



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

September 15, 2020

Elizabeth Jamieson
Transcend Wireless
10 Industrial Avenue, Suite 3
Mahwah, NJ 07430

RE: **EM-T-MOBILE-015-200728** – T-Mobile notice of intent to modify an existing telecommunications facility located at 623 Pine Street, Bridgeport, Connecticut.

Dear Ms. Jamieson:

The Connecticut Siting Council (Council) is in receipt of your correspondence of September 10, 2020 submitted in response to the Council's September 9, 2020 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: ejamieson@transcendwireless.com <ejamieson@transcendwireless.com>
Sent: Thursday, September 10, 2020 4:13 PM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: RE: Council Incomplete Letter for EM-T-MOBILE-015-200728 (623 Pine Street, Bridgeport)

Hello

Attached is the updated Structural Analysis that you originally requested. I apologize this was not attached to my previous email.

Elizabeth

From: Robidoux, Evan <Evan.Robidoux@ct.gov>
Sent: Thursday, September 10, 2020 4:07 PM
To: 'EJamieson@TranscendWireless.com' <EJamieson@TranscendWireless.com>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: Council Incomplete Letter for EM-T-MOBILE-015-200728 (623 Pine Street, Bridgeport)

Please see the attached correspondence

STRUCTURAL ANALYSIS REPORT

for



Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, NJ 07430

Bridgeport (CT11014B)
KM No. 180416.02

250' Self-Support Tower
623 Pine Street
Bridgeport, CT 06605
41.16573, -73.21666

Prepared By:



KM CONSULTING ENGINEERS, INC.

262 Upper Ferry Road Ewing, NJ 08628
Ph: (609) 538-0400 www.kmengr.com

September 2, 2020

Prepared to ANSI/TIA-222-G-4 December 2014
Structural Standards for Antenna Supporting
Structures and Antennas

**Transcend Wireless
Bridgeport (CT11014B)**

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Load Case No. 1: Existing tower superstructure with existing inventory and proposed T-Mobile installation.

1.0 EXECUTIVE SUMMARY

Structure

Owner: Radio Communications Tower

Location: 623 Pine Street
Bridgeport, CT 06605
41.16573, -73.21666

Manufacturer: Rohn
Eng. File No. 37679AE dated 7/1/98

Equipment

Existing tower inventory plus the proposed installation are detailed in Section 2.0 "Tower Inventory."

Synopsis

Load Case No. 1: The existing tower superstructure with the current inventory and proposed T-Mobile installation.

The existing tower superstructure and base foundation have sufficient capacity and therefore meet the current ANSI/TIA-222-G design standards. The tower superstructure is rated at 98.9% and the foundation is rated at 67.1%.

2.0 TOWER INVENTORY

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
yaggi in radom	256	VHLP1-23-2WH (Clearwire)	121
Beacon	256	VHLP2.5-11-4WH (Clearwire)	121
Omni antenna	256	VFA6-RRU (Sprint)	118
Omni antenna	256	VFA6-RRU (Sprint)	118
Omni antenna	256	VFA6-RRU (Sprint)	118
Omni antenna	256 - 239	NNVV-65B-R4 (Sprint)	118
Top Platform	256	NNVV-65B-R4 (Sprint)	118
Omni antenna	248 - 238	NNVV-65B-R4 (Sprint)	118
mounting frames w/stable bar (T-Mobile)	180	2.5G MAA-AAHC(64T64R) (Sprint)	118
		2.5G MAA-AAHC(64T64R) (Sprint)	118
mounting frames w/stable bar (T-Mobile)	180	2.5G MAA-AAHC(64T64R) (Sprint)	118
		(2) 800 MHz RRH (Sprint)	118
mounting frames w/stable bar (T-Mobile)	180	(2) 800 MHz RRH (Sprint)	118
		(2) 800 MHz RRH (Sprint)	118
AIR 3246 B66 (T-Mobile)	180	1900 MHz RRH (Sprint)	118
AIR 3246 B66 (T-Mobile)	180	1900 MHz RRH (Sprint)	118
AIR 3246 B66 (T-Mobile)	180	1900 MHz RRH (Sprint)	118
APXVAARR24_43-U-NA20 (T-Mobile)	180	1900 MHz RRH (Sprint)	118
APXVAARR24_43-U-NA20 (T-Mobile)	180	B66 RRH 4x45 (Verizon)	110
APXVAARR24_43-U-NA20 (T-Mobile)	180	B66 RRH 4x45 (Verizon)	110
AIR6449 B41 (T-Mobile)	180	B66 RRH 4x45 (Verizon)	110
AIR6449 B41 (T-Mobile)	180	B25 RRH4x30 PCS (Verizon)	110
AIR6449 B41 (T-Mobile)	180	B25 RRH4x30 PCS (Verizon)	110
AIR6449 B41 (T-Mobile)	180	B25 RRH4x30 PCS (Verizon)	110
Radio 4449 B71/B85 (T-Mobile)	180	B13 RRH4x30-R (Verizon)	110
Radio 4449 B71/B85 (T-Mobile)	180	B13 RRH4x30-R (Verizon)	110
Radio 4449 B71/B85 (T-Mobile)	180	B13 RRH4x30-R (Verizon)	110
Radio 4424 B25 (T-Mobile)	180	Rohn 6'x15' Boom Gate (Verizon)	110
Radio 4424 B25 (T-Mobile)	180	Rohn 6'x15' Boom Gate (Verizon)	110
Radio 4424 B25 (T-Mobile)	180	(2) APL-866513-42T6 (Verizon)	110
Twin style 1B TMA (T-Mobile)	180	(2) APL-866513-42T9 (Verizon)	110
Twin style 1B TMA (T-Mobile)	180	Rohn 6'x15' Boom Gate (Verizon)	110
SBX1926Q-43 (T-Mobile)	180	JAHH-65B-R3B (Verizon)	110
SBX1926Q-43 (T-Mobile)	180	JAHH-65B-R3B (Verizon)	110
SBX1926Q-43 (T-Mobile)	180	JAHH-65B-R3B (Verizon)	110
(2) MetroPCS Antenna (MetroPCS)	138	Distribution Box (Verizon)	110
(2) MetroPCS Antenna (MetroPCS)	138	GPS antenna (Verizon)	110
(2) MetroPCS Antenna (MetroPCS)	138	Distribution Box (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	(2) APL-866513-42T9 (Verizon)	110
		(2) JAHH-65B-R3B on mount (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	(2) JAHH-65B-R3B on mount (Verizon)	110
		(2) JAHH-65B-R3B on mount (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	TV 65 antenna	100
		4' Side Arm	100
VHLP1-23-2WH (Clearwire)	121	TV 65 antenna	100

Proposed T-Mobile Installation:

- * (3) AIR6449 B41 panel antennas @ 180' AGL
- * (3) Radio 4424 B25's @ 180' AGL
- * (3) SBX1926Q-43 diplexers @ 180' AGL
- * (3) 6x12 hybrid cables up to 180' AGL
- * removal of (3) AIR 21 B2A/B4P panel antennas @ 180' AGL
- * removal of (3) RRUS 32 B2's @ 180' AGL
- * removal of (6) 1-5/8" coax lines up to 180' AGL

3.0 COMMENTARY

Our scope of work is to determine if the existing structure is capable of withstanding the additional stresses/forces imposed by the installation of the proposed T-Mobile equipment noted in the tower inventory. The tower is a 250' tall Rohn self-support tower with a triangular platform located at the top.

Tower member sizes, layout and foundation information was taken from previous structural analysis by KM Consulting Engineers, Inc. (KMCE) dated 1/21/19. Existing antenna inventory and coax cable layout was also taken from the above mentioned analysis. Proposed equipment was obtained from a draft T-Mobile RFDS dated 6/2/20 and by correspondence with the client.

The following report will provide analytical calculations and commentary regarding the capacity of the proposed tower and subsequent recommendations.

4.0 ANALYSIS PROCEDURE

KM Consulting Engineers, Inc. carried out their structural analysis by correlating field inspection and tower member data into proprietary software designed specifically for communication tower analysis.

These programs run in conjunction with the guidelines set down in the ANSI/TIA-222-G Standard entitled "Structural Standards for Antenna Supporting Structures and Antennas."

The existing tower is analyzed by placing wind forces on the structure in 30° positional increments around the tower (i.e. wind pressure directly onto the tower corners, faces and parallel to the faces). This enables the user to "create" a three-dimensional representation, yielding results for worst case scenarios. In effect, the production of these results allows the user to study the structural integrity of the tower when influenced by wind forces from any direction.

The proceeding report includes analysis for the tower with the addition of antennas in the scenarios stated. For clarity, the analysis shall include worst case loadings and a typical elevation view with maximum foundation loads tabulated.

Should the client require to be furnished with a full copy of our analysis, we will gladly do so.

Codes and Standards

ACI - American Concrete Institute - Building Code Requirements for Structural Concrete (ACI 318-14), 2014

AISC - American Institute of Steel Construction - Manual of Steel Construction, 14th edition, 2011

TIA - Telecommunications Industry Association – ANSI/TIA-222-G-4 Structural Standards for Antenna Supporting Structures and Antennas, 2014

CSBC - Connecticut State Building Code 2018

5.0 TOWER ANALYSIS RESULTS

The tower was analyzed for the inventory detailed in Section 2.0 “Tower Inventory”.

The basic wind speed of 97 MPH with no radial ice in accordance with ANSI/TIA-222-G is taken from Appendix N in the 2018 Connecticut State Building Code for the nominal design wind speed for the municipality of Bridgeport, CT. The basic wind speed of 50 MPH concurrent with ¾” design ice thickness is taken from the ANSI/TIA-222-G listing applicable for Fairfield County, CT. Additional criteria include Structure Class II, Exposure Category C, and Topographic Category 1.

Load Case No. 1: Existing inventory and the proposed T-Mobile installation includes the additions of (3) existing AIR6449 B41 panel antennas, (3) Radio 4424 B25’s, (3) SBX1926Q-43 diplexers, and (3) 6x12 hybrid cables, and the removal of (3) AIR 21 B2A/B4P panel antennas, (3) RRUS 32 B2’s, and (6) 1-5/8” coax lines.

The existing tower superstructure and base foundation have sufficient capacity and therefore meet the current ANSI/TIA-222-G design standards. The tower superstructure is rated at 98.9% and the foundation is rated at 67.1%.

Table 1. Base Foundation Rating

Force	Actual (kip-ft)	Allowable (kip-ft)	Capacity
Overturning Moment	11,744	17,504	67.1%

6.0 RECOMMENDATIONS

Further to our calculations, we conclude that the existing tower superstructure and base foundation have adequate capacity and therefore meet the current ANSI/TIA-222-G design standards. The tower and foundation are acceptable to support the proposed T-Mobile installation.

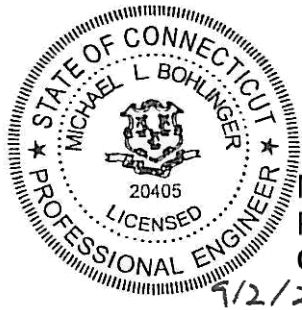
Please do not hesitate to contact our office with any questions or concerns regarding this report.

Sincerely,
KM CONSULTING ENGINEERS, INC.

Reviewed and Approved by:



Domenic Aversa, PE
Project Manager

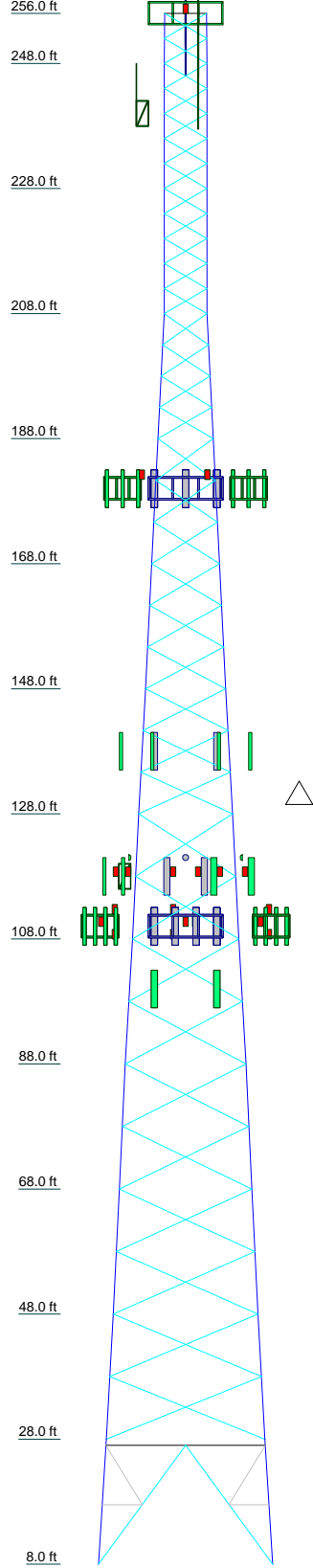


Michael L. Bohlinger, PE
Principal
CT License No. 20405

7.0 APPENDIX

LOAD CASE 1

Section	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs			P10x.5		ROHN 8 EH	ROHN 8 EHS	A572-50	ROHN 6 EH	ROHN 5 EH	ROHN 4 EH	ROHN 4 EH	ROHN 3 EH	A
Leg Grade					L4x4x0.31	L4x4x3/8	A572-50	L3x3x1/4	L2x2x1/4	L2x2x1/4			B
Diagonals	ROHN 3 STD		L5x5x3/8										C
Diagonal Grade													
Top Girts	ROHN 3 STD												
Red. Horizontals	ROHN 1.5 STD												
Red. Diagonals	ROHN 1.5 STD												
Red. Hips	ROHN 1.5 STD												
Inner Bracing	ROHN 3 STD												
Face Width (ft)	25.333	23.229	21.25	19.25	17.0833	14.988	12.916	10.916	8.916	6.833	4 @ 5	12 @ 4	6.9
# Panels @ (ft)	1 @ 19			10 @ 10				9 @ 6.66667					6.604
Weight (lb)	49211.9	7164.6	6897.4	6622.3	4629.8	4196.6	3063.2	2623.5	2090.2	1865.2	1660.8	1379.5	479.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
yaggi in radom	256	VHLP1-23-2WH (Clearwire)	121
Beacon	256	VHLP2.5-11-4WH (Clearwire)	121
Omni antenna	256	VFA6-RRU (Sprint)	118
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Omni antenna	256	VFA6-RRU (Sprint)	118
Omni antenna	256	VFA6-RRU (Sprint)	118
Omni antenna	256 - 239	NNVV-65B-R4 (Sprint)	118
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AIR 3246 B66 (T-Mobile)	180	(2) 800 MHz RRH (Sprint)	118
AIR 3246 B66 (T-Mobile)	180	1900 MHz RRH (Sprint)	118
AIR 3246 B66 (T-Mobile)	180	1900 MHz RRH (Sprint)	118
APXVAARR24_43-U-NA20 (T-Mobile)	180	1900 MHz RRH (Sprint)	118
APXVAARR24_43-U-NA20 (T-Mobile)	180	B66 RRH 4x45 (Verizon)	110
APXVAARR24_43-U-NA20 (T-Mobile)	180	B66 RRH 4x45 (Verizon)	110
AIR6449 B41 (T-Mobile)	180	B66 RRH 4x45 (Verizon)	110
AIR6449 B41 (T-Mobile)	180	B25 RRH4x30 PCS (Verizon)	110
AIR6449 B41 (T-Mobile)	180	B25 RRH4x30 PCS (Verizon)	110
Radio 4449 B71/B85 (T-Mobile)	180	B25 RRH4x30 PCS (Verizon)	110
Radio 4449 B71/B85 (T-Mobile)	180	B13 RRH4x30-R (Verizon)	110
Radio 4424 B25 (T-Mobile)	180	B13 RRH4x30-R (Verizon)	110
Radio 4424 B25 (T-Mobile)	180	B13 RRH4x30-R (Verizon)	110
Radio 4424 B25 (T-Mobile)	180	Rohn 6'x15' Boom Gate (Verizon)	110
Radio 4424 B25 (T-Mobile)	180	Rohn 6'x15' Boom Gate (Verizon)	110
Twin style 1B TMA (T-Mobile)	180	(2) APL-866513-42T6 (Verizon)	110
Twin style 1B TMA (T-Mobile)	180	(2) APL-866513-42T9 (Verizon)	110
Twin style 1B TMA (T-Mobile)	180	Rohn 6'x15' Boom Gate (Verizon)	110
SBX1926Q-43 (T-Mobile)	180	JAHH-65B-R3B (Verizon)	110
SBX1926Q-43 (T-Mobile)	180	JAHH-65B-R3B (Verizon)	110
SBX1926Q-43 (T-Mobile)	180	JAHH-65B-R3B (Verizon)	110
(2) MetroPCS Antenna (MetroPCS)	138	Distribution Box (Verizon)	110
(2) MetroPCS Antenna (MetroPCS)	138	GPS antenna (Verizon)	110
(2) MetroPCS Antenna (MetroPCS)	138	Distribution Box (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	(2) APL-866513-42T9 (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	(2) JAHH-65B-R3B on mount (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	(2) JAHH-65B-R3B on mount (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	(2) JAHH-65B-R3B on mount (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	TV 65 antenna	100
VHLP1-23-2WH (Clearwire)	121	4' Side Arm	100
		TV 65 antenna	100

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 3 STD	C	L3x3x1/4
B	L1 3/4x1 3/4x3/16		

MATERIAL STRENGTH

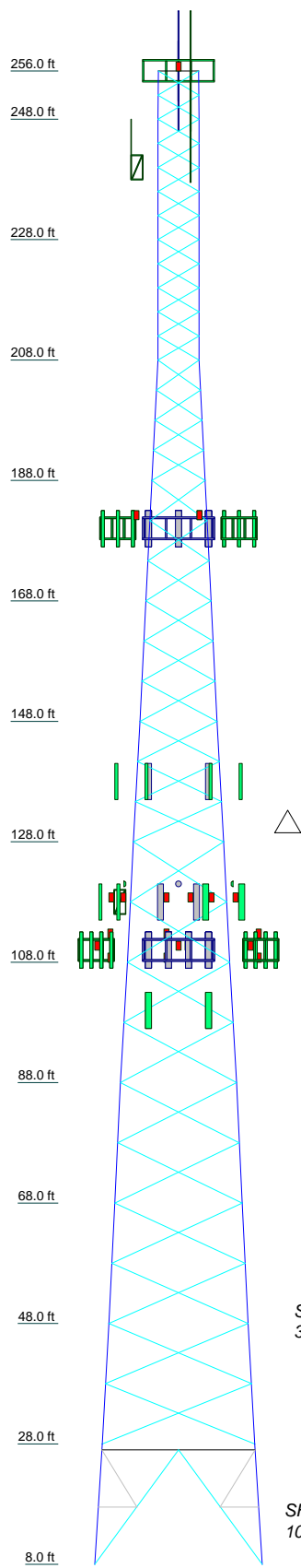
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			



KM Consulting Engineers, Inc.
 262 Upper Ferry Road
 Ewing, NJ 08628
 Phone: (609) 538-0400
 FAX:

Job: Bridgeport LC1		
Project: 250' Rohn Self Support Tower		
Client: Transcend Wireless	Drawn by: DCA	App'd:
Code: TIA-222-G	Date: 09/02/20	Scale: NTS
Path: K:\Transcend Wireless\Bridgeport\Engineering\Bridgeport LC1.eri		Dwg No. E-1

Section	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs			P10x.5		ROHN 8 EH	ROHN 8 EHS	A572-50	ROHN 6 EH	ROHN 5 EH	ROHN 4 EH	ROHN 3 EH		A
Leg Grade					L4x4x0.31	L4x4x3/8	A572-50	L3x3x1/4	L2 1/2x2 1/2x1/4	L2x2x1/4			B
Diagonals	ROHN 3 STD		L5x5x3/8				A572-50						C
Diagonal Grade													
Top Girts	ROHN 3 STD						N.A.						
Red. Horizontals	ROHN 1.5 STD						N.A.						
Red. Diagonals	ROHN 1.5 STD						N.A.						
Red. Hips	ROHN 1.5 STD						N.A.						
Inner Bracing	ROHN 3 STD						N.A.						
Face Width (ft)	27.8333	23.229	21.25	19.25	17.0833	14.988	12.916	10.916	8.916	6.833		6.9	6.604
# Panels @ (ft)	1 @ 19			10 @ 10				9 @ 6.66667		4 @ 5		12 @ 4	
Weight (lb)	49211.9	7164.6	6897.4	6622.3	4629.8	4195.6	3063.2	2623.5	2590.2	1965.2	1660.8	1379.5	479.2



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 3 STD	C	L3x3x1/4
B	L1 3/4x1 3/4x3/16		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

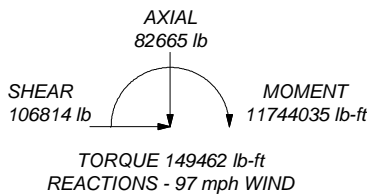
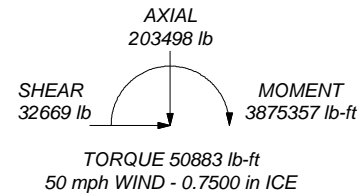
1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 98.9%


ALL REACTIONS
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 514770 lb
SHEAR: 63586 lb

UPLIFT: -442982 lb
SHEAR: 57626 lb

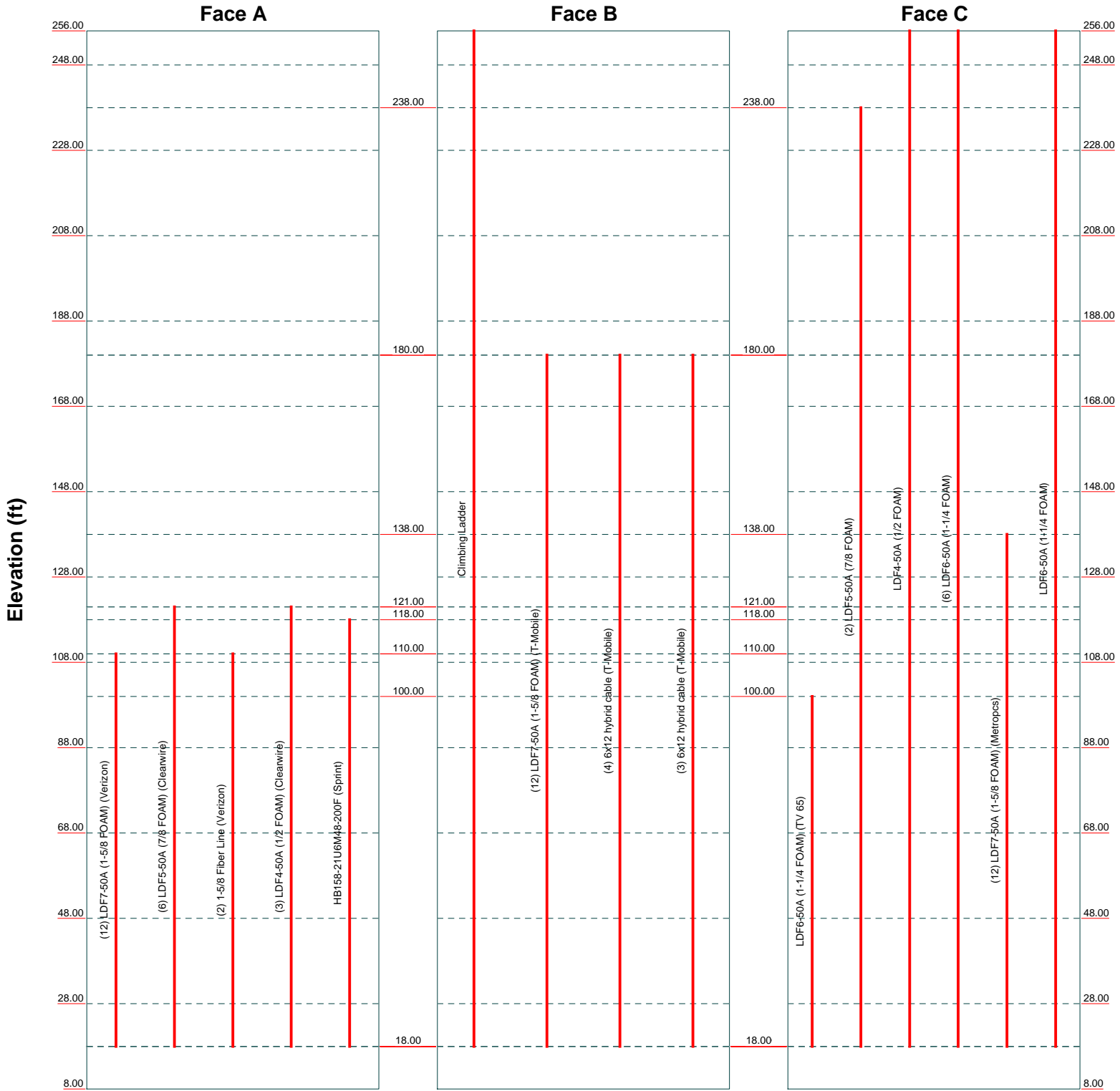


 Consulting Engineers	KM Consulting Engineers, Inc. 262 Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX:		Job: Bridgeport LC1		
	Project: 250' Rohn Self Support Tower				
	Client: Transcend Wireless		Drawn by: DCA	App'd:	
	Code: TIA-222-G		Date: 09/02/20	Scale: NTS	
	Path: K:\Transcend Wireless\Bridgeport\Engineering\Bridgeport LC1.eri			Dwg No. E-1	

Feed Line Distribution Chart

8' - 256'

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg

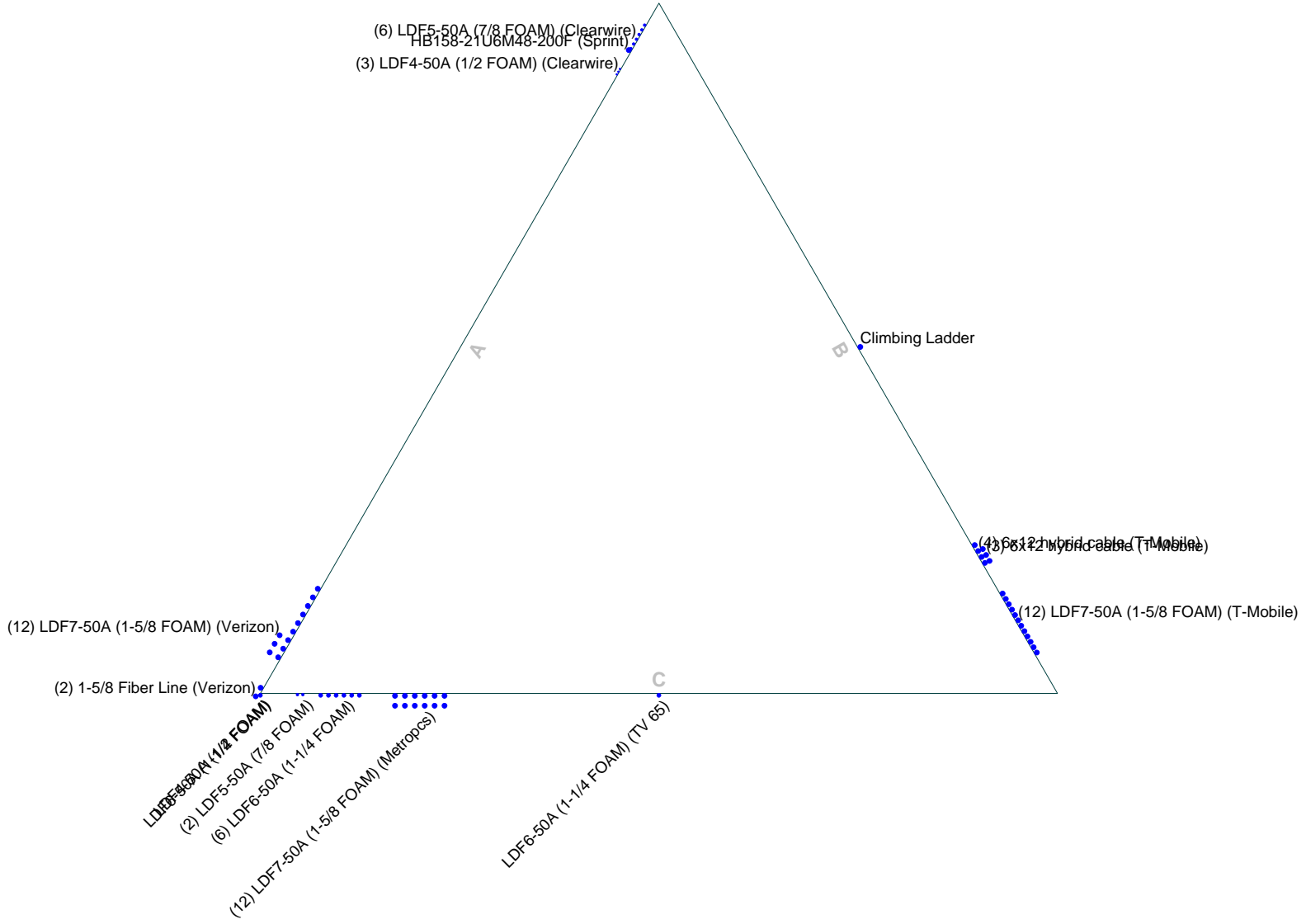


KM Consulting Engineers, Inc.
 262 Upper Ferry Road
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 FAX:

Job: Bridgeport LC1		
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Code: TIA-222-G	Date: 09/02/20	Scale: NTS
Path: K:\Transcend Wireless\Bridgeport\Engineering\Bridgeport LC1.eri		Dwg No. E-7

Feed Line Plan

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

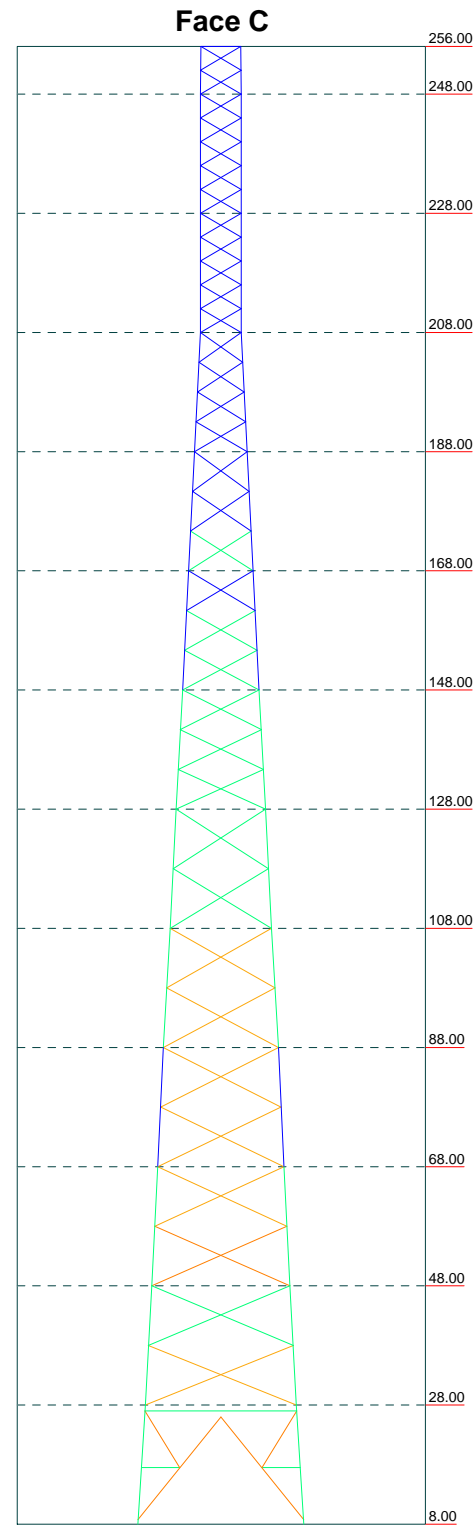
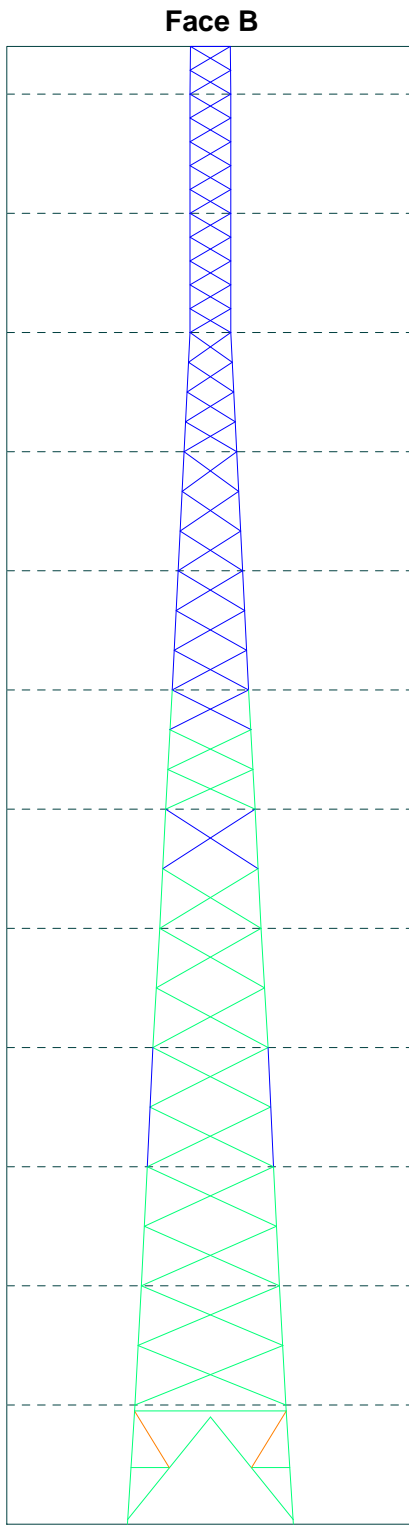
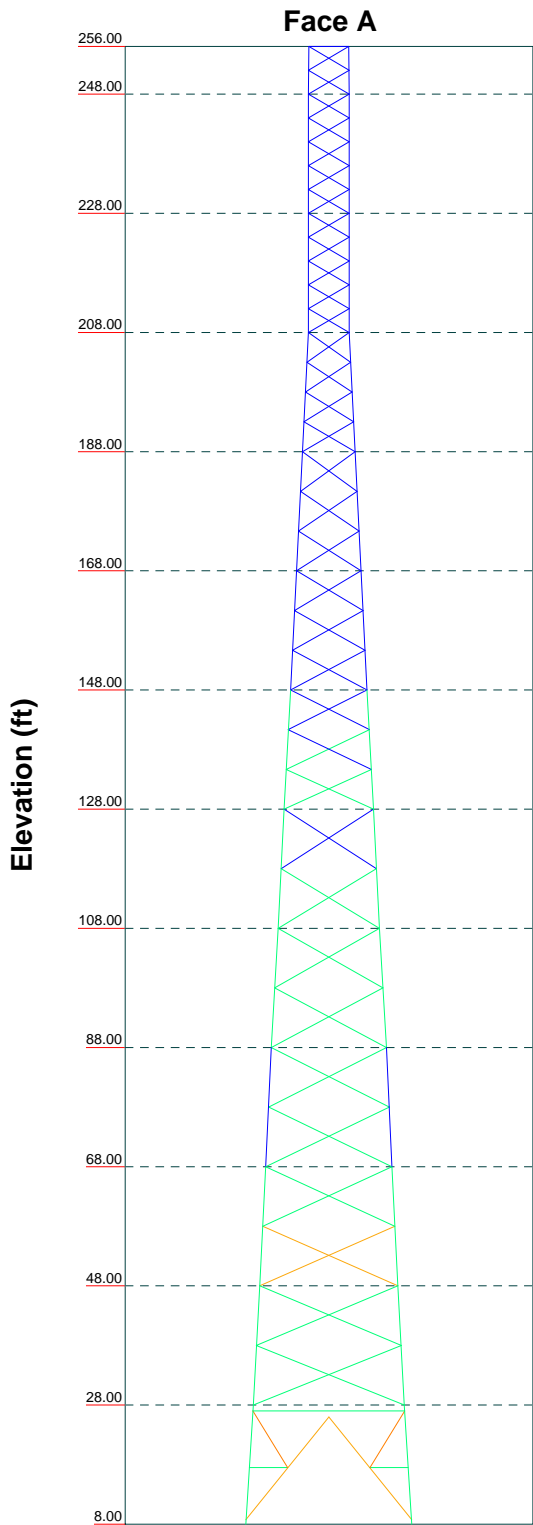



 Consulting Engineers	KM Consulting Engineers, Inc.		Job: Bridgeport LC1		
	262 Upper Ferry Road		Project: 250' Rohn Self Support Tower		
	Ewing, NJ 08628		Client: Transcend Wireless	Drawn by: DCA	App'd:
	Phone: (609) 538-0400		Code: TIA-222-G	Date: 09/02/20	Scale: NTS
	FAX:		Path: K:\Transcend Wireless\Bridgeport\Engineering\Bridgeport LC1.eri	Dwg No. E-7	

Stress Distribution Chart

8' - 256'

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



 Consulting Engineers	KM Consulting Engineers, Inc. 262 Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX:		Job: Bridgeport LC1		
	Project: 250' Rohn Self Support Tower				
	Client: Transcend Wireless		Drawn by: DCA		App'd:
	Code: TIA-222-G		Date: 09/02/20		Scale: NTS
	Path: K:\Transcend Wireless\Bridgeport\Engineering\Bridgeport LC1.eri				Dwg No. E-8

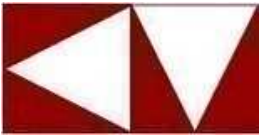
tnxTower KM Consulting Engineers, Inc. 262 Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX:	Job Bridgeport LC1	Page 47 of 48
	Project 250' Rohn Self Support Tower	Date 17:54:17 09/01/20
	Client Transcend Wireless	Designed by DCA

Section Capacity Table

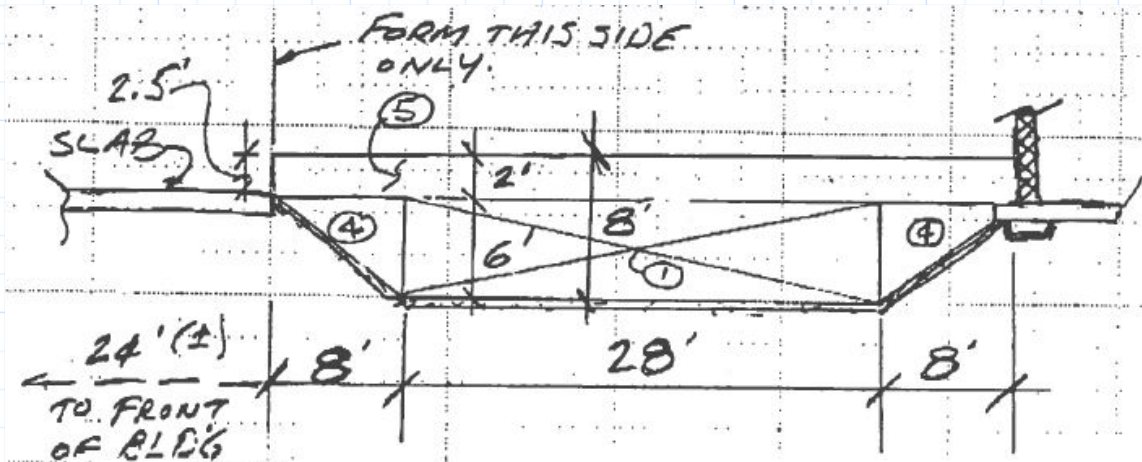
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail	
T1	256 - 248	Leg	ROHN 3 STD	1	-4849.18	88543.60	5.5	Pass	
		Diagonal	L1 3/4x1 3/4x3/16	11	-1869.65	7836.45	23.9	Pass	
		Top Girt	L3x3x1/4	5	-677.52	19705.80	3.4	Pass	
T2	248 - 228	Leg	ROHN 3 EH	19	-27893.40	119117.00	23.4	Pass	
		Diagonal	L2x2x1/4	23	-3460.86	15423.50	22.4	Pass	
T3	228 - 208	Leg	ROHN 4 EH	52	-62676.30	183589.00	34.1	Pass	
		Diagonal	L2x2x1/4	56	-5055.72	16011.80	31.6	Pass	
T4	208 - 188	Leg	ROHN 5 EH	85	-86259.70	254372.00	33.9	Pass	
		Diagonal	L2x2x1/4	89	-3350.99	9442.17	35.5	Pass	
T5	188 - 168	Leg	ROHN 6 EH	112	-112868.00	343100.00	32.9	Pass	
		Diagonal	L2 1/2x2 1/2x1/4	115	-6285.82	11996.10	52.4	Pass	
T6	168 - 148	Leg	ROHN 6 EH	134	-146598.00	343100.00	42.7	Pass	
		Diagonal	L3x3x1/4	136	-7687.41	16173.10	47.5	Pass	
T7	148 - 128	Leg	ROHN 6 EH	155	-182828.00	343092.00	53.3	Pass	
		Diagonal	L3x3x1/4	157	-9413.74	12584.10	74.8	Pass	
T8	128 - 108	Leg	ROHN 8 EHS	176	-222264.00	386381.00	57.5	Pass	
		Diagonal	L4x4x3/8	178	-14098.80	30486.60	46.2	Pass	
T9	108 - 88	Leg	ROHN 8 EH	191	-274231.00	505517.00	54.2	Pass	
		Diagonal	L4x4x0.31	193	-17685.80	21205.70	83.4	Pass	
T10	88 - 68	Leg	P10x.5	206	-331351.00	668659.00	49.6	Pass	
		Diagonal	L5x5x3/8	208	-21091.80	43484.70	48.5	Pass	
T11	68 - 48	Leg	P10x.5	221	-391653.00	668663.00	58.6	Pass	
		Diagonal	L5x5x3/8	223	-23770.10	37294.00	63.7	Pass	
T12	48 - 28	Leg	P10x.5	236	-452429.00	668640.00	67.7	Pass	
		Diagonal	L5x5x3/8	239	-26440.00	31978.80	82.7	Pass	
T13	28 - 8	Leg	P10x.5	251	-470883.00	711505.00	66.2	Pass	
		Diagonal	ROHN 3 STD	259	-37294.80	38509.50	96.8	Pass	
		Top Girt	ROHN 3 STD	253	-22587.80	31030.70	72.8	Pass	
		Redund Horz 1	ROHN 1.5 STD	260	-8171.83	13888.30	58.8	Pass	
		Bracing							
		Redund Diag 1	ROHN 1.5 STD	261	-7139.28	7217.78	98.9	Pass	
		Bracing							
		Redund Hip 1	ROHN 1.5 STD	278	-121.41	12002.20	1.0	Pass	
		Bracing							
		Redund Hip Diagonal 1	ROHN 1.5 STD	269	-88.25	2211.89	4.0	Pass	
Bracing									
Inner Bracing	ROHN 3 STD	282	-391.23	29213.70	24.3	Pass			
							Summary		
							Leg (T12)	67.7	Pass
							Diagonal (T13)	96.8	Pass
							Top Girt (T13)	72.8	Pass
							Redund Horz 1	58.8	Pass
							Bracing (T13)		
							Redund Diag 1	98.9	Pass
							Bracing		

tnxTower KM Consulting Engineers, Inc. 262 Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX:	Job	Bridgeport LC1	Page	48 of 48
	Project	250' Rohn Self Support Tower	Date	17:54:17 09/01/20
	Client	Transcend Wireless	Designed by	DCA

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						(T13)		
						Redund Hip 1 Bracing	1.0	Pass
						(T13)		
						Redund Hip Diagonal 1 Bracing	4.0	Pass
						(T13)		
						Inner Bracing	24.3	Pass
						(T13)		
						Bolt Checks	94.0	Pass
						RATING =	98.9	Pass



Foundation Calculations



Volume of Foundation:

$$V_1 := 6 \text{ ft} \cdot 28 \text{ ft} \cdot 31 \text{ ft} = 5208.0 \text{ ft}^3$$

$$V_2 := -1 \cdot \frac{1}{2} \cdot 2.83 \text{ ft} \cdot 4 \text{ ft} \cdot 28 \text{ ft} \cdot 2 = -317.0 \text{ ft}^3$$

$$V_3 := 1 \text{ ft} \cdot 1.67 \text{ ft} \cdot 44 \text{ ft} \cdot 2 = 147.0 \text{ ft}^3$$

$$V_4 := \frac{1}{2} \cdot 6 \text{ ft} \cdot 8 \text{ ft} \cdot 31 \text{ ft} \cdot 2 = 1488.0 \text{ ft}^3$$

$$V_5 := 2 \text{ ft} \cdot 33 \text{ ft} \cdot 44 \text{ ft} = 2904.0 \text{ ft}^3$$

$$V_{\text{total}} := V_1 + V_2 + V_3 + V_4 + V_5 = 9430.0 \text{ ft}^3$$

Weight of Foundation:

$$W_{\text{found}} := V_{\text{total}} \cdot 150 \frac{\text{lbf}}{\text{ft}^3} = 1414.5 \text{ kip}$$

Resisting Moment:

$$\phi := 0.75$$

$$M_{\text{found}} := W_{\text{found}} \cdot 16.5 \text{ ft} \cdot \phi = 17504.4 \text{ kip} \cdot \text{ft}$$