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Structural Analysis Report

Structure	:	**125 ft Self Supported Tower**
ATC Site Name	:	**Cherry Hill/branford, CT**
ATC Site Number	:	**302536**
Engineering Number	:	**OAA686013_C3_01**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**Branford West**
Carrier Site Number	:	**CTL02175 / 10035093**
Site Location	:	**4 Beaver Road** **Branford, CT 06405-3403** **41.280150,-72.841733**
County	:	**New Haven**
Date	:	**September 26, 2016**
Max Usage	:	**85%**
Result	:	**Pass**

Reviewed by:
Scott Wirgau, PE
Structural Team Leader

STATE OF CONNECTICUT
SCOTT A. WIRGAU
30575
LICENSED
PROFESSIONAL ENGINEER

Prepared By:
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Sep 28 2016 4:35 PM

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COA: PEC.0001553

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Calculations ..... Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 125 ft self supported tower to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Rohn Eng. File # 30329PM, dated November 22, 1993
Foundation Drawing	Rohn Eng. File # 30329PM, dated November 11, 1993
Geotechnical Report	French & Parrello Job # 93N019C, dated June 4, 1993

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:	101 mph (3-Second Gust, Vasd) / 130 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1"1/4 radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Spectral Response:	Ss = 0.23, S_1 = 0.06
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

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
125.0	125.0	12	Decibel DB844H90E-XY	Sector Frames	(12) 1 5/8" Coax	Sprint Nextel
113.0	113.0	1	Raycap DC6-48-60-18-8F ("Squid")	Sector Frames	(12) 7/8" Coax (2) 0.39" Fiber Trunk (2) 0.74" 8 AWG 7 (4) 0.78" 8 AWG 6 (1) 3" Conduit (1) 3/8" RET Control Cable	AT&T Mobility
		3	Andrew SBNHH-1D65A			
		3	Ericsson RRUS 32			
		3	KMW AM-X-CD-14-65-00T-RET			
		1	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS-11			
		6	Powerwave LGP21401			
		3	Powerwave 7770.00			
100.0	100.0	3	RFS APXV18-206517S-C	Leg	(6) 1 5/8" Coax	Metro PCS
95.0	95.0	1	8' Omni	Side Arm	(1) 7/8" Coax	--

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
113.0	113.0	3	Ericsson RRUS 12	Sector Frames	(1) 3" Conduit	AT&T Mobility
		1	Commscope WCS-IMFQ-AMT			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax alongside existing AT&T Mobility coax.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	77%	Pass
Diagonals	85%	Pass
Horizontals	13%	Pass
Anchor Bolts	62%	Pass
Leg Bolts	74%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Uplift (Kips)	154.8	209.0	150.0	72%
Axial (Kips)	169.1	228.3	168.5	74%
Shear (Kips)	18.3	24.7	12.6	51%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

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) (°)
113.0	Commscope WCS-IMFQ-AMT	AT&T Mobility	0.380	0.005	0.318
	Ericsson RRUS 12				

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

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Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

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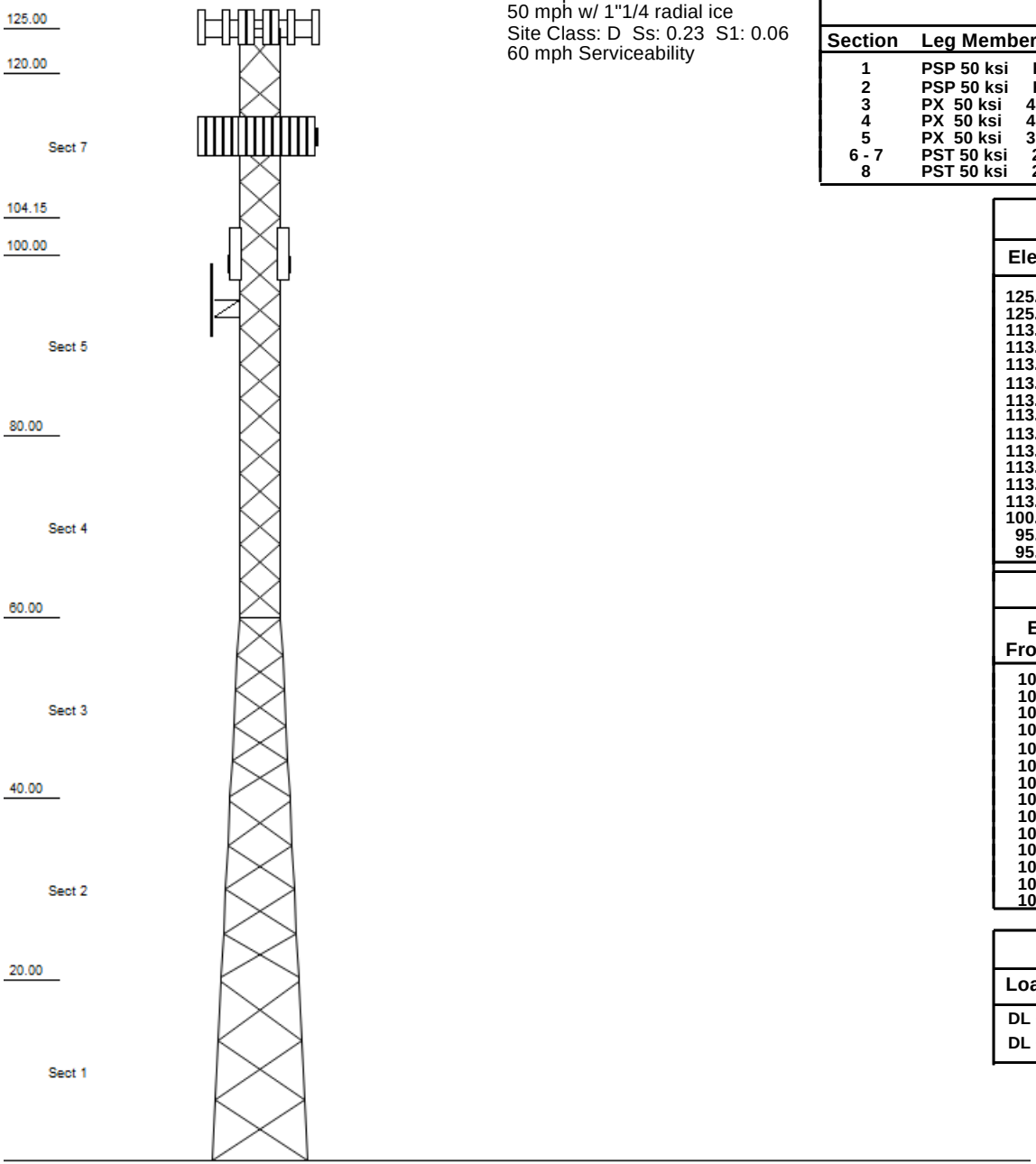
Loads: 101 mph no ice
50 mph w/ 1"1/4 radial ice
Site Class: D Ss: 0.23 S1: 0.06
60 mph Serviceability



Job Information

Tower :	302536	Location :	Cherry Hill-branford, CT		
Code :	ANSI/TIA-222-G	Shape :	Triangle	Base Width :	10.75 ft
Client :	AT&T Mobility			Top Width :	4.56 ft

Sections Properties

Section	Leg Members		Diagonal Members	Horizontal Members
1	PSP 50 ksi	ROHN 5 EH	SAE 36 ksi 1.75X1.75X0.125	
2	PSP 50 ksi	ROHN 5 EH	SAE 36 ksi 1.5X1.5X0.1875	
3	PX 50 ksi	4" DIA PIPE	SAE 36 ksi 1.5X1.5X0.1875	SAE 36 ksi 1.5X1.5X0.125
4	PX 50 ksi	4" DIA PIPE	SAE 36 ksi 2X2X0.25	
5	PX 50 ksi	3" DIA PIPE	SAE 36 ksi 1.5X1.5X0.1875	
6 - 7	PST 50 ksi	2-1/2" DIA PIPE	SAE 36 ksi 1.5X1.5X0.1875	
8	PST 50 ksi	2-1/2" DIA PIPE	SAE 36 ksi 1.5X1.5X0.125	SAE 36 ksi 1.5X1.5X0.125

Discrete Appurtenance

Elev (ft)	Type	Qty	Description
125.00	Panel	12	Decibel DB844H90E-XY
125.00	Mounting Frame	3	Flat Light Sector Frame
113.00	Panel	3	Ericsson RRUS 12
113.00	Panel	1	Commscope WCS-IMFQ-AMT
113.00	Panel	1	Raycap DC6-48-60-18-8F ("Squid
113.00	Panel	3	Andrew SBNHH-1D65A
113.00	Panel	3	Ericsson RRUS 32
113.00	Panel	3	KMW AM-X-CD-14-65-00T-RET
113.00	Panel	1	Raycap DC6-48-60-18-8F
113.00	Panel	3	Ericsson RRUS-11
113.00	Panel	6	Powerwave Allgon LGP21401
113.00	Panel	3	Powerwave Allgon 7770.00
113.00	Mounting Frame	3	Flat Light Sector Frame
100.00	Panel	3	RFS APXV18-206517S-C
95.00	Straight Arm	1	Side Arm
95.00	Whip	1	8' Omni

Linear Appurtenance

Elev (ft) From	To	Qty	Description
10.00	125.00	1	Wave Guide
10.00	125.00	12	1 5/8" Coax
10.00	113.00	1	Wave Guide
10.00	113.00	6	7/8" Coax
10.00	113.00	6	7/8" Coax
10.00	113.00	1	3/8" RET Control Cab
10.00	113.00	1	3" Conduit
10.00	113.00	1	3" Conduit
10.00	113.00	4	0.78" 8 AWG 6
10.00	113.00	2	0.74" 8 AWG 7
10.00	113.00	2	0.39" Fiber Trunk
10.00	100.00	1	Wave Guide
10.00	100.00	6	1 5/8" Coax
10.00	95.00	1	7/8" Coax

Global Base Foundation Design Loads

Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL + WL	1,504.22	20.77	19.07
DL + WL + IL	561.67	116.92	7.16

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Job Information

Tower :	**302536**	**Location :**	**Cherry Hill-branford, CT**		
Code :	**ANSI/TIA-222-G**	**Shape :**	**Triangle**	**Base Width :**	**10.75 ft**
Client :	**AT&T Mobility**			**Top Width :**	**4.56 ft**

Individual Base Foundation Design Loads

Vertical (kip)	Uplift (kip)	Horizontal (kip)
168.50	150.90	12.63

Site Number:	302536	Code:	ANSI/TIA-222-G	© 2007 - 2016 by ATC IP LLC. All rights reserved.
Site Name:	Cherry Hill-branford, CT	Engineering Number:	OAA686013_C3_01	9/28/2016 11:24:00 AM
Customer:	AT&T Mobility			

Analysis Parameters

Location:	New Haven County, CT	Height (ft):	125
Code:	ANSI/TIA-222-G	Base Elevation (ft):	0.00
Shape:	Triangle	Bottom Face Width (ft):	10.75
Tower Manufacturer:	Rohn	Top Face Width (ft):	4.56
Tower Type:	Self Support		

Ice & Wind Parameters

Structure Class:	II	Design Windspeed Without Ice:	101 mph
Exposure Category:	B	Design Windspeed With Ice:	50 mph
Topographic Category:	1	Operational Windspeed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	1.25 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	1.06				
T_L (sec):	6	p:	1.3	C_S:	0.031
S_S :	0.233	S_1 :	0.061	C_S, Max:	0.031
F_a :	1.600	F_V :	2.400	C_S, Min:	0.030
S_{ds} :	0.249	S_{d1} :	0.098		

Load Cases

1.2D + 1.6W Normal - Pat 1	101 mph Normal to Face with No Ice - Pattern 1
1.2D + 1.6W Normal - Pat 2	101 mph Normal to Face with No Ice - Pattern 2
1.2D + 1.6W Normal - Pat 3	101 mph Normal to Face with No Ice - Pattern 3
1.2D + 1.6W 60 deg - Pat 1	101 mph 60 degree with No Ice - Pattern 1
1.2D + 1.6W 60 deg - Pat 2	101 mph 60 degree with No Ice - Pattern 2
1.2D + 1.6W 60 deg - Pat 3	101 mph 60 degree with No Ice - Pattern 3
1.2D + 1.6W 90 deg - Pat 1	101 mph 90 degree with No Ice - Pattern 1
1.2D + 1.6W 90 deg - Pat 2	101 mph 90 degree with No Ice - Pattern 2
1.2D + 1.6W 90 deg - Pat 3	101 mph 90 degree with No Ice - Pattern 3
1.2D + 1.6W 120 deg - Pat 1	101 mph 120 degree with No Ice - Pattern 1
1.2D + 1.6W 120 deg - Pat 2	101 mph 120 degree with No Ice - Pattern 2
1.2D + 1.6W 120 deg - Pat 3	101 mph 120 degree with No Ice - Pattern 3
1.2D + 1.6W 180 deg - Pat 1	101 mph 180 degree with No Ice - Pattern 1
1.2D + 1.6W 180 deg - Pat 2	101 mph 180 degree with No Ice - Pattern 2
1.2D + 1.6W 180 deg - Pat 3	101 mph 180 degree with No Ice - Pattern 3
1.2D + 1.6W 210 deg - Pat 1	101 mph 210 degree with No Ice - Pattern 1
1.2D + 1.6W 210 deg - Pat 2	101 mph 210 degree with No Ice - Pattern 2
1.2D + 1.6W 210 deg - Pat 3	101 mph 210 degree with No Ice - Pattern 3
1.2D + 1.6W 240 deg - Pat 1	101 mph 240 degree with No Ice - Pattern 1
1.2D + 1.6W 240 deg - Pat 2	101 mph 240 degree with No Ice - Pattern 2
1.2D + 1.6W 240 deg - Pat 3	101 mph 240 degree with No Ice - Pattern 3

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Analysis Parameters

1.2D + 1.6W 300 deg - Pat 1	101 mph 300 degree with No Ice - Pattern 1
1.2D + 1.6W 300 deg - Pat 2	101 mph 300 degree with No Ice - Pattern 2
1.2D + 1.6W 300 deg - Pat 3	101 mph 300 degree with No Ice - Pattern 3
1.2D + 1.6W 330 deg - Pat 1	101 mph 330 degree with No Ice - Pattern 1
1.2D + 1.6W 330 deg - Pat 2	101 mph 330 degree with No Ice - Pattern 2
1.2D + 1.6W 330 deg - Pat 3	101 mph 330 degree with No Ice - Pattern 3
0.9D + 1.6W Normal	101 mph Normal to Face with No Ice (Reduced DL)
0.9D + 1.6W 60 deg	101 mph 60 deg with No Ice (Reduced DL)
0.9D + 1.6W 90 deg	101 mph 90 deg with No Ice (Reduced DL)
0.9D + 1.6W 120 deg	101 mph 120 deg with No Ice (Reduced DL)
0.9D + 1.6W 180 deg	101 mph 180 deg with No Ice (Reduced DL)
0.9D + 1.6W 210 deg	101 mph 210 deg with No Ice (Reduced DL)
0.9D + 1.6W 240 deg	101 mph 240 deg with No Ice (Reduced DL)
0.9D + 1.6W 300 deg	101 mph 300 deg with No Ice (Reduced DL)
0.9D + 1.6W 330 deg	101 mph 330 deg with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi Normal	50 mph Normal with 1.25 in Radial Ice
1.2D + 1.0Di + 1.0Wi 60 deg	50 mph 60 deg with 1.25 in Radial Ice
1.2D + 1.0Di + 1.0Wi 90 deg	50 mph 90 deg with 1.25 in Radial Ice
1.2D + 1.0Di + 1.0Wi 120 deg	50 mph 120 deg with 1.25 in Radial Ice
1.2D + 1.0Di + 1.0Wi 180 deg	50 mph 180 deg with 1.25 in Radial Ice
1.2D + 1.0Di + 1.0Wi 210 deg	50 mph 210 deg with 1.25 in Radial Ice
1.2D + 1.0Di + 1.0Wi 240 deg	50 mph 240 deg with 1.25 in Radial Ice
1.2D + 1.0Di + 1.0Wi 300 deg	50 mph 300 deg with 1.25 in Radial Ice
1.2D + 1.0Di + 1.0Wi 330 deg	50 mph 330 deg with 1.25 in Radial Ice
(1.2 + 0.2Sds) * DL + E Normal	Seismic Normal
(1.2 + 0.2Sds) * DL + E 60 deg	Seismic 60 deg
(1.2 + 0.2Sds) * DL + E 90 deg	Seismic 90 deg
(1.2 + 0.2Sds) * DL + E 120 deg	Seismic 120 deg
(1.2 + 0.2Sds) * DL + E 180 deg	Seismic 180 deg
(1.2 + 0.2Sds) * DL + E 210 deg	Seismic 210 deg
(1.2 + 0.2Sds) * DL + E 240 deg	Seismic 240 deg
(1.2 + 0.2Sds) * DL + E 300 deg	Seismic 300 deg
(1.2 + 0.2Sds) * DL + E 330 deg	Seismic 330 deg
(0.9 - 0.2Sds) * DL + E Normal	Seismic (Reduced DL) Normal
(0.9 - 0.2Sds) * DL + E 60 deg	Seismic (Reduced DL) 60 deg
(0.9 - 0.2Sds) * DL + E 90 deg	Seismic (Reduced DL) 90 deg
(0.9 - 0.2Sds) * DL + E 120 deg	Seismic (Reduced DL) 120 deg
(0.9 - 0.2Sds) * DL + E 180 deg	Seismic (Reduced DL) 180 deg
(0.9 - 0.2Sds) * DL + E 210 deg	Seismic (Reduced DL) 210 deg
(0.9 - 0.2Sds) * DL + E 240 deg	Seismic (Reduced DL) 240 deg
(0.9 - 0.2Sds) * DL + E 300 deg	Seismic (Reduced DL) 300 deg
(0.9 - 0.2Sds) * DL + E 330 deg	Seismic (Reduced DL) 330 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

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Analysis Parameters

1.0D + 1.0W Service 120 deg	Serviceability - 60 mph Wind 120 deg
1.0D + 1.0W Service 180 deg	Serviceability - 60 mph Wind 180 deg
1.0D + 1.0W Service 210 deg	Serviceability - 60 mph Wind 210 deg
1.0D + 1.0W Service 240 deg	Serviceability - 60 mph Wind 240 deg
1.0D + 1.0W Service 300 deg	Serviceability - 60 mph Wind 300 deg
1.0D + 1.0W Service 330 deg	Serviceability - 60 mph Wind 330 deg

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Tower Loading

Discrete Appurtenance Properties 1.2D + 1.6W

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)
125.00	Decibel DB844H90E-	12	14	3.6	4.0	8.0	6.5	0.80	0.74	0.0	0.0	23.38	815	242
125.00	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.38	960	1728
113.00	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	22.72	12	42
113.00	Raycap DC6-48-60-	1	20	1.1	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	27	29
113.00	Powerwave Allgon	6	14	1.3	1.2	9.2	2.6	0.80	0.50	0.0	0.0	22.72	95	122
113.00	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	32	46
113.00	Ericsson RRUS 32	3	51	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.0	22.72	134	219
113.00	Ericsson RRUS 12	3	50	3.2	1.7	18.5	7.5	0.80	0.67	0.0	0.0	22.72	156	216
113.00	Ericsson RRUS-11	3	55	3.8	2.1	18.2	6.7	0.80	0.67	0.0	0.0	22.72	188	238
113.00	KMW AM-X-CD-14-65-	3	36	5.0	4.0	11.8	5.9	0.80	0.66	0.0	0.0	22.72	244	157
113.00	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	22.72	266	151
113.00	Andrew SBNHH-	3	34	5.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	22.72	301	145
113.00	Flat Light Sector	3	400	13.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	22.72	633	1728
100.00	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	21.94	370	114
95.00	8' Omni	1	25	2.4	8.0	3.0	3.0	0.90	1.00	0.0	0.0	21.62	64	36
95.00	Side Arm	1	150	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.62	88	216
	Totals	50	3770	247.8										

Discrete Appurtenance Properties 1.2D + 1.6W

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)
125.00	Decibel DB844H90E-	12	14	3.6	4.0	8.0	6.5	0.80	0.74	0.0	0.0	23.38	815	242
125.00	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.38	960	1728
113.00	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	22.72	12	42
113.00	Raycap DC6-48-60-	1	20	1.1	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	27	29
113.00	Powerwave Allgon	6	14	1.3	1.2	9.2	2.6	0.80	0.50	0.0	0.0	22.72	95	122
113.00	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	32	46
113.00	Ericsson RRUS 32	3	51	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.0	22.72	134	219
113.00	Ericsson RRUS 12	3	50	3.2	1.7	18.5	7.5	0.80	0.67	0.0	0.0	22.72	156	216
113.00	Ericsson RRUS-11	3	55	3.8	2.1	18.2	6.7	0.80	0.67	0.0	0.0	22.72	188	238
113.00	KMW AM-X-CD-14-65-	3	36	5.0	4.0	11.8	5.9	0.80	0.66	0.0	0.0	22.72	244	157
113.00	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	22.72	266	151
113.00	Andrew SBNHH-	3	34	5.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	22.72	301	145
113.00	Flat Light Sector	3	400	13.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	22.72	633	1728
100.00	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	21.94	370	114
95.00	8' Omni	1	25	2.4	8.0	3.0	3.0	0.90	1.00	0.0	0.0	21.62	64	36
95.00	Side Arm	1	150	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.62	88	216
	Totals	50	3770	247.8										

Discrete Appurtenance Properties 1.2D + 1.6W

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)
125.00	Decibel DB844H90E-	12	14	3.6	4.0	8.0	6.5	0.80	0.74	0.0	0.0	23.38	815	242
125.00	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.38	960	1728
113.00	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	22.72	12	42
113.00	Raycap DC6-48-60-	1	20	1.1	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	27	29
113.00	Powerwave Allgon	6	14	1.3	1.2	9.2	2.6	0.80	0.50	0.0	0.0	22.72	95	122

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Tower Loading

113.00	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	32	46
113.00	Ericsson RRUS 32	3	51	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.0	22.72	134	219
113.00	Ericsson RRUS 12	3	50	3.2	1.7	18.5	7.5	0.80	0.67	0.0	0.0	22.72	156	216
113.00	Ericsson RRUS-11	3	55	3.8	2.1	18.2	6.7	0.80	0.67	0.0	0.0	22.72	188	238
113.00	KMW AM-X-CD-14-65-	3	36	5.0	4.0	11.8	5.9	0.80	0.66	0.0	0.0	22.72	244	157
113.00	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	22.72	266	151
113.00	Andrew SBNHH-	3	34	5.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	22.72	301	145
113.00	Flat Light Sector	3	400	13.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	22.72	633	1728
100.00	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	21.94	370	114
95.00	8' Omni	1	25	2.4	8.0	3.0	3.0	0.90	1.00	0.0	0.0	21.62	64	36
95.00	Side Arm	1	150	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.62	88	216
	Totals	50	3770	247.8										

Discrete Appurtenance Properties 0.9D + 1.6W

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)
125.00	Decibel DB844H90E-	12	14	3.6	4.0	8.0	6.5	0.80	0.74	0.0	0.0	23.38	815	136
125.00	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.38	960	972
113.00	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	22.72	12	24
113.00	Raycap DC6-48-60-	1	20	1.1	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	27	16
113.00	Powerwave Allgon	6	14	1.3	1.2	9.2	2.6	0.80	0.50	0.0	0.0	22.72	95	69
113.00	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	32	26
113.00	Ericsson RRUS 32	3	51	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.0	22.72	134	123
113.00	Ericsson RRUS 12	3	50	3.2	1.7	18.5	7.5	0.80	0.67	0.0	0.0	22.72	156	122
113.00	Ericsson RRUS-11	3	55	3.8	2.1	18.2	6.7	0.80	0.67	0.0	0.0	22.72	188	134
113.00	KMW AM-X-CD-14-65-	3	36	5.0	4.0	11.8	5.9	0.80	0.66	0.0	0.0	22.72	244	88
113.00	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	22.72	266	85
113.00	Andrew SBNHH-	3	34	5.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	22.72	301	81
113.00	Flat Light Sector	3	400	13.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	22.72	633	972
100.00	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	21.94	370	64
95.00	8' Omni	1	25	2.4	8.0	3.0	3.0	0.90	1.00	0.0	0.0	21.62	64	20
95.00	Side Arm	1	150	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.62	88	122
	Totals	50	3770	247.8										

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)
125.00	Decibel DB844H90E-	12	224	5.2	4.0	8.0	6.5	0.80	0.74	0.0	0.0	5.73	178	3266
125.00	Flat Light Sector	3	893	42.6	0.0	0.0	0.0	0.75	0.75	0.0	0.0	5.73	350	3501
113.00	Commscope WCS-	1	114	1.7	0.9	10.6	6.9	0.80	0.50	0.0	0.0	5.57	3	144
113.00	Raycap DC6-48-60-	1	192	3.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	5.57	13	236
113.00	Powerwave Allgon	6	83	1.9	1.2	9.2	2.6	0.80	0.50	0.0	0.0	5.57	22	615
113.00	Raycap DC6-48-60-	1	204	3.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	5.57	13	253
113.00	Ericsson RRUS 32	3	211	3.9	2.2	12.1	6.7	0.80	0.67	0.0	0.0	5.57	30	795
113.00	Ericsson RRUS 12	3	226	4.4	1.7	18.5	7.5	0.80	0.67	0.0	0.0	5.57	33	851
113.00	Ericsson RRUS-11	3	249	5.1	2.1	18.2	6.7	0.80	0.67	0.0	0.0	5.57	39	935
113.00	KMW AM-X-CD-14-65-	3	279	6.7	4.0	11.8	5.9	0.80	0.66	0.0	0.0	5.57	50	1029
113.00	Powerwave Allgon	3	285	7.3	4.6	11.0	5.0	0.80	0.65	0.0	0.0	5.57	54	1052
113.00	Andrew SBNHH-	3	323	7.7	4.6	11.9	7.1	0.80	0.69	0.0	0.0	5.57	60	1185
113.00	Flat Light Sector	3	888	32.2	0.0	0.0	0.0	0.75	0.67	0.0	0.0	5.57	230	3485
100.00	RFS APXV18-	3	246	7.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	5.38	79	904

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Tower Loading

95.00	8' Omni	1	236	5.5	8.0	3.0	3.0	0.90	1.00	0.0	0.0	5.30	22	290
95.00	Side Arm	1	266	5.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.30	25	355
	Totals	50	14993	443.7										

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)
125.00	Decibel DB844H90E-	12	14	3.6	4.0	8.0	6.5	0.80	0.74	0.0	0.0	8.25	180	168
125.00	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	8.25	212	1200
113.00	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	8.02	3	30
113.00	Raycap DC6-48-60-	1	20	1.1	2.0	11.0	11.0	0.80	1.00	0.0	0.0	8.02	6	20
113.00	Powerwave Allgon	6	14	1.3	1.2	9.2	2.6	0.80	0.50	0.0	0.0	8.02	21	85
113.00	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	8.02	7	32
113.00	Ericsson RRUS 32	3	51	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.0	8.02	29	152
113.00	Ericsson RRUS 12	3	50	3.2	1.7	18.5	7.5	0.80	0.67	0.0	0.0	8.02	35	150
113.00	Ericsson RRUS-11	3	55	3.8	2.1	18.2	6.7	0.80	0.67	0.0	0.0	8.02	42	165
113.00	KMW AM-X-CD-14-65-	3	36	5.0	4.0	11.8	5.9	0.80	0.66	0.0	0.0	8.02	54	109
113.00	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	8.02	59	105
113.00	Andrew SBNHH-	3	34	5.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	8.02	66	101
113.00	Flat Light Sector	3	400	13.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	8.02	140	1200
100.00	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	7.74	82	79
95.00	8' Omni	1	25	2.4	8.0	3.0	3.0	0.90	1.00	0.0	0.0	7.63	14	25
95.00	Side Arm	1	150	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.63	19	150
	Totals	50	3770	247.8										

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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
10.00	125.00	1 5/8" Coax	12	1.98	0.82	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
10.00	125.00	Wave Guide	1	1.50	6.00	0	1	Individual	0.00	N	1.00	1.00	0.00
10.00	113.00	0.39" Fiber Trunk	2	0.39	0.06	0	2	Individual	0.00	N	0.01	1.00	0.01
10.00	113.00	0.74" 8 AWG 7	2	0.74	0.49	0	2	Individual	0.00	N	0.01	1.00	0.01
10.00	113.00	0.78" 8 AWG 6	4	0.78	0.59	0	2	Individual	0.00	N	0.01	1.00	0.01
10.00	113.00	3" Conduit	1	3.50	7.58	0	2	Individual	0.00	N	0.01	1.00	0.01
10.00	113.00	3" Conduit	1	3.50	7.58	0	2	Individual	0.00	N	1.00	1.00	0.00
10.00	113.00	3/8" RET Control	1	0.38	0.23	0	2	Individual	0.00	N	0.01	1.00	0.01
10.00	113.00	7/8" Coax	6	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.42
10.00	113.00	7/8" Coax	6	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.42
10.00	113.00	Wave Guide	1	1.50	6.00	0	2	Individual	0.00	N	1.00	1.00	0.00
10.00	100.00	1 5/8" Coax	6	1.98	0.82	0	3	Individual	0.00	N	1.00	1.00	0.36
10.00	100.00	Wave Guide	1	1.50	6.00	0	3	Individual	0.00	N	1.00	1.00	0.00
10.00	95.00	7/8" Coax	1	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.00

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Equivalent Lateral Force Method

(Based on ASCE7-10 Chapters 11, 12 & 15)

Spectral Response Acceleration for Short Period (S_s):	0.23
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L - Seconds):	6
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}):	0.25
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s:	0.03
Lower Limit C_s:	0.03
Period based on Rayleigh Method (sec):	1.06
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.28
Total Unfactored Dead Load:	17.31 k
Seismic Base Shear (E):	0.69 k

LoadCase (1.2 + 0.2Sds) * DL + E Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
8	122.50	233	110,673	0.026	18	291
7	112.08	1,041	441,571	0.104	72	1,301
6	102.07	323	121,333	0.029	20	403
5	90.00	2,059	659,064	0.156	107	2,573
4	70.00	2,600	603,003	0.142	98	3,249
3	50.00	2,410	363,109	0.086	59	3,011
2	30.00	2,763	216,268	0.051	35	3,452
1	10.00	2,113	40,447	0.010	7	2,641
Decibel DB844H90E-XY	125.00	168	81,951	0.019	13	210
Flat Light Sector Frame	125.00	1,200	585,362	0.138	95	1,500
Commscope WCS-IMFQ-AMT	113.00	30	12,644	0.003	2	37
Raycap DC6-48-60-18-8F ("Squid")	113.00	20	8,572	0.002	1	25
Powerwave Allgon LGP21401	113.00	85	36,259	0.009	6	106
Raycap DC6-48-60-18-8F	113.00	32	13,629	0.003	2	40
Ericsson RRUS 32	113.00	152	65,318	0.015	11	190
Ericsson RRUS 12	113.00	150	64,290	0.015	10	187
Ericsson RRUS-11	113.00	165	70,719	0.017	11	206
KMW AM-X-CD-14-65-00T-RET	113.00	109	46,803	0.011	8	136
Powerwave Allgon 7770.00	113.00	105	45,003	0.011	7	131
Andrew SBNHH-1D65A	113.00	101	43,074	0.010	7	126
Flat Light Sector Frame	113.00	1,200	514,319	0.122	84	1,500
RFS APXV18-206517S-C	100.00	79	29,022	0.007	5	99
8' Omni	95.00	25	8,578	0.002	1	31
Side Arm	95.00	150	51,468	0.012	8	187

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Equivalent Lateral Force Method

		17,310	4,232,480	1.000	688	21,633

LoadCase (0.9 - 0.2Sds) * DL + E Seismic (Reduced DL)

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
8	122.50	233	110,673	0.026	18	198
7	112.08	1,041	441,571	0.104	72	885
6	102.07	323	121,333	0.029	20	274
5	90.00	2,059	659,064	0.156	107	1,750
4	70.00	2,600	603,003	0.142	98	2,210
3	50.00	2,410	363,109	0.086	59	2,049
2	30.00	2,763	216,268	0.051	35	2,349
1	10.00	2,113	40,447	0.010	7	1,797
Decibel DB844H90E-XY	125.00	168	81,951	0.019	13	143
Flat Light Sector Frame	125.00	1,200	585,362	0.138	95	1,020
Commscope WCS-IMFQ-AMT	113.00	30	12,644	0.003	2	25
Raycap DC6-48-60-18-8F ("Squid")	113.00	20	8,572	0.002	1	17
Powerwave Allgon LGP21401	113.00	85	36,259	0.009	6	72
Raycap DC6-48-60-18-8F	113.00	32	13,629	0.003	2	27
Ericsson RRUS 32	113.00	152	65,318	0.015	11	130
Ericsson RRUS 12	113.00	150	64,290	0.015	10	128
Ericsson RRUS-11	113.00	165	70,719	0.017	11	140
KMW AM-X-CD-14-65-00T-RET	113.00	109	46,803	0.011	8	93
Powerwave Allgon 7770.00	113.00	105	45,003	0.011	7	89
Andrew SBNHH-1D65A	113.00	101	43,074	0.010	7	85
Flat Light Sector Frame	113.00	1,200	514,319	0.122	84	1,020
RFS APXV18-206517S-C	100.00	79	29,022	0.007	5	67
8' Omni	95.00	25	8,578	0.002	1	21
Side Arm	95.00	150	51,468	0.012	8	128
		17,310	4,232,480	1.000	688	14,719

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Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.23
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
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}):	0.25
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.06
Redundancy Factor (p):	1.30

LoadCase (1.2 + 0.2Sds) * DL + E Seismic

Section	Height Above Base (ft)	Weight (lb)	a	b	c	S_{az}	Horizontal Force (lb)	Vertical Force (lb)
8	122.50	233	1.815	1.608	1.004	0.432	44	291
7	112.08	1,041	1.519	0.550	0.566	0.224	101	1,301
6	102.07	323	1.260	0.069	0.302	0.090	13	403
5	90.00	2,059	0.980	-0.114	0.122	0.009	8	2,573
4	70.00	2,600	0.593	-0.050	0.014	0.020	22	3,249
3	50.00	2,410	0.302	0.045	0.012	0.055	58	3,011
2	30.00	2,763	0.109	0.071	0.036	0.051	61	3,452
1	10.00	2,113	0.012	0.058	0.034	0.036	33	2,641
Decibel DB844H90E-XY	125.00	168	1.890	1.980	1.140	0.492	36	210
Flat Light Sector Frame	125.00	1,200	1.890	1.980	1.140	0.492	256	1,500
Commscope WCS-IMFQ-AMT	113.00	30	1.545	0.617	0.597	0.240	3	37
Raycap DC6-48-60-18-8F ("Squid")	113.00	20	1.545	0.617	0.597	0.240	2	25
Powerwave Allgon LGP21401	113.00	85	1.545	0.617	0.597	0.240	9	106
Raycap DC6-48-60-18-8F	113.00	32	1.545	0.617	0.597	0.240	3	40
Ericsson RRUS 32	113.00	152	1.545	0.617	0.597	0.240	16	190
Ericsson RRUS 12	113.00	150	1.545	0.617	0.597	0.240	16	187
Ericsson RRUS-11	113.00	165	1.545	0.617	0.597	0.240	17	206
KMW AM-X-CD-14-65-00T-RET	113.00	109	1.545	0.617	0.597	0.240	11	136
Powerwave Allgon 7770.00	113.00	105	1.545	0.617	0.597	0.240	11	131
Andrew SBNHH-1D65A	113.00	101	1.545	0.617	0.597	0.240	10	126
Flat Light Sector Frame	113.00	1,200	1.545	0.617	0.597	0.240	125	1,500
RFS APXV18-206517S-C	100.00	79	1.210	0.014	0.262	0.070	2	99
8' Omni	95.00	25	1.092	-0.074	0.182	0.033	0	31
Side Arm	95.00	150	1.092	-0.074	0.182	0.033	2	187
		17,310	30.754	12.846	11.565	4.679	860	21,633

LoadCase (0.9 - 0.2Sds) * DL + E Seismic (Reduced DL)

Section	Height Above Base (ft)	Weight (lb)	a	b	c	S_{az}	Horizontal Force (lb)	Vertical Force (lb)
8	122.50	233	1.815	1.608	1.004	0.432	44	198
7	112.08	1,041	1.519	0.550	0.566	0.224	101	885
6	102.07	323	1.260	0.069	0.302	0.090	13	274
5	90.00	2,059	0.980	-0.114	0.122	0.009	8	1,750
4	70.00	2,600	0.593	-0.050	0.014	0.020	22	2,210
3	50.00	2,410	0.302	0.045	0.012	0.055	58	2,049

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Equivalent Modal Analysis Method

2	30.00	2,763	0.109	0.071	0.036	0.051	61	2,349
1	10.00	2,113	0.012	0.058	0.034	0.036	33	1,797
Decibel DB844H90E-XY	125.00	168	1.890	1.980	1.140	0.492	36	143
Flat Light Sector Frame	125.00	1,200	1.890	1.980	1.140	0.492	256	1,020
Commscope WCS-IMFQ-AMT	113.00	30	1.545	0.617	0.597	0.240	3	25
Raycap DC6-48-60-18-8F ("Squid")	113.00	20	1.545	0.617	0.597	0.240	2	17
Powerwave Allgon LGP21401	113.00	85	1.545	0.617	0.597	0.240	9	72
Raycap DC6-48-60-18-8F	113.00	32	1.545	0.617	0.597	0.240	3	27
Ericsson RRUS 32	113.00	152	1.545	0.617	0.597	0.240	16	130
Ericsson RRUS 12	113.00	150	1.545	0.617	0.597	0.240	16	128
Ericsson RRUS-11	113.00	165	1.545	0.617	0.597	0.240	17	140
KMW AM-X-CD-14-65-00T-RET	113.00	109	1.545	0.617	0.597	0.240	11	93
Powerwave Allgon 7770.00	113.00	105	1.545	0.617	0.597	0.240	11	89
Andrew SBNHH-1D65A	113.00	101	1.545	0.617	0.597	0.240	10	85
Flat Light Sector Frame	113.00	1,200	1.545	0.617	0.597	0.240	125	1,020
RFS APXV18-206517S-C	100.00	79	1.210	0.014	0.262	0.070	2	67
8' Omni	95.00	25	1.092	-0.074	0.182	0.033	0	21
Side Arm	95.00	150	1.092	-0.074	0.182	0.033	2	128
		17,310	30.754	12.846	11.565	4.679	860	14,719

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Force/Stress Summary

Section: 1 9N39 Bot Elev (ft): 0.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Bracing % Y	Bracing % Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 5 EH	-166.45	1.2D + 1.6W	6.59	100	100	100	43.0	50.0	240.17	0	0	0.00	0.00	69	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 - 1.75X1.75X0.12	-1.93	1.2D + 1.6W	12.317	48	48	48	204.5	36.0	2.27	1	1	7.95	6.96	85	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 5 EH	151.41	0.9D + 1.6W 60	50	65	274.95	0	0	0.00	0.00	55	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 1.75X1.75X0.12	1.88	1.2D + 1.6W 210	36	58	11.15	1	1	7.95	4.13	45	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	141.25	0.9D + 1.6W 60	0.00	0	0	
Top Compression	157.07	1.2D + 1.6W	0.00	0		
Bot Tension	151.41	0.9D + 1.6W 60	242.28	62	4	1" A354-BC
Bot Compression	168.80	1.2D + 1.6W	0.00	0		

Section: 2 8N199 Bot Elev (ft): 20.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Bracing % Y	Bracing % Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 5 EH	-155.12	1.2D + 1.6W	4.88	100	100	100	31.8	50.0	255.30	0	0	0.00	0.00	60	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	-1.75	1.2D + 1.6W	9.784	50	50	50	200.3	36.0	2.98	1	1	7.95	10.44	58	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 5 EH	140.29	1.2D + 1.6W 60	50	65	274.95	0	0	0.00	0.00	51	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 1.5X1.5X0.1875	1.62	1.2D + 1.6W 210	36	58	13.47	1	1	7.95	6.20	26	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	130.61	0.9D + 1.6W 60	0.00	0	0	
Top Compression	144.02	1.2D + 1.6W	0.00	0		
Bot Tension	141.25	0.9D + 1.6W 60	218.08	65	4	1 A325
Bot Compression	157.07	1.2D + 1.6W	0.00	0		

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Force/Stress Summary

Section: 3 7N344 Bot Elev (ft): 40.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 4" DIA PIPE	-142.62	1.2D + 1.6W	3.91	100	100	100	31.7	50.0	184.41	0	0	0.00	0.00	77	Member X
HORIZ SAE - 1.5X1.5X0.125	-0.26	1.2D + 1.6W	4.677	100	100	100	189.6	36.0	2.26	1	1	7.95	6.96	11	Member Z
DIAG SAE - 1.5X1.5X0.1875	-1.14	1.2D + 1.6W	7.600	50	50	50	155.6	36.0	4.94	1	1	7.95	10.44	23	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 4" DIA PIPE	130.02	1.2D + 1.6W 60	50	65	198.45	0	0	0.00	0.00	65	Member
HORIZ SAE - 1.5X1.5X0.125	0.19	1.2D + 1.6W 60	36	58	9.20	1	1	7.95	4.13	4	Bolt Bear
DIAG SAE - 1.5X1.5X0.1875	1.49	1.2D + 1.6W 90	36	58	13.47	1	1	7.95	6.20	24	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	122.49	0.9D + 1.6W 60	0.00	0	0	
Top Compression	133.66	1.2D + 1.6W	0.00	0		
Bot Tension	130.61	0.9D + 1.6W 60	218.08	60	4	1 A325
Bot Compression	144.02	1.2D + 1.6W	0.00	0		

Section: 4 6N166 Bot Elev (ft): 60.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 4" DIA PIPE	-125.72	1.2D + 1.6W	3.90	100	100	100	31.6	50.0	184.46	0	0	0.00	0.00	68	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 - 2X2X0.25	-5.81	1.2D + 1.6W	6.090	50	50	50	100.1	36.0	17.97	1	1	7.95	13.92	73	Bolt Shear

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 4" DIA PIPE	121.99	1.2D + 1.6W 60	50	65	198.45	0	0	0.00	0.00	61	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2X2X0.25	5.42	1.2D + 1.6W 60	36	58	25.57	1	1	7.95	8.27	68	Bolt Shear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	67.49	0.9D + 1.6W 60	0.00	0	0	
Top Compression	74.90	1.2D + 1.6W	0.00	0		
Bot Tension	122.49	0.9D + 1.6W 60	166.24	74	4	7/8 A325
Bot Compression	133.66	1.2D + 1.6W	0.00	0		

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Force/Stress Summary

Section: 5 6N309 Bot Elev (ft): 80.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 3" DIA PIPE	-69.76	1.2D + 1.6W	3.90	100	100	100	41.1	50.0	120.14	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 - 1.5X1.5X0.1875	-4.30	1.2D + 1.6W	6.084	50	50	50	124.6	36.0	7.59	1	1	7.95	10.44	56	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 3" DIA PIPE	67.24	1.2D + 1.6W 60	50	65	135.90	0	0	0.00	0.00	49	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 1.5X1.5X0.1875	4.24	1.2D + 1.6W 210	36	58	13.47	1	1	7.95	6.20	68	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	25.95	0.9D + 1.6W 180	0.00	0	0	
Top Compression	30.42	1.2D + 1.6W	0.00	0		
Bot Tension	67.49	0.9D + 1.6W 60	166.24	41	4	7/8 A325
Bot Compression	74.90	1.2D + 1.6W	0.00	0		

Section: 6 6N30 Bot Elev (ft): 100.0 Height (ft): 4.150

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	-26.70	1.2D + 1.6W	3.90	100	100	100	49.4	50.0	64.14	0	0	0.00	0.00	41	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	-2.97	1.2D + 1.6W 90	6.031	50	50	50	123.5	36.0	7.69	1	1	7.95	10.44	38	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	25.69	1.2D + 1.6W 60	50	65	76.68	0	0	0.00	0.00	33	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 1.5X1.5X0.1875	2.95	1.2D + 1.6W 90	36	58	13.47	1	1	7.95	6.20	47	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	19.53	0.9D + 1.6W 60	0.00	0	0	
Top Compression	23.46	1.2D + 1.6W 240	0.00	0		
Bot Tension	25.95	0.9D + 1.6W 180	120.40	22	4	3/4 A325
Bot Compression	30.42	1.2D + 1.6W	0.00	0		

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Force/Stress Summary

Section: 7 6N30 Bot Elev (ft): 104.1 Height (ft): 15.850

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Bracing % Y	Bracing % Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	-20.45	1.2D + 1.6W	3.90	100	100	100	49.4	50.0	64.14	0	0	0.00	0.00	31	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	-2.70	1.2D + 1.6W	6.024	50	50	50	123.4	36.0	7.71	1	1	7.95	10.44	35	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	16.31	1.2D + 1.6W 60	50	65	76.68	0	0	0.00	0.00	21	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 1.5X1.5X0.1875	2.68	1.2D + 1.6W 90	36	58	13.47	1	1	7.95	6.20	43	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	2.47	0.9D + 1.6W 60	0.00	0	0	
Top Compression	4.40	1.2D + 1.0Di +	0.00	0		
Bot Tension	19.53	0.9D + 1.6W 60	120.40	16	4	3/4 A325
Bot Compression	23.46	1.2D + 1.6W 240	0.00	0		

Section: 8 6N285 Bot Elev (ft): 120.0 Height (ft): 5.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Bracing % Y	Bracing % Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	-3.09	1.2D + 1.0Di +	5.00	100	100	100	63.4	50.0	57.18	0	0	0.00	0.00	5	Member X
HORIZ SAE - 1.5X1.5X0.125	-0.32	1.2D + 1.6W 60	4.563	100	100	100	185.0	36.0	2.38	1	1	7.95	6.96	13	Member Z
DIAG SAE - 1.5X1.5X0.125	-1.19	1.2D + 1.6W 90	6.769	50	50	50	137.2	36.0	4.32	1	1	7.95	6.96	27	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	0.89	0.9D + 1.6W 60	50	65	76.68	0	0	0.00	0.00	1	Member
HORIZ SAE - 1.5X1.5X0.125	0.34	1.2D + 1.6W	36	58	9.20	1	1	7.95	4.13	8	Bolt Bear
DIAG SAE - 1.5X1.5X0.125	1.17	1.2D + 1.6W 90	36	58	9.20	1	1	7.95	4.13	28	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	2.67	1.2D + 1.0Di +	0.00	0		
Bot Tension	2.47	0.9D + 1.6W 60	81.36	3	4	5/8 A325
Bot Compression	4.40	1.2D + 1.0Di +	0.00	0		

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Detailed Reactions

Load Case	Node	FX (kip)	FY (kip)	FZ (kip)
1.2D + 1.6W Normal - Pat 1	**1**	**0.00**	**168.50**	**-12.63**
	1a	**4.74**	**-73.86**	**-3.22**
	1b	**-4.74**	**-73.86**	**-3.22**
1.2D + 1.6W Normal - Pat 2	**1**	**0.00**	**123.90**	**-8.77**
	1a	**3.19**	**-51.56**	**-1.97**
	1b	**-3.19**	**-51.56**	**-1.97**
1.2D + 1.6W Normal - Pat 3	**1**	**0.00**	**165.23**	**-12.45**
	1a	**4.65**	**-72.23**	**-3.19**
	1b	**-4.65**	**-72.23**	**-3.19**
1.2D + 1.6W 60 deg - Pat 1	**1**	**-0.36**	**85.21**	**-6.32**
	1a	**-5.64**	**85.12**	**2.88**
	1b	**-9.89**	**-149.56**	**-5.73**
1.2D + 1.6W 60 deg - Pat 2	**1**	**-0.10**	**63.94**	**-4.48**
	1a	**-3.91**	**63.85**	**2.19**
	1b	**-6.64**	**-107.01**	**-3.85**
1.2D + 1.6W 60 deg - Pat 3	**1**	**-0.38**	**83.69**	**-6.24**
	1a	**-5.57**	**83.59**	**2.83**
	1b	**-9.75**	**-146.51**	**-5.65**
1.2D + 1.6W 90 deg - Pat 1	**1**	**-0.45**	**6.99**	**-0.43**
	1a	**-9.37**	**143.47**	**5.21**
	1b	**-8.71**	**-129.69**	**-4.78**
1.2D + 1.6W 90 deg - Pat 2	**1**	**-0.13**	**6.99**	**-0.44**
	1a	**-6.50**	**106.19**	**3.73**
	1b	**-5.77**	**-92.40**	**-3.29**
1.2D + 1.6W 90 deg - Pat 3	**1**	**-0.47**	**6.99**	**-0.43**
	1a	**-9.25**	**140.79**	**5.13**
	1b	**-8.59**	**-127.01**	**-4.70**
1.2D + 1.6W 120 deg - Pat 1	**1**	**-0.44**	**-73.77**	**5.71**
	1a	**-10.93**	**168.41**	**6.33**
	1b	**-5.15**	**-73.86**	**-2.51**
1.2D + 1.6W 120 deg - Pat 2	**1**	**-0.13**	**-51.47**	**3.74**
	1a	**-7.58**	**123.80**	**4.40**
	1b	**-3.29**	**-51.56**	**-1.79**
1.2D + 1.6W 120 deg - Pat 3	**1**	**-0.46**	**-72.14**	**5.62**
	1a	**-10.77**	**165.14**	**6.24**
	1b	**-5.08**	**-72.23**	**-2.45**
1.2D + 1.6W 180 deg - Pat 1	**1**	**0.00**	**-149.47**	**11.43**
	1a	**-5.30**	**85.12**	**3.46**
	1b	**5.30**	**85.12**	**3.46**
1.2D + 1.6W 180 deg - Pat 2	**1**	**0.00**	**-106.92**	**7.68**
	1a	**-3.84**	**63.85**	**2.31**
	1b	**3.84**	**63.85**	**2.31**
1.2D + 1.6W 180 deg - Pat 3	**1**	**0.00**	**-146.42**	**11.26**
	1a	**-5.22**	**83.60**	**3.43**
	1b	**5.22**	**83.60**	**3.43**

(-) = Uplift (+) = Down

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1.2D + 1.6W 210 deg - Pat 1	**1**	**0.25**	**-129.60**	**9.93**
	1a	**-0.16**	**6.90**	**0.58**
	1b	**9.18**	**143.47**	**5.54**
1.2D + 1.6W 210 deg - Pat 2	**1**	**0.07**	**-92.31**	**6.64**
	1a	**-0.33**	**6.90**	**0.30**
	1b	**6.46**	**106.19**	**3.79**
1.2D + 1.6W 210 deg - Pat 3	**1**	**0.26**	**-126.92**	**9.78**
	1a	**-0.15**	**6.90**	**0.59**
	1b	**9.05**	**140.79**	**5.47**
1.2D + 1.6W 240 deg - Pat 1	**1**	**0.44**	**-73.77**	**5.71**
	1a	**5.15**	**-73.86**	**-2.51**
	1b	**10.93**	**168.41**	**6.33**
1.2D + 1.6W 240 deg - Pat 2	**1**	**0.13**	**-51.47**	**3.74**
	1a	**3.29**	**-51.56**	**-1.79**
	1b	**7.58**	**123.81**	**4.40**
1.2D + 1.6W 240 deg - Pat 3	**1**	**0.46**	**-72.14**	**5.62**
	1a	**5.08**	**-72.23**	**-2.45**
	1b	**10.77**	**165.14**	**6.24**
1.2D + 1.6W 300 deg - Pat 1	**1**	**0.36**	**85.21**	**-6.32**
	1a	**9.89**	**-149.56**	**-5.73**
	1b	**5.64**	**85.12**	**2.88**
1.2D + 1.6W 300 deg - Pat 2	**1**	**0.10**	**63.94**	**-4.48**
	1a	**6.64**	**-107.01**	**-3.85**
	1b	**3.91**	**63.85**	**2.19**
1.2D + 1.6W 300 deg - Pat 3	**1**	**0.38**	**83.69**	**-6.24**
	1a	**9.75**	**-146.51**	**-5.65**
	1b	**5.57**	**83.59**	**2.83**
1.2D + 1.6W 330 deg - Pat 1	**1**	**0.21**	**143.57**	**-10.72**
	1a	**8.48**	**-129.69**	**-5.18**
	1b	**0.58**	**6.90**	**-0.15**
1.2D + 1.6W 330 deg - Pat 2	**1**	**0.05**	**106.28**	**-7.49**
	1a	**5.72**	**-92.40**	**-3.38**
	1b	**0.42**	**6.90**	**0.14**
1.2D + 1.6W 330 deg - Pat 3	**1**	**0.21**	**140.88**	**-10.57**
	1a	**8.35**	**-127.01**	**-5.11**
	1b	**0.59**	**6.90**	**-0.17**
0.9D + 1.6W Normal	**1**	**0.00**	**166.36**	**-12.51**
	1a	**4.83**	**-75.39**	**-3.28**
	1b	**-4.83**	**-75.39**	**-3.28**
0.9D + 1.6W 60 deg	**1**	**-0.37**	**83.27**	**-6.21**
	1a	**-5.54**	**83.20**	**2.82**
	1b	**-9.98**	**-150.90**	**-5.79**
0.9D + 1.6W 90 deg	**1**	**-0.46**	**5.25**	**-0.31**
	1a	**-9.27**	**141.42**	**5.15**
	1b	**-8.80**	**-131.08**	**-4.83**
0.9D + 1.6W 120 deg	**1**	**-0.45**	**-75.32**	**5.82**
	1a	**-10.82**	**166.29**	**6.27**
	1b	**-5.25**	**-75.39**	**-2.56**

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0.9D + 1.6W 180 deg	**1**	**0.00**	**-150.83**	**11.54**
	1a	**-5.20**	**83.21**	**3.41**
	1b	**5.20**	**83.21**	**3.41**
0.9D + 1.6W 210 deg	**1**	**0.25**	**-131.02**	**10.04**
	1a	**-0.06**	**5.18**	**0.53**
	1b	**9.07**	**141.42**	**5.48**
0.9D + 1.6W 240 deg	**1**	**0.45**	**-75.32**	**5.82**
	1a	**5.25**	**-75.39**	**-2.56**
	1b	**10.82**	**166.29**	**6.27**
0.9D + 1.6W 300 deg	**1**	**0.37**	**83.27**	**-6.21**
	1a	**9.98**	**-150.90**	**-5.79**
	1b	**5.54**	**83.20**	**2.82**
0.9D + 1.6W 330 deg	**1**	**0.21**	**141.49**	**-10.60**
	1a	**8.57**	**-131.08**	**-5.24**
	1b	**0.49**	**5.18**	**-0.21**
1.2D + 1.0Di + 1.0Wi Normal	**1**	**0.00**	**99.30**	**-6.37**
	1a	**0.37**	**8.81**	**-0.40**
	1b	**-0.37**	**8.81**	**-0.40**
1.2D + 1.0Di + 1.0Wi 60 deg	**1**	**-0.16**	**69.09**	**-4.07**
	1a	**-3.59**	**68.83**	**1.91**
	1b	**-2.42**	**-21.01**	**-1.40**
1.2D + 1.0Di + 1.0Wi 90 deg	**1**	**-0.19**	**39.15**	**-1.78**
	1a	**-5.01**	**90.83**	**2.80**
	1b	**-1.94**	**-13.06**	**-1.02**
1.2D + 1.0Di + 1.0Wi 120 deg	**1**	**-0.17**	**9.08**	**0.51**
	1a	**-5.51**	**99.02**	**3.19**
	1b	**-0.53**	**8.82**	**-0.12**
1.2D + 1.0Di + 1.0Wi 180 deg	**1**	**0.00**	**-20.78**	**2.79**
	1a	**-3.44**	**68.85**	**2.17**
	1b	**3.44**	**68.85**	**2.17**
1.2D + 1.0Di + 1.0Wi 210 deg	**1**	**0.10**	**-12.80**	**2.19**
	1a	**-1.45**	**38.89**	**1.04**
	1b	**4.92**	**90.83**	**2.95**
1.2D + 1.0Di + 1.0Wi 240 deg	**1**	**0.17**	**9.08**	**0.51**
	1a	**0.53**	**8.82**	**-0.12**
	1b	**5.51**	**99.02**	**3.19**
1.2D + 1.0Di + 1.0Wi 300 deg	**1**	**0.16**	**69.09**	**-4.07**
	1a	**2.42**	**-21.01**	**-1.40**
	1b	**3.59**	**68.83**	**1.91**
1.2D + 1.0Di + 1.0Wi 330 deg	**1**	**0.09**	**91.09**	**-5.74**
	1a	**1.85**	**-13.06**	**-1.18**
	1b	**1.63**	**38.89**	**0.74**
(1.2 + 0.2Sds) * DL + E Normal M1	**1**	**0.00**	**13.86**	**-0.92**
	1a	**-0.21**	**3.66**	**0.13**
	1b	**0.21**	**3.66**	**0.13**
(1.2 + 0.2Sds) * DL + E Normal M2	**1**	**0.00**	**16.39**	**-1.05**
	1a	**-0.14**	**2.40**	**0.11**
	1b	**0.14**	**2.40**	**0.11**
(1.2 + 0.2Sds) * DL + E 60 deg M1	**1**	**0.01**	**10.46**	**-0.69**
	1a	**-0.60**	**10.46**	**0.35**

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	1b	0.02	0.26	0.01
(1.2 + 0.2Sds) * DL + E 60 deg M2	1	0.02	11.73	-0.76
	1a	-0.64	11.73	0.40
	1b	-0.10	-2.27	-0.05
(1.2 + 0.2Sds) * DL + E 90 deg M1	1	0.01	7.06	-0.47
	1a	-0.74	12.95	0.43
	1b	0.07	1.18	0.04
(1.2 + 0.2Sds) * DL + E 90 deg M2	1	0.03	7.06	-0.47
	1a	-0.83	15.14	0.50
	1b	-0.02	-1.02	-0.03
(1.2 + 0.2Sds) * DL + E 120 deg M1	1	0.01	3.66	-0.24
	1a	-0.79	13.86	0.46
	1b	0.22	3.66	0.11
(1.2 + 0.2Sds) * DL + E 120 deg M2	1	0.02	2.40	-0.18
	1a	-0.91	16.39	0.52
	1b	0.17	2.40	0.07
(1.2 + 0.2Sds) * DL + E 180 deg M1	1	0.00	0.26	-0.02
	1a	-0.60	10.46	0.34
	1b	0.60	10.46	0.34
(1.2 + 0.2Sds) * DL + E 180 deg M2	1	0.00	-2.27	0.11
	1a	-0.67	11.73	0.36
	1b	0.67	11.73	0.36
(1.2 + 0.2Sds) * DL + E 210 deg M1	1	-0.01	1.17	-0.08
	1a	-0.41	7.06	0.23
	1b	0.74	12.95	0.42
(1.2 + 0.2Sds) * DL + E 210 deg M2	1	-0.01	-1.02	0.03
	1a	-0.42	7.06	0.21
	1b	0.85	15.14	0.47
(1.2 + 0.2Sds) * DL + E 240 deg M1	1	-0.01	3.66	-0.24
	1a	-0.22	3.66	0.11
	1b	0.79	13.86	0.46
(1.2 + 0.2Sds) * DL + E 240 deg M2	1	-0.02	2.40	-0.18
	1a	-0.17	2.40	0.07
	1b	0.91	16.39	0.52
(1.2 + 0.2Sds) * DL + E 300 deg M1	1	-0.01	10.46	-0.69
	1a	-0.02	0.26	0.01
	1b	0.60	10.46	0.35
(1.2 + 0.2Sds) * DL + E 300 deg M2	1	-0.02	11.73	-0.76
	1a	0.10	-2.27	-0.05
	1b	0.64	11.73	0.40
(1.2 + 0.2Sds) * DL + E 330 deg M1	1	-0.01	12.95	-0.86
	1a	-0.07	1.17	0.04
	1b	0.40	7.06	0.24
(1.2 + 0.2Sds) * DL + E 330 deg M2	1	-0.01	15.14	-0.97
	1a	0.03	-1.02	0.00
	1b	0.39	7.06	0.26
(0.9 - 0.2Sds) * DL + E Normal M1	1	0.00	11.59	-0.77
	1a	-0.08	1.42	0.06
	1b	0.08	1.42	0.06

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(0.9 - 0.2Sds) * DL + E Normal M2	**1**	**0.00**	**14.10**	**-0.90**
	1a	**-0.01**	**0.16**	**0.04**
	1b	**0.01**	**0.16**	**0.04**
(0.9 - 0.2Sds) * DL + E 60 deg M1	**1**	**0.01**	**8.20**	**-0.54**
	1a	**-0.47**	**8.20**	**0.28**
	1b	**-0.11**	**-1.97**	**-0.06**
(0.9 - 0.2Sds) * DL + E 60 deg M2	**1**	**0.02**	**9.46**	**-0.61**
	1a	**-0.51**	**9.46**	**0.32**
	1b	**-0.22**	**-4.49**	**-0.13**
(0.9 - 0.2Sds) * DL + E 90 deg M1	**1**	**0.01**	**4.81**	**-0.32**
	1a	**-0.61**	**10.68**	**0.36**
	1b	**-0.06**	**-1.07**	**-0.04**
(0.9 - 0.2Sds) * DL + E 90 deg M2	**1**	**0.03**	**4.81**	**-0.32**
	1a	**-0.70**	**12.86**	**0.42**
	1b	**-0.15**	**-3.25**	**-0.10**
(0.9 - 0.2Sds) * DL + E 120 deg M1	**1**	**0.01**	**1.42**	**-0.09**
	1a	**-0.66**	**11.59**	**0.38**
	1b	**0.09**	**1.42**	**0.04**
(0.9 - 0.2Sds) * DL + E 120 deg M2	**1**	**0.02**	**0.16**	**-0.03**
	1a	**-0.78**	**14.10**	**0.45**
	1b	**0.04**	**0.16**	**-0.01**
(0.9 - 0.2Sds) * DL + E 180 deg M1	**1**	**0.00**	**-1.97**	**0.13**
	1a	**-0.47**	**8.20**	**0.26**
	1b	**0.47**	**8.20**	**0.26**
(0.9 - 0.2Sds) * DL + E 180 deg M2	**1**	**0.00**	**-4.49**	**0.26**
	1a	**-0.54**	**9.46**	**0.28**
	1b	**0.54**	**9.46**	**0.28**
(0.9 - 0.2Sds) * DL + E 210 deg M1	**1**	**-0.01**	**-1.07**	**0.07**
	1a	**-0.28**	**4.81**	**0.15**
	1b	**0.61**	**10.68**	**0.35**
(0.9 - 0.2Sds) * DL + E 210 deg M2	**1**	**-0.01**	**-3.25**	**0.18**
	1a	**-0.29**	**4.81**	**0.14**
	1b	**0.72**	**12.86**	**0.40**
(0.9 - 0.2Sds) * DL + E 240 deg M1	**1**	**-0.01**	**1.42**	**-0.09**
	1a	**-0.09**	**1.42**	**0.04**
	1b	**0.66**	**11.59**	**0.38**
(0.9 - 0.2Sds) * DL + E 240 deg M2	**1**	**-0.02**	**0.16**	**-0.03**
	1a	**-0.04**	**0.16**	**-0.01**
	1b	**0.78**	**14.10**	**0.45**
(0.9 - 0.2Sds) * DL + E 300 deg M1	**1**	**-0.01**	**8.20**	**-0.54**
	1a	**0.11**	**-1.97**	**-0.06**
	1b	**0.47**	**8.20**	**0.28**
(0.9 - 0.2Sds) * DL + E 300 deg M2	**1**	**-0.02**	**9.46**	**-0.61**
	1a	**0.22**	**-4.49**	**-0.13**
	1b	**0.51**	**9.46**	**0.32**
(0.9 - 0.2Sds) * DL + E 330 deg M1	**1**	**-0.01**	**10.68**	**-0.71**
	1a	**0.06**	**-1.07**	**-0.03**
	1b	**0.27**	**4.81**	**0.17**

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(0.9 - 0.2Sds) * DL + E 330 deg M2	**1**	**-0.01**	**12.86**	**-0.82**
	1a	**0.16**	**-3.25**	**-0.08**
	1b	**0.26**	**4.81**	**0.18**
1.0D + 1.0W Service Normal	**1**	**0.00**	**41.52**	**-3.11**
	1a	**0.81**	**-12.10**	**-0.58**
	1b	**-0.81**	**-12.10**	**-0.58**
1.0D + 1.0W Service 60 deg	**1**	**-0.10**	**23.11**	**-1.70**
	1a	**-1.51**	**23.04**	**0.77**
	1b	**-1.97**	**-28.84**	**-1.14**
1.0D + 1.0W Service 90 deg	**1**	**-0.11**	**5.82**	**-0.37**
	1a	**-2.35**	**35.94**	**1.30**
	1b	**-1.70**	**-24.45**	**-0.92**
1.0D + 1.0W Service 120 deg	**1**	**-0.11**	**-12.03**	**1.00**
	1a	**-2.69**	**41.44**	**1.56**
	1b	**-0.91**	**-12.10**	**-0.41**
1.0D + 1.0W Service 180 deg	**1**	**0.00**	**-28.77**	**2.27**
	1a	**-1.42**	**23.04**	**0.93**
	1b	**1.42**	**23.04**	**0.93**
1.0D + 1.0W Service 210 deg	**1**	**0.06**	**-24.37**	**1.94**
	1a	**-0.27**	**5.74**	**0.28**
	1b	**2.29**	**35.94**	**1.39**
1.0D + 1.0W Service 240 deg	**1**	**0.11**	**-12.03**	**1.00**
	1a	**0.91**	**-12.10**	**-0.41**
	1b	**2.69**	**41.44**	**1.56**
1.0D + 1.0W Service 300 deg	**1**	**0.10**	**23.11**	**-1.70**
	1a	**1.97**	**-28.84**	**-1.14**
	1b	**1.51**	**23.04**	**0.77**
1.0D + 1.0W Service 330 deg	**1**	**0.06**	**36.01**	**-2.68**
	1a	**1.65**	**-24.45**	**-1.02**
	1b	**0.38**	**5.74**	**0.10**

Max Uplift:	150.90(kip)	Moment Ice:	561.67 (kip-ft)	Moment:	1,504.22 (kip-ft)	1.2D + 1.6W Normal - Pat 1
Max Down:	168.50(kip)	Total Down Ice:	116.92 (kip)	Total Down:	20.77 (kip)	
Max Shear:	12.63(kip)	Total Shear Ice:	7.16 (kip)	Total Shear:	19.07 (kip)	

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Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
101 mph Normal to Face with No Ice - Pattern 1	95.85	1.008	0.0000	1.2889	1.2889
101 mph Normal to Face with No Ice - Pattern 1	100.00	1.105	0.0301	1.4648	1.4648
101 mph Normal to Face with No Ice - Pattern 1	111.95	1.398	0.0309	1.4364	1.4368
101 mph Normal to Face with No Ice - Pattern 1	125.00	1.728	0.0312	1.4461	1.4464
101 mph Normal to Face with No Ice - Pattern 2	95.85	0.770	0.0000	1.0163	1.0163
101 mph Normal to Face with No Ice - Pattern 2	100.00	0.847	0.0211	1.1657	1.1657
101 mph Normal to Face with No Ice - Pattern 2	111.95	1.080	0.0217	1.1484	1.1486
101 mph Normal to Face with No Ice - Pattern 2	125.00	1.345	0.0219	1.1602	1.1604
101 mph Normal to Face with No Ice - Pattern 3	95.85	0.981	0.0000	1.2501	1.2501
101 mph Normal to Face with No Ice - Pattern 3	100.00	1.076	0.0297	1.4195	1.4195
101 mph Normal to Face with No Ice - Pattern 3	111.95	1.359	0.0305	1.3889	1.3892
101 mph Normal to Face with No Ice - Pattern 3	125.00	1.678	0.0307	1.3963	1.3966
101 mph 60 degree with No Ice - Pattern 1	95.85	0.980	-0.0323	1.2726	1.2730
101 mph 60 degree with No Ice - Pattern 1	100.00	1.076	0.0333	1.4237	1.4237
101 mph 60 degree with No Ice - Pattern 1	111.95	1.360	0.0328	1.4005	1.4005
101 mph 60 degree with No Ice - Pattern 1	125.00	1.682	0.0328	1.4079	1.4083
101 mph 60 degree with No Ice - Pattern 2	95.85	0.753	-0.0224	1.0092	1.0094
101 mph 60 degree with No Ice - Pattern 2	100.00	0.829	0.0232	1.1387	1.1387
101 mph 60 degree with No Ice - Pattern 2	111.95	1.057	0.0228	1.1250	1.1250
101 mph 60 degree with No Ice - Pattern 2	125.00	1.316	0.0227	1.1348	1.1351
101 mph 60 degree with No Ice - Pattern 3	95.85	0.956	-0.0317	1.2358	1.2362
101 mph 60 degree with No Ice - Pattern 3	100.00	1.048	0.0327	1.3815	1.3815
101 mph 60 degree with No Ice - Pattern 3	111.95	1.324	0.0322	1.3560	1.3560
101 mph 60 degree with No Ice - Pattern 3	125.00	1.636	0.0323	1.3614	1.3618
101 mph 90 degree with No Ice - Pattern 1	95.85	0.987	-0.0361	1.2854	1.2859
101 mph 90 degree with No Ice - Pattern 1	100.00	1.082	-0.0363	1.4181	1.4183
101 mph 90 degree with No Ice - Pattern 1	111.95	1.369	-0.0364	1.4082	1.4083
101 mph 90 degree with No Ice - Pattern 1	125.00	1.693	-0.0366	1.4190	1.4195
101 mph 90 degree with No Ice - Pattern 2	95.85	0.757	-0.0253	1.0181	1.0184
101 mph 90 degree with No Ice - Pattern 2	100.00	0.833	-0.0254	1.1318	1.1319
101 mph 90 degree with No Ice - Pattern 2	111.95	1.063	-0.0255	1.1297	1.1299
101 mph 90 degree with No Ice - Pattern 2	125.00	1.322	-0.0256	1.1432	1.1435
101 mph 90 degree with No Ice - Pattern 3	95.85	0.962	-0.0356	1.2478	1.2483
101 mph 90 degree with No Ice - Pattern 3	100.00	1.054	-0.0357	1.3756	1.3758
101 mph 90 degree with No Ice - Pattern 3	111.95	1.333	-0.0359	1.3630	1.3631
101 mph 90 degree with No Ice - Pattern 3	125.00	1.645	-0.0360	1.3712	1.3717
101 mph 120 degree with No Ice - Pattern 1	95.85	1.007	-0.0308	1.3043	1.3046
101 mph 120 degree with No Ice - Pattern 1	100.00	1.104	0.0301	1.4627	1.4627
101 mph 120 degree with No Ice - Pattern 1	111.95	1.397	0.0309	1.4344	1.4347
101 mph 120 degree with No Ice - Pattern 1	125.00	1.726	0.0312	1.4436	1.4439
101 mph 120 degree with No Ice - Pattern 2	95.85	0.770	-0.0215	1.0286	1.0288
101 mph 120 degree with No Ice - Pattern 2	100.00	0.846	0.0210	1.1635	1.1635
101 mph 120 degree with No Ice - Pattern 2	111.95	1.079	0.0216	1.1463	1.1465
101 mph 120 degree with No Ice - Pattern 2	125.00	1.343	0.0218	1.1577	1.1579
101 mph 120 degree with No Ice - Pattern 3	95.85	0.981	-0.0304	1.2650	1.2653
101 mph 120 degree with No Ice - Pattern 3	100.00	1.075	0.0297	1.4173	1.4173
101 mph 120 degree with No Ice - Pattern 3	111.95	1.358	0.0305	1.3868	1.3871
101 mph 120 degree with No Ice - Pattern 3	125.00	1.677	0.0307	1.3938	1.3942
101 mph 180 degree with No Ice - Pattern 1	95.85	0.980	0.0000	1.2544	1.2544
101 mph 180 degree with No Ice - Pattern 1	100.00	1.074	0.0334	1.4212	1.4212
101 mph 180 degree with No Ice - Pattern 1	111.95	1.359	0.0328	1.3985	1.3985
101 mph 180 degree with No Ice - Pattern 1	125.00	1.680	0.0328	1.4058	1.4061
101 mph 180 degree with No Ice - Pattern 2	95.85	0.753	0.0000	0.9937	0.9937
101 mph 180 degree with No Ice - Pattern 2	100.00	0.828	0.0233	1.1362	1.1362

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101 mph 180 degree with No Ice - Pattern 2	111.95	1.055	0.0229	1.1230	1.1230
101 mph 180 degree with No Ice - Pattern 2	125.00	1.314	0.0229	1.1327	1.1329
101 mph 180 degree with No Ice - Pattern 3	95.85	0.955	0.0000	1.2181	1.2181
101 mph 180 degree with No Ice - Pattern 3	100.00	1.047	0.0327	1.3791	1.3791
101 mph 180 degree with No Ice - Pattern 3	111.95	1.323	0.0322	1.3541	1.3541
101 mph 180 degree with No Ice - Pattern 3	125.00	1.633	0.0323	1.3592	1.3596
101 mph 210 degree with No Ice - Pattern 1	95.85	0.987	0.0169	1.2677	1.2678
101 mph 210 degree with No Ice - Pattern 1	100.00	1.082	0.0204	1.4173	1.4175
101 mph 210 degree with No Ice - Pattern 1	111.95	1.368	0.0198	1.4070	1.4071
101 mph 210 degree with No Ice - Pattern 1	125.00	1.691	0.0197	1.4178	1.4182
101 mph 210 degree with No Ice - Pattern 2	95.85	0.757	0.0119	1.0033	1.0034
101 mph 210 degree with No Ice - Pattern 2	100.00	0.832	0.0141	1.1310	1.1311
101 mph 210 degree with No Ice - Pattern 2	111.95	1.061	0.0137	1.1285	1.1286
101 mph 210 degree with No Ice - Pattern 2	125.00	1.321	0.0137	1.1420	1.1423
101 mph 210 degree with No Ice - Pattern 3	95.85	0.962	0.0167	1.2307	1.2308
101 mph 210 degree with No Ice - Pattern 3	100.00	1.054	0.0200	1.3748	1.3750
101 mph 210 degree with No Ice - Pattern 3	111.95	1.331	0.0194	1.3618	1.3619
101 mph 210 degree with No Ice - Pattern 3	125.00	1.644	0.0194	1.3699	1.3704
101 mph 240 degree with No Ice - Pattern 1	95.85	1.007	0.0308	1.3043	1.3046
101 mph 240 degree with No Ice - Pattern 1	100.00	1.104	0.0300	1.4627	1.4627
101 mph 240 degree with No Ice - Pattern 1	111.95	1.397	0.0309	1.4344	1.4347
101 mph 240 degree with No Ice - Pattern 1	125.00	1.726	0.0311	1.4436	1.4439
101 mph 240 degree with No Ice - Pattern 2	95.85	0.770	0.0215	1.0286	1.0288
101 mph 240 degree with No Ice - Pattern 2	100.00	0.846	0.0210	1.1635	1.1635
101 mph 240 degree with No Ice - Pattern 2	111.95	1.079	0.0215	1.1463	1.1465
101 mph 240 degree with No Ice - Pattern 2	125.00	1.343	0.0217	1.1577	1.1579
101 mph 240 degree with No Ice - Pattern 3	95.85	0.981	0.0304	1.2650	1.2653
101 mph 240 degree with No Ice - Pattern 3	100.00	1.075	0.0296	1.4173	1.4173
101 mph 240 degree with No Ice - Pattern 3	111.95	1.358	0.0304	1.3868	1.3871
101 mph 240 degree with No Ice - Pattern 3	125.00	1.677	0.0306	1.3938	1.3942
101 mph 300 degree with No Ice - Pattern 1	95.85	0.980	0.0323	1.2726	1.2730
101 mph 300 degree with No Ice - Pattern 1	100.00	1.076	0.0333	1.4237	1.4237
101 mph 300 degree with No Ice - Pattern 1	111.95	1.360	0.0327	1.4005	1.4005
101 mph 300 degree with No Ice - Pattern 1	125.00	1.682	0.0328	1.4079	1.4083
101 mph 300 degree with No Ice - Pattern 2	95.85	0.753	0.0224	1.0092	1.0094
101 mph 300 degree with No Ice - Pattern 2	100.00	0.829	0.0231	1.1387	1.1387
101 mph 300 degree with No Ice - Pattern 2	111.95	1.057	0.0227	1.1250	1.1250
101 mph 300 degree with No Ice - Pattern 2	125.00	1.316	0.0227	1.1348	1.1351
101 mph 300 degree with No Ice - Pattern 3	95.85	0.956	0.0317	1.2358	1.2362
101 mph 300 degree with No Ice - Pattern 3	100.00	1.048	0.0327	1.3815	1.3815
101 mph 300 degree with No Ice - Pattern 3	111.95	1.324	0.0322	1.3560	1.3560
101 mph 300 degree with No Ice - Pattern 3	125.00	1.636	0.0322	1.3614	1.3618
101 mph 330 degree with No Ice - Pattern 1	95.85	0.987	0.0193	1.2696	1.2697
101 mph 330 degree with No Ice - Pattern 1	100.00	1.083	0.0203	1.4193	1.4194
101 mph 330 degree with No Ice - Pattern 1	111.95	1.370	0.0197	1.4093	1.4094
101 mph 330 degree with No Ice - Pattern 1	125.00	1.694	0.0197	1.4204	1.4209
101 mph 330 degree with No Ice - Pattern 2	95.85	0.757	0.0134	1.0053	1.0054
101 mph 330 degree with No Ice - Pattern 2	100.00	0.834	0.0141	1.1329	1.1330
101 mph 330 degree with No Ice - Pattern 2	111.95	1.063	0.0137	1.1309	1.1310
101 mph 330 degree with No Ice - Pattern 2	125.00	1.323	0.0136	1.1446	1.1449
101 mph 330 degree with No Ice - Pattern 3	95.85	0.962	0.0190	1.2326	1.2327
101 mph 330 degree with No Ice - Pattern 3	100.00	1.055	0.0199	1.3768	1.3769
101 mph 330 degree with No Ice - Pattern 3	111.95	1.333	0.0193	1.3642	1.3643
101 mph 330 degree with No Ice - Pattern 3	125.00	1.647	0.0193	1.3726	1.3731
101 mph Normal to Face with No Ice (Reduced DL)	95.85	1.004	0.0000	1.2831	1.2831
101 mph Normal to Face with No Ice (Reduced DL)	100.00	1.101	0.0300	1.4579	1.4579
101 mph Normal to Face with No Ice (Reduced DL)	111.95	1.392	0.0308	1.4297	1.4301
101 mph Normal to Face with No Ice (Reduced DL)	125.00	1.721	0.0311	1.4392	1.4396
101 mph 60 deg with No Ice (Reduced DL)	95.85	0.977	-0.0321	1.2670	1.2674
101 mph 60 deg with No Ice (Reduced DL)	100.00	1.072	0.0332	1.4174	1.4174

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101 mph 60 deg with No Ice (Reduced DL)	111.95	1.355	0.0327	1.3940	1.3940
101 mph 60 deg with No Ice (Reduced DL)	125.00	1.675	0.0327	1.4018	1.4022
101 mph 90 deg with No Ice (Reduced DL)	95.85	0.983	-0.0360	1.2799	1.2804
101 mph 90 deg with No Ice (Reduced DL)	100.00	1.078	-0.0361	1.4118	1.4120
101 mph 90 deg with No Ice (Reduced DL)	111.95	1.364	-0.0363	1.4020	1.4021
101 mph 90 deg with No Ice (Reduced DL)	125.00	1.686	-0.0364	1.4129	1.4134
101 mph 120 deg with No Ice (Reduced DL)	95.85	1.004	-0.0307	1.2990	1.2993
101 mph 120 deg with No Ice (Reduced DL)	100.00	1.100	0.0300	1.4563	1.4563
101 mph 120 deg with No Ice (Reduced DL)	111.95	1.392	0.0309	1.4282	1.4286
101 mph 120 deg with No Ice (Reduced DL)	125.00	1.720	0.0311	1.4373	1.4377
101 mph 180 deg with No Ice (Reduced DL)	95.85	0.977	0.0000	1.2494	1.2494
101 mph 180 deg with No Ice (Reduced DL)	100.00	1.071	0.0332	1.4156	1.4156
101 mph 180 deg with No Ice (Reduced DL)	111.95	1.354	0.0327	1.3926	1.3926
101 mph 180 deg with No Ice (Reduced DL)	125.00	1.674	0.0327	1.4003	1.4006
101 mph 210 deg with No Ice (Reduced DL)	95.85	0.983	0.0168	1.2627	1.2628
101 mph 210 deg with No Ice (Reduced DL)	100.00	1.078	0.0203	1.4113	1.4115
101 mph 210 deg with No Ice (Reduced DL)	111.95	1.363	0.0197	1.4011	1.4012
101 mph 210 deg with No Ice (Reduced DL)	125.00	1.685	0.0197	1.4120	1.4124
101 mph 240 deg with No Ice (Reduced DL)	95.85	1.004	0.0307	1.2990	1.2993
101 mph 240 deg with No Ice (Reduced DL)	100.00	1.100	0.0299	1.4563	1.4563
101 mph 240 deg with No Ice (Reduced DL)	111.95	1.392	0.0308	1.4282	1.4286
101 mph 240 deg with No Ice (Reduced DL)	125.00	1.720	0.0310	1.4373	1.4377
101 mph 300 deg with No Ice (Reduced DL)	95.85	0.977	0.0321	1.2670	1.2674
101 mph 300 deg with No Ice (Reduced DL)	100.00	1.072	0.0332	1.4174	1.4174
101 mph 300 deg with No Ice (Reduced DL)	111.95	1.355	0.0326	1.3940	1.3940
101 mph 300 deg with No Ice (Reduced DL)	125.00	1.675	0.0327	1.4018	1.4022
101 mph 330 deg with No Ice (Reduced DL)	95.85	0.983	0.0193	1.2640	1.2641
101 mph 330 deg with No Ice (Reduced DL)	100.00	1.079	0.0203	1.4126	1.4128
101 mph 330 deg with No Ice (Reduced DL)	111.95	1.364	0.0196	1.4027	1.4028
101 mph 330 deg with No Ice (Reduced DL)	125.00	1.687	0.0196	1.4139	1.4144
50 mph Normal with 1.25 in Radial Ice	95.85	0.375	0.0000	0.4795	0.4795
50 mph Normal with 1.25 in Radial Ice	100.00	0.411	0.0115	0.5475	0.5475
50 mph Normal with 1.25 in Radial Ice	111.95	0.520	0.0115	0.5356	0.5357
50 mph Normal with 1.25 in Radial Ice	125.00	0.643	0.0115	0.5401	0.5402
50 mph 60 deg with 1.25 in Radial Ice	95.85	0.373	-0.0117	0.4821	0.4822
50 mph 60 deg with 1.25 in Radial Ice	100.00	0.409	0.0118	0.5374	0.5374
50 mph 60 deg with 1.25 in Radial Ice	111.95	0.517	0.0115	0.5326	0.5326
50 mph 60 deg with 1.25 in Radial Ice	125.00	0.639	0.0114	0.5361	0.5361
50 mph 90 deg with 1.25 in Radial Ice	95.85	0.372	-0.0136	0.4832	0.4834
50 mph 90 deg with 1.25 in Radial Ice	100.00	0.408	-0.0136	0.5347	0.5347
50 mph 90 deg with 1.25 in Radial Ice	111.95	0.516	-0.0135	0.5308	0.5309
50 mph 90 deg with 1.25 in Radial Ice	125.00	0.637	-0.0134	0.5347	0.5347
50 mph 120 deg with 1.25 in Radial Ice	95.85	0.372	-0.0114	0.4807	0.4808
50 mph 120 deg with 1.25 in Radial Ice	100.00	0.408	0.0113	0.5408	0.5408
50 mph 120 deg with 1.25 in Radial Ice	111.95	0.515	0.0112	0.5290	0.5292
50 mph 120 deg with 1.25 in Radial Ice	125.00	0.637	0.0111	0.5334	0.5335
50 mph 180 deg with 1.25 in Radial Ice	95.85	0.370	0.0000	0.4711	0.4711
50 mph 180 deg with 1.25 in Radial Ice	100.00	0.405	0.0121	0.5311	0.5311
50 mph 180 deg with 1.25 in Radial Ice	111.95	0.512	0.0118	0.5265	0.5265
50 mph 180 deg with 1.25 in Radial Ice	125.00	0.632	0.0118	0.5298	0.5298
50 mph 210 deg with 1.25 in Radial Ice	95.85	0.370	0.0066	0.4740	0.4741
50 mph 210 deg with 1.25 in Radial Ice	100.00	0.406	0.0071	0.5312	0.5313
50 mph 210 deg with 1.25 in Radial Ice	111.95	0.513	0.0069	0.5271	0.5272
50 mph 210 deg with 1.25 in Radial Ice	125.00	0.633	0.0069	0.5309	0.5310
50 mph 240 deg with 1.25 in Radial Ice	95.85	0.372	0.0114	0.4807	0.4808
50 mph 240 deg with 1.25 in Radial Ice	100.00	0.408	0.0113	0.5408	0.5408
50 mph 240 deg with 1.25 in Radial Ice	111.95	0.515	0.0112	0.5290	0.5292
50 mph 240 deg with 1.25 in Radial Ice	125.00	0.637	0.0111	0.5334	0.5335
50 mph 300 deg with 1.25 in Radial Ice	95.85	0.373	0.0117	0.4821	0.4822
50 mph 300 deg with 1.25 in Radial Ice	100.00	0.409	0.0118	0.5374	0.5374

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50 mph 300 deg with 1.25 in Radial Ice	111.95	0.517	0.0115	0.5326	0.5326
50 mph 300 deg with 1.25 in Radial Ice	125.00	0.639	0.0114	0.5361	0.5361
50 mph 330 deg with 1.25 in Radial Ice	95.85	0.374	0.0069	0.4798	0.4798
50 mph 330 deg with 1.25 in Radial Ice	100.00	0.410	0.0071	0.5385	0.5385
50 mph 330 deg with 1.25 in Radial Ice	111.95	0.519	0.0069	0.5344	0.5345
50 mph 330 deg with 1.25 in Radial Ice	125.00	0.641	0.0069	0.5384	0.5384
Seismic Normal M1	95.85	0.046	0.0000	0.0617	0.0617
Seismic Normal M1	100.00	0.051	0.0009	0.0713	0.0713
Seismic Normal M1	111.95	0.065	0.0007	0.0705	0.0705
Seismic Normal M1	125.00	0.081	0.0007	0.0716	0.0716
Seismic Normal M2	95.85	0.069	0.0000	0.0988	0.0988
Seismic Normal M2	100.00	0.077	0.0011	0.1163	0.1163
Seismic Normal M2	111.95	0.100	0.0010	0.1173	0.1173
Seismic Normal M2	125.00	0.128	0.0009	0.1200	0.1200
Seismic 60 deg M1	95.85	0.046	-0.0009	0.0626	0.0626
Seismic 60 deg M1	100.00	0.051	0.0009	0.0703	0.0703
Seismic 60 deg M1	111.95	0.065	0.0007	0.0707	0.0707
Seismic 60 deg M1	125.00	0.081	0.0007	0.0718	0.0718
Seismic 60 deg M2	95.85	0.069	-0.0011	0.1003	0.1003
Seismic 60 deg M2	100.00	0.077	0.0011	0.1153	0.1153
Seismic 60 deg M2	111.95	0.100	0.0010	0.1175	0.1175
Seismic 60 deg M2	125.00	0.128	0.0009	0.1189	0.1189
Seismic 90 deg M1	95.85	0.046	-0.0010	0.0629	0.0630
Seismic 90 deg M1	100.00	0.051	-0.0010	0.0704	0.0704
Seismic 90 deg M1	111.95	0.065	-0.0008	0.0706	0.0706
Seismic 90 deg M1	125.00	0.081	-0.0008	0.0718	0.0718
Seismic 90 deg M2	95.85	0.069	-0.0013	0.1008	0.1009
Seismic 90 deg M2	100.00	0.077	-0.0013	0.1146	0.1146
Seismic 90 deg M2	111.95	0.100	-0.0011	0.1174	0.1174
Seismic 90 deg M2	125.00	0.128	-0.0011	0.1199	0.1200
Seismic 120 deg M1	95.85	0.046	-0.0009	0.0627	0.0627
Seismic 120 deg M1	100.00	0.051	0.0009	0.0713	0.0713
Seismic 120 deg M1	111.95	0.065	0.0007	0.0705	0.0705
Seismic 120 deg M1	125.00	0.081	0.0007	0.0716	0.0716
Seismic 120 deg M2	95.85	0.069	-0.0011	0.1004	0.1004
Seismic 120 deg M2	100.00	0.077	0.0011	0.1163	0.1163
Seismic 120 deg M2	111.95	0.100	0.0010	0.1173	0.1173
Seismic 120 deg M2	125.00	0.128	0.0009	0.1200	0.1200
Seismic 180 deg M1	95.85	0.046	0.0000	0.0620	0.0620
Seismic 180 deg M1	100.00	0.051	0.0009	0.0703	0.0703
Seismic 180 deg M1	111.95	0.065	0.0007	0.0707	0.0707
Seismic 180 deg M1	125.00	0.081	0.0007	0.0718	0.0718
Seismic 180 deg M2	95.85	0.069	0.0000	0.0991	0.0991
Seismic 180 deg M2	100.00	0.077	0.0011	0.1153	0.1153
Seismic 180 deg M2	111.95	0.100	0.0010	0.1175	0.1175
Seismic 180 deg M2	125.00	0.128	0.0009	0.1189	0.1189
Seismic 210 deg M1	95.85	0.046	0.0005	0.0622	0.0622
Seismic 210 deg M1	100.00	0.051	0.0005	0.0704	0.0704
Seismic 210 deg M1	111.95	0.065	0.0004	0.0706	0.0706
Seismic 210 deg M1	125.00	0.081	0.0004	0.0718	0.0718
Seismic 210 deg M2	95.85	0.069	0.0006	0.0995	0.0995
Seismic 210 deg M2	100.00	0.077	0.0006	0.1146	0.1146
Seismic 210 deg M2	111.95	0.100	0.0006	0.1174	0.1174
Seismic 210 deg M2	125.00	0.128	0.0005	0.1199	0.1200
Seismic 240 deg M1	95.85	0.046	0.0009	0.0627	0.0627
Seismic 240 deg M1	100.00	0.051	0.0009	0.0713	0.0713
Seismic 240 deg M1	111.95	0.065	0.0007	0.0705	0.0705
Seismic 240 deg M1	125.00	0.081	0.0007	0.0716	0.0716
Seismic 240 deg M2	95.85	0.069	0.0011	0.1004	0.1004
Seismic 240 deg M2	100.00	0.077	0.0011	0.1163	0.1163

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Seismic 240 deg M2	111.95	0.100	0.0010	0.1173	0.1173
Seismic 240 deg M2	125.00	0.128	0.0009	0.1200	0.1200
Seismic 300 deg M1	95.85	0.046	0.0009	0.0626	0.0626
Seismic 300 deg M1	100.00	0.051	0.0009	0.0703	0.0703
Seismic 300 deg M1	111.95	0.065	0.0007	0.0707	0.0707
Seismic 300 deg M1	125.00	0.081	0.0007	0.0718	0.0718
Seismic 300 deg M2	95.85	0.069	0.0011	0.1003	0.1003
Seismic 300 deg M2	100.00	0.077	0.0011	0.1153	0.1153
Seismic 300 deg M2	111.95	0.100	0.0010	0.1175	0.1175
Seismic 300 deg M2	125.00	0.128	0.0009	0.1189	0.1189
Seismic 330 deg M1	95.85	0.046	0.0005	0.0620	0.0620
Seismic 330 deg M1	100.00	0.051	0.0005	0.0704	0.0704
Seismic 330 deg M1	111.95	0.065	0.0004	0.0706	0.0706
Seismic 330 deg M1	125.00	0.081	0.0004	0.0718	0.0718
Seismic 330 deg M2	95.85	0.069	0.0006	0.0993	0.0993
Seismic 330 deg M2	100.00	0.077	0.0006	0.1146	0.1146
Seismic 330 deg M2	111.95	0.100	0.0006	0.1174	0.1174
Seismic 330 deg M2	125.00	0.128	0.0005	0.1199	0.1200
Seismic (Reduced DL) Normal M1	95.85	0.046	0.0000	0.0614	0.0614
Seismic (Reduced DL) Normal M1	100.00	0.051	0.0009	0.0708	0.0708
Seismic (Reduced DL) Normal M1	111.95	0.065	0.0007	0.0701	0.0701
Seismic (Reduced DL) Normal M1	125.00	0.081	0.0007	0.0710	0.0710
Seismic (Reduced DL) Normal M2	95.85	0.069	0.0000	0.0983	0.0983
Seismic (Reduced DL) Normal M2	100.00	0.077	0.0011	0.1155	0.1155
Seismic (Reduced DL) Normal M2	111.95	0.100	0.0010	0.1167	0.1167
Seismic (Reduced DL) Normal M2	125.00	0.127	0.0009	0.1192	0.1192
Seismic (Reduced DL) 60 deg M1	95.85	0.046	-0.0009	0.0623	0.0623
Seismic (Reduced DL) 60 deg M1	100.00	0.051	0.0009	0.0701	0.0701
Seismic (Reduced DL) 60 deg M1	111.95	0.065	0.0007	0.0703	0.0703
Seismic (Reduced DL) 60 deg M1	125.00	0.081	0.0007	0.0710	0.0710
Seismic (Reduced DL) 60 deg M2	95.85	0.069	-0.0011	0.0998	0.0998
Seismic (Reduced DL) 60 deg M2	100.00	0.077	0.0011	0.1148	0.1148
Seismic (Reduced DL) 60 deg M2	111.95	0.100	0.0010	0.1168	0.1168
Seismic (Reduced DL) 60 deg M2	125.00	0.127	0.0009	0.1183	0.1183
Seismic (Reduced DL) 90 deg M1	95.85	0.046	-0.0010	0.0626	0.0626
Seismic (Reduced DL) 90 deg M1	100.00	0.051	-0.0010	0.0699	0.0699
Seismic (Reduced DL) 90 deg M1	111.95	0.065	-0.0008	0.0702	0.0702
Seismic (Reduced DL) 90 deg M1	125.00	0.081	-0.0008	0.0710	0.0710
Seismic (Reduced DL) 90 deg M2	95.85	0.069	-0.0013	0.1003	0.1003
Seismic (Reduced DL) 90 deg M2	100.00	0.077	-0.0013	0.1138	0.1138
Seismic (Reduced DL) 90 deg M2	111.95	0.100	-0.0011	0.1168	0.1168
Seismic (Reduced DL) 90 deg M2	125.00	0.127	-0.0011	0.1193	0.1193
Seismic (Reduced DL) 120 deg M1	95.85	0.046	-0.0009	0.0624	0.0624
Seismic (Reduced DL) 120 deg M1	100.00	0.051	0.0009	0.0708	0.0708
Seismic (Reduced DL) 120 deg M1	111.95	0.065	0.0007	0.0701	0.0701
Seismic (Reduced DL) 120 deg M1	125.00	0.081	0.0007	0.0710	0.0711
Seismic (Reduced DL) 120 deg M2	95.85	0.069	-0.0011	0.0999	0.0999
Seismic (Reduced DL) 120 deg M2	100.00	0.077	0.0011	0.1155	0.1155
Seismic (Reduced DL) 120 deg M2	111.95	0.100	0.0010	0.1167	0.1167
Seismic (Reduced DL) 120 deg M2	125.00	0.127	0.0009	0.1192	0.1192
Seismic (Reduced DL) 180 deg M1	95.85	0.046	0.0000	0.0616	0.0616
Seismic (Reduced DL) 180 deg M1	100.00	0.051	0.0009	0.0701	0.0701
Seismic (Reduced DL) 180 deg M1	111.95	0.065	0.0007	0.0703	0.0703
Seismic (Reduced DL) 180 deg M1	125.00	0.081	0.0007	0.0710	0.0710
Seismic (Reduced DL) 180 deg M2	95.85	0.069	0.0000	0.0985	0.0985
Seismic (Reduced DL) 180 deg M2	100.00	0.077	0.0011	0.1148	0.1148
Seismic (Reduced DL) 180 deg M2	111.95	0.100	0.0010	0.1168	0.1168
Seismic (Reduced DL) 180 deg M2	125.00	0.127	0.0009	0.1183	0.1183
Seismic (Reduced DL) 210 deg M1	95.85	0.046	0.0005	0.0619	0.0619
Seismic (Reduced DL) 210 deg M1	100.00	0.051	0.0005	0.0699	0.0699

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Seismic (Reduced DL) 210 deg M1	111.95	0.065	0.0004	0.0702	0.0702
Seismic (Reduced DL) 210 deg M1	125.00	0.081	0.0004	0.0710	0.0710
Seismic (Reduced DL) 210 deg M2	95.85	0.069	0.0006	0.0990	0.0990
Seismic (Reduced DL) 210 deg M2	100.00	0.077	0.0006	0.1138	0.1138
Seismic (Reduced DL) 210 deg M2	111.95	0.100	0.0006	0.1168	0.1168
Seismic (Reduced DL) 210 deg M2	125.00	0.127	0.0005	0.1193	0.1193
Seismic (Reduced DL) 240 deg M1	95.85	0.046	0.0009	0.0624	0.0624
Seismic (Reduced DL) 240 deg M1	100.00	0.051	0.0009	0.0708	0.0708
Seismic (Reduced DL) 240 deg M1	111.95	0.065	0.0007	0.0701	0.0701
Seismic (Reduced DL) 240 deg M1	125.00	0.081	0.0007	0.0710	0.0711
Seismic (Reduced DL) 240 deg M2	95.85	0.069	0.0011	0.0999	0.0999
Seismic (Reduced DL) 240 deg M2	100.00	0.077	0.0011	0.1155	0.1155
Seismic (Reduced DL) 240 deg M2	111.95	0.100	0.0010	0.1167	0.1167
Seismic (Reduced DL) 240 deg M2	125.00	0.127	0.0009	0.1192	0.1192
Seismic (Reduced DL) 300 deg M1	95.85	0.046	0.0009	0.0623	0.0623
Seismic (Reduced DL) 300 deg M1	100.00	0.051	0.0009	0.0701	0.0701
Seismic (Reduced DL) 300 deg M1	111.95	0.065	0.0007	0.0703	0.0703
Seismic (Reduced DL) 300 deg M1	125.00	0.081	0.0007	0.0710	0.0710
Seismic (Reduced DL) 300 deg M2	95.85	0.069	0.0011	0.0998	0.0998
Seismic (Reduced DL) 300 deg M2	100.00	0.077	0.0011	0.1148	0.1148
Seismic (Reduced DL) 300 deg M2	111.95	0.100	0.0010	0.1168	0.1168
Seismic (Reduced DL) 300 deg M2	125.00	0.127	0.0009	0.1183	0.1183
Seismic (Reduced DL) 330 deg M1	95.85	0.046	0.0005	0.0617	0.0617
Seismic (Reduced DL) 330 deg M1	100.00	0.051	0.0005	0.0699	0.0699
Seismic (Reduced DL) 330 deg M1	111.95	0.065	0.0004	0.0702	0.0702
Seismic (Reduced DL) 330 deg M1	125.00	0.081	0.0004	0.0710	0.0710
Seismic (Reduced DL) 330 deg M2	95.85	0.069	0.0006	0.0988	0.0988
Seismic (Reduced DL) 330 deg M2	100.00	0.077	0.0006	0.1138	0.1138
Seismic (Reduced DL) 330 deg M2	111.95	0.100	0.0006	0.1168	0.1168
Seismic (Reduced DL) 330 deg M2	125.00	0.127	0.0005	0.1193	0.1193
Serviceability - 60 mph Wind Normal	95.85	0.222	0.0000	0.2830	0.2830
Serviceability - 60 mph Wind Normal	100.00	0.243	0.0057	0.3215	0.3215
Serviceability - 60 mph Wind Normal	111.95	0.307	0.0054	0.3155	0.3155
Serviceability - 60 mph Wind Normal	125.00	0.380	0.0052	0.3178	0.3179
Serviceability - 60 mph Wind 60 deg	95.85	0.215	-0.0057	0.2787	0.2787
Serviceability - 60 mph Wind 60 deg	100.00	0.236	0.0057	0.3115	0.3115
Serviceability - 60 mph Wind 60 deg	111.95	0.299	0.0053	0.3071	0.3071
Serviceability - 60 mph Wind 60 deg	125.00	0.369	0.0051	0.3080	0.3080
Serviceability - 60 mph Wind 90 deg	95.85	0.217	-0.0066	0.2812	0.2813
Serviceability - 60 mph Wind 90 deg	100.00	0.237	-0.0065	0.3102	0.3103
Serviceability - 60 mph Wind 90 deg	111.95	0.300	-0.0061	0.3084	0.3084
Serviceability - 60 mph Wind 90 deg	125.00	0.371	-0.0059	0.3104	0.3104
Serviceability - 60 mph Wind 120 deg	95.85	0.221	-0.0058	0.2851	0.2851
Serviceability - 60 mph Wind 120 deg	100.00	0.242	0.0057	0.3196	0.3196
Serviceability - 60 mph Wind 120 deg	111.95	0.306	0.0054	0.3136	0.3136
Serviceability - 60 mph Wind 120 deg	125.00	0.378	0.0052	0.3159	0.3159
Serviceability - 60 mph Wind 180 deg	95.85	0.214	0.0000	0.2734	0.2734
Serviceability - 60 mph Wind 180 deg	100.00	0.235	0.0057	0.3095	0.3095
Serviceability - 60 mph Wind 180 deg	111.95	0.297	0.0053	0.3052	0.3052
Serviceability - 60 mph Wind 180 deg	125.00	0.367	0.0051	0.3061	0.3061
Serviceability - 60 mph Wind 210 deg	95.85	0.216	0.0033	0.2766	0.2766
Serviceability - 60 mph Wind 210 deg	100.00	0.237	0.0034	0.3093	0.3093
Serviceability - 60 mph Wind 210 deg	111.95	0.299	0.0031	0.3073	0.3073
Serviceability - 60 mph Wind 210 deg	125.00	0.370	0.0030	0.3093	0.3093
Serviceability - 60 mph Wind 240 deg	95.85	0.221	0.0058	0.2851	0.2851
Serviceability - 60 mph Wind 240 deg	100.00	0.242	0.0057	0.3196	0.3196
Serviceability - 60 mph Wind 240 deg	111.95	0.306	0.0054	0.3136	0.3136
Serviceability - 60 mph Wind 240 deg	125.00	0.378	0.0052	0.3159	0.3159
Serviceability - 60 mph Wind 300 deg	95.85	0.215	0.0057	0.2787	0.2787
Serviceability - 60 mph Wind 300 deg	100.00	0.236	0.0057	0.3115	0.3115

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Serviceability - 60 mph Wind 300 deg	111.95	0.299	0.0053	0.3071	0.3071
Serviceability - 60 mph Wind 300 deg	125.00	0.369	0.0051	0.3080	0.3080
Serviceability - 60 mph Wind 330 deg	95.85	0.217	0.0033	0.2785	0.2785
Serviceability - 60 mph Wind 330 deg	100.00	0.238	0.0033	0.3114	0.3114
Serviceability - 60 mph Wind 330 deg	111.95	0.301	0.0031	0.3095	0.3095
Serviceability - 60 mph Wind 330 deg	125.00	0.372	0.0030	0.3115	0.3116