



Structural Design Report
255' S3TL Series HD1 Self-Supporting Tower
Site: Boscobel GFS, WI

Prepared for: RACOM CORPORATION
by: Sabre Industries™

Job Number: 501139

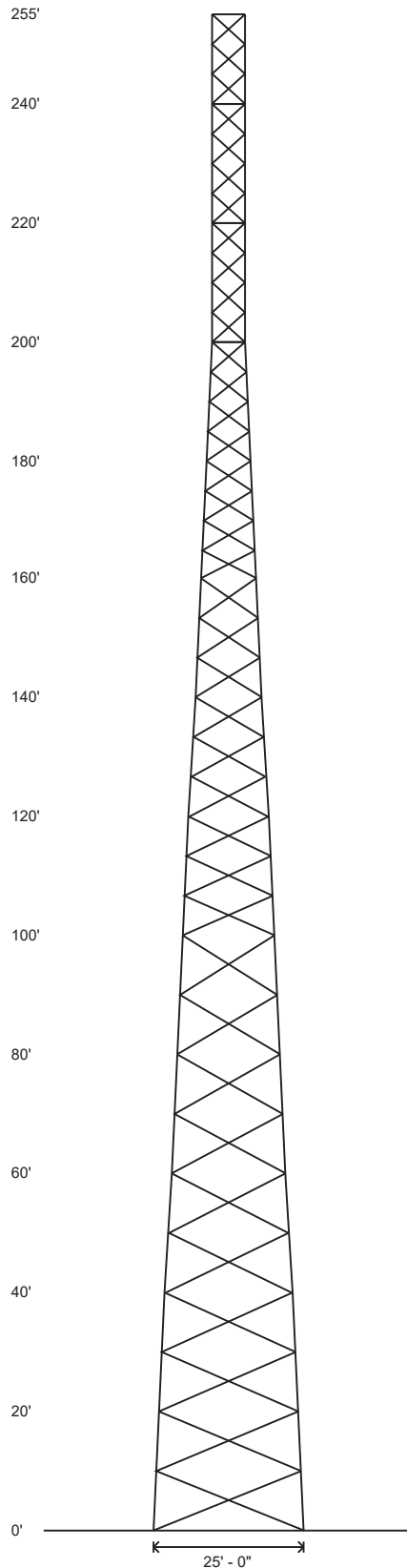
April 8, 2022

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Legs	8.625 OD X .500	8.625 OD X .322	5.563 OD X .375	A	3.500 OD X .300	B	C
Diagonals	L 4 X 4 X 1/4	L 3 1/2 X 3 1/2 X 1/4	L 3 X 3 X 1/4	L 2 1/2 X 2 1/2 X 3/16	L 2 X 2 X 1/8		
Horizontals			NONE				
Brace Bolts	(2) 5/8"	(1) 3/4"			(1) 5/8"		
Top Face Width	23'	19'	17'	15'	13'	11'	7'
Panel Count/Height		10 @ 10'				9 @ 6.6667'	19 @ 5'
Section Weight	5250	5013	3730	3597	2740	2294	1583
						2196	1111
						1212	790
							553



Design Criteria - ANSI/TIA-222-G

ASCE 7-16 Ultimate Wind Speed (No Ice)	115 mph
Wind Speed (Ice)	40 mph
Design Ice Thickness	1.50 in
Structure Class	III
Risk Category	III
Exposure Category	C
Topographic Category	1
Seismic Importance Factor, I _e	1.25
0.2-sec Spectral Response, S _s	0.062 g
1-sec Spectral Response, S ₁	0.046 g
Site Class	D (DEFAULT)
Seismic Design Category	B
Basic Seismic Force-Resisting System	Telecommunication Tower (Truss: Steel)

Base Reactions - Wind/Ice

Total Foundation		Individual Footing	
Shear (kips)	59.07	Shear (kips)	35.81
Axial (kips)	146.24	Compression (kips)	384
Moment (ft-kips)	7947	Uplift (kips)	336

Base Reactions - Seismic

Total Foundation		Individual Footing	
Shear (kips)	1.31	Shear (kips)	2.28
Axial (kips)	55.11	Compression (kips)	28
Moment (ft-kips)	214	Uplift (kips)	0

Material List

Display	Value
A	4.500 OD X .337
B	2.375 OD X .218
C	2.375 OD X .154
D	L 2 X 2 X 1/8

Notes

- 1) All legs are A500 (50 ksi Min. Yield).
- 2) All braces are A572 Grade 50.
- 3) All brace bolts are A325-X.
- 4) The tower model is S3TL Series HD1.
- 5) Transmission lines are to be attached to standard 12 hole waveguide ladders with stackable hangers.
- 6) Azimuths are relative (not based on true north).
- 7) Foundation loads shown are maximums.
- 8) All unequal angles are oriented with the short leg vertical.
- 9) Weights shown are estimates. Final weights may vary.
- 10) This tower design and, if applicable, the foundation design(s) shown on the following page(s) also meet or exceed the requirements of the 2015 International Building Code.
- 11) Tower Rating: 99.84%
- 12) This structure has been designed with a 50% increase in antenna and line loading.

 <p>Sabre Industries 7101 Southbridge Drive P.O. Box 658 Sioux City, IA 51102-0658 Phone: (712) 258-6690 Fax: (712) 279-0814</p> <p><small>Information contained herein is the sole property of Sabre Communications Corporation, constitutes a trade secret as defined by Iowa Code Ch. 550 and shall not be reproduced, copied or used in whole or part for any purpose whatsoever without the prior written consent of Sabre Communications Corporation.</small></p>	Job: 501139	
	Customer: RACOM CORPORATION	
	Site Name: Boscobel GFS, WI	
	Description: 255' S3TL	
	Date: 4/8/2022	By: JLG

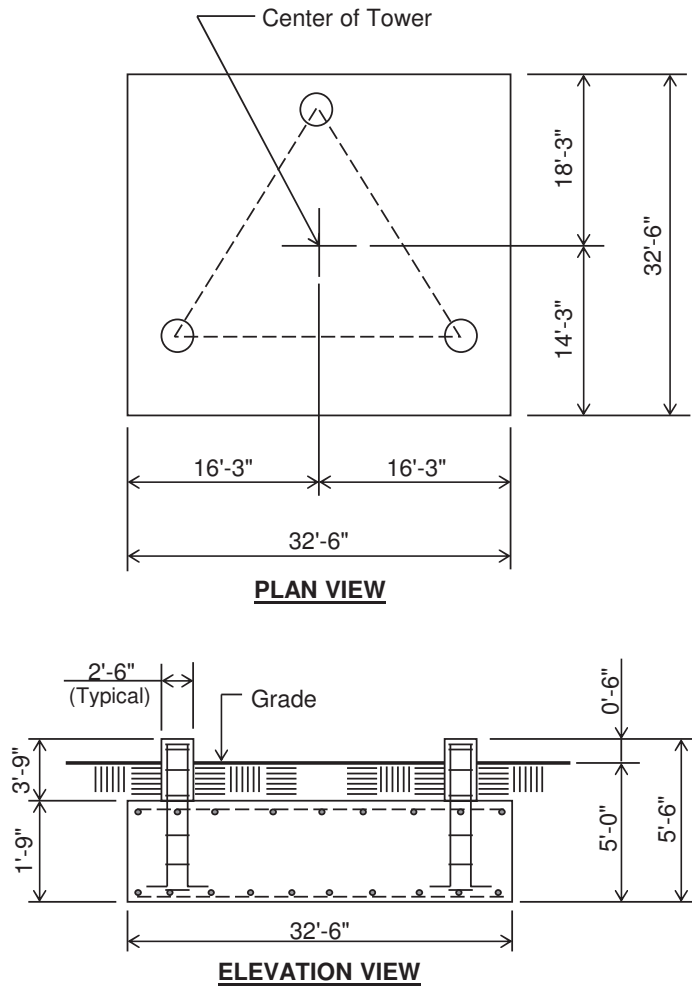
Designed Appurtenance Loading

Elev	Description	Tx-Line	Elev	Description	Tx-Line
254	(5) Flush Mount		210	(2) SD214-SF2P4SNM	(2) 7/8"
254	(2) RRU (1' x 1' x 1')		200	(2) 3ft Sidearms	
254	(3) 8' x 20" x 8" panel	(3) 1 5/8"	200	3ft Sidearm	
235	(1) SD214-SF2P4SNM	(1) 7/8"	175	3V-Boom - 12ft Face - 3ft Standoff	
225	3ft Sidearm		175	(12) 8' x 20" x 8" panel	(12) 1 5/8"
210.62	(1) DB224A	(1) 7/8"	175	(9) RRU (1' x 1' x 1')	

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Customer: RACOM CORPORATION
Site: Boscobel GFS, WI

255 ft. Model S3TL Series HD1 Self Supporting Tower



(70.5 cu. yds.)
(1 REQD.; NOT TO SCALE)

CAUTION: Center of tower is not in center of slab.

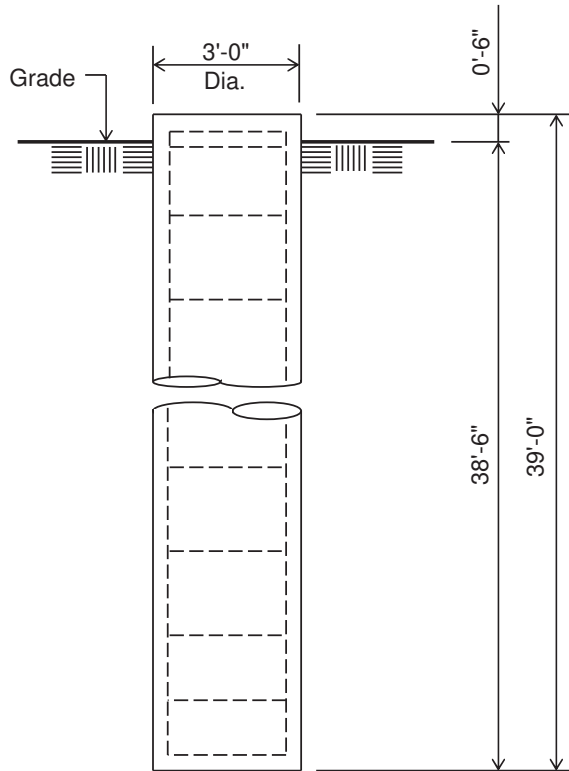
Notes:

- 1) Concrete shall have a minimum 28-day compressive strength of 4,500 psi, in accordance with ACI 318-11.
- 2) Rebar to conform to ASTM specification A615 Grade 60.
- 3) All rebar to have a minimum of 3" concrete cover.
- 4) All exposed concrete corners to be chamfered 3/4".
- 5) The foundation design is based on the geotechnical report by Edge, Project# 31985, dated 4/5/2022.
- 6) See the geotechnical report for compaction requirements, if specified.
- 7) The foundation is based on the following factored loads:
Factored download (kips) = 49.46
Factored overturn (kip-ft) = 7,946.84
Factored shear (kips) = 59.07
- 8) 3.25' of soil cover is required over the entire area of the foundation slab.
- 9) The bottom anchor bolt template shall be positioned as closely as possible to the bottom of the anchor bolts.

Rebar Schedule per Mat and per Pier	
Pier	(12) #10 vertical rebar w/ hooks at bottom w/ #4 rebar ties, two (2) within top 5" of pier then 12" C/C
Mat	(52) #8 horizontal rebar evenly spaced each way top and bottom. (208 total)
Anchor Bolts per Leg	
(6) 1.25" dia. x 63" F1554-105 on a 12.75" B.C. w/ 8" max. projection above concrete.	

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- 6) See the geotechnical report for drilled pier installation requirements, if specified.
- 7) The foundation is based on the following factored loads:
Factored uplift (kips) = 336.00
Factored download (kips) = 384.00
Factored shear (kips) = 36.00
- 8) The bottom anchor bolt template shall be positioned as closely as possible to the bottom of the anchor bolts.

ELEVATION VIEW

(10.2 cu. yds.)
(3 REQUIRED; NOT TO SCALE)

Rebar Schedule per Pier	
Pier	(12) #10 vertical rebar w/ #4 rebar ties, two (2) within top 5" of pier then 12" C/C
Anchor Bolts per Leg	
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