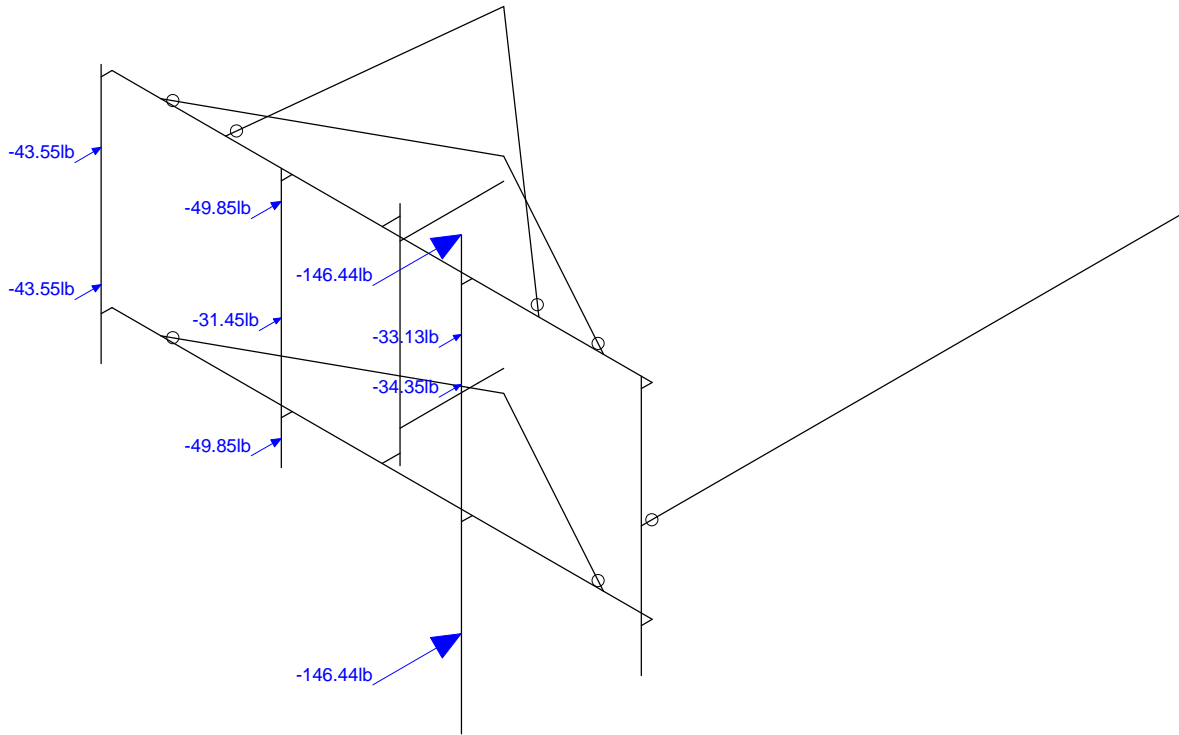
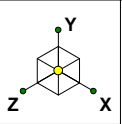
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Wind 90

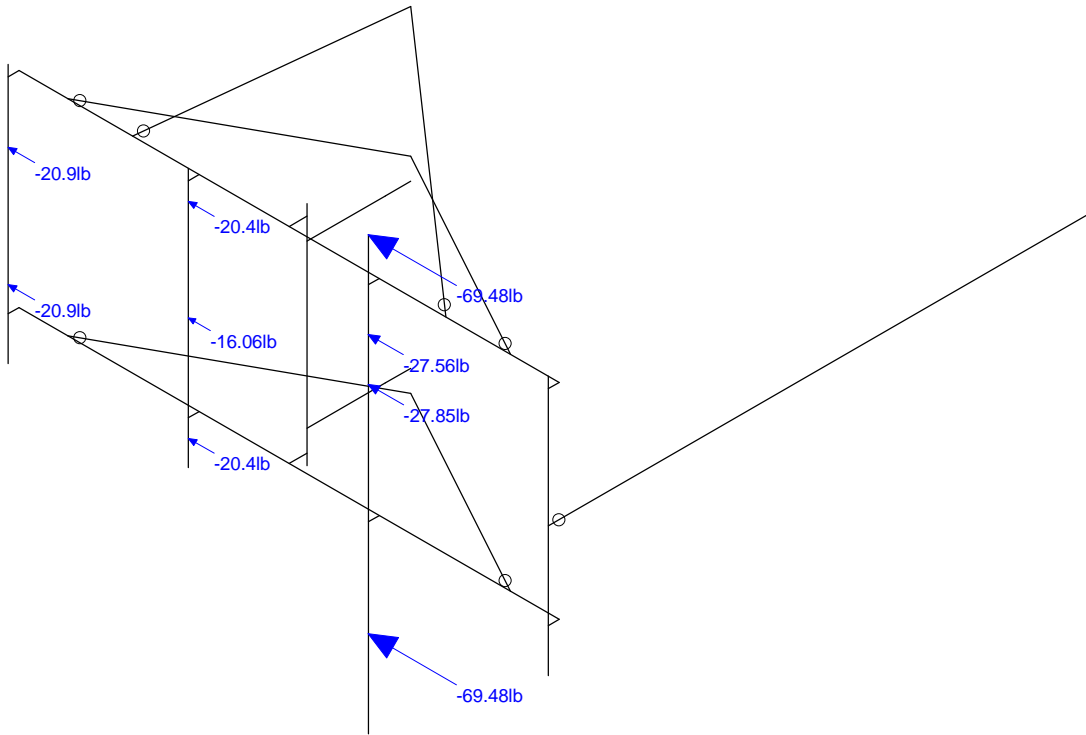
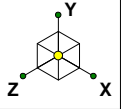
Apr 27, 2021 at 10:03 AM

CT11402A_MA_Modified.r3d



Loads: BLC 10, Ice + Wind 0

Centerline Communcation...		Ice + Wind 0
AP	CT11402A_MA	Apr 27, 2021 at 10:03 AM
		CT11402A_MA_Modified.r3d



Loads: BLC 13, Ice + Wind 90

Centerline Communcation...

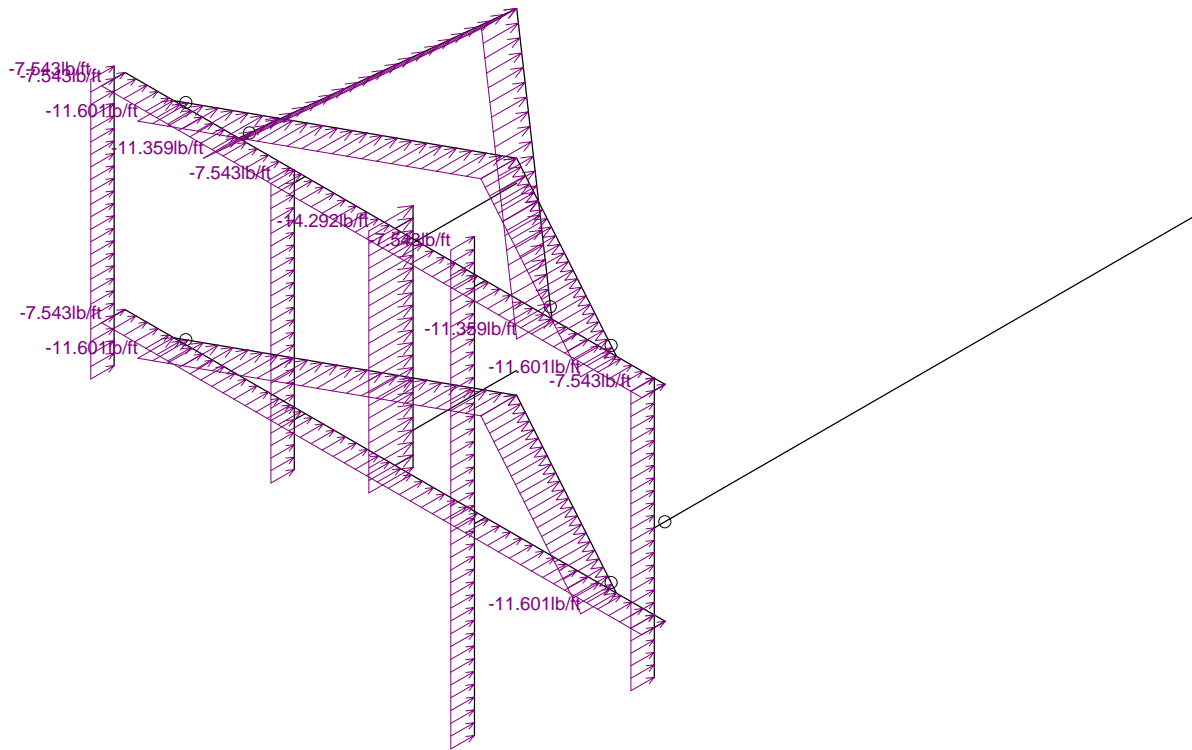
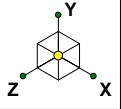
AP

CT11402A_MA

Ice + Wind 90

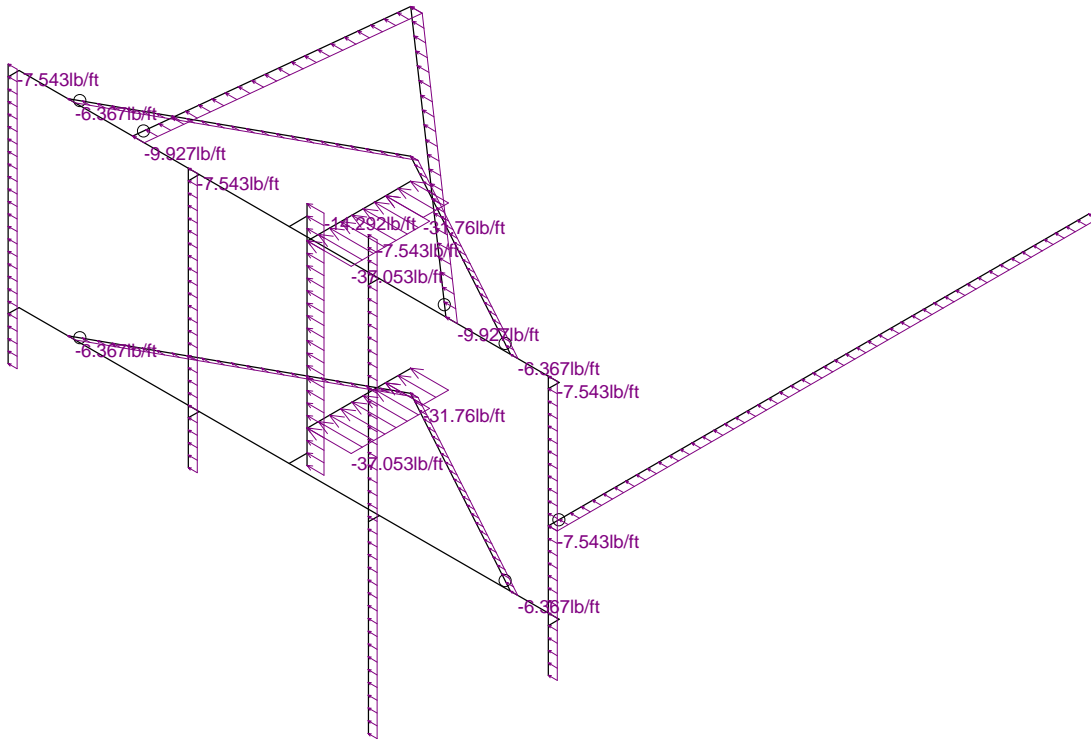
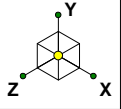
Apr 27, 2021 at 10:03 AM

CT11402A_MA_Modified.r3d



Loads: BLC 17, Distri. Wind Z

Centerline Communcation...		Distr. Wind 0
AP	CT11402A_MA	Apr 27, 2021 at 10:04 AM
		CT11402A_MA_Modified.r3d



Loads: BLC 18, Distri. Wind X

Centerline Communcation...

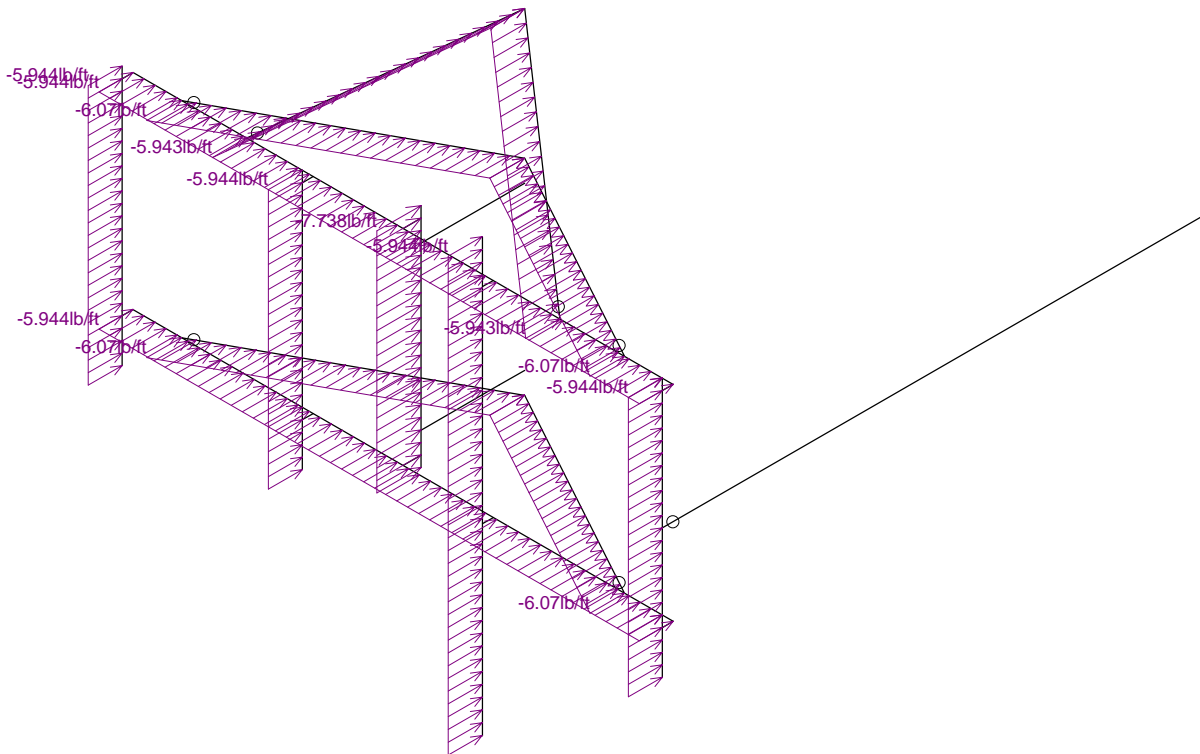
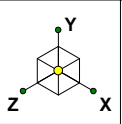
AP

CT11402A_MA

Distr. Wind 90

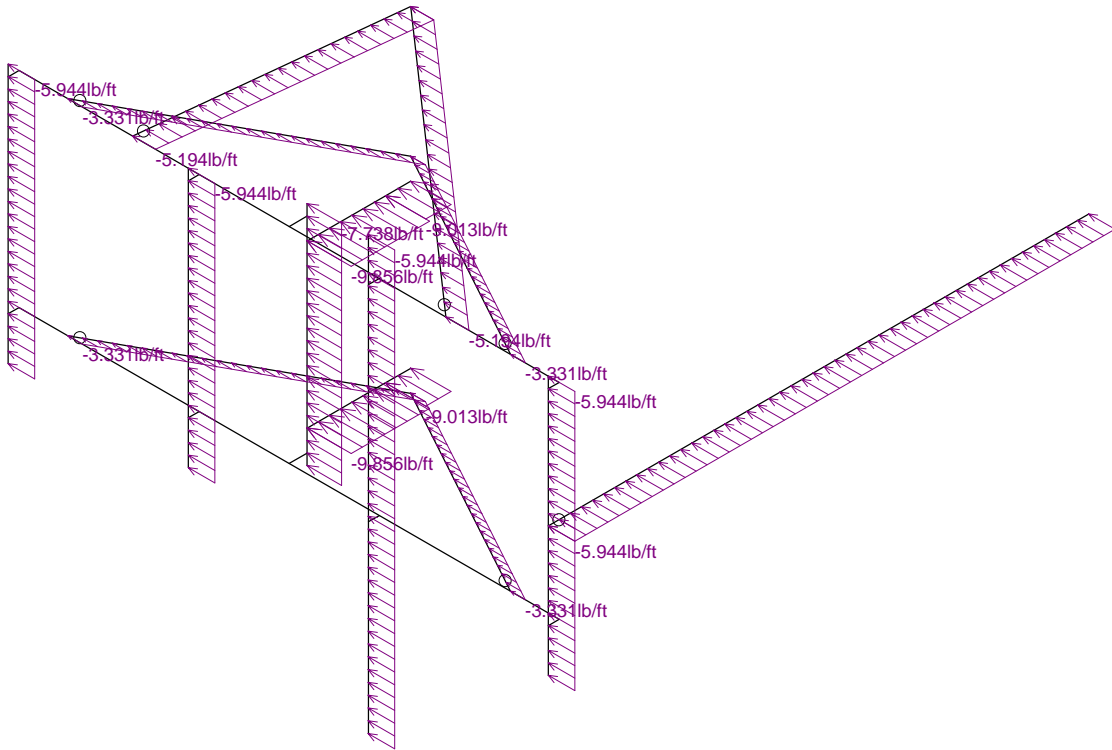
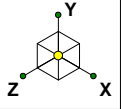
Apr 27, 2021 at 10:04 AM

CT11402A_MA_Modified.r3d



Loads: BLC 19, Distri. Ice + Wind Z

Centerline Communcation...		Distr. Ice + Wind 0
AP	CT11402A_MA	Apr 27, 2021 at 10:04 AM
		CT11402A_MA_Modified.r3d



Loads: BLC 20, Distr. Ice + Wind X

Centerline Communcation...

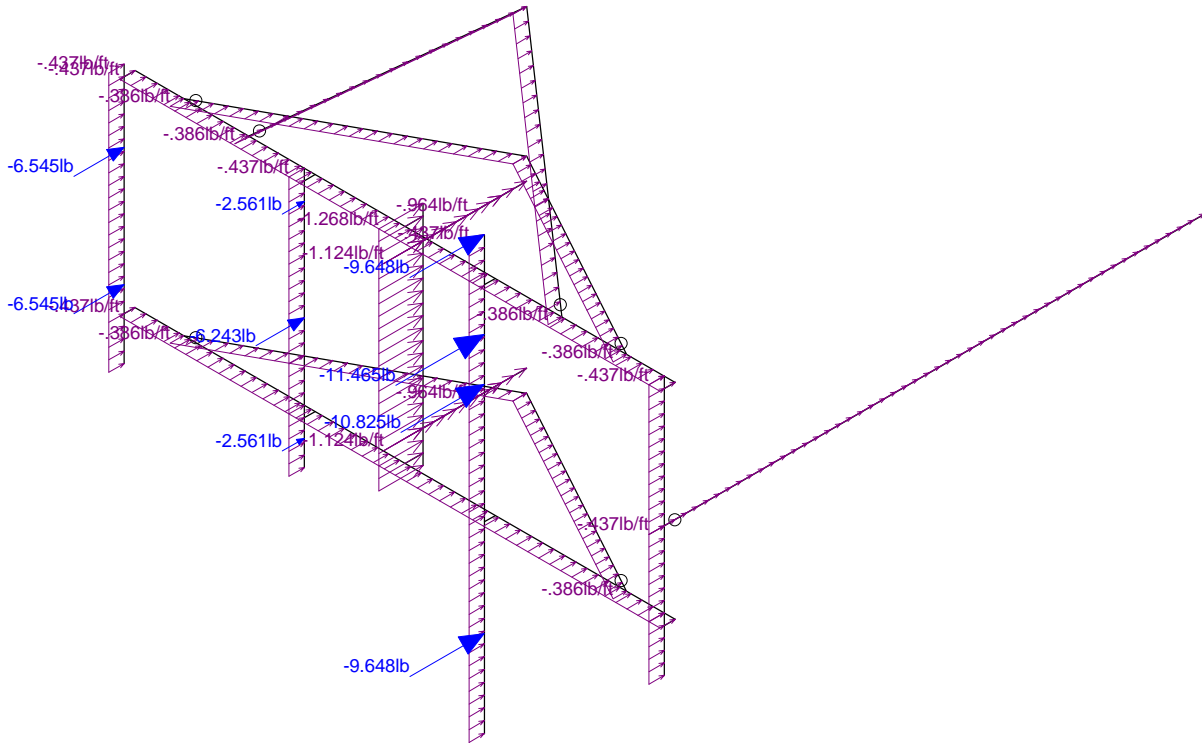
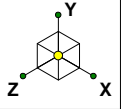
AP

CT11402A_MA

Distr. Ice + Wind 90

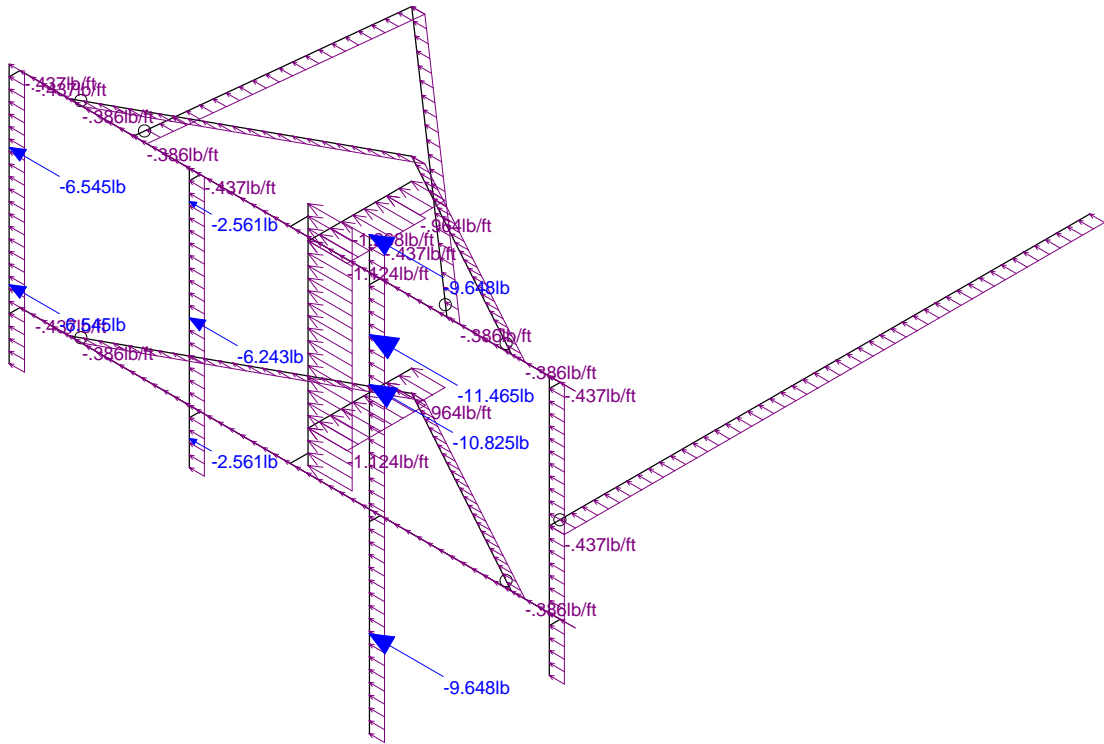
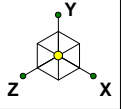
Apr 27, 2021 at 10:05 AM

CT11402A_MA_Modified.r3d



Loads: BLC 21, Seismic Load Z

Centerline Communcation...		Seismic Z
AP	CT11402A_MA	Apr 27, 2021 at 10:05 AM
		CT11402A_MA_Modified.r3d



Loads: BLC 22, Seismic Load X

Centerline Communcation...

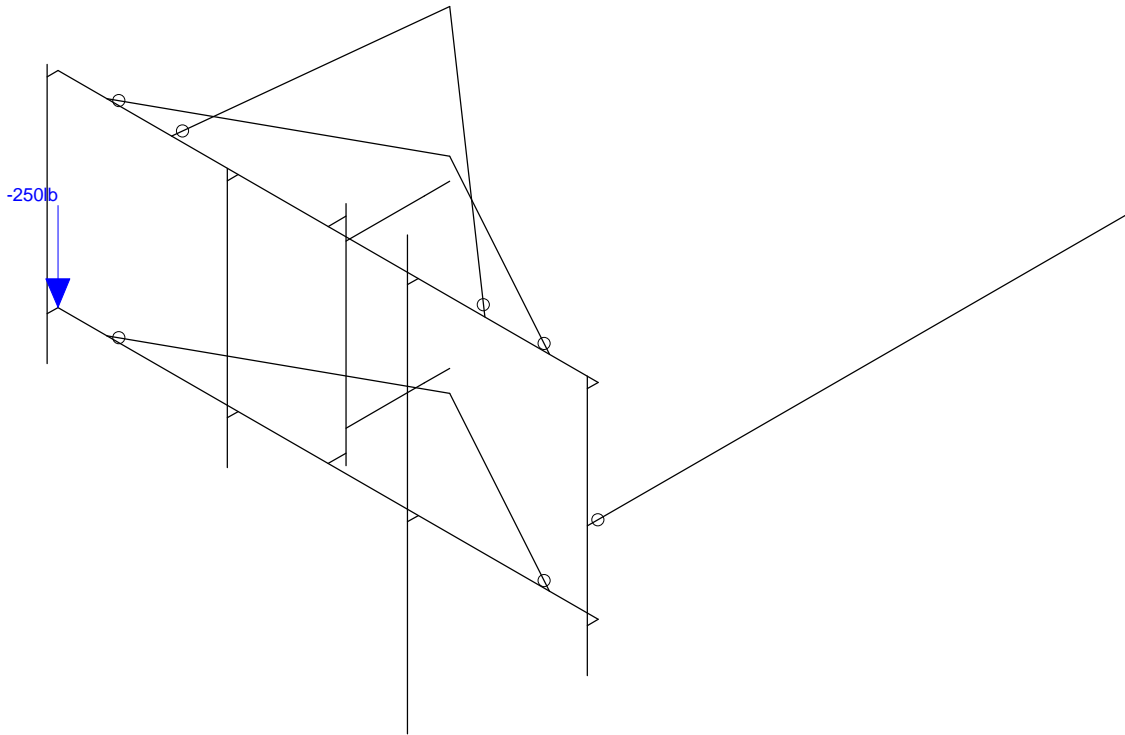
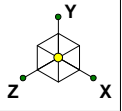
AP

CT11402A_MA

Seismic X

Apr 27, 2021 at 10:05 AM

CT11402A_MA_Modified.r3d



Loads: BLC 23, Live Load 1

Centerline Communcation...

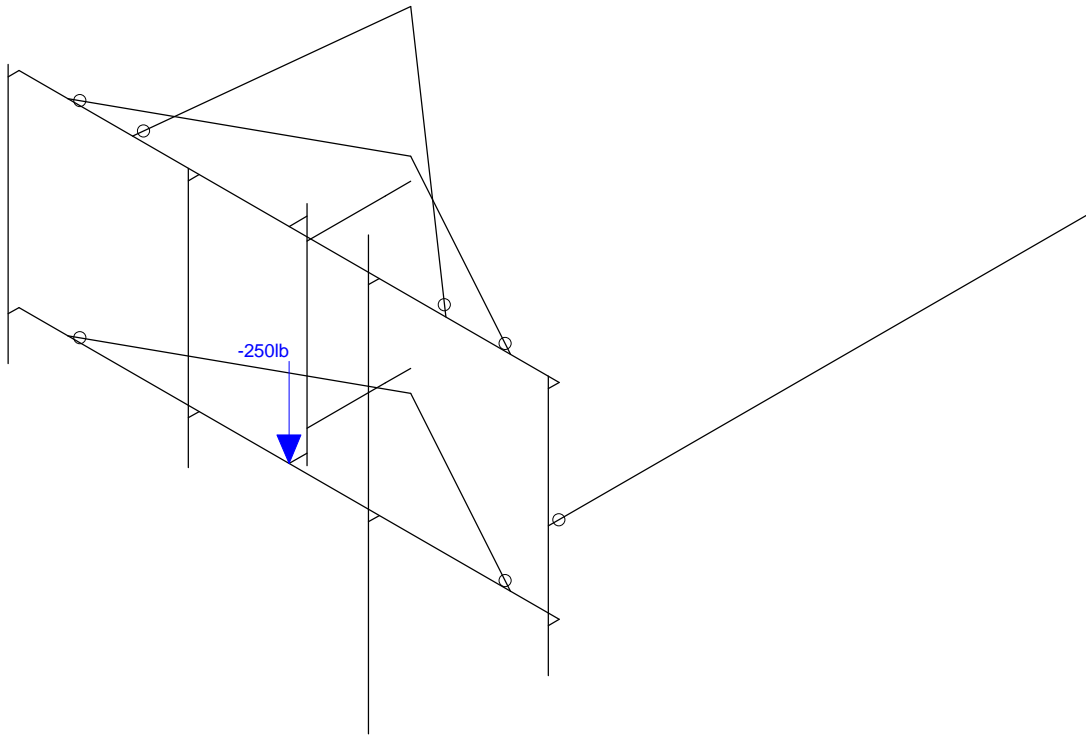
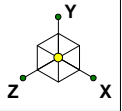
AP

CT11402A_MA

Live Load 1

Apr 27, 2021 at 10:05 AM

CT11402A_MA_Modified.r3d



Loads: BLC 24, Live Load 2

Centerline Communcation...

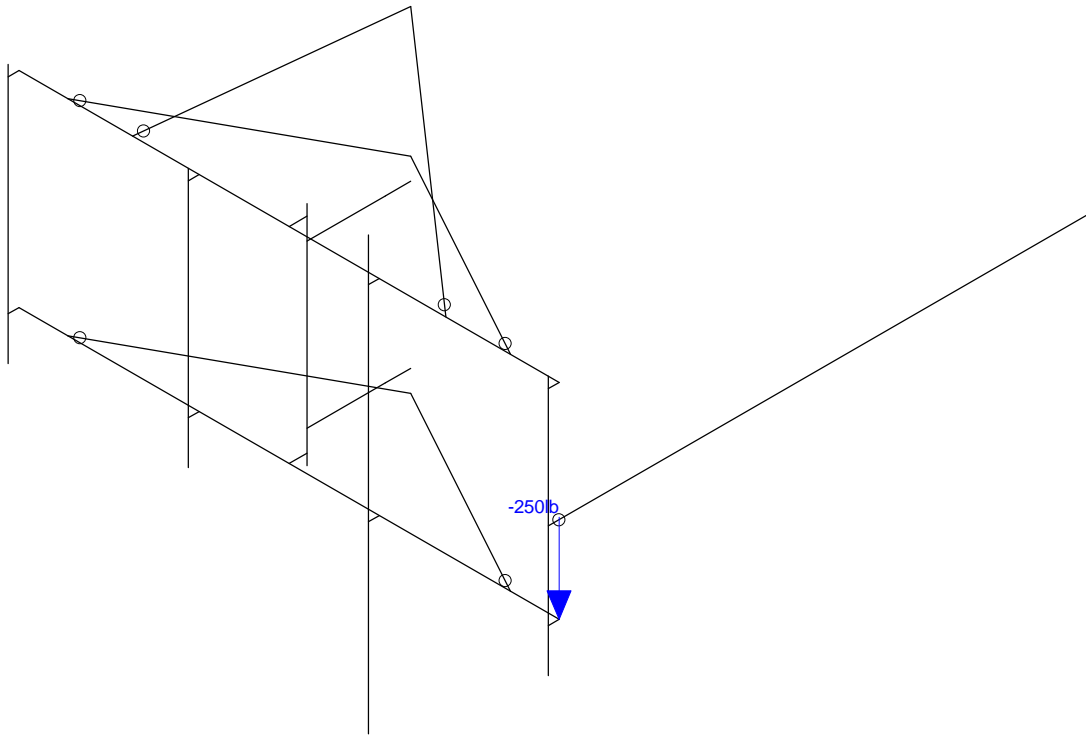
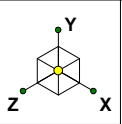
AP

CT11402A_MA

Live Load 2

Apr 27, 2021 at 10:05 AM

CT11402A_MA_Modified.r3d



Loads: BLC 25, Live Load 3

Centerline Communcation...

AP

CT11402A_MA

Live Load 3

Apr 27, 2021 at 10:05 AM

CT11402A_MA_Modified.r3d

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/...	Density[lb/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	490	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	490	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	490	65	1.1	80	1.1

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Horizontal	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Mount Pipe	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Standoff Mast	PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
4	Standoff Plate	PL7x3/8	Beam	RECT	A36 Gr.36	Typical	2.625	.031	10.719	.119
5	Standoff End Plate	PL6x3/8	Beam	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101
6	Tieback	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	SFS-L	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	150	0	0	0	
3	N3	0	57	0	0	
4	N4	150	57	0	0	
5	N5	0	0	3	0	
6	N6	0	57	3	0	
7	N7	50	0	0	0	
8	N8	50	57	0	0	
9	N9	50	0	3	0	
10	N10	50	57	3	0	
11	N11	100	0	0	0	
12	N12	100	57	0	0	
13	N13	100	0	3	0	
14	N14	100	57	3	0	
15	N17	150	0	3	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
16	N18	150	57	3	0	
17	N17A	0	60	3	0	
18	N18A	50	60	3	0	
19	N19	150	60	3	0	
20	N20	0	-12	3	0	
21	N21	50	-12	3	0	
22	N22	150	-12	3	0	
23	N23	100	69	3	0	
24	N24	100	-51	3	0	
25	N25	75	0	0	0	
26	N26	150	24	3	0	
27	N27	75	57	0	0	
28	N28	75	0	-5	0	
29	N29	75	57	-5	0	
30	N30	75	60	-5	0	
31	N31	75	-3	-5	0	
32	N32	75	51	-5	0	
33	N33	75	6	-5	0	
34	N34	75	51	-26.75	0	
35	N35	75	6	-26.75	0	
36	N36	75	51	-33.75	0	
37	N37	75	6	-33.75	0	
38	N38	150	24	-147	0	
39	N39	75	57	-33.75	0	
40	N40	13.5	57	0	0	
41	N41	136.5	57	0	0	
42	N50	31.5	57	0	0	
43	N51	118.5	57	0	0	
44	N52	75	93	-33.75	0	
45	N45	75	0	-33.75	0	
46	N46	13.5	0	0	0	
47	N47	136.5	0	0	0	

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N38	max	76.208	5	110.548	20	3.84	15	0	78	0	78	0	78
2		min	-.001	8	19.5	14	-833.385	12	0	1	0	1	0	1
3	N36	max	146.144	10	146.697	16	1494.045	16	-17.967	14	0	78	2.269	51
4		min	-139.317	8	20.497	14	-392.307	15	-158.211	16	0	1	-2.075	42

Envelope Joint Reactions (Continued)

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
5	N37	max	193.758	2	163.563	22	962.988	2	-24.418	13	0	78	2.064	51
6		min	-184.123	15	29.061	13	-932.935	15	-158.409	16	0	1	-2.258	40
7	N39	max	928.981	12	110.596	22	2146.171	17	0	78	0	78	0	78
8		min	-506.333	37	14.014	10	-353.376	15	0	1	0	1	0	1
9	N52	max	617.027	38	3535.432	18	-564.866	9	0	78	0	78	0	78
10		min	-605.903	57	727.394	9	-3198.519	21	0	1	0	1	0	1
11	N45	max	1085.453	5	123.17	22	1071.304	3	0	78	0	78	0	78
12		min	-149.78	9	13.947	10	-876.341	15	0	1	0	1	0	1
13	Totals:	max	2186.65	12	4173.491	20	3337.276	2						
14		min	-.006	2	856.372	9	-3337.259	15						

Joint Boundary Conditions

Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N38	Reaction	Reaction	Reaction		
2	N36	Reaction	Reaction	Reaction	Reaction	Reaction
3	N37	Reaction	Reaction	Reaction	Reaction	Reaction
4	N39	Reaction	Reaction	Reaction		
5	N52	Reaction	Reaction	Reaction		
6	N45	Reaction	Reaction	Reaction		

Hot Rolled Steel Design Parameters

Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	Horizontal	150			Lbyy					Lateral
2	M2	Horizontal	150			Lbyy					Lateral
3	MP4	Mount Pipe	72			Lbyy					Lateral
4	MP3	Mount Pipe	72			Lbyy					Lateral
5	MP1	Mount Pipe	72			Lbyy					Lateral
6	MP2	Mount Pipe	120			Lbyy					Lateral
7	M17	Standoff Ma...	63			Lbyy					Lateral
8	M18	Standoff Pla...	21.75			Lbyy					Lateral
9	M19	Standoff Pla...	21.75			Lbyy					Lateral
10	M20	Standoff En...	7			Lbyy					Lateral
11	M21	Standoff En...	7			Lbyy					Lateral
12	M22	Tieback	150			Lbyy					Lateral
13	M23	SFS-L	70.152			Lbyy					Lateral
14	M24	SFS-L	70.152			Lbyy					Lateral
15	M30	SFS-L	65.782			Lbyy					Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
16	M31	SFS-L	65.782			Lbyy						Lateral
17	M27	SFS-L	70.152			Lbyy						Lateral
18	M28	SFS-L	70.152			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N4			Horizontal	Beam	Pipe	A53 Gr.B	Typical
2	M2	N1	N2			Horizontal	Beam	Pipe	A53 Gr.B	Typical
3	M3	N6	N3			RIGID	None	None	RIGID	Typical
4	M4	N5	N1			RIGID	None	None	RIGID	Typical
5	M5	N10	N8			RIGID	None	None	RIGID	Typical
6	M6	N9	N7			RIGID	None	None	RIGID	Typical
7	M7	N14	N12			RIGID	None	None	RIGID	Typical
8	M8	N13	N11			RIGID	None	None	RIGID	Typical
9	M9	N18	N4			RIGID	None	None	RIGID	Typical
10	M10	N17	N2			RIGID	None	None	RIGID	Typical
11	MP4	N17A	N20			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
12	MP3	N18A	N21			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
13	MP1	N19	N22			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
14	MP2	N23	N24			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
15	M15	N27	N29			RIGID	None	None	RIGID	Typical
16	M16	N25	N28			RIGID	None	None	RIGID	Typical
17	M17	N30	N31			Standoff Mast	Beam	Pipe	A53 Gr.B	Typical
18	M18	N32	N34		90	Standoff Plate	Beam	RECT	A36 Gr.36	Typical
19	M19	N33	N35		90	Standoff Plate	Beam	RECT	A36 Gr.36	Typical
20	M20	N34	N36		90	Standoff End ...	Beam	RECT	A36 Gr.36	Typical
21	M21	N35	N37		90	Standoff End ...	Beam	RECT	A36 Gr.36	Typical
22	M22	N26	N38			Tieback	Beam	Pipe	A53 Gr.B	Typical
23	M23	N40	N39			SFS-L	Beam	Single Angle	A36 Gr.36	Typical
24	M24	N41	N39			SFS-L	Beam	Single Angle	A36 Gr.36	Typical
25	M30	N50	N52			SFS-L	Beam	Single Angle	A36 Gr.36	Typical
26	M31	N51	N52			SFS-L	Beam	Single Angle	A36 Gr.36	Typical
27	M27	N46	N45			SFS-L	Beam	Single Angle	A36 Gr.36	Typical
28	M28	N47	N45			SFS-L	Beam	Single Angle	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2						Yes				None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	MP4						Yes				None
12	MP3						Yes				None
13	MP1						Yes	Default			None
14	MP2						Yes				None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes				None
18	M18						Yes				None
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes				None
22	M22	BenPIN					Yes	Default			None
23	M23	BenPIN					Yes	Default			None
24	M24	BenPIN					Yes	Default			None
25	M30	BenPIN					Yes	Default			None
26	M31	BenPIN					Yes	Default			None
27	M27	BenPIN					Yes	Default			None
28	M28	BenPIN					Yes	Default			None

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Dead Load	DL		-1			9		
2	Wind 0	WLZ					18		
3	Wind 30	None					18		
4	Wind 60	None					18		
5	Wind 90	WLX					18		
6	Wind 120	None					18		
7	Wind 150	None					18		



Company : Centerline Communcations, LLC
 Designer : AP
 Job Number :
 Model Name : CT11402A_MA

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 10:06 AM
 Checked By: JG

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
8	Wind 180	WLZ					18		
9	Ice Weight	DL					9	28	
10	Ice + Wind 0	WLZ					18		
11	Ice + Wind 30	None					18		
12	Ice + Wind 60	None					18		
13	Ice + Wind 90	WLX					18		
14	Ice + Wind 120	None					18		
15	Ice + Wind 150	None					18		
16	Ice + Wind 180	WLZ					18		
17	Distri. Wind Z	WLZ						28	
18	Distri. Wind X	WLX						28	
19	Distri. Ice + Wind Z	WLZ						28	
20	Distr. Ice + Wind X	WLX						28	
21	Seismic Load Z	ELZ					9	28	
22	Seismic Load X	ELX					9	28	
23	Live Load 1	LL					1		
24	Live Load 2	LL					1		
25	Live Load 3	LL					1		

Load Combinations

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	
1	1.4D	Yes	Y		1	1.4																	
2	1.2D + 1.6W 0°	Yes	Y		1	1.2	2	1.6	17	1.6	18												
3	1.2D + 1.6W 30°	Yes	Y		1	1.2	3	1.6	17	1.3...	18	.8											
4	1.2D + 1.6W 60°	Yes	Y		1	1.2	4	1.6	17	.8	18	1.3...											
5	1.2D + 1.6W 90°	Yes	Y		1	1.2	5	1.6	17		18	1.6											
6	1.2D + 1.6W 120°	Yes	Y		1	1.2	6	1.6	17	-.8	18	1.3...											
7	1.2D + 1.6W 150°	Yes	Y		1	1.2	7	1.6	17	-1....	18	.8											
8	1.2D + 1.6W 180°	Yes	Y		1	1.2	8	1.6	17	-1.6	18												
9	0.9D + 1.6W 0°	Yes	Y		1	.9	2	1.6	17	1.6	18												
10	0.9D + 1.6W 30°	Yes	Y		1	.9	3	1.6	17	1.3...	18	.8											
11	0.9D + 1.6W 60°	Yes	Y		1	.9	4	1.6	17	.8	18	1.3...											
12	0.9D + 1.6W 90°	Yes	Y		1	.9	5	1.6	17		18	1.6											
13	0.9D + 1.6W 120°	Yes	Y		1	.9	6	1.6	17	-.8	18	1.3...											
14	0.9D + 1.6W 150°	Yes	Y		1	.9	7	1.6	17	-1....	18	.8											
15	0.9D + 1.6W 180°	Yes	Y		1	.9	8	1.6	17	-1.6	18												
16	1.2D + 1.0Di + 1.0Wi 0°	Yes	Y		1	1.2	9	1	10	1	19	1	20										
17	1.2D + 1.0Di + 1.0Wi 3...	Yes	Y		1	1.2	9	1	11	1	19	.866	20	.5									
18	1.2D + 1.0Di + 1.0Wi 6...	Yes	Y		1	1.2	9	1	12	1	19	.5	20	.866									



Company : Centerline Communcations, LLC
 Designer : AP
 Job Number :
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Load Combinations (Continued)

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	
59	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	23	1	3	.096	17	.083	18	.048									
60	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	23	1	4	.096	17	.048	18	.083									
61	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	23	1	5	.096	17		18	.096									
62	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	23	1	6	.096	17	-.048	18	.083									
63	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	23	1	7	.096	17	-.083	18	.048									
64	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	23	1	8	.096	17	-.096	18										
65	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	24	1	2	.096	17	.096	18										
66	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	24	1	3	.096	17	.083	18	.048									
67	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	24	1	4	.096	17	.048	18	.083									
68	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	24	1	5	.096	17		18	.096									
69	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	24	1	6	.096	17	-.048	18	.083									
70	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	24	1	7	.096	17	-.083	18	.048									
71	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	24	1	8	.096	17	-.096	18										
72	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	25	1	2	.096	17	.096	18										
73	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	25	1	3	.096	17	.083	18	.048									
74	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	25	1	4	.096	17	.048	18	.083									
75	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	25	1	5	.096	17		18	.096									
76	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	25	1	6	.096	17	-.048	18	.083									
77	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	25	1	7	.096	17	-.083	18	.048									
78	1.2D + 1.0Lv + 1.0W (...)	Yes	Y		1	1.2	25	1	8	.096	17	-.096	18										

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*M...	Eqn	
1	M1	PIPE_2.0	.851	118.75	16	.240	100	21	6295....	32130	1871....	1871....	H1-1b	
2	MP2	PIPE_2.0	.651	70	9	.088	12.5	20	9836....	32130	1871....	1871....	H1-1b	
3	M2	PIPE_2.0	.585	75	15	.314	75	8	6295....	32130	1871....	1871....	H3-6	
4	MP1	PIPE_2.0	.459	36	5	.104	36	20	20866...	32130	1871....	1871....	H1-1b	
5	M24	L2.5x2.5...	.354	35.807	18	.021	70.1...	y	16	9608....	29192..	872.5...	1601....	H2-1
6	M23	L2.5x2.5...	.334	34.345	16	.022	70.1...	y	22	9608....	29192..	872.5...	1584....	H2-1
7	M20	PL6x3/8	.291	7	16	.007	0	y	51	58397..	72900	569.5...	9112.5 ...	H1-1b
8	M21	PL6x3/8	.281	7	16	.009	0	y	51	58397..	72900	569.5...	9112.5 ...	H1-1b
9	MP3	PIPE_2.0	.275	3	22	.079	60	19	20866...	32130	1871....	1871....	H1-1b	
10	M18	PL7x3/8	.262	0	16	.007	0	y	14	14690..	85050	664.4...	12403....	H1-1b
11	MP4	PIPE_2.0	.239	3	41	.087	60	16	20866...	32130	1871....	1871....	H1-1b	
12	M19	PL7x3/8	.229	0	16	.010	0	y	13	14690..	85050	664.4...	12403....	H1-1b
13	M28	L2.5x2.5...	.207	70.152	3	.027	70.1...	y	20	9608....	29192..	872.5...	1837....	H2-1
14	M22	PIPE_2.0	.198	75	19	.012	150	19	6295....	32130	1871....	1871....	H1-1b	
15	M30	L2.5x2.5...	.193	32.206	16	.007	65.7...	y	16	10927..	29192..	872.5...	1748....	H2-1
16	M31	L2.5x2.5...	.183	29.465	18	.013	65.7...	z	7	10927..	29192..	872.5...	1617....	H2-1



Company : Centerline Communcations, LLC
 Designer : AP
 Job Number :
 Model Name : CT11402A_MA

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*M.....	Eqn	
17	M27	L2.5x2.5...	.179	70.152	9	.026	70.1...	y	17	9608....	29192..	872.5...	1884....	H2-1
18	M17	PIPE_4.0	.069	54.469	7	.077	54.4...		2	85371..	93240	10631..	10631....	H1-1b