



Prepared for:
Ericsson



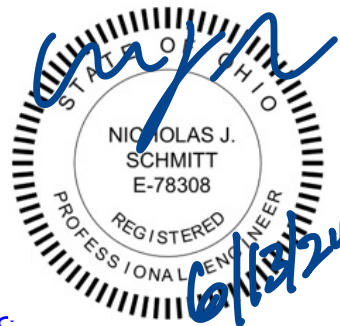
ERICSSON

Mount Analysis Report

June 12, 2024

SGS Towers Project Number:	2405260
Supporting Structure Information:	Fluted Column Water Tank
Mount Elevation:	128 ft
Mount Type:	Wall Mount SitePro1 SP221
Carrier:	AT&T
Carrier Site Name:	SOH3567
Carrier Site ID:	AVERY PARK WT
FA ID Number:	10070814
Site Information:	7699 Avery Road Dublin, OH 43017 (Franklin County) 40.127833, -83.163056
Applicable Codes:	TIA-222-H / 2024 OBC
Overall Analysis Result:	Sufficient
Max Component Rating:	18.8%
	Refer to Appendix A for calculations supporting the capacity ratings
	*Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.

ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/ASSE A10.48 and ANSI/TIA 322 are available for a Construction Class IV site or other, if required. Contact SGS Towers (engineering@sgstowers.com); Separate review fees will apply.



Prepared by: Tim Wordekemper, EI DS

engineering@sgstowers.com

Executive Summary

This is an existing 3-sector Wall Mount, designed by SitePro1 (Part No. SP221).

Analysis Criteria

RISA-3D (Version 22.0.0), a three-dimensional modeling analysis software, was used to analyze this antenna mounting system under the following analysis parameters.

Applicable Codes:	TIA-222-H / 2024 OBC / AWWA D100-21
Risk Category:	IV
Ultimate Wind Speed:	119 mph
Exposure Category:	C
Topographic Factor at Mount (K_{zt}):	1.0
Design Ice Thickness:	1.0 in
Wind Speed with Ice:	40 mph
Seismic Parameters:	S _s : 0.123 / S ₁ 0.06
Maintenance Wind Speed:	30 mph

NOTE: Due to the mount configuration, L_v and L_m maintenance loading was not considered in this analysis.

Final Loading Configuration

Elevations (ft)		Sector Position	Equipment Quantity	Equipment Manufacturer Model	Notes
Mount	Equipment				
128	130	A2/B2/C2	3	ERICSSON AIR 6419 B77D	1
	128	A1/B1/C1	3	COMMSCOPE NNH4-65C-R6	
		A3/B3/C3	3	COMMSCOPE NNH4-65C-R6	
	126	A2/B2/C2	3	ERICSSON AIR 6419 B77G	
-	128	A1/B1/C1	3	ERICSSON 4490 B5/B12A	2
		A1/B1/C1	3	ERICSSON 4415 B30	
		A3/B3/C3	3	ERICSSON 4478 B14	
		A3/B3/C3	3	ERICSSON 4890 B25/B66	
		A1/B1	2	RAYCAP DC6-48-60-18-8F	
		C1	1	RAYCAP DC9-48-60-24-8C-EV	

Notes:

- 1) A = Alpha (0°) / B = Beta (120°) / C = Gamma (240°)
- 2) Equipment located on the interior of the water tank, not considered in this analysis.

Supporting Documentation

Document Type	Document Details
Previous Mount Analysis Report	Jacobs Telecommunications, Inc. / Project No. EUAT0212, dated 03/30/2021
Previous Structural Assessment Letter	Jacobs Telecommunications, Inc. / Project No. EUAT0212, dated 03/30/2021
RFDS	WOID: RFDS-10361 / Last Modified Date: 03/25/2024
Scoping Document	LTE.CBAND.10070814.DE130.05142024.AVERY PARK WT.OHL03567

Assumptions

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in the Final Loading Configuration table and the supporting documents.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the referenced supporting documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
- 5) Analysis of the existing supporting structure is to be completed by others and therefore is not part of this analysis.
- 6) Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.
- 7) A structural component rating of 105% or less is within engineering tolerances and considered acceptable.
- 8) Structural steel material grades have been considered based on the applicable ASTM specifications per AISC, unless verified by the associated mount manufacturer design specifications. Refer to the RISA-3D output report for material grades utilized in this analysis.

The results of this analysis may be affected if any of the above-mentioned assumptions are not valid or have been made in error. SGS Towers shall be notified to determine the effect on the structural integrity of the antenna mounting system.

Analysis Results Summary

Mount Member Type	Maximum Demand-Capacity Ratio	Result
Antenna Mount Pipe (2 Std)	18.8	Pass
Mount-to-Tower Connection	3.3	Pass ¹

Notes:

- 1) Results based on assumed connecting bolt information

Conclusion and Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis. Contractor PMI Requirements included at the end of this Mount Analysis report or mount modification drawings (if applicable) for reference.

APPENDIX A
CALCULATIONS & ANALYSIS SUMMARY



Mount Analysis per TIA-222-H-2017 - Add. 1 (Nov. 2019) and the 2018 IBC.

Basic Wind Speeds and Site Parameters				
Load Cases	Wind Speed V (mph)	Wind Pressure q_z (lb/ft ²)		
No Ice (Bare)	119	44.409		
Ice	40	5.018		
Maintenance	30	2.822		
Design Ice Thickness	t_i	1	in	
Risk Category		IV		TIA-222-H - Table 2-1
Exposure Category		C		TIA-222-H - 2.6.5.1.2
Topographic factor	K_{zt}	1.000		TIA-222-H - 2.6.6.2.2
Ground Elevation	z_s	920	ft	
Mount Elevation CL	z	128	ft	
Design Parameters Summary				
Velocity pressure coefficient	K_z	1.333		TIA-222-H - 2.6.5.2
Rooftop wind speed-up factor	K_s	(N/A)		TIA-222-H - 2.6.7
Ground elevation factor	K_e	0.967		TIA-222-H - 2.6.8
Wind direction probability factor	K_d	0.950		TIA-222-H - 16.6
Gust effect factor	G_h	1.000		TIA-222-H - 16.6
Shielding factor	K_a	0.900		TIA-222-H - 16.6
Radial ice thickness	t_{iz}	1.431	in	TIA-222-H - 2.6.10
Seismic Parameters Summary				
Seismic site class		D (Default)		
Spectral response, short	S_s	0.123		
Spectral response, 1 s	S_1	0.060		
Design spectral response, 1 s	S_{D1}	0.096		TIA-222-H - 2.7.5
Design spectral response, short	S_{DS}	0.131		TIA-222-H - 2.7.5
Response modification coeff.	R	2		TIA-222-H - 16.7
Seismic response coefficient	C_s	0.082		TIA-222-H - 16.7
Earthquake amplification factor	A_s	3		TIA-222-H - 16.7
Weight of mount + appurtenances	D, W	436	lb	
Vertical seismic load effects	E_v	11	lb	TIA-222-H - 2.7.6
Horizontal seismic load effects	E_h	107	lb	TIA-222-H - 2.7.7
Maintenance Parameters Summary				
Vertical, at mount pipes	L_M	0	lb	
Vertical, on horizontal members	L_V	0	lb	



Appurtenance Loading Summary

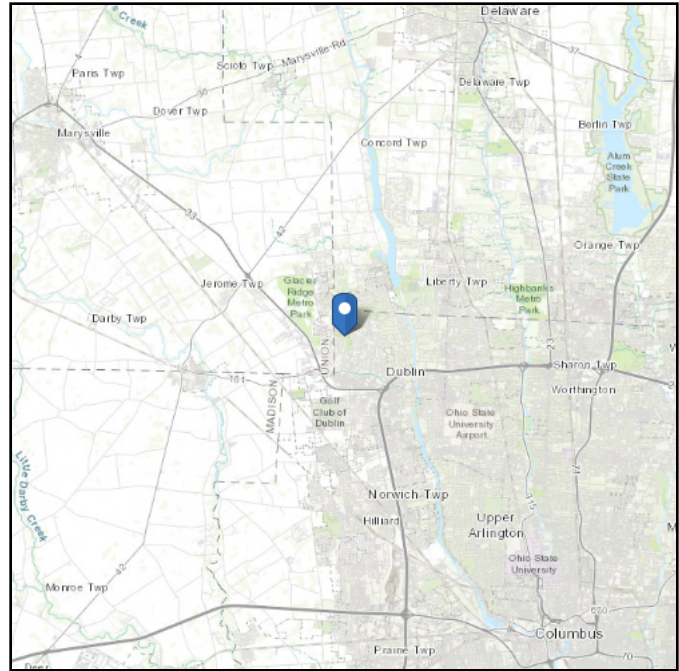
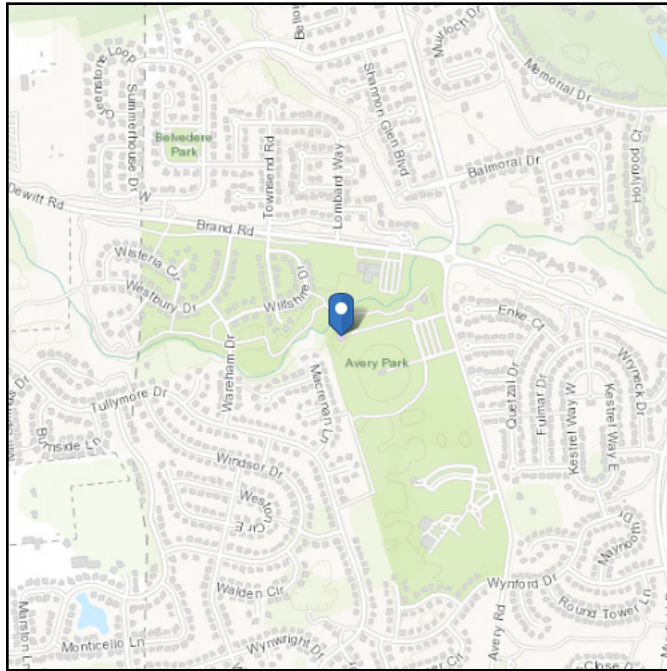
Appurtenance: Make, Model	Qty	Height (in)	Width (in)	Depth (in)	Weight (lb)	Shape	Wind Force	
							Front (lb)	Side (lb)
COMMSCOPE NNH4-65C-R6	2	96.00	19.60	7.80	99.20	Flat	388	133
ERICSSON AIR 6419 B77D	1	28.23	16.06	7.05	62.40	Flat	151	70
ERICSSON AIR 6419 B77G	1	31.10	16.10	7.30	55.40	Flat	167	81

ASCE Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: IV
Soil Class: D - Default (see Section 11.4.3)

Latitude: 40.127833
Longitude: -83.163056
Elevation: 920.5041013491749 ft (NAVD 88)



Wind

Results:

Wind Speed	119 Vmph
10-year MRI	75 Vmph
25-year MRI	81 Vmph
50-year MRI	85 Vmph
100-year MRI	93 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1D and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Wed Jun 12 2024

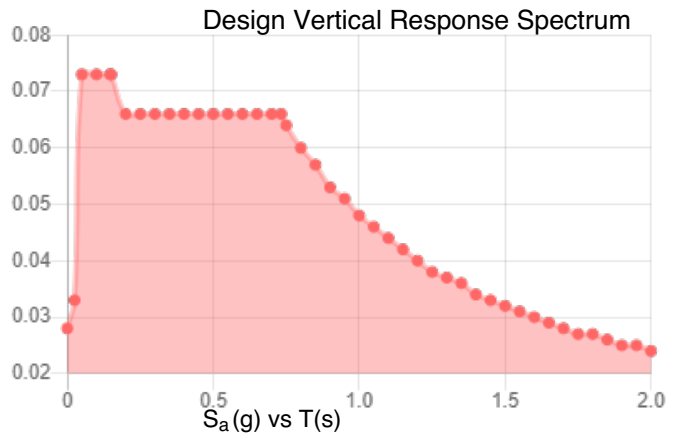
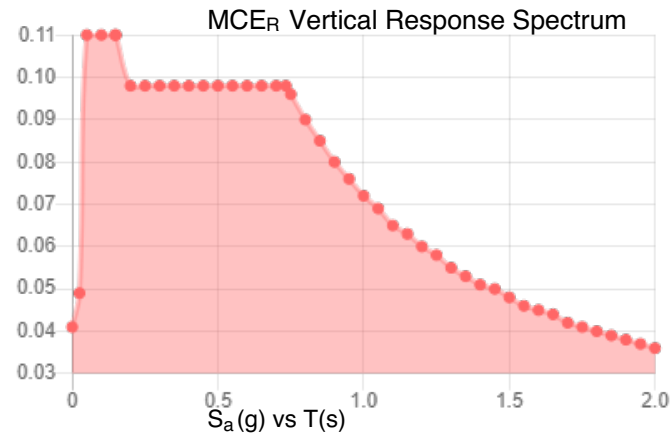
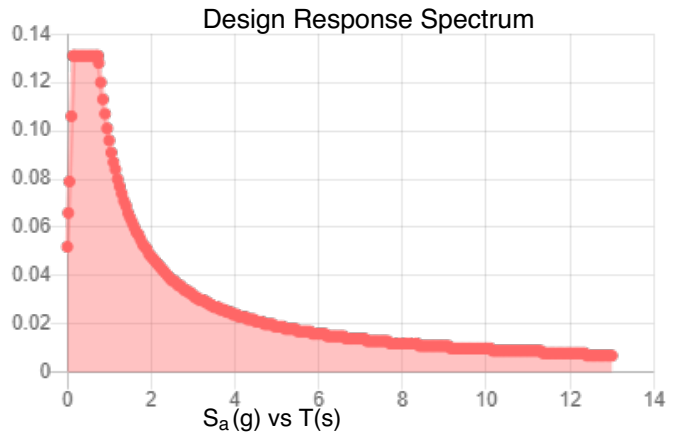
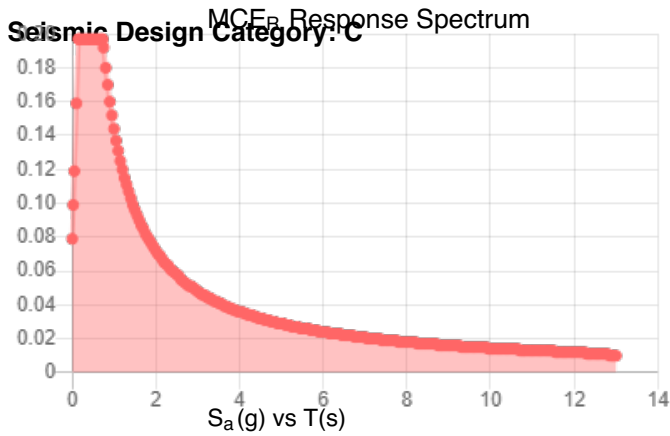
Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 1.6% probability of exceedance in 50 years (annual exceedance probability = 0.00033, MRI = 3,000 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	0.123	S_{D1} :	0.096
S_1 :	0.06	T_L :	12
F_a :	1.6	PGA :	0.062
F_v :	2.4	PGA _M :	0.1
S_{MS} :	0.197	F_{PGA} :	1.6
S_{M1} :	0.144	I_e :	1.5
S_{DS} :	0.131	C_v :	0.7



Data Accessed: Wed Jun 12 2024

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 5 F
Gust Speed 40 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Wed Jun 12 2024

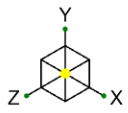
Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-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.

The ASCE 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 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 standard.

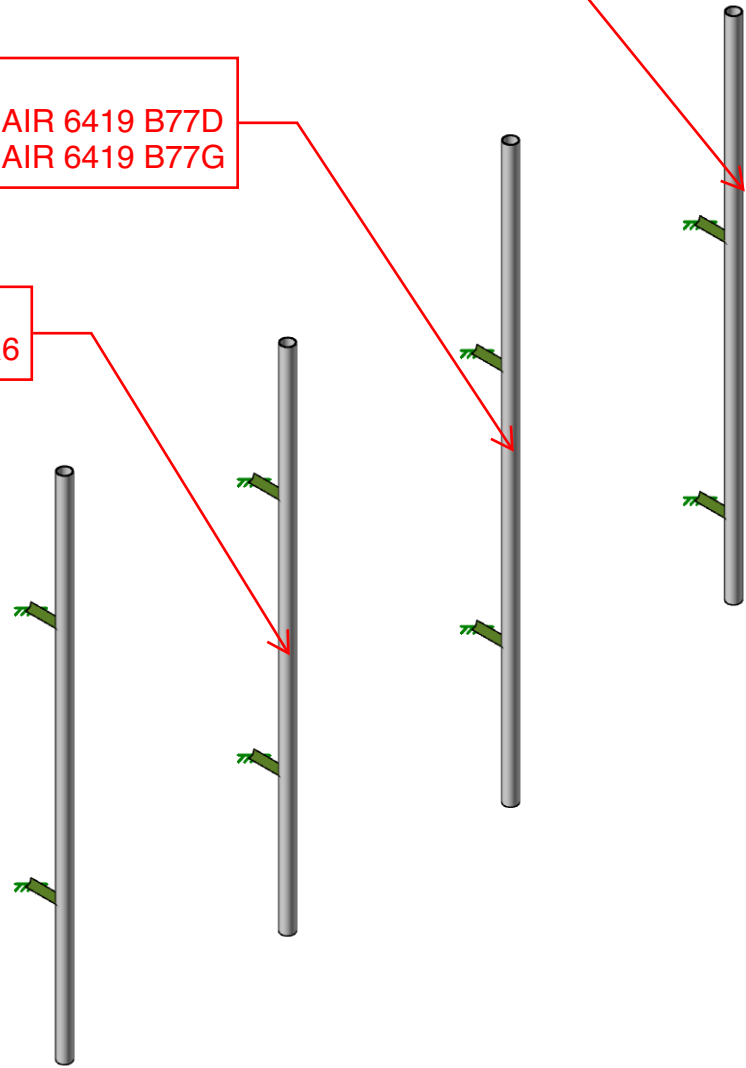
In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from 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 Hazard Tool.



A1/B1/C1
COMMSCOPE I NNH4-65C-R6

A2/B2/C2
ERICSSON I AIR 6419 B77D
ERICSSON I AIR 6419 B77G

A3/B3/C3
COMMSCOPE I NNH4-65C-R6

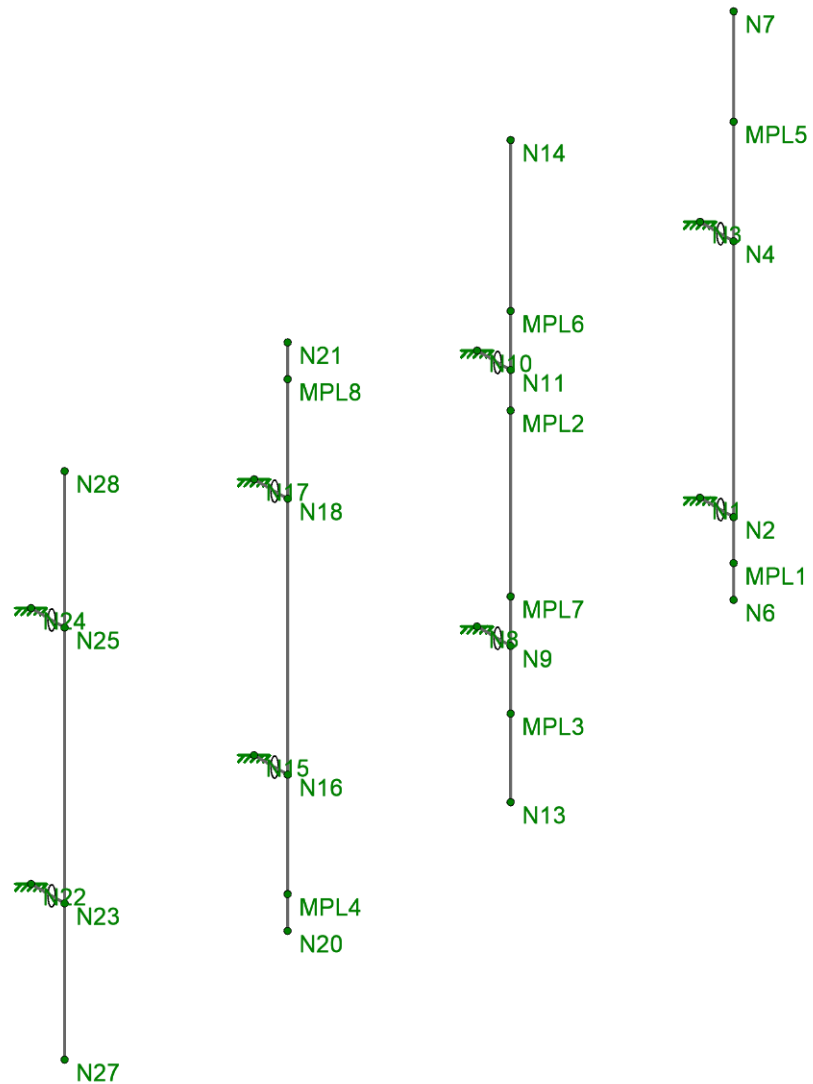
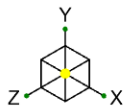


SGS Towers, Inc.
Tim Wordekemper
2405260

SOH3567 (10070814)

Mount Rendering & Antenna Configuration

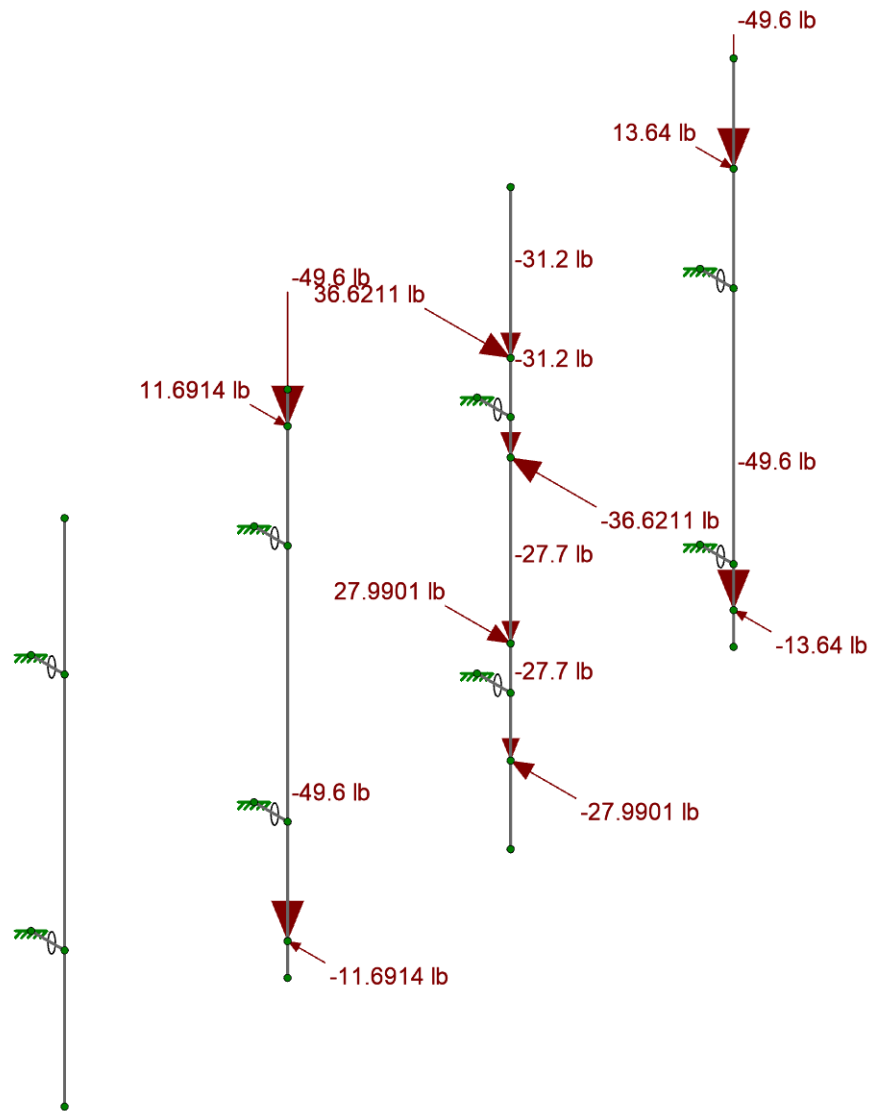
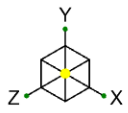
SK-1
Jun 12, 2024 at 10:29 AM
2405260 - Mount Rushmore 2024-03-2...



	SGS Towers, Inc.
	Tim Wordekemper
	2405260

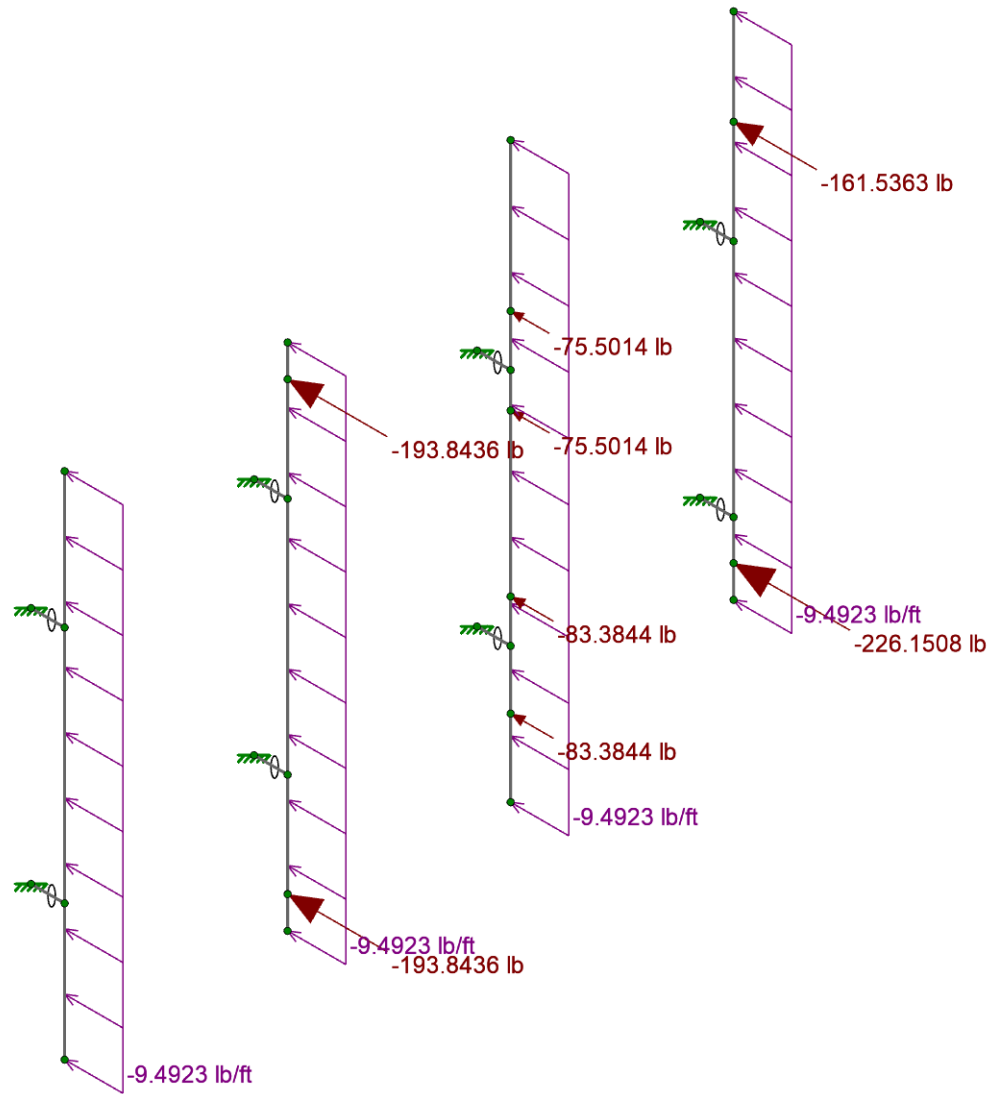
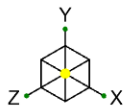
SOH3567 (10070814)
Nodal Labels

SK-2
Jun 12, 2024 at 10:29 AM
2405260 - Mount Rushmore 2024-03-2...



Loads: BLC 1, Bare Weight

	SGS Towers, Inc.	SOH3567 (10070814)	SK-3
	Tim Wordekemper		Jun 12, 2024 at 10:30 AM
	2405260	Loading - Dead	2405260 - Mount Rushmore 2024-03-2...

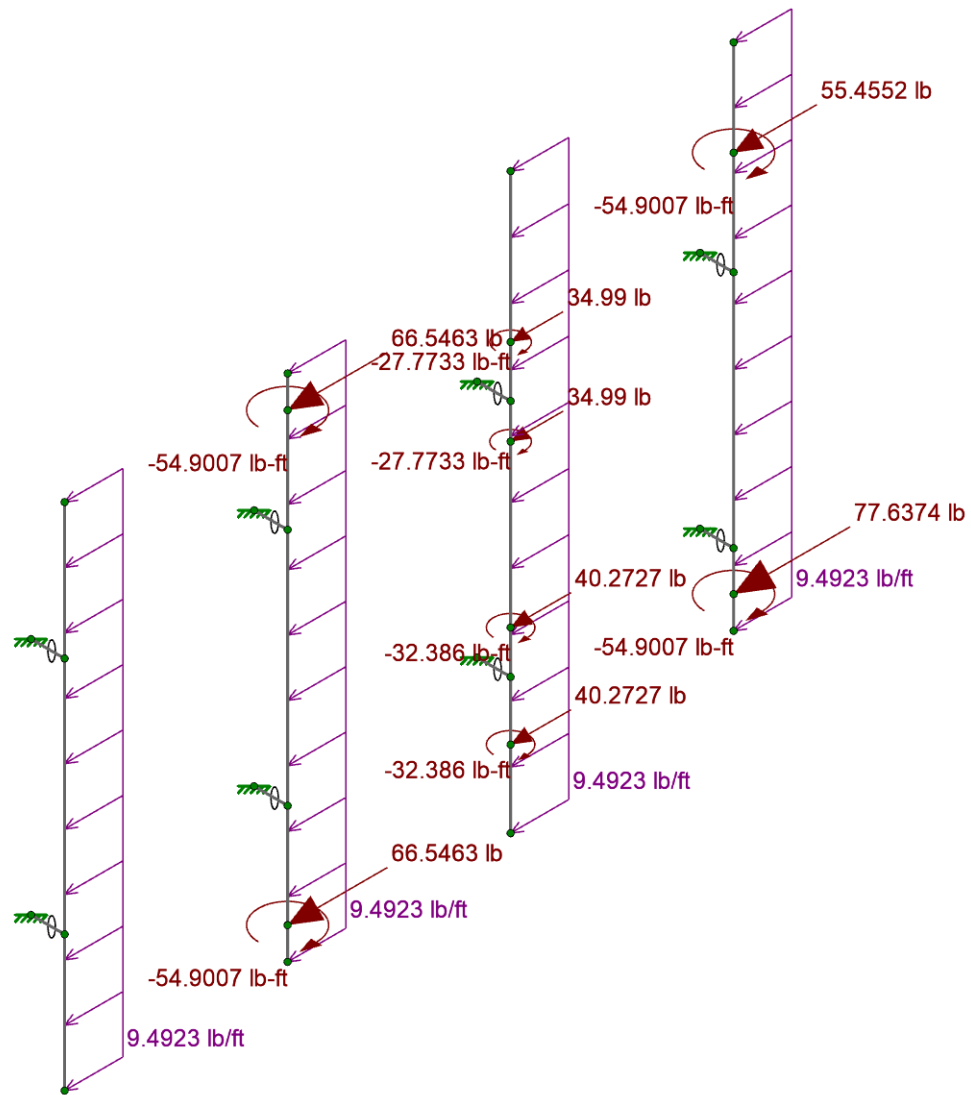
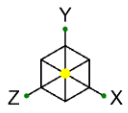


Loads: BLC 3, Wind (bare) 0


	SGS Towers, Inc.
	Tim Wordekemper
	2405260

SOH3567 (10070814)
Loading - Wind 0°

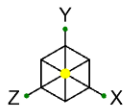
SK-4
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2405260 - Mount Rushmore 2024-03-2...



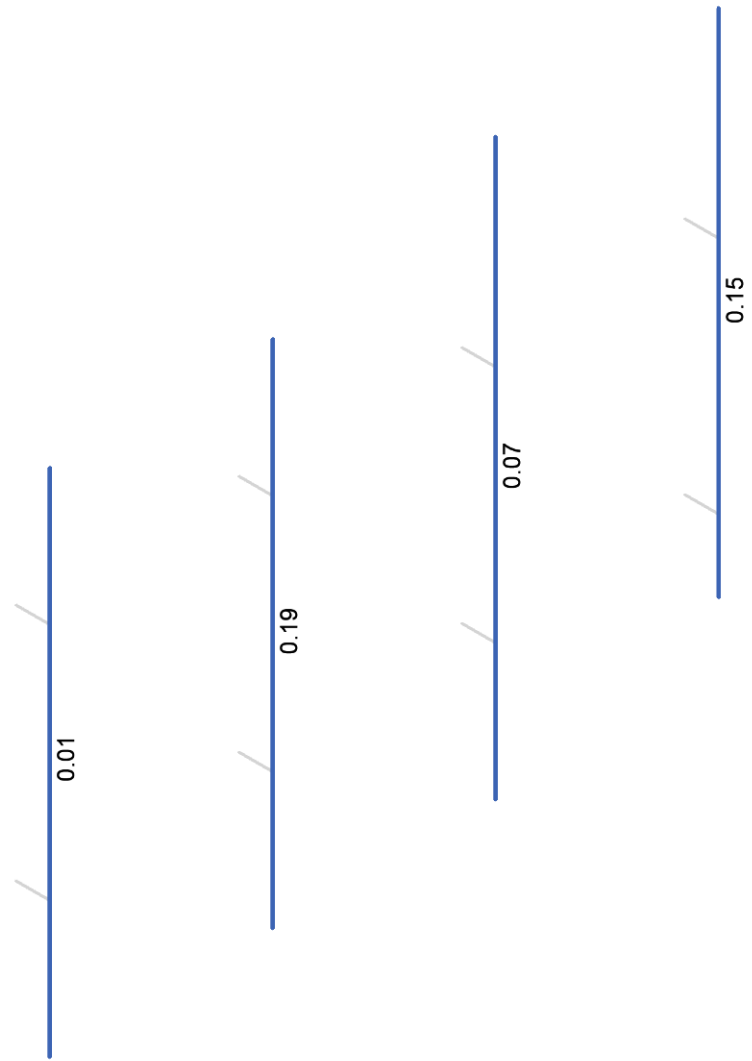
Loads: BLC 6, Wind (bare) 90

	SGS Towers, Inc.	SOH3567 (10070814)	SK-5
	Tim Wordekemper		Jun 12, 2024 at 10:30 AM
	2405260		2405260 - Mount Rushmore 2024-03-2...

Loading - Wind 90°

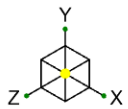


Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



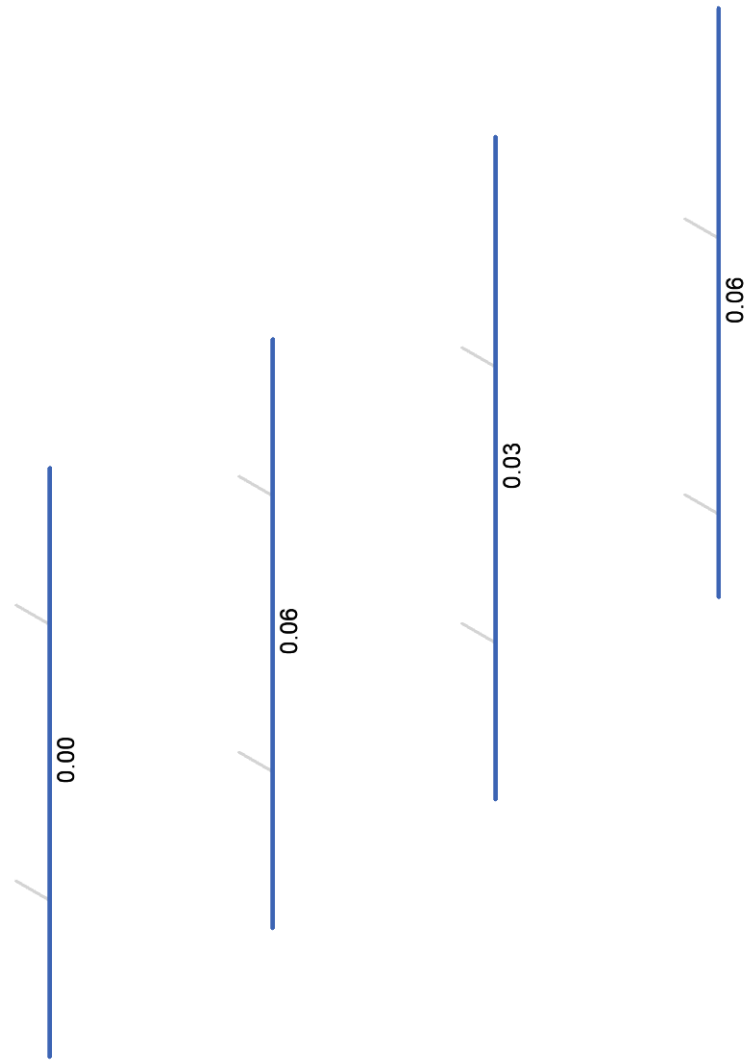
Member Code Checks Displayed (Enveloped)

	SGS Towers, Inc.	SOH3567 (10070814)	SK-6
	Tim Wordekemper		Jun 12, 2024 at 10:31 AM
	2405260	Unity Bending Check	2405260 - Mount Rushmore 2024-03-2...



Shear Check (Env)

- No Calc
- > 1.0
- .90-1.0
- .75-.90
- .50-.75
- 0-.50



Member Shear Checks Displayed (Enveloped)

	SGS Towers, Inc.	SOH3567 (10070814)	SK-7
	Tim Wordekemper		Jun 12, 2024 at 10:31 AM
	2405260		2405260 - Mount Rushmore 2024-03-2...
		Shear Check	



Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Bare Weight	None	-1	24		
2	Ice Weight	None		24		12
3	Wind (bare) 0°	None		24		24
4	Wind (bare) 30°	None		24		24
5	Wind (bare) 60°	None		24		24
6	Wind (bare) 90°	None		24		24
7	Wind (bare) 120°	None		24		24
8	Wind (bare) 150°	None		24		24
9	Wind (bare) 180°	None		24		24
10	Wind (bare) 210°	None		24		24
11	Wind (bare) 240°	None		24		24
12	Wind (bare) 270°	None		24		24
13	Wind (bare) 300°	None		24		24
14	Wind (bare) 330°	None		24		24
15	Wind (ice) 0°	None		24		24
16	Wind (ice) 30°	None		24		24
17	Wind (ice) 60°	None		24		24
18	Wind (ice) 90°	None		24		24
19	Wind (ice) 120°	None		24		24
20	Wind (ice) 150°	None		24		24
21	Wind (ice) 180°	None		24		24
22	Wind (ice) 210°	None		24		24
23	Wind (ice) 240°	None		24		24
24	Wind (ice) 270°	None		24		24
25	Wind (ice) 300°	None		24		24
26	Wind (ice) 330°	None		24		24
27	Wind (maint.) 0°	None		24		24
28	Wind (maint.) 30°	None		24		24
29	Wind (maint.) 60°	None		24		24
30	Wind (maint.) 90°	None		24		24
31	Wind (maint.) 120°	None		24		24
32	Wind (maint.) 150°	None		24		24
33	Wind (maint.) 180°	None		24		24
34	Wind (maint.) 210°	None		24		24
35	Wind (maint.) 240°	None		24		24
36	Wind (maint.) 270°	None		24		24
37	Wind (maint.) 300°	None		24		24
38	Wind (maint.) 330°	None		24		24
39	Maint. - (Lm) - P1	None		1		
40	Maint. - (Lv) - M1 - Middle	None			1	
41	Seismic - Ev (Y)	None				4
42	Seismic - Eh (X)	None				4
43	Seismic - Eh (Z)	None				4

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	Wind - (1.2D + 1.0Wo) - 0°	Yes	Y	1	1.2	3	1		
2	Wind - (1.2D + 1.0Wo) - 30°	Yes	Y	1	1.2	4	1		
3	Wind - (1.2D + 1.0Wo) - 60°	Yes	Y	1	1.2	5	1		
4	Wind - (1.2D + 1.0Wo) - 90°	Yes	Y	1	1.2	6	1		
5	Wind - (1.2D + 1.0Wo) - 120°	Yes	Y	1	1.2	7	1		
6	Wind - (1.2D + 1.0Wo) - 150°		Y	1	1.2	8	1		
7	Wind - (1.2D + 1.0Wo) - 180°		Y	1	1.2	9	1		
8	Wind - (1.2D + 1.0Wo) - 210°		Y	1	1.2	10	1		



Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
9	Wind - (1.2D + 1.0Wo) - 240°	Yes	Y	1	1.2	11	1		
10	Wind - (1.2D + 1.0Wo) - 270°	Yes	Y	1	1.2	12	1		
11	Wind - (1.2D + 1.0Wo) - 300°	Yes	Y	1	1.2	13	1		
12	Wind - (1.2D + 1.0Wo) - 330°	Yes	Y	1	1.2	14	1		
13	Ice - (1.2D + 1.0Di + 10 Wi) - 0°	Yes	Y	1	1.2	2	1	15	1
14	Ice - (1.2D + 1.0Di + 10 Wi) - 30°	Yes	Y	1	1.2	2	1	16	1
15	Ice - (1.2D + 1.0Di + 10 Wi) - 60°	Yes	Y	1	1.2	2	1	17	1
16	Ice - (1.2D + 1.0Di + 10 Wi) - 90°	Yes	Y	1	1.2	2	1	18	1
17	Ice - (1.2D + 1.0Di + 10 Wi) - 120°	Yes	Y	1	1.2	2	1	19	1
18	Ice - (1.2D + 1.0Di + 10 Wi) - 150°		Y	1	1.2	2	1	20	1
19	Ice - (1.2D + 1.0Di + 10 Wi) - 180°		Y	1	1.2	2	1	21	1
20	Ice - (1.2D + 1.0Di + 10 Wi) - 210°		Y	1	1.2	2	1	22	1
21	Ice - (1.2D + 1.0Di + 10 Wi) - 240°	Yes	Y	1	1.2	2	1	23	1
22	Ice - (1.2D + 1.0Di + 10 Wi) - 270°	Yes	Y	1	1.2	2	1	24	1
23	Ice - (1.2D + 1.0Di + 10 Wi) - 300°	Yes	Y	1	1.2	2	1	25	1
24	Ice - (1.2D + 1.0Di + 10 Wi) - 330°	Yes	Y	1	1.2	2	1	26	1
25	Dead - (1.4D)	Yes	Y	1	1.4				
26	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 0°	Yes	Y	1	1.2	39	1.5	27	1
27	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 30°	Yes	Y	1	1.2	39	1.5	28	1
28	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 60°	Yes	Y	1	1.2	39	1.5	29	1
29	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 90°	Yes	Y	1	1.2	39	1.5	30	1
30	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 120°	Yes	Y	1	1.2	39	1.5	31	1
31	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 150°		Y	1	1.2	39	1.5	32	1
32	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 180°		Y	1	1.2	39	1.5	33	1
33	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 210°		Y	1	1.2	39	1.5	34	1
34	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 240°	Yes	Y	1	1.2	39	1.5	35	1
35	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 270°	Yes	Y	1	1.2	39	1.5	36	1
36	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 300°	Yes	Y	1	1.2	39	1.5	37	1
37	Maint. - (1.2D + 1.5Lm + 1.0Wm) - P1 - 330°	Yes	Y	1	1.2	39	1.5	38	1
38	Maint. - (1.2D + 1.5Lv) - M1 - Middle	Yes	Y	1	1.2	40	1.5		
39	Seismic - (1.2D + 1.0Ev + 1.0Eh) (X-dir.)	Yes	Y	1	1.2	41	1	42	1
40	Seismic - (1.2D + 1.0Ev + 1.0Eh) (Z-dir.)	Yes	Y	1	1.2	41	1	43	1

Node Boundary Conditions

	Node 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	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N3	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N8	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N10	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N15	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N17	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N22	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N24	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	LR2	N1	N2	RIGID	None	None	RIGID	Typical
2	UR3	N3	N4	RIGID	None	None	RIGID	Typical
3	POS.A1	N6	N7	Antenna Mount Pipe (2 Std)	Beam	None	A53 Gr.B	Typical
4	LR3	N8	N9	RIGID	None	None	RIGID	Typical
5	UR1	N10	N11	RIGID	None	None	RIGID	Typical
6	POS.A2	N13	N14	Antenna Mount Pipe (2 Std)	Beam	None	A53 Gr.B	Typical
7	LR4	N15	N16	RIGID	None	None	RIGID	Typical



Company : SGS Towers, Inc.
 Designer : Tim Wordekemper
 Job Number : 2405260
 Model Name : SOH3567 (10070814)

6/12/2024
 10:32:20 AM
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Member Primary Data (Continued)

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
8	UR4	N17	N18	RIGID	None	None	RIGID	Typical
9	POS.A3	N20	N21	Antenna Mount Pipe (2 Std)	Beam	None	A53 Gr.B	Typical
10	LR1	N22	N23	RIGID	None	None	RIGID	Typical
11	UR2	N24	N25	RIGID	None	None	RIGID	Typical
12	POS.A4	N27	N28	Antenna Mount Pipe (2 Std)	Beam	None	A53 Gr.B	Typical

Member Advanced Data

	Label	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Seismic DR
1	LR2	OOOXOO		Yes	** NA **	None
2	UR3	OOOXOO		Yes	** NA **	None
3	POS.A1			Yes	Default	None
4	LR3	OOOXOO		Yes	** NA **	None
5	UR1	OOOXOO		Yes	** NA **	None
6	POS.A2			Yes	Default	None
7	LR4	OOOXOO		Yes	** NA **	None
8	UR4	OOOXOO		Yes	** NA **	None
9	POS.A3			Yes	Default	None
10	LR1	OOOXOO		Yes	** NA **	None
11	UR2	OOOXOO		Yes	** NA **	None
12	POS.A4			Yes	Default	None

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁵ F ⁻¹]	Density [lb/ft ³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	490	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	490	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	490	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	0.3	0.65	490	65	1.1	80	1.1
9	Q235	29000	11154	0.3	0.65	490	35	1.5	58	1.2
10	A529 Gr.50	29000	11154	0.3	0.65	490	50	1.1	65	1.1
11	A500 Gr.C	29000	11154	0.3	0.65	490	46	1.6	60	1.2
12	A1011 Gr.33	29000	11154	0.3	0.65	490	33	1.5	58	1.2
13	A1011 Gr.36	29000	11154	0.3	0.65	490	36	1.5	58	1.2
14	A1011 Gr.50	29000	11154	0.3	0.65	490	50	1.5	65	1.2
15	SAE J429 Grade 5	29000	11154	0.3	0.65	490	92	1.5	120	1.2

General Materials Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁵ F ⁻¹]	Density [lb/ft ³]	Plate Methodology
1	gen Conc3NW	3155	1372	0.15	0.6	145	Isotropic
2	gen Conc4NW	3644	1584	0.15	0.6	145	Isotropic
3	gen Conc3LW	2085	906	0.15	0.6	110	Isotropic
4	gen Conc4LW	2408	1047	0.15	0.6	110	Isotropic
5	gen Alum	10100	4077	0.3	1.29	173	Isotropic
6	gen Steel	29000	11154	0.3	0.65	490	Isotropic
7	gen Plywood	1800	38	0	0.3	35	Isotropic
8	RIGID	1e+6		0.3	0	0	Isotropic



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6/12/2024
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Hot Rolled Steel Section Sets

Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1 Antenna Mount Pipe (2 Std)	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

General Section Sets

Label	Type	Material	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1 RIGID	None	RIGID	1e+6	1e+6	1e+6	1e+6

Hot Rolled Steel Design Parameters

Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	Channel Conn.	a [in]	Function
1 POS.A1	Antenna Mount Pipe (2 Std)	96	45	45	Lbyy	N/A	N/A	Lateral
2 POS.A2	Antenna Mount Pipe (2 Std)	108	45	45	Lbyy	N/A	N/A	Lateral
3 POS.A3	Antenna Mount Pipe (2 Std)	96	45	45	Lbyy	N/A	N/A	Lateral
4 POS.A4	Antenna Mount Pipe (2 Std)	96	45	45	Lbyy	N/A	N/A	Lateral

Envelope Node Reactions

Node Label	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1 N1	max 270.996	1	249.569	21	100.423	11	0	40	123.11	3	186.261	13
	min -55.253	5	72.015	1	-100.423	3	0	1	-123.11	11	14.81	5
3 N3	max 192.63	1	271.213	13	135.725	9	0	40	141.68	3	255.465	21
	min -81.087	5	80.345	5	-135.725	5	0	1	-141.68	11	-229.045	1
5 N8	max 207.594	1	193.926	21	115.878	9	0	40	130.262	3	206.911	13
	min -63.682	5	82.697	1	-115.878	5	0	1	-130.262	11	70.837	5
7 N10	max 195.609	1	209.492	13	124.677	11	0	40	129.415	3	214.913	21
	min -75.202	5	96.148	5	-124.677	3	0	1	-129.415	11	42.713	1
9 N15	max 245.843	1	260.391	21	117.871	11	0	40	132.288	3	387.969	1
	min -54.14	5	76.18	1	-117.871	3	0	1	-132.288	11	-22.169	5
11 N17	max 217.783	1	260.391	13	118.277	9	0	40	132.501	3	235.328	21
	min -82.2	5	76.18	5	-118.277	5	0	1	-132.501	11	-262.613	1
13 N22	max 37.969	1	43.288	21	37.968	10	0	40	19.973	4	25.116	13
	min -18.985	5	16.66	1	-37.968	4	0	1	-19.973	10	3.61	5
15 N24	max 37.969	1	43.288	13	37.971	10	0	40	19.974	4	23.944	21
	min -18.985	5	16.66	5	-37.971	4	0	1	-19.974	10	-1.545	1
17 Totals:	max 1406.393	1	1531.556	23	778.615	9						
18	min -449.533	5	516.885	3	-778.615	5						

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

Member	Shape	Code Check	Loc[in]	LC	Shear	Check	Loc[in]	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1 POS.A3	PIPE 2.0	0.188	25	1	0.06	25	12	27144.736	32130	1871.625	1871.625	1	H1-1b	
2 POS.A1	PIPE 2.0	0.148	59	1	0.062	13	12	27144.736	32130	1871.625	1871.625	1	H1-1b	
3 POS.A2	PIPE 2.0	0.065	24.75	1	0.031	24.75	11	27144.736	32130	1871.625	1871.625	1	H1-1b	
4 POS.A4	PIPE 2.0	0.011	26	10	0.002	71	10	27144.736	32130	1871.625	1871.625	1	H1-1b	



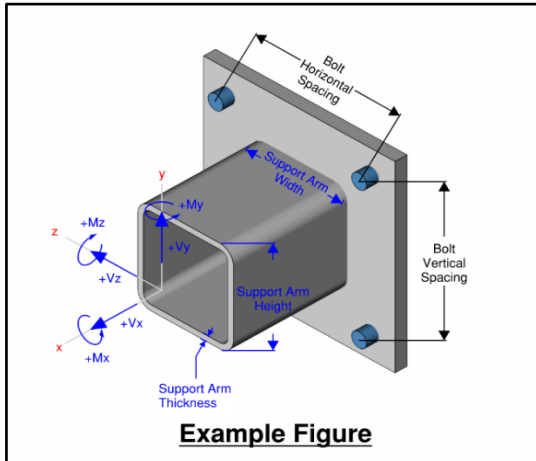
SGS Project No.:	2405260
Site Name:	SOH3567
Site Number:	10070814
Analysis Date:	TJW 06/12/2024

Mount Connection Check

Connecting Bolt Information		
Bolt Configuration =	Standard	
Number of Bolts =	4	
Bolt Diameter =	1/2	in
Bolt Grade =	A36	
Threads in Shear =	Yes	
Horizontal Bolt Spacing =	10	in
Vertical Bolt Spacing =	10	in

Factored Reactions (RISA-3D)		
Axial Vx =	187	lb
Vy =	76	lb
Vz =	-100	lb
Torque Mx =	0	lb-ft
My =	119	lb-ft
Mz =	300	lb-ft

Design Code: TIA



Bolt Forces		
Max Tensile Force =	0.20	kip
Max Shear Force =	0.03	kip
Bolt Capacities		
Design Tensile Strength =	6.17	kip
Design Shear Strength =	5.34	kip
Bolt Tensile Capacity =	3.3%	Pass
Bolt Shear Capacity =	0.6%	Pass
Combined Shear and Tension =	0.1%	Pass

APPENDIX B

POST MODIFICATION INSPECTION REPORT REQUIREMENTS

Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor

(For additional questions and support, please reach out to engineering@sgstowers.com)

Purpose:

To provide SGS Towers the proper documentation necessary to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for ensuring the photos provided as noted below provide confirmation that the modification was completed in accordance with the analysis report or modification drawings. (*Passing Mount Analysis requires a PMI due to a modification in loading.*)
- Contractor shall relay any data that can impact the performance of the mount or the mount modification, this includes safety issues.

Base Requirements:

- Provide “as built drawings” showing contractor’s name, preparer’s signature, and date. Any deviations from the drawing (proposed modification) must be shown.
- Notation that all hardware was properly installed, and the existing hardware was inspected for any issues.
- Verification that loading is as communicated in the analysis report or modification drawings. **NOTE** if loading is different than what is conveyed in the analysis report or modification drawing, contact SGS Towers immediately.
- Each photo should be time and date stamped.
- Photos should be high resolution and submitted in a Zip File and should be organized in the file structure as depicted in Schedule A attached.
- Any special photos outside of the standard requirements will be indicated on the drawings.
- Contractor shall ensure that the safety climb wire rope is supported and not adversely impacted by the installation of the modification components. This may involve the installation of wire rope guides, or other items to protect the wire rope.

Photo Requirements:

- Base and “During Installation Photos”
 - Base pictures include
 - Photo of Gate Signs showing the tower owner, site name, and number.
 - Photo of carrier shelter showing the carrier site name and number if available.
 - Photos of the galvanizing compound and/or paint used (if applicable), clearly showing the label and name.
 - “During Installation” Photos if provided – must be placed only in this folder
- Photos taken at ground level
 - Overall tower structure before and after installation of the modifications
 - Photos of the appropriate mount before and after installation of the modifications; if the mounts are at different RAD elevations, pictures must be provided for all elevations that the modifications were installed.
- Photos taken at Mount Elevation
 - Photos showing each individual sector before and after installation of modifications. Each entire sector must be in one photo to show in the inter-connection of members.

- Close-up photos of each installed modification per the modification drawings; pictures should also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
- Photos showing the measurements of the installed modification member sizes (i.e. lengths, widths, depths, diameters, thicknesses).
- Photos showing the elevation or distances of the installed modifications from the appropriate reference locations shown in the modification drawings.
- Photos showing the installed modifications onto the tower with tape drop measurements (if applicable) (i.e. ring/collar mounts, tie-backs, V-bracing kits, etc.); if the existing mount elevations needs to be changed according to the modification drawings, a tape drop measurement shall be provided before the elevation change.
- Photos showing the safety climb wire rope above and below the mount prior to modification.
- Photos showing the safety climb wire rope above and below the mount post modification.

Antenna and equipment placement and Geometry Certification:

- The contractor must certify that the antenna and equipment placement and geometry is in accordance with the antenna placement diagrams as included in this mount analysis.
 - The contractor certifies per photos that the equipment on the mount is as depicted on the antenna placement diagrams as included in this mount analysis.
 - The contractor notes that the equipment on the mount is not in accordance with the antenna placement diagrams and has accordingly marked up the diagrams or provided a diagram outlining the differences.

Material Certification:

- Materials utilized must be as per specification on the drawings or the equivalent as validated by SGS Towers.
 - Submission of specifications / invoices certifying / SGS Towers approval of an “equivalent” must be submitted to the noted email box by the PMI contractor.
- The contractor must certify that the materials meet these specifications by one of the methods below.
 - The Material utilized was as specified on the SGS Towers Mount Modification Drawings
 - The Material utilized was an “equivalent” and included as part of the PMI are the SGS Towers certification, invoices, or specifications validating accepted status

Contractor certifies that the climbing facility / safety climb was not damaged prior to starting work:

- Yes No

Contractor certifies no new damage created during the current installation:

- Yes No

Contractor to certify the condition of the safety climb and verify no damage when leaving the site:

- Safety Climb in Good Condition Safety Climb Damaged

Certifying Individual: Company _____

Name _____

Signature _____

Schedule A – Photo & Document File Structure

- Carrier Site Number / Name
 - Base & “During Installation” Photos
 - Pre-Installation Photos
 - Alpha
 - Beta
 - Gamma
 - Delta (If Applicable)
 - Ground Level
 - Tape Drop
 - Post-Installation Photos
 - Alpha
 - Beta
 - Gamma
 - Delta (If Applicable)
 - Ground Level
 - Tape Drop
 - Material Certification – Submission of this document including executed certification (when applicable)
 - Specific Required Additional Photos
 - Required Additional Photos

Special Instructions / Validation as required from the MA or any other information the contractor deems necessary to share that was identified:

Issue: _____

Response: _____

