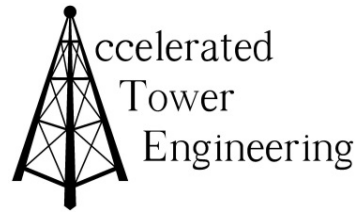




BLACK & VEATCH

Date: May 16, 2024

Ashlee Lee
Black & Veatch
300 Rancheros Dr., Suite 250
San Marcos, CA 92069
LeeAM@BV.com



Shawn D. Cook, P.E.
Accelerated Tower Engineering LLC
4710 Portofino Drive
Longmont, CO 80503
(479) 530-8627
shawn.cook@atowereng.com

Subject: Roof Top Structural Opinion Report

Carrier Designation: AT&T Mobility
Carrier Site Number: 87380
Carrier Site Name: FONTAINE & POWERS (10115180)

Engineering Firm Designation: ATE Project Number: 019420240293

Site Data: 7925 Fountaine Blvd, Colorado Springs, CO 80911, El Paso County
Latitude 38°44'10.7", Longitude -104°40'48.7"
28.0 Foot Roof Top Site

Dear Ashlee Lee,

Accelerated Tower Engineering, LLC is pleased to submit this "Roof Top Structural Opinion Report" for the structural integrity of the existing roof top structure. The purpose of the analysis is to determine the adequacy of the existing roof top structure with the addition of proposed equipment as specified in the construction drawings Rev.A (Redlines) prepared by TEP, issued on 7/16/2022.

Analysis Results:

Existing Roof Top Stress Level with Existing + Proposed Equipment: Adequate

We at Accelerated Tower Engineering, LLC appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

Respectfully submitted,

Shawn D. Cook, P.E.
Structural Engineer
CO PE#: 47561



1) ANALYSIS CRITERIA

Table 1 – Analysis Parameters

Parameter	Remarks
International Building Code	2021
TIA-222 Revision	TIA-222-H
Risk Category	II
Basic Wind Speed	130 mph
Exposure Category	C
Topographic Factor at Mount	1.00
Rooftop Wind Speed-Up Factor	1.00
Ground Elevation Factor	0.81
Wind Speed with Ice	50 mph
Ice Thickness	0.00 in
Seismic S_s	0.186
Seismic S_1	0.056

Table 2 – Final Configuration Loading

Mount Elevation (ft)	Antenna Centerline (ft)	Quantity	Manufacturer	Model	Notes	
33.0	35.0	2	Raycap	DC6-48-60-18-8F	Existing	
		2	Ericsson	AIR 6419 B77D		
		2	Ericsson	AIR 6419 B77G		
		1	Raycap	DC9-48-60-24-8C-EV		
	33.0	33.0	4	Commscope	NNH4-65B-R3-UPM	Proposed
			2	Commscope	NNH4-65B-R6	
			1	Ericsson	AIR 6419 B77D + AIR 6419 B77G Stacked	
			3	Ericsson	RRUS 4890 B25/B66	
	31.0	31.0	3	Ericsson	RRUS 4478 B14	
			3	Ericsson	RRUS 4490 B5/B12A	

2) ANALYSIS PROCEDURE

Table 3 – Documents Provided

Document	Remarks	Source
Previous Construction Drawings	WYCO Field Services, dated 9/19/17	B&V
Construction Drawings	TEP Rev. A (Redlines), dated 7/16/2022	B&V

2.1) Analysis Method

RISA-3D, a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendices.

2.2) Assumptions

- 1) The roof top was built, installed, and maintained in accordance with the manufactures' specifications and recommendations.

- 2) Material grades were not provided and were assumed to be in accordance with Table 2-3 "Applicable ASTM Specifications for Various Structural Shapes" per the AISC "Steel Construction Manual."
- 3) All bolted and welded connections are assumed to develop, at a minimum, a capacity equal to the members connected unless determined and explicitly stated in this report.

This analysis may be affected if any assumptions are not valid or have been made in error. Accelerated Tower Engineering, LLC should be notified immediately to determine the effect on the structural integrity of the mount.

2.3) Structural Analysis of Existing Building Roof

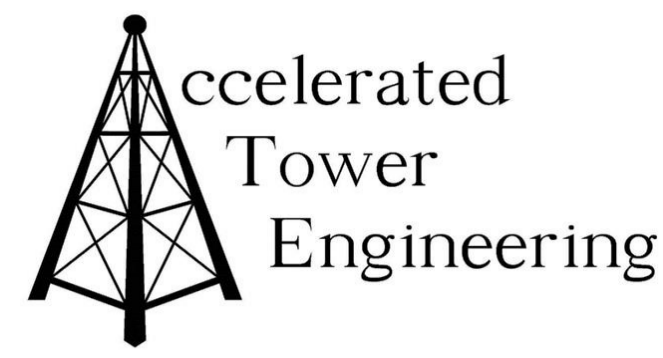
Some of the existing antennas will be replaced with new antennas with a similar centerline to the existing antennas. The additional wind area from the proposed antenna compared to the wind area of the wall is insignificant. Based upon requirements of the 2021 IEBC, Section 503, it is our professional opinion that the existing building structure IS sufficient to support the proposed condition.

3) RECOMMENDATIONS

The roof top has sufficient capacity to carry the final loading configuration. No modifications are required at this time.

Appendix A

Select Output



Appurtenance Wind Loading (Proposed)
TIA-222-H

Project Data table with columns: ATE #, Site Name, Site Number

Site information table with columns: TIA Revision, Structure Class, Exposure Category, Basic Wind Speed, etc.

Seismic Information table with columns: Short-Period Response Parameter, S1, S2, etc.

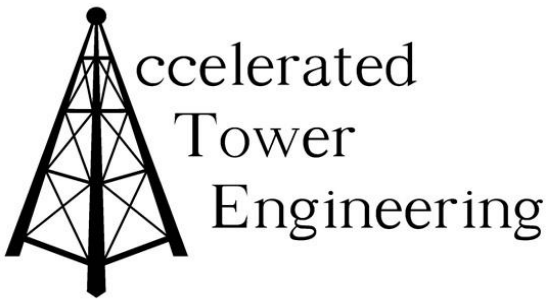
Building Information table with columns: Equipment Height Above Roof Deck, Equipment Setback, etc.

Mount Pipe Loading table with columns: Mount Pipe, Mount Location, Vertical Offset, Length, Diameter, Weight, etc.

Appurtenance Loading table with columns: Appurtenance Type, Mount Location, Quantity, Vertical Offset, Horizontal Offset, etc.

Distributed Loads table with columns: Mount Members, Vertical Offset, Height/Dia, Depth, Shape, etc.

Surface Loads table with columns: Surface Label, Velocity Pressure, Velocity Pressure Coefficient, Ice Weight, etc.



Wind Area Comparison

Project Data	
ATE #	019420240293
Site Number	87380
Site Name	Fontaine & Powers

Original Data
WYCO CDs, dated 9/19/17

Current Wind Area		Proposed Wind Area	
Building Type	Original Area (sqft)	Proposed Area (sqft)	Use Increase
Screen Wall	120	120	0.0%

Increase	
Use Ratio	0.0%

Dead Load Comparison

Current Load		Proposed Load	
Building Type	Original Load (lb)	Proposed Load (lb)	Use Increase
Screen Wall	5817	5992	3.0%

Increase	
Use Ratio	3.0%