



AMERICAN TOWER®
C O R P O R A T I O N

Structural Analysis Report

Structure : 190 ft Self Supported Tower
ATC Site Name : Unity Village MO 2, MO
ATC Asset Number : 306035
Engineering Number : 13616192_C3_02
Proposed Carrier : T-MOBILE
Carrier Site Name : ATC 306035 - I-470 & 50 Hwy
Carrier Site Number : A5C0133A
Site Location : 2150 NW LOWENSTEIN
Lees Summit, MO 64081-1905
38.933600,-94.417500
County : Jackson
Date : March 10, 2021
Max Usage : 58%
Result : Pass



Prepared By:
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Structural Engineer I

L Tait

Reviewed By:

COA: 2006031326



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 190 ft self supported tower to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	Allied Tower Drawing #B-16226, dated December 13, 1991
Foundation Drawing	Allied Tower Drawing #B-16327, dated February 6, 1992
Geotechnical Report	Geotechnology Job #J029737.02, dated May 19, 2017

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	109 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 1 1/2" radial ice concurrent
Code:	ANSI/TIA-222-H / 2009 IBC
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	$S_s = 0.10$, $S_1 = 0.07$
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
172.0	1	RFS DB-T1-6Z-12AB-0Z	Sector Frame	(2) 1.25" (31.8mm) Hybrid	VERIZON WIRELESS
	1	RFS DB-B1-6C-12AB-0Z			
	3	Ericsson RRUS B13 w/ RRUS A2			
	3	Ericsson AIR 32 B4A-B2P			
	3	Ericsson AIR 32 B2A-B4P			
	6	Andrew LNX-6515DS-A1M			
162.0	1	Andrew Microwaves UHX6-105	Leg	(1) EW37	AT&T MOBILITY
158.5	1	Raycap DC6-48-60-18-8C	Sector Frame	(2) 0.39" (10mm) Fiber Trunk (6) 0.76" (19.2mm) 8 AWG 6 (12) 1 5/8" Coax (1) 3/8" (0.38"- 9.5mm) RET Control Cable	
155.1	1	Raycap DC6-48-60-18-8F ("Squid")			
151.0	3	Nokia AirScale RRH 4T4R B5 160W AHCA			
	3	Powerwave Allgon TT08-19DB111-001			
	1	Raycap DC6-48-60-0-8F			
	6	Quintel QS86512-2			
	3	Andrew SBNH-1D6565C			
	3	Alcatel-Lucent RRH2x40-07-L (20.5" Height)			
	3	Alcatel-Lucent B25 RRH4x30			
	3	Nokia Flexi RRH 4T4R B14 160W FRBI			
	3	Alcatel-Lucent B66A RRH4x45-4R w/ Solar Shield			
	3	Alcatel-Lucent RRH4X25-WCS			
	3	Commscope SBNHH-1D65C			
120.0	2	Andrew TMBX-6517-A1M	Sector Frame	(5) 1 5/8" Coax (6) 7/8" Coax	T-MOBILE
	3	Nokia AirScale Dual RRH 4T4R B12/71 240W AHLOA			
	3	Commscope FFHH-65C-R3			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
120.0	3	Andrew ETW190VS12UB	-	(1) 1 5/8" (1.63"- 41.3mm) Fiber (1) 1 5/8" Coax	T-MOBILE
	3	Nokia AHFIB Dual Band 4T4R B25/B66 RRH			
	1	Andrew TMBXX-6517-A2M w/ Actuator			
	1	Andrew TMBX-6516-A1M with actuator			
	2	Andrew TMBXX-6516-A2M with actuator			
	1	Raycap ASU9338TYP01			

Proposed Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
120.0	2	Commscope HELIAX FiberFeed 12 RRU Pendant Connect	Sector Frame	(2) 1.46" (37.1mm) Hybrid	T-MOBILE
	3	Nokia AHFIG 70.55 lbs			
	1	Andrew TMBX-6517-A1M			
	3	Nokia AEHC			

¹ Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax alongside existing T-MOBILE coax.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	58%	Pass
Diagonals	34%	Pass
Horizontals	0%	Pass
Anchor Bolts	36%	Pass
Leg Bolts	49%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Uplift (Kips)	387.1	522.6	244.8	47%
Axial (Kips)	421.4	568.9	290.9	51%
Total Shear (Kips)	56.9	76.8	40.3	52%

* The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
162.0	Andrew Microwaves UHX6-105	AT&T MOBILITY	0.273	0.132	0.277
120.0	Commscope HELIAX FiberFeed 12 RRU Pendant Connect	T-MOBILE	0.154	0.090	0.170
	Nokia AHFIG 70.55 lbs				
	Andrew TMBX-6517-A1M				
	Nokia AEHC				

*Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H



Standard Conditions

All engineering services performed by ATC Tower Services are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of ATC Tower Services

It is the responsibility of the client to ensure that the information provided to ATC Tower Services and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and ATC Tower Services, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Tower Services is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

Quadrant 1

190.00

Sect 10
180.00

Sect 9
160.00

140.00

Sect 8
120.00

100.00

Sect 7
80.00

60.00

Sect 6
40.00

20.00

Sect 5
0.00

0.00

Sect 4
0.00

0.00

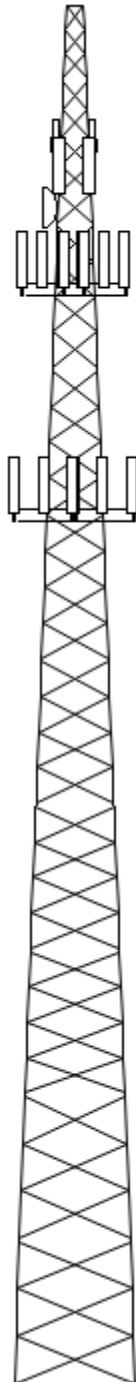
Sect 3
0.00

0.00

Sect 2
0.00

0.00

Sect 1
0.00



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Loads: 109 mph no ice
40 mph w/ 1"1/2 radial ice
Site Class: D Ss: 0.10 S1: 0.07
60 mph Serviceability

Job Information

Client : T-MOBILE

Tower : 306035

Location : Unity Village MO

Base Width : 17.00 ft

Code : ANSI/TIA-222-H

Topo Method: Method 1

Top Width : 2.75 ft

Risk Cat : II

Topo: 1

Tower Ht : 190.00 ft

Exposure : C

Shape : Triangle

Sections Properties

Section	Leg Members	Diagonal Members	Horizontal Members
1	SOL 50 ksi 4 1/2" SOLID	SAE 36 ksi 3.5X3.5X0.375	
2	SOL 50 ksi 4 1/4" SOLID	SAE 36 ksi 3.5X3.5X0.3125	
3	SOL 50 ksi 4" SOLID	SAE 36 ksi 3X3X0.375	
4	SOL 50 ksi 3 3/4" SOLID	SAE 36 ksi 3X3X0.25	
5	SOL 50 ksi 3 1/2" SOLID	SAE 36 ksi 2.5X2.5X0.3125	
6	SOL 50 ksi 3 1/4" SOLID	SAE 36 ksi 2.5X2.5X0.25	
7	SOL 50 ksi 3" SOLID	SAE 36 ksi 2.5X2.5X0.1875	
8	SOL 50 ksi 2 1/2" SOLID	SAE 36 ksi 2X2X0.1875	
9	SOL 50 ksi 1 3/4" SOLID	SAE 36 ksi 1.5X1.5X0.1875	
10	SOL 50 ksi 1 1/2" SOLID	SAE 36 ksi 1.5X1.5X0.1875	SAE 36 ksi 1.5X1.5X0.1875

Discrete Appurtenance

Elev (ft)	Type	Qty	Description
172.00	Panel	6	Andrew LNX-6515DS-A1M
172.00	Panel	3	Ericsson AIR 32 B2A-B4P
172.00	Panel	3	Ericsson AIR 32 B4A-B2P
172.00		3	Ericsson RRUS B13 w/ RRUS A2
172.00		1	RFS DB-T1-6Z-12AB-0Z
172.00		1	RFS DB-B1-6C-12AB-0Z
171.00	Mounting Frame	3	Flat Light Sector Frame
162.00	Dish	1	Andrew Microwaves UHX6-105
158.50		1	Raycap DC6-48-60-18-8C
155.10		1	Raycap DC6-48-60-18-8F ("Squid
151.00	Panel	6	Quintel QS86512-2
151.00	Panel	3	Andrew SBNH-1D6565C
151.00	Panel	3	Commscope SBNHH-1D65C
151.00		3	Alcatel-Lucent RRH4X25-WCS
151.00		3	Alcatel-Lucent B66A RRH4x45-4R
151.00		3	Nokia Flexi RRH 4T4R B14 160W
151.00		3	Alcatel-Lucent B25 RRH4x30
151.00		3	Alcatel-Lucent RRH2x40-07-L (2
151.00		1	Raycap DC6-48-60-0-8F
151.00		3	Nokia AirScale RRH 4T4R B5 160
151.00		3	Powerwave Allgon TT08-19DB111-
151.00	Mounting Frame	3	Generic Round Sector Frame
120.00	Mounting Frame	3	Flat Light Sector Frame
120.00	Panel	3	Commscope FFHH-65C-R3
120.00	Panel	3	Nokia AEHC
120.00	Panel	1	Andrew TMBX-6517-A1M
120.00	Panel	2	Andrew TMBX-6517-A1M
120.00		3	Nokia AHFIG 70.55 lbs
120.00		3	Nokia AirScale Dual RRH 4T4R B
120.00		2	Commscope HELIAX FiberFeed 12

Linear Appurtenance

Elev (ft)	From	To	Qty	Description
0.00	180.00		1	Climbing Ladder
0.00	172.00		1	Waveguide
0.00	172.00		2	1.25" (31.8mm) Hybri
0.00	162.00		1	EW37
0.00	151.00		1	Waveguide
0.00	151.00		1	3/8" (0.38"- 9.5mm)
0.00	151.00		12	1 5/8" Coax

Job Information			
Client : T-MOBILE			
Tower : 306035	Location : Unity Village MO	Base Width : 17.00 ft	
Code : ANSI/TIA-222-H	Topo Method: Method 1	Top Width : 2.75 ft	
Risk Cat : II	Topo: 1	Tower Ht : 190.00 ft	
	Exposure : C	Shape : Triangle	

0.00	151.00	6	0.76" (19.2mm) 8 AWG
0.00	151.00	2	0.39" (10mm) Fiber T
0.00	120.00	1	Waveguide
0.00	120.00	6	7/8" Coax
0.00	120.00	2	1.46" (37.1mm) Hybri
0.00	120.00	5	1 5/8" Coax

Global Base Foundation Design Loads			
Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL + WL	4,011.47	55.34	40.31
DL + WL + IL	1,107.15	129.08	11.52

Individual Base Foundation Design Loads		
Vertical (kip)	Uplift (kip)	Horizontal (kip)
290.92	244.79	24.20

Site Number: 306035

Code:

ANSI/TIA-222-H

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Site Name: Unity Village MO 2, MO

Engineering Number: 13616192_C3_02

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Customer: T-MOBILE

Analysis Parameters

Location:	Jackson County, MO	Height (ft):	190
Code:	ANSI/TIA-222-H	Base Elevation (ft):	0.00
Shape:	Triangle	Bottom Face Width (ft):	17.00
Tower Manufacturer:	Allied Tower	Top Face Width (ft):	2.75
Tower Type:	Self Support	Anchor Bolt Detail Type	c
Kd:	0.85		
Ke:	0.97		

Ice & Wind Parameters

Exposure Category:	C	Design Windspeed Without Ice:	109 mph
Risk Category:	II	Design Windspeed With Ice:	40 mph
Topographic Factor Procedure:	Method 1	Operational Windspeed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.50 in
Crest Height:	0 ft	HMSL:	982.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	0.85		
T_L (sec):	12	p:	1.3
S_S :	0.099	S_1 :	0.068
F_a :	1.600	F_v :	2.400
S_{ds} :	0.106	S_{d1} :	0.109
		C_S :	0.035
		C_S , Max:	0.043
		C_S , Min:	0.030

Load Cases

1.2D + 1.0W Normal	109 mph Normal with No Ice
1.2D + 1.0W 60 deg	109 mph 60 degree with No Ice
1.2D + 1.0W 90 deg	109 mph 90 degree with No Ice
0.9D + 1.0W Normal	109 mph Normal with No Ice (Reduced DL)
0.9D + 1.0W 60 deg	109 mph 60 deg with No Ice (Reduced DL)
0.9D + 1.0W 90 deg	109 mph 90 deg with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi Normal	40 mph Normal with 1.50 in Radial Ice
1.2D + 1.0Di + 1.0Wi 60 deg	40 mph 60 deg with 1.50 in Radial Ice
1.2D + 1.0Di + 1.0Wi 90 deg	40 mph 90 deg with 1.50 in Radial Ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic Normal
1.2D + 1.0Ev + 1.0Eh 60 deg	Seismic 60 deg
1.2D + 1.0Ev + 1.0Eh 90 deg	Seismic 90 deg
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL) Normal
0.9D - 1.0Ev + 1.0Eh 60 deg	Seismic (Reduced DL) 60 deg
0.9D - 1.0Ev + 1.0Eh 90 deg	Seismic (Reduced DL) 90 deg
1.0D + 1.0W Service Normal	Serviceability - 60 mph Wind Normal
1.0D + 1.0W Service 60 deg	Serviceability - 60 mph Wind 60 deg
1.0D + 1.0W Service 90 deg	Serviceability - 60 mph Wind 90 deg

Site Number: 306035

Code:

ANSI/TIA-222-H

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Site Name: Unity Village MO 2, MO

Engineering Number: 13616192_C3_02

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Customer: T-MOBILE

Tower Loading**Discrete Appurtenance Properties** 1.2D + 1.0W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
172.0	RFS DB-B1-6C-12AB-	1	21	2.5	1.6	15.7	10.3	0.80	0.50	0.1	3.0	35.40	30	26
172.0	RFS DB-T1-6Z-12AB-	1	16	2.5	1.6	15.7	10.3	0.80	0.50	1.7	51.5	35.47	30	19
172.0	Ericsson RRUS B13	3	72	2.8	1.6	17.0	10.6	0.80	0.67	-1.6	215.6	35.33	135	259
172.0	Ericsson AIR 32 B4A-	3	106	6.5	4.7	12.9	8.7	0.80	0.71	-0.4	133.7	35.38	334	381
172.0	Ericsson AIR 32 B2A-	3	106	6.5	4.7	12.9	8.7	0.80	0.71	0.0	0.0	35.40	334	381
172.0	Andrew LNX-	6	50	11.4	8.0	11.9	7.1	0.80	0.70	-0.6	691.6	35.37	1153	359
171.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	35.35	811	1440
162.0	Andrew Microwaves	1	281	35.7	6.0	72.0	0.0	1.00	1.00	1.0	1061.1	35.00	1061	337
158.5	Raycap DC6-48-60-	1	16	2.0	1.7	18.2	6.4	0.80	1.00	0.0	0.0	34.79	48	19
155.1	Raycap DC6-48-60-	1	32	1.5	2.0	11.0	11.0	0.80	1.00	0.0	0.0	34.63	35	38
151.0	Powerwave Allgon	3	22	0.8	1.2	6.7	5.4	0.80	0.50	0.6	16.7	34.47	28	79
151.0	Nokia AirScale RRH	3	35	1.3	1.1	11.6	6.5	0.80	0.50	2.6	117.9	34.56	45	127
151.0	Raycap DC6-48-60-0-	1	33	1.4	1.9	11.0	11.0	0.80	1.00	-0.2	6.4	34.43	32	39
151.0	Alcatel-Lucent	3	60	1.8	1.7	10.6	8.9	0.80	0.50	0.2	12.7	34.45	64	216
151.0	Alcatel-Lucent B25	3	53	2.1	1.8	12.0	7.2	0.80	0.67	2.9	290.6	34.58	100	191
151.0	Nokia Flexi RRH	3	51	2.4	1.9	12.6	6.3	0.80	0.67	1.1	125.2	34.49	114	183
151.0	Alcatel-Lucent B66A	3	57	2.5	2.2	11.8	7.2	0.80	0.67	0.3	35.8	34.45	119	204
151.0	Alcatel-Lucent	3	70	3.2	2.6	12.0	8.7	0.80	0.72	0.2	32.0	34.45	160	252
151.0	Commscope SBNHH-	3	50	11.4	8.0	11.9	7.1	0.80	0.70	1.3	732.7	34.50	564	179
151.0	Andrew SBNH-	3	66	11.4	8.0	11.9	7.1	0.80	0.70	0.3	168.9	34.45	563	238
151.0	Quintel QS86512-2	6	135	11.5	8.0	12.0	9.6	0.80	0.74	0.7	835.4	34.47	1193	972
151.0	Generic Round	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	34.44	635	1080
120.0	Commscope HELIAX	2	20	0.9	1.4	6.7	4.7	0.80	0.50	0.0	0.0	32.81	21	48
120.0	Nokia AirScale Dual	3	84	2.2	1.8	12.1	7.4	0.80	0.67	3.6	360.3	33.02	100	302
120.0	Nokia AHFIG 70.55	3	71	2.8	2.3	12.1	5.2	0.80	0.67	0.0	0.0	32.81	124	254
120.0	Andrew TMBX-6517-	2	20	6.0	7.0	6.5	3.3	0.80	0.77	0.4	82.7	32.84	207	48
120.0	Andrew TMBX-6517-	1	20	6.0	7.0	6.5	3.3	0.80	0.77	0.4	41.3	32.84	103	24
120.0	Nokia AEHC	3	104	6.8	3.2	21.5	8.1	0.80	0.62	0.0	0.0	32.81	284	373
120.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	32.81	753	1440
120.0	Commscope FFHH-	3	126	21.1	8.0	25.2	9.3	0.80	0.63	1.5	1340.6	32.90	894	453
Totals		80	8300	610.8									10075	9960

Discrete Appurtenance Properties 0.9D + 1.0W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
172.0	RFS DB-B1-6C-12AB-	1	21	2.5	1.6	15.7	10.3	0.80	0.50	0.1	3.0	35.40	30	19
172.0	RFS DB-T1-6Z-12AB-	1	16	2.5	1.6	15.7	10.3	0.80	0.50	1.7	51.5	35.47	30	14
172.0	Ericsson RRUS B13	3	72	2.8	1.6	17.0	10.6	0.80	0.67	-1.6	215.6	35.33	135	194
172.0	Ericsson AIR 32 B4A-	3	106	6.5	4.7	12.9	8.7	0.80	0.71	-0.4	133.7	35.38	334	286
172.0	Ericsson AIR 32 B2A-	3	106	6.5	4.7	12.9	8.7	0.80	0.71	0.0	0.0	35.40	334	286
172.0	Andrew LNX-	6	50	11.4	8.0	11.9	7.1	0.80	0.70	-0.6	691.6	35.37	1153	269
171.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	35.35	811	1080
162.0	Andrew Microwaves	1	281	35.7	6.0	72.0	0.0	1.00	1.00	1.0	1061.1	35.00	1061	253
158.5	Raycap DC6-48-60-	1	16	2.0	1.7	18.2	6.4	0.80	1.00	0.0	0.0	34.79	48	14
155.1	Raycap DC6-48-60-	1	32	1.5	2.0	11.0	11.0	0.80	1.00	0.0	0.0	34.63	35	29
151.0	Powerwave Allgon	3	22	0.8	1.2	6.7	5.4	0.80	0.50	0.6	16.7	34.47	28	59
151.0	Nokia AirScale RRH	3	35	1.3	1.1	11.6	6.5	0.80	0.50	2.6	117.9	34.56	45	95
151.0	Raycap DC6-48-60-0-	1	33	1.4	1.9	11.0	11.0	0.80	1.00	-0.2	6.4	34.43	32	30
151.0	Alcatel-Lucent	3	60	1.8	1.7	10.6	8.9	0.80	0.50	0.2	12.7	34.45	64	162
151.0	Alcatel-Lucent B25	3	53	2.1	1.8	12.0	7.2	0.80	0.67	2.9	290.6	34.58	100	143
151.0	Nokia Flexi RRH	3	51	2.4	1.9	12.6	6.3	0.80	0.67	1.1	125.2	34.49	114	137

Site Number: 306035

Code:

ANSI/TIA-222-H

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Site Name: Unity Village MO 2, MO

Engineering Number: 13616192_C3_02

3/10/2021 3:28:15 PM

Customer: T-MOBILE

Tower Loading

151.0	Alcatel-Lucent B66A	3	57	2.5	2.2	11.8	7.2	0.80	0.67	0.3	35.8	34.45	119	153
151.0	Alcatel-Lucent	3	70	3.2	2.6	12.0	8.7	0.80	0.72	0.2	32.0	34.45	160	189
151.0	Commscope SBNHH-	3	50	11.4	8.0	11.9	7.1	0.80	0.70	1.3	732.7	34.50	564	134
151.0	Andrew SBNH-	3	66	11.4	8.0	11.9	7.1	0.80	0.70	0.3	168.9	34.45	563	178
151.0	Quintel QS86512-2	6	135	11.5	8.0	12.0	9.6	0.80	0.74	0.7	835.4	34.47	1193	729
151.0	Generic Round	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	34.44	635	810
120.0	Commscope HELIAX	2	20	0.9	1.4	6.7	4.7	0.80	0.50	0.0	0.0	32.81	21	36
120.0	Nokia AirScale Dual	3	84	2.2	1.8	12.1	7.4	0.80	0.67	3.6	360.3	33.02	100	226
120.0	Nokia AHFIG 70.55	3	71	2.8	2.3	12.1	5.2	0.80	0.67	0.0	0.0	32.81	124	191
120.0	Andrew TMBX-6517-	2	20	6.0	7.0	6.5	3.3	0.80	0.77	0.4	82.7	32.84	207	36
120.0	Andrew TMBX-6517-	1	20	6.0	7.0	6.5	3.3	0.80	0.77	0.4	41.3	32.84	103	18
120.0	Nokia AEHC	3	104	6.8	3.2	21.5	8.1	0.80	0.62	0.0	0.0	32.81	284	280
120.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	32.81	753	1080
120.0	Commscope FFHH-	3	126	21.1	8.0	25.2	9.3	0.80	0.63	1.5	1340.6	32.90	894	339
Totals		80	8300	610.8									10075	7470

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elevation (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
172.0	RFS DB-B1-6C-12AB-	1	102	3.6	1.6	15.7	10.3	0.80	0.50	0.1	0.6	4.77	6	107
172.0	RFS DB-T1-6Z-12AB-	1	97	3.6	1.6	15.7	10.3	0.80	0.50	1.7	9.9	4.78	6	100
172.0	Ericsson RRUS B13	3	146	3.9	1.6	17.0	10.6	0.80	0.67	-1.6	40.6	4.76	25	480
172.0	Ericsson AIR 32 B4A-	3	268	8.8	4.7	12.9	8.7	0.80	0.71	-0.4	24.2	4.76	60	868
172.0	Ericsson AIR 32 B2A-	3	268	8.8	4.7	12.9	8.7	0.80	0.71	0.0	0.0	4.77	60	868
172.0	Andrew LNX-	6	282	14.7	8.0	11.9	7.1	0.80	0.70	-0.6	120.0	4.76	200	1753
171.0	Flat Light Sector	3	705	33.2	0.0	0.0	0.0	0.75	0.67	0.0	0.0	4.76	203	2356
162.0	Andrew Microwaves	1	1000	39.2	6.0	72.0	0.0	1.00	1.00	1.0	157.0	4.71	157	1056
158.5	Raycap DC6-48-60-	1	74	2.8	1.7	18.2	6.4	0.80	1.00	0.0	0.0	4.69	9	78
155.1	Raycap DC6-48-60-	1	94	2.2	2.0	11.0	11.0	0.80	1.00	0.0	0.0	4.66	7	100
151.0	Powerwave Allgon	3	49	1.4	1.2	6.7	5.4	0.80	0.50	0.6	4.1	4.64	7	159
151.0	Nokia AirScale RRH	3	75	2.0	1.1	11.6	6.5	0.80	0.50	2.6	25.2	4.65	10	245
151.0	Raycap DC6-48-60-0-	1	91	2.0	1.9	11.0	11.0	0.80	1.00	-0.2	1.3	4.64	6	98
151.0	Alcatel-Lucent	3	121	2.7	1.7	10.6	8.9	0.80	0.50	0.2	2.6	4.64	13	398
151.0	Alcatel-Lucent B25	3	113	3.1	1.8	12.0	7.2	0.80	0.67	2.9	57.5	4.66	20	372
151.0	Nokia Flexi RRH	3	114	3.5	1.9	12.6	6.3	0.80	0.67	1.1	24.3	4.65	22	371
151.0	Alcatel-Lucent B66A	3	127	3.7	2.2	11.8	7.2	0.80	0.67	0.3	7.0	4.64	23	415
151.0	Alcatel-Lucent	3	162	4.5	2.6	12.0	8.7	0.80	0.72	0.2	6.1	4.64	30	527
151.0	Commscope SBNHH-	3	280	14.7	8.0	11.9	7.1	0.80	0.70	1.3	126.6	4.65	97	868
151.0	Andrew SBNH-	3	296	14.7	8.0	11.9	7.1	0.80	0.70	0.3	29.2	4.64	97	928
151.0	Quintel QS86512-2	6	396	14.7	8.0	12.0	9.6	0.80	0.74	0.7	144.3	4.64	206	2538
151.0	Generic Round	3	669	31.0	0.0	0.0	0.0	0.75	0.67	0.0	0.0	4.64	184	2186
120.0	Commscope HELIAX	2	48	1.6	1.4	6.7	4.7	0.80	0.50	0.0	0.0	4.42	5	104
120.0	Nokia AirScale Dual	3	146	3.2	1.8	12.1	7.4	0.80	0.67	3.6	70.1	4.45	19	487
120.0	Nokia AHFIG 70.55	3	134	3.9	2.3	12.1	5.2	0.80	0.67	0.0	0.0	4.42	24	445
120.0	Andrew TMBX-6517-	2	122	8.6	7.0	6.5	3.3	0.80	0.77	0.4	16.0	4.42	40	252
120.0	Andrew TMBX-6517-	1	122	8.6	7.0	6.5	3.3	0.80	0.77	0.4	8.0	4.42	20	126
120.0	Nokia AEHC	3	254	8.6	3.2	21.5	8.1	0.80	0.62	0.0	0.0	4.42	48	824
120.0	Flat Light Sector	3	692	32.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	4.42	184	2317
120.0	Commscope FFHH-	3	529	24.8	8.0	25.2	9.3	0.80	0.63	1.5	211.5	4.43	141	1662
Totals		80	21429	885.6									1931	23089

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Customer: T-MOBILE

Tower Loading**Discrete Appurtenance Properties** 1.0D + 1.0W Service

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
172.0	RFS DB-B1-6C-12AB-	1	21	2.5	1.6	15.7	10.3	0.80	0.50	0.1	0.9	10.73	9	21
172.0	RFS DB-T1-6Z-12AB-	1	16	2.5	1.6	15.7	10.3	0.80	0.50	1.7	15.6	10.75	9	16
172.0	Ericsson RRUS B13	3	72	2.8	1.6	17.0	10.6	0.80	0.67	-1.6	65.3	10.70	41	216
172.0	Ericsson AIR 32 B4A-	3	106	6.5	4.7	12.9	8.7	0.80	0.71	-0.4	40.5	10.72	101	317
172.0	Ericsson AIR 32 B2A-	3	106	6.5	4.7	12.9	8.7	0.80	0.71	0.0	0.0	10.73	101	317
172.0	Andrew LNX-	6	50	11.4	8.0	11.9	7.1	0.80	0.70	-0.6	209.5	10.72	349	299
171.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	10.71	246	1200
162.0	Andrew Microwaves	1	281	35.7	6.0	72.0	0.0	1.00	1.00	1.0	321.5	10.60	322	281
158.5	Raycap DC6-48-60-	1	16	2.0	1.7	18.2	6.4	0.80	1.00	0.0	0.0	10.54	15	16
155.1	Raycap DC6-48-60-	1	32	1.5	2.0	11.0	11.0	0.80	1.00	0.0	0.0	10.49	10	32
151.0	Powerwave Allgon	3	22	0.8	1.2	6.7	5.4	0.80	0.50	0.6	5.1	10.44	8	66
151.0	Nokia AirScale RRH	3	35	1.3	1.1	11.6	6.5	0.80	0.50	2.6	35.7	10.47	14	106
151.0	Raycap DC6-48-60-0-	1	33	1.4	1.9	11.0	11.0	0.80	1.00	-0.2	1.9	10.43	10	33
151.0	Alcatel-Lucent	3	60	1.8	1.7	10.6	8.9	0.80	0.50	0.2	3.9	10.44	19	180
151.0	Alcatel-Lucent B25	3	53	2.1	1.8	12.0	7.2	0.80	0.67	2.9	88.0	10.48	30	159
151.0	Nokia Flexi RRH	3	51	2.4	1.9	12.6	6.3	0.80	0.67	1.1	37.9	10.45	34	152
151.0	Alcatel-Lucent B66A	3	57	2.5	2.2	11.8	7.2	0.80	0.67	0.3	10.9	10.44	36	170
151.0	Alcatel-Lucent	3	70	3.2	2.6	12.0	8.7	0.80	0.72	0.2	9.7	10.44	49	210
151.0	Commscope SBNHH-	3	50	11.4	8.0	11.9	7.1	0.80	0.70	1.3	222.0	10.45	171	149
151.0	Andrew SBNH-	3	66	11.4	8.0	11.9	7.1	0.80	0.70	0.3	51.2	10.44	171	198
151.0	Quintel QS86512-2	6	135	11.5	8.0	12.0	9.6	0.80	0.74	0.7	253.1	10.45	362	810
151.0	Generic Round	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	10.44	193	900
120.0	Commscope HELIAX	2	20	0.9	1.4	6.7	4.7	0.80	0.50	0.0	0.0	9.94	6	40
120.0	Nokia AirScale Dual	3	84	2.2	1.8	12.1	7.4	0.80	0.67	3.6	109.2	10.00	30	251
120.0	Nokia AHFIG 70.55	3	71	2.8	2.3	12.1	5.2	0.80	0.67	0.0	0.0	9.94	38	212
120.0	Andrew TMBX-6517-	2	20	6.0	7.0	6.5	3.3	0.80	0.77	0.4	25.0	9.95	63	40
120.0	Andrew TMBX-6517-	1	20	6.0	7.0	6.5	3.3	0.80	0.77	0.4	12.5	9.95	31	20
120.0	Nokia AEHC	3	104	6.8	3.2	21.5	8.1	0.80	0.62	0.0	0.0	9.94	86	311
120.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	9.94	228	1200
120.0	Commscope FFHH-	3	126	21.1	8.0	25.2	9.3	0.80	0.63	1.5	406.2	9.97	271	377
Totals		80	8300	610.8									3053	8300

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Customer: T-MOBILE

Tower Loading**Linear Appurtenance Properties**

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	180.0	Climbing Ladder	1	2.00	6.00	100	1	Individual	0.00	N	1.00	1.00	0.00
0.00	172.0	1.25" (31.8mm)	2	1.25	1.21	100	1	Individual	0.00	N	1.00	1.00	0.00
0.00	172.0	Waveguide	1	2.00	6.00	100	Lin App	Individual	0.00	N	1.00	1.00	0.00
0.00	162.0	EW37	1	2.90	0.84	100		Individual	0.00	N	1.00	1.00	0.00
0.00	151.0	0.39" (10mm) Fiber	2	0.39	0.06	100	2	Individual	0.00	N	1.00	1.00	0.00
0.00	151.0	0.76" (19.2mm) 8	6	0.76	0.53	100	2	Individual	0.00	N	1.00	1.00	0.00
0.00	151.0	1 5/8" Coax	12	1.98	0.82	100	2	Individual	0.00	N	1.00	1.00	0.00
0.00	151.0	3/8" (0.38"-	1	0.38	0.23	100	2	Individual	0.00	N	1.00	1.00	0.00
0.00	151.0	Waveguide	1	2.00	6.00	100	2	Individual	0.00	N	1.00	1.00	0.00
0.00	120.0	1 5/8" Coax	5	1.98	0.82	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	120.0	1.46" (37.1mm)	2	1.46	1.70	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	120.0	7/8" Coax	6	1.09	0.33	83	3	Block	0.00	N	1.00	1.00	0.00
0.00	120.0	Waveguide	1	2.00	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00

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Equivalent Lateral Force Method

Spectral Response Acceleration for Short Period (S_s):	0.10
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Long-Period Transition Period (T_L - Seconds):	12
Importance Factor (I_e):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.11
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s :	0.04
Lower Limit C_s :	0.03
Period based on Rayleigh Method (sec):	0.85
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.17
Total Unfactored Dead Load:	46.12 k
Seismic Base Shear (E):	2.11 k

LoadCase 1.2D + 1.0Ev + 1.0Eh**Seismic**

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
10	185.00	341	156,292	0.018	39	417
9	170.00	1,026	425,401	0.050	105	1,253
8	150.00	1,963	702,639	0.082	174	2,397
7	130.00	2,781	841,457	0.098	208	3,396
6	110.00	3,690	917,630	0.107	227	4,505
5	90.00	4,331	851,098	0.100	210	5,288
4	70.00	4,755	695,839	0.081	172	5,807
3	50.00	6,010	592,543	0.069	146	7,339
2	30.00	5,990	324,291	0.038	80	7,315
1	10.00	6,930	103,351	0.012	26	8,463
RFS DB-B1-6C-12AB-0Z	172.00	21	8,994	0.001	2	26
RFS DB-T1-6Z-12AB-0Z	172.00	16	6,724	0.001	2	20
Ericsson RRUS B13 w/ RRUS A2	172.00	216	90,776	0.011	22	264
Ericsson AIR 32 B4A-B2P	172.00	317	133,391	0.016	33	388
Ericsson AIR 32 B2A-B4P	172.00	317	133,391	0.016	33	388
Andrew LNX-6515DS-A1M	172.00	299	125,574	0.015	31	365
Flat Light Sector Frame	171.00	1,200	500,873	0.059	124	1,465
Andrew Microwaves UHX6-105	162.00	281	110,077	0.013	27	343
Raycap DC6-48-60-18-8C	158.50	16	6,109	0.001	2	20
Raycap DC6-48-60-18-8F ("Squid")	155.10	32	11,837	0.001	3	39
Powerwave Allgon TT08-19DB111-001	151.00	66	23,807	0.003	6	81
Nokia AirScale RRH 4T4R B5 160W AHCA	151.00	106	38,199	0.004	9	129
Raycap DC6-48-60-0-8F	151.00	33	11,831	0.001	3	40
Alcatel-Lucent RRH2x40-07-L (20.5"	151.00	180	64,927	0.008	16	220
Alcatel-Lucent B25 RRH4x30	151.00	159	57,352	0.007	14	194

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Equivalent Lateral Force Method

Nokia Flexi RRH 4T4R B14 160W FRBI	151.00	152	54,863	0.006	14	186
Alcatel-Lucent B66A RRH4x45-4R w/	151.00	170	61,464	0.007	15	208
Alcatel-Lucent RRH4X25-WCS	151.00	210	75,748	0.009	19	256
Commscope SBNHH-1D65C	151.00	149	53,673	0.006	13	182
Andrew SBNH-1D6565C	151.00	198	71,528	0.008	18	242
Quintel QS86512-2	151.00	810	292,171	0.034	72	989
Generic Round Sector Frame	151.00	900	324,635	0.038	80	1,099
Commscope HELIAX FiberFeed 12 RRU	120.00	40	11,018	0.001	3	49
Nokia AirScale Dual RRH 4T4R B12/71	120.00	251	69,247	0.008	17	307
Nokia AHFIG 70.55 lbs	120.00	212	58,339	0.007	14	259
Andrew TMBX-6517-A1M	120.00	40	10,908	0.001	3	48
Andrew TMBX-6517-A1M	120.00	20	5,454	0.001	1	24
Nokia AEHC	120.00	311	85,609	0.010	21	380
Flat Light Sector Frame	120.00	1,200	330,535	0.039	82	1,465
Commscope FFHH-65C-R3	120.00	377	103,871	0.012	26	460
		46,118	8,543,464	1.000	2,110	56,316

LoadCase 0.9D - 1.0Ev + 1.0Eh**Seismic (Reduced DL)**

Section	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
10	185.00	341	156,292	0.018	39	300
9	170.00	1,026	425,401	0.050	105	902
8	150.00	1,963	702,639	0.082	174	1,725
7	130.00	2,781	841,457	0.098	208	2,444
6	110.00	3,690	917,630	0.107	227	3,243
5	90.00	4,331	851,098	0.100	210	3,806
4	70.00	4,755	695,839	0.081	172	4,179
3	50.00	6,010	592,543	0.069	146	5,282
2	30.00	5,990	324,291	0.038	80	5,265
1	10.00	6,930	103,351	0.012	26	6,091
RFS DB-B1-6C-12AB-0Z	172.00	21	8,994	0.001	2	19
RFS DB-T1-6Z-12AB-0Z	172.00	16	6,724	0.001	2	14
Ericsson RRUS B13 w/ RRUS A2	172.00	216	90,776	0.011	22	190
Ericsson AIR 32 B4A-B2P	172.00	317	133,391	0.016	33	279
Ericsson AIR 32 B2A-B4P	172.00	317	133,391	0.016	33	279
Andrew LNX-6515DS-A1M	172.00	299	125,574	0.015	31	263
Flat Light Sector Frame	171.00	1,200	500,873	0.059	124	1,055
Andrew Microwaves UHX6-105	162.00	281	110,077	0.013	27	247
Raycap DC6-48-60-18-8C	158.50	16	6,109	0.001	2	14
Raycap DC6-48-60-18-8F ("Squid")	155.10	32	11,837	0.001	3	28
Powerwave Allgon TT08-19DB111-001	151.00	66	23,807	0.003	6	58
Nokia AirScale RRH 4T4R B5 160W AHCA	151.00	106	38,199	0.004	9	93
Raycap DC6-48-60-0-8F	151.00	33	11,831	0.001	3	29
Alcatel-Lucent RRH2x40-07-L (20.5"	151.00	180	64,927	0.008	16	158
Alcatel-Lucent B25 RRH4x30	151.00	159	57,352	0.007	14	140
Nokia Flexi RRH 4T4R B14 160W FRBI	151.00	152	54,863	0.006	14	134
Alcatel-Lucent B66A RRH4x45-4R w/	151.00	170	61,464	0.007	15	150
Alcatel-Lucent RRH4X25-WCS	151.00	210	75,748	0.009	19	185
Commscope SBNHH-1D65C	151.00	149	53,673	0.006	13	131
Andrew SBNH-1D6565C	151.00	198	71,528	0.008	18	174
Quintel QS86512-2	151.00	810	292,171	0.034	72	712
Generic Round Sector Frame	151.00	900	324,635	0.038	80	791
Commscope HELIAX FiberFeed 12 RRU	120.00	40	11,018	0.001	3	35

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Equivalent Lateral Force Method

Nokia AirScale Dual RRH 4T4R B12/71	120.00	251	69,247	0.008	17	221
Nokia AHFIG 70.55 lbs	120.00	212	58,339	0.007	14	186
Andrew TMBX-6517-A1M	120.00	40	10,908	0.001	3	35
Andrew TMBX-6517-A1M	120.00	20	5,454	0.001	1	17
Nokia AEHC	120.00	311	85,609	0.010	21	273
Flat Light Sector Frame	120.00	1,200	330,535	0.039	82	1,055
Commscope FFHH-65C-R3	120.00	377	103,871	0.012	26	331
		46,118	8,543,464	1.000	2,110	40,532

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Force/Stress Summary

Section: 1		Section 1		Bot Elev (ft): 0.00				Height (ft): 20.000								
		Pu		Len	Bracing %			F'y	Phic	Pn	Num	Num	Shear	Bear	Use	
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls
LEG	SOL - 4 1/2" SOLID	-285.09	1.2D + 1.0W Normal	6.51	100	100	100	69.4	50.0	503.25	0	0	0.00	0.00	56	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 3.5X3.5X0.375	-8.08	1.2D + 1.0W 90 deg	17.05	50	50	50	148.9	36.0	32.01	2	1	27.61	52.20	29	Bolt Shear
		Pu		Fy	Fu	Phit	Pn	Num	Num	Shear		Bear	Blk	Shear	Use	
Max Tension Member		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes		phiRnv		phiRn	phit	Pn	%	Controls
LEG	SOL - 4 1/2" SOLID	245.83	0.9D + 1.0W 60 deg	50	65	715.68	0	0		0.00		0.00			34	Member
HORIZ		0.00		0	0	0.00	0	0		0.00		0.00		0.00	0	
DIAG	SAE - 3.5X3.5X0.375	7.89	1.2D + 1.0W 90 deg	36	58	72.50	2	1		27.61		41.76		34.87	28	Bolt Shear
		Pu				phiRnt	Use	Num								
Max Splice Forces		(kip)	Load Case			(kip)	%	Bolts		Bolt Type						
Top Tension		218.39	0.9D + 1.0W 60 deg			0.00	0	0								
Top Compression		258.46	1.2D + 1.0W Normal			0.00	0									
Bot Tension		245.83	0.9D + 1.0W 60 deg			843.15	9	6	2" F1554 GD 55							
Bot Compression		291.23	1.2D + 1.0W Normal			824.41	36									

Section: 2		Section 2		Bot Elev (ft): 20.00				Height (ft): 20.000								
		Pu		Len	Bracing %			F'y	Phic	Pn	Num	Num	Shear	Bear	Use	
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls
LEG	SOL - 4 1/4" SOLID	-251.60	1.2D + 1.0W Normal	6.51	100	100	100	73.5	50.0	430.15	0	0	0.00	0.00	58	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 3.5X3.5X0.3125	-7.58	1.2D + 1.0W 90 deg	16.56	50	50	50	144.1	36.0	28.82	2	1	27.61	43.50	27	Bolt Shear
		Pu		Fy	Fu	Phit	Pn	Num	Num	Shear		Bear	Blk	Shear	Use	
Max Tension Member		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes		phiRnv		phiRn	phit	Pn	%	Controls
LEG	SOL - 4 1/4" SOLID	218.73	0.9D + 1.0W 60 deg	50	65	638.37	0	0		0.00		0.00			34	Member
HORIZ		0.00		0	0	0.00	0	0		0.00		0.00		0.00	0	
DIAG	SAE - 3.5X3.5X0.3125	7.50	1.2D + 1.0W 90 deg	36	58	61.18	2	1		27.61		34.80		29.06	27	Bolt Shear
		Pu				phiRnt	Use	Num								
Max Splice Forces		(kip)	Load Case			(kip)	%	Bolts		Bolt Type						
Top Tension		189.52	0.9D + 1.0W 60 deg			0.00	0	0								
Top Compression		223.41	1.2D + 1.0W Normal			0.00	0									
Bot Tension		218.39	0.9D + 1.0W 60 deg			523.32	42	6	1.25" A325							
Bot Compression		0.00				0.00	0									

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Force/Stress Summary

Section: 3		Section 3		Bot Elev (ft): 40.00				Height (ft): 20.000							
		Pu		Len	Bracing %			F'y	Phic	Pn	Num	Shear	Bear		
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	Use
													(kip)	(kip)	%
LEG	SOL - 4" SOLID	-217.91	1.2D + 1.0W Normal	4.88	100	100	100	58.6	50.0	440.08	0	0	0.00	0.00	49
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 3X3X0.375	-6.96	1.2D + 1.0W 90 deg	14.63	50	50	50	149.6	36.0	26.99	2	1	27.61	52.20	25
											</				

		Pu	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
Max Tension Member		(kip)											
LEG	SOL - 4" SOLID	186.87	1.2D + 1.0W 60 deg	50	65	565.47	0	0	0.00	0.00		33	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	SAE - 3X3X0.375	6.94	1.2D + 1.0W 90 deg	36	58	60.43	2	1	27.61	41.76	30.79	25	Bolt Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		159.96	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		187.60	1.2D + 1.0W Normal	0.00	0		
Bot Tension		189.52	0.9D + 1.0W 60 deg	523.32	36	6	1.25" A325
Bot Compression		0.00		0.00	0		

Section: 4		Section 4		Bot Elev (ft): 60.00				Height (ft): 20.000								
		Pu		Len	Bracing %			F'y	Phic	Pn	Num	Num	Shear	Bear	Use	
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	(kip)	(kip)	%	Controls
LEG	SOL - 3 3/4" SOLID	-182.29	1.2D + 1.0W Normal	4.88	100	100	100	62.5	50.0	373.68	0	0	0.00	0.00	48	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 3X3X0.25	-6.33	1.2D + 1.0W 90 deg	13.23	50	50	50	134.1	36.0	22.92	2	1	27.61	34.80	27	Member Z

		Pu	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
Max Tension Member		(kip)											
LEG	SOL - 3 3/4" SOLID	160.25	0.9D + 1.0W 60 deg	50	65	497.02	0	0	0.00	0.00		32	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	SAE - 3X3X0.25	6.28	1.2D + 1.0W 90 deg	36	58	41.37	2	1	27.61	27.84	20.53	30	Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		129.56	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		152.04	1.2D + 1.0W Normal	0.00	0		
Bot Tension		159.96	0.9D + 1.0W 60 deg	327.10	49	6	1 A325
Bot Compression		0.00		0.00	0		

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Force/Stress Summary

Section: 5		Section 5		Bot Elev (ft): 80.00				Height (ft): 20.000								
		Pu	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic (kip)	Pn Bolts	Num Holes	Shear		Bear phiRn	Use %	Controls
Max Compression Member		(kip)			X	Y	Z					phiRnv (kip)	phiRn (kip)			
LEG	SOL - 3 1/2" SOLID	-146.83	1.2D + 1.0W Normal	4.88	100	100	100	66.9	50.0	312.05	0	0	0.00	0.00	47	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 2.5X2.5X0.3125	-5.77	1.2D + 1.0W 90 deg	11.84	50	50	50	145.4	36.0	19.77	2	1	17.67	34.80	32	Bolt Shear

		Pu	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
Max Tension Member		(kip)											
LEG	SOL - 3 1/2" SOLID	127.81	1.2D + 1.0W 60 deg	50	65	432.95	0	0	0.00	0.00		29	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	SAE - 2.5X2.5X0.3125	5.75	1.2D + 1.0W 90 deg	36	58	41.90	2	1	17.67	27.73	21.75	32	Bolt Shear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	98.33	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression	116.30	1.2D + 1.0W Normal	0.00	0		
Bot Tension	129.56	0.9D + 1.0W 60 deg	327.10	40	6	1 A325
Bot Compression	0.00		0.00	0		

Section: 6		Section 6		Bot Elev (ft): 100.0				Height (ft): 20.000								
		Pu	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic (kip)	Pn Bolts	Num Holes	Shear		Bear phiRn	Use %	Controls
Max Compression Member		(kip)			X	Y	Z					phiRnv (kip)	phiRn (kip)			
LEG	SOL - 3 1/4" SOLID	-111.15	1.2D + 1.0W Normal	5.00	100	100	100	73.9	50.0	250.38	0	0	0.00	0.00	44	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 2.5X2.5X0.25	-5.41	1.2D + 1.0W 90 deg	10.57	50	50	50	129.2	36.0	20.41	2	1	17.67	27.84	30	Bolt Shear

		Pu	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
Max Tension Member		(kip)											
LEG	SOL - 3 1/4" SOLID	93.86	0.9D + 1.0W 60 deg	50	65	373.32	0	0	0.00	0.00		25	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	SAE - 2.5X2.5X0.25	5.38	1.2D + 1.0W 90 deg	36	58	34.24	2	1	17.67	22.18	17.40	30	Blk Shear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	63.76	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression	77.77	1.2D + 1.0W Normal	0.00	0		
Bot Tension	98.33	0.9D + 1.0W 60 deg	218.07	45	4	1 A325
Bot Compression	0.00		0.00	0		

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Force/Stress Summary

Section: 7		Section 7		Bot Elev (ft): 120.0				Height (ft): 20.000							
		Pu		Len	Bracing %			F'y	PhiC	Pn	Num		Shear	Bear	
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	Use
													(kip)	(kip)	%
LEG	SOL - 3" SOLID	-72.74	1.2D + 1.0W Normal	4.88	100	100	100	78.1	50.0	203.71	0	0	0.00	0.00	35 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 2.5X2.5X0.1875	-4.15	1.2D + 1.0W 90 deg	8.289	50	50	50	105.4	36.0	21.14	2	1	17.67	20.88	23 Bolt Shear

		Pu	Load Case	Fy (ksi)	Fu (ksi)	PhiT Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phiT Pn (kip)	Use %	Controls
Max Tension Member		(kip)											
LEG	SOL - 3" SOLID	64.20	1.2D + 1.0W 60 deg	50	65	318.10	0	0	0.00	0.00		20	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	SAE - 2.5X2.5X0.1875	4.09	1.2D + 1.0W 90 deg	36	58	25.99	2	1	17.67	16.64	13.05	31	Blk Shear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	36.58	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression	45.43	1.2D + 1.0W Normal	0.00	0		
Bot Tension	63.76	0.9D + 1.0W 60 deg	218.07	29	4	1 A325
Bot Compression	0.00		0.00	0		

Section: 8		Section 8		Bot Elev (ft): 140.0				Height (ft): 20.000								
		Pu		Len	Bracing %			F'y	Phic	Pn	Num	Num	Shear	Bear	Use	
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	(kip)	(kip)	%	Controls
LEG	SOL - 2 1/2" SOLID	-41.13	1.2D + 1.0W Normal	4.88	100	100	100	93.7	50.0	116.30	0	0	0.00	0.00	35	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 2X2X0.1875	-3.81	1.2D + 1.0W 90 deg	7.966	50	50	50	121.3	36.0	13.83	2	1	17.67	20.88	27	Member Z

		Pu	Load Case	Fy (ksi)	Fu (ksi)	PhiT Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phiT Pn (kip)	Use %	Controls
Max Tension Member		(kip)											
LEG	SOL - 2 1/2" SOLID	35.89	1.2D + 1.0W 60 deg	50	65	220.95	0	0	0.00	0.00		16	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	SAE - 2X2X0.1875	3.83	1.2D + 1.0W 90 deg	36	58	19.89	2	1	17.67	16.64	11.01	34	Blk Shear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	11.41	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression	14.90	1.2D + 1.0W Normal	0.00	0		
Bot Tension	36.58	0.9D + 1.0W 60 deg	120.41	30	4	0.75" A325
Bot Compression	0.00		0.00	0		

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Force/Stress Summary

Section: 9		Section 9		Bot Elev (ft): 160.0				Height (ft): 20.000								
		Pu			Len	Bracing %			F'y	Phic	Pn	Num	Num	Shear	Bear	Use
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	(kip)	(kip)	%	Controls
LEG	SOL - 1 3/4" SOLID	-12.43	1.2D + 1.0W Normal	3.90	100	100	100	107.1	50.0	46.81	0	0	0.00	0.00	26	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 1.5X1.5X0.1875	-1.65	1.2D + 1.0W Normal	6.213	50	50	50	127.2	36.0	9.37	2	1	17.67	20.88	17	Member Z

Max Tension Member		Pu			Fy	Fu	Phit	Pn	Num	Num	Shear	Bear	Blk	Shear	Use	Controls
		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	(kip)	(kip)	(kip)	(kip)	(kip)	(kip)	%	
LEG	SOL - 1 3/4" SOLID	11.14	1.2D + 1.0W 60 deg	50	65	108.24	0	0	0.00	0.00					10	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00			0.00		0	
DIAG	SAE - 1.5X1.5X0.1875	1.69	1.2D + 1.0W 60 deg	36	58	13.85	2	1	17.67	16.64			8.97		18	Blk Shear

Max Splice Forces		Pu			phiRnt	Use	Num		
		(kip)	Load Case	(kip)	%	Bolts	Bolt Type		
Top Tension		0.47	0.9D + 1.0W 60 deg		0.00	0	0		
Top Compression		0.90	1.2D + 1.0W Normal		0.00	0			
Bot Tension		11.41	0.9D + 1.0W 60 deg		120.41	9	4	0.75" A325	
Bot Compression		0.00			0.00	0			

Section: 10		Section 10		Bot Elev (ft): 180.0				Height (ft): 10.000								
		Pu			Len	Bracing %			F'y	Phic	Pn	Num	Num	Shear	Bear	Use
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	(kip)	(kip)	%	Controls
LEG	SOL - 1 1/2" SOLID	-0.84	1.2D + 1.0W Normal	0.25	100	100	100	8.0	50.0	79.15	0	0	0.00	0.00	1	Member X
HORIZ	SAE - 1.5X1.5X0.1875	-0.10	1.2D + 1.0W Normal	2.752	100	100	100	116.3	36.0	10.96	2	1	17.67	20.88	0	Member Z
DIAG	SAE - 1.5X1.5X0.1875	-0.21	1.2D + 1.0W Normal	4.676	50	50	50	101.8	36.0	12.86	2	1	17.67	20.88	1	Member Z

Max Tension Member		Pu			Fy	Fu	Phit	Pn	Num	Num	Shear	Bear	Blk	Shear	Use	Controls
		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	(kip)	(kip)	(kip)	(kip)	(kip)	(kip)	%	
LEG	SOL - 1 1/2" SOLID	0.22	1.2D + 1.0W Normal	50	65	79.52	0	0	0.00	0.00					0	Member
HORIZ	SAE - 1.5X1.5X0.1875	0.05	1.2D + 1.0W Normal	36	58	13.85	2	1	17.67	16.64			8.97		0	Blk Shear
DIAG	SAE - 1.5X1.5X0.1875	0.19	1.2D + 1.0W 60 deg	36	58	13.85	2	1	17.67	16.64			8.97		2	Blk Shear

Max Splice Forces		Pu			phiRnt	Use	Num		
		(kip)	Load Case	(kip)	%	Bolts	Bolt Type		
Top Tension		0.00			0.00	0	0		
Top Compression		0.10	1.2D + 1.0Di + 1.0Wi		0.00	0			
Bot Tension		0.47	0.9D + 1.0W 60 deg		120.41	0	4	0.75" A325	
Bot Compression		0.00			0.00	0			

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Detailed Reactions

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
1.2D + 1.0W Normal	9.81	00.00	0	1	0.00	290.92	-24.20	
	9.81	00.00	120	1a	7.94	-117.79	-8.06	
	9.81	00.00	240	1b	-7.94	-117.79	-8.06	
1.2D + 1.0W 60 deg	9.81	00.00	0	1	-2.77	148.13	-11.85	
	9.81	00.00	120	1a	-11.63	147.70	3.53	
	9.81	00.00	240	1b	-18.44	-240.49	-10.64	
1.2D + 1.0W 90 deg	9.81	00.00	0	1	-3.27	18.45	-0.82	
	9.81	00.00	120	1a	-18.29	245.40	8.69	
	9.81	00.00	240	1b	-16.95	-208.51	-7.88	
0.9D + 1.0W Normal	9.81	00.00	0	1	0.00	285.99	-23.98	
	9.81	00.00	120	1a	8.13	-122.24	-8.17	
	9.81	00.00	240	1b	-8.13	-122.24	-8.17	
0.9D + 1.0W 60 deg	9.81	00.00	0	1	-2.77	143.37	-11.63	
	9.81	00.00	120	1a	-11.45	142.93	3.42	
	9.81	00.00	240	1b	-18.62	-244.79	-10.75	
0.9D + 1.0W 90 deg	9.81	00.00	0	1	-3.28	13.84	-0.60	
	9.81	00.00	120	1a	-18.11	240.52	8.58	
	9.81	00.00	240	1b	-17.13	-212.85	-7.98	
1.2D + 1.0Di + 1.0Wi Normal	9.81	00.00	0	1	0.00	118.23	-5.87	
	9.81	00.00	120	1a	3.16	5.42	-2.82	
	9.81	00.00	240	1b	-3.16	5.42	-2.82	
1.2D + 1.0Di + 1.0Wi 60 deg	9.81	00.00	0	1	-0.84	79.92	-2.46	
	9.81	00.00	120	1a	-2.55	79.85	0.50	
	9.81	00.00	240	1b	-6.36	-30.69	-3.67	
1.2D + 1.0Di + 1.0Wi 90 deg	9.81	00.00	0	1	-0.98	43.03	0.81	
	9.81	00.00	120	1a	-4.47	107.15	2.01	
	9.81	00.00	240	1b	-5.87	-21.10	-2.82	
1.2D + 1.0Ev + 1.0Eh Normal M1	9.81	00.00	0	1	0.00	35.22	-2.11	
	9.81	00.00	120	1a	-0.27	9.84	0.03	
	9.81	00.00	240	1b	0.27	9.84	0.03	
1.2D + 1.0Ev + 1.0Eh 60 deg M1	9.81	00.00	0	1	-0.11	26.76	-1.49	
	9.81	00.00	120	1a	-1.35	26.76	0.65	
	9.81	00.00	240	1b	-0.32	1.39	-0.18	
1.2D + 1.0Ev + 1.0Eh 90 deg M1	9.81	00.00	0	1	-0.13	18.30	-0.87	
	9.81	00.00	120	1a	-1.72	32.95	0.92	
	9.81	00.00	240	1b	-0.21	3.65	-0.04	
0.9D - 1.0Ev + 1.0Eh Normal M1	9.81	00.00	0	1	0.00	30.07	-1.87	
	9.81	00.00	120	1a	-0.06	4.73	-0.10	
	9.81	00.00	240	1b	0.06	4.73	-0.10	
0.9D - 1.0Ev + 1.0Eh 60 deg M1	9.81	00.00	0	1	-0.11	21.62	-1.25	
	9.81	00.00	120	1a	-1.14	21.62	0.53	
	9.81	00.00	240	1b	-0.53	-3.72	-0.31	
0.9D - 1.0Ev + 1.0Eh 90 deg M1	9.81	00.00	0	1	-0.13	13.17	-0.63	
	9.81	00.00	120	1a	-1.51	27.80	0.79	

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	9.81	00.00	240	1b	-0.42	-1.46	-0.17
1.0D + 1.0W Service Normal	9.81	00.00	0	1	0.00	97.87	-7.81
	9.81	00.00	120	1a	2.01	-25.88	-2.21
	9.81	00.00	240	1b	-2.01	-25.88	-2.21
1.0D + 1.0W Service 60 deg	9.81	00.00	0	1	-0.84	54.64	-4.06
	9.81	00.00	120	1a	-3.93	54.51	1.30
	9.81	00.00	240	1b	-5.18	-63.03	-2.99
1.0D + 1.0W Service 90 deg	9.81	00.00	0	1	-0.99	15.37	-0.71
	9.81	00.00	120	1a	-5.95	84.09	2.87
	9.81	00.00	240	1b	-4.73	-53.35	-2.16

Max Uplift:	244.79(kip)	Moment Ice:	1,107.15 (kip-ft)	Moment:	4,011.47 (kip-ft)	1.2D + 1.0W Normal
Max Down:	290.92(kip)	Total Down Ice:	129.08 (kip)	Total Down:	55.34 (kip)	
Max Shear:	24.20 (kip)	Total Shear Ice:	11.52 (kip)	Total Shear:	40.31 (kip)	

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Customer: T-MOBILE

Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
109 mph Normal with No Ice	120.00	0.510	0.2236	0.5627	0.5895
109 mph Normal with No Ice	150.00	0.793	0.3347	0.6971	0.7733
109 mph Normal with No Ice	154.88	0.843	0.3415	0.5383	0.6375
109 mph Normal with No Ice	159.75	0.894	0.3353	0.8496	0.8555
109 mph Normal with No Ice	160.25	0.901	0.3342	0.9158	0.9158
109 mph Normal with No Ice	171.95	1.028	0.2286	0.5105	0.5593
109 mph 60 degree with No Ice	120.00	0.487	0.2965	0.4971	0.5788
109 mph 60 degree with No Ice	150.00	0.757	0.4392	0.5485	0.7027
109 mph 60 degree with No Ice	154.88	0.805	0.4473	0.5484	0.6974
109 mph 60 degree with No Ice	159.75	0.853	0.4454	0.7234	0.8495
109 mph 60 degree with No Ice	160.25	0.859	0.4440	0.7288	0.8534
109 mph 60 degree with No Ice	171.95	0.980	0.3103	0.6619	0.7310
109 mph 90 degree with No Ice	120.00	0.492	-0.2983	0.4749	0.5325
109 mph 90 degree with No Ice	150.00	0.764	-0.4325	0.4914	0.6346
109 mph 90 degree with No Ice	154.88	0.812	-0.4377	0.5618	0.7121
109 mph 90 degree with No Ice	159.75	0.861	-0.4401	0.6768	0.7413
109 mph 90 degree with No Ice	160.25	0.867	-0.4386	0.6533	0.7075
109 mph 90 degree with No Ice	171.95	0.989	-0.3111	0.7154	0.7675
109 mph Normal with No Ice (Reduced DL)	120.00	0.510	0.2236	0.5618	0.5886
109 mph Normal with No Ice (Reduced DL)	150.00	0.792	0.3347	0.6959	0.7722
109 mph Normal with No Ice (Reduced DL)	154.88	0.841	0.3416	0.5373	0.6367
109 mph Normal with No Ice (Reduced DL)	159.75	0.893	0.3354	0.8476	0.8542
109 mph Normal with No Ice (Reduced DL)	160.25	0.900	0.3342	0.9136	0.9136
109 mph Normal with No Ice (Reduced DL)	171.95	1.026	0.2287	0.5092	0.5582
109 mph 60 deg with No Ice (Reduced DL)	120.00	0.486	0.2964	0.4961	0.5779
109 mph 60 deg with No Ice (Reduced DL)	150.00	0.756	0.4391	0.5472	0.7016
109 mph 60 deg with No Ice (Reduced DL)	154.88	0.803	0.4471	0.5474	0.6965
109 mph 60 deg with No Ice (Reduced DL)	159.75	0.852	0.4452	0.7219	0.8481
109 mph 60 deg with No Ice (Reduced DL)	160.25	0.858	0.4438	0.7274	0.8521
109 mph 60 deg with No Ice (Reduced DL)	171.95	0.978	0.3101	0.6606	0.7298
109 mph 90 deg with No Ice (Reduced DL)	120.00	0.491	-0.2982	0.4740	0.5317
109 mph 90 deg with No Ice (Reduced DL)	150.00	0.763	-0.4324	0.4901	0.6337
109 mph 90 deg with No Ice (Reduced DL)	154.88	0.810	-0.4376	0.5607	0.7113
109 mph 90 deg with No Ice (Reduced DL)	159.75	0.860	-0.4401	0.6750	0.7402
109 mph 90 deg with No Ice (Reduced DL)	160.25	0.865	-0.4386	0.6514	0.7064
109 mph 90 deg with No Ice (Reduced DL)	171.95	0.987	-0.3111	0.7141	0.7663
40 mph Normal with 1.50 in Radial Ice	120.00	0.138	0.0347	0.1440	0.1440
40 mph Normal with 1.50 in Radial Ice	150.00	0.211	0.0524	0.1714	0.1793
40 mph Normal with 1.50 in Radial Ice	154.88	0.223	0.0532	0.1409	0.1506
40 mph Normal with 1.50 in Radial Ice	159.75	0.237	0.0513	0.2059	0.2059
40 mph Normal with 1.50 in Radial Ice	160.25	0.239	0.0510	0.2185	0.2185
40 mph Normal with 1.50 in Radial Ice	171.95	0.271	0.0317	0.1401	0.1437
40 mph 60 deg with 1.50 in Radial Ice	120.00	0.136	-0.0421	0.1355	0.1418
40 mph 60 deg with 1.50 in Radial Ice	150.00	0.207	0.0616	0.1472	0.1596
40 mph 60 deg with 1.50 in Radial Ice	154.88	0.220	0.0623	0.1450	0.1554
40 mph 60 deg with 1.50 in Radial Ice	159.75	0.232	0.0614	0.1864	0.1962
40 mph 60 deg with 1.50 in Radial Ice	160.25	0.234	0.0611	0.1874	0.1971
40 mph 60 deg with 1.50 in Radial Ice	171.95	0.266	-0.0411	0.1695	0.1741
40 mph 90 deg with 1.50 in Radial Ice	120.00	0.136	-0.0515	0.1307	0.1332
40 mph 90 deg with 1.50 in Radial Ice	150.00	0.208	-0.0738	0.1370	0.1501
40 mph 90 deg with 1.50 in Radial Ice	154.88	0.220	-0.0742	0.1468	0.1645
40 mph 90 deg with 1.50 in Radial Ice	159.75	0.233	-0.0745	0.1788	0.1826
40 mph 90 deg with 1.50 in Radial Ice	160.25	0.235	-0.0741	0.1777	0.1815
40 mph 90 deg with 1.50 in Radial Ice	171.95	0.266	-0.0507	0.1786	0.1825
Seismic Normal M1	120.00	0.034	0.0013	0.0364	0.0364

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Seismic Normal M1	150.00	0.053	0.0016	0.0429	0.0429
Seismic Normal M1	154.88	0.057	0.0015	0.0402	0.0402
Seismic Normal M1	159.75	0.060	0.0018	0.0558	0.0558
Seismic Normal M1	160.25	0.061	0.0018	0.0579	0.0579
Seismic Normal M1	171.95	0.070	0.0017	0.0454	0.0454
Seismic 60 deg M1	120.00	0.034	-0.0013	0.0367	0.0367
Seismic 60 deg M1	150.00	0.053	-0.0016	0.0431	0.0431
Seismic 60 deg M1	154.88	0.057	0.0015	0.0403	0.0403
Seismic 60 deg M1	159.75	0.060	0.0019	0.0571	0.0571
Seismic 60 deg M1	160.25	0.061	0.0019	0.0580	0.0580
Seismic 60 deg M1	171.95	0.070	0.0017	0.0451	0.0451
Seismic 90 deg M1	120.00	0.034	-0.0015	0.0361	0.0361
Seismic 90 deg M1	150.00	0.053	-0.0018	0.0428	0.0428
Seismic 90 deg M1	154.88	0.057	-0.0018	0.0408	0.0409
Seismic 90 deg M1	159.75	0.060	-0.0021	0.0554	0.0554
Seismic 90 deg M1	160.25	0.061	-0.0021	0.0560	0.0560
Seismic 90 deg M1	171.95	0.070	-0.0019	0.0452	0.0452
Seismic (Reduced DL) Normal M1	120.00	0.034	0.0013	0.0364	0.0364
Seismic (Reduced DL) Normal M1	150.00	0.053	0.0016	0.0428	0.0428
Seismic (Reduced DL) Normal M1	154.88	0.057	0.0015	0.0401	0.0402
Seismic (Reduced DL) Normal M1	159.75	0.060	0.0018	0.0558	0.0558
Seismic (Reduced DL) Normal M1	160.25	0.061	0.0018	0.0578	0.0578
Seismic (Reduced DL) Normal M1	171.95	0.070	0.0017	0.0452	0.0452
Seismic (Reduced DL) 60 deg M1	120.00	0.034	-0.0013	0.0365	0.0365
Seismic (Reduced DL) 60 deg M1	150.00	0.053	-0.0016	0.0430	0.0430
Seismic (Reduced DL) 60 deg M1	154.88	0.057	0.0015	0.0402	0.0402
Seismic (Reduced DL) 60 deg M1	159.75	0.060	0.0019	0.0568	0.0568
Seismic (Reduced DL) 60 deg M1	160.25	0.061	0.0019	0.0578	0.0578
Seismic (Reduced DL) 60 deg M1	171.95	0.070	0.0017	0.0450	0.0450
Seismic (Reduced DL) 90 deg M1	120.00	0.034	-0.0015	0.0360	0.0360
Seismic (Reduced DL) 90 deg M1	150.00	0.053	-0.0018	0.0427	0.0427
Seismic (Reduced DL) 90 deg M1	154.88	0.057	-0.0018	0.0408	0.0408
Seismic (Reduced DL) 90 deg M1	159.75	0.060	-0.0021	0.0551	0.0551
Seismic (Reduced DL) 90 deg M1	160.25	0.061	-0.0021	0.0559	0.0559
Seismic (Reduced DL) 90 deg M1	171.95	0.070	-0.0019	0.0451	0.0451
Serviceability - 60 mph Wind Normal	120.00	0.154	0.0669	0.1700	0.1782
Serviceability - 60 mph Wind Normal	150.00	0.240	0.1000	0.2112	0.2336
Serviceability - 60 mph Wind Normal	154.88	0.255	0.1020	0.1627	0.1920
Serviceability - 60 mph Wind Normal	159.75	0.271	0.0998	0.2567	0.2584
Serviceability - 60 mph Wind Normal	160.25	0.273	0.0994	0.2768	0.2768
Serviceability - 60 mph Wind Normal	171.95	0.311	0.0672	0.1544	0.1684
Serviceability - 60 mph Wind 60 deg	120.00	0.147	0.0773	0.1505	0.1692
Serviceability - 60 mph Wind 60 deg	150.00	0.229	0.1140	0.1659	0.2013
Serviceability - 60 mph Wind 60 deg	154.88	0.243	0.1158	0.1667	0.1989
Serviceability - 60 mph Wind 60 deg	159.75	0.258	0.1151	0.2188	0.2472
Serviceability - 60 mph Wind 60 deg	160.25	0.260	0.1147	0.2202	0.2483
Serviceability - 60 mph Wind 60 deg	171.95	0.297	0.0790	0.2005	0.2155
Serviceability - 60 mph Wind 90 deg	120.00	0.149	-0.0900	0.1439	0.1610
Serviceability - 60 mph Wind 90 deg	150.00	0.231	-0.1304	0.1490	0.1917
Serviceability - 60 mph Wind 90 deg	154.88	0.246	-0.1319	0.1700	0.2152
Serviceability - 60 mph Wind 90 deg	159.75	0.261	-0.1325	0.2048	0.2239
Serviceability - 60 mph Wind 90 deg	160.25	0.262	-0.1321	0.1979	0.2137
Serviceability - 60 mph Wind 90 deg	171.95	0.299	-0.0929	0.2167	0.2318

Maximum Reactions Summary

Anchor Group	Vertical (kip)				Horizontal (kip)		Moment (kip-ft)	
	DL+WL	DL+WL+IL	UpLift	Shear	DL+WL	DL+WL+IL	DL+WL	DL+WL+IL
Base	55.34	129.08	290.92	24.20	40.31	11.52	4011.47	1107.15