PASS
(51.3% Capacity)

May 23, 2019

T-Mobile South LLC
185 Fairchild Street
Charleston, SC 29492
843-216-4301

Jacobs Engineering Group, Inc.
5449 Bells Ferry Road
Acworth, GA 30102
770-701-2500
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Subject:	**Water Tower Equipment Installation** **Structural Analysis Report**
Carrier Designation:	**L600 Project** **Site Number: 5RA0195A** **Site Name: Campbell University**
Tower Owner Designation:	**Campbell University** **Site ID: NA**
Engineering Firm Designation:	**Jacobs Engineering Group, Inc. Project: EUTM0206**
Site Data:	**5155 US 421 S** **Lillington, Harnett County, NC 27506** **Latitude: N35°24'20.53"±; Longitude: W78°44'29.82"±** **Ground Elevation: 188 ft ± NAVD 88; WT: 136.5 ft ± AGL**

Per your request, we present our structural evaluation of the existing antenna support frames/ mounts installed at the above referenced structure for the equipment noted in **Table A**. This analysis assumes the existing structure was properly designed and constructed, as well as being well maintained and is structurally sound.

Our work was analyzed in accordance with the structural strength requirements of the ANSI/TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas (industry standard) and the 2018 North Carolina Building Code (2015 IBC) for the following criteria:

- 117-mph factored wind speed per IBC (Risk Category II)
- 91-mph three second gust basic wind speed per TIA-G
- 30-mph three second gust basic wind speed w/ ¾" radial ice
- Exposure category C with topographic category 1

We trust you find our work satisfactory. *Jacobs Engineering Group, Inc.* appreciates the opportunity of providing continuing professional services to T-Mobile. Please do not hesitate to call should you have any questions.

Sincerely,

Corey Wilkes
Structural Engineer

Karl Kratina, PE
Engineer of Record

NORTH CAROLINA PROFESSIONAL SEAL 38528 ENGINEER KARL R. KRATINA

5/23/19

CONCLUSIONS

The proposed appurtenance configuration is to be installed on the existing corral located at the top of the water tower. The antennas are to be installed such that the rad center does not exceed 3ft above the upper horizontal connection – field verify. Any discrepancies shall be notified to the engineer on record. Secure the new equipment pipes to the existing corral using pipe to pipe clamp connections to both the upper and lower railing members. Based on our evaluation and attached calculations, the most critical structural element of the mount analyzed was observed to use no more than 51.3% of its reduced nominal capacity; therefore, the existing mount is within an acceptable range to resist the stress caused by the proposed appurtenance configuration and will satisfy all assumed structural strength requirements.

In addition, based on the previous/existing structural conditions, the additional loading yielded by the proposed appurtenance configuration will contribute negligible gravity load and there will be minimal change in wind exposure and overall wind load on the structure; thus, the structure is assumed to resist the stress caused by the proposed appurtenance configuration and will satisfy all assumed structural strength requirements with no additional investigation/calculations required. Furthermore, due to the overall size of the existing structure, it is our assessment that the cumulative configuration will constitute a *de minimis* increase in applied loadings when compared to the overall structure. Thus, by comparison, it is our structural opinion that the proposed configuration will have negligible effect at this site.

It is recommended that all mounting frame members, attachment connections, and other supporting structures are thoroughly inspected prior to installation of the proposed appurtenance configuration. Any deterioration, localized damage, or distress to the structure should be documented and reported to the engineer. The contractor shall repair all deficiencies prior to installation of the proposed equipment. Additionally, the conclusions expressed herein are based solely on the information contained within the referenced documents.

Therefore, it is our opinion the existing structure along with the existing mounts **are adequate** to safely support the T-Mobile equipment deployment and is structurally sound for the planned load. Please note that additional engineering review will be required prior to placing any future equipment.

REFERENCES

1. Construction drawings provided by Burtner Engineering Services, PLLC, dated 07/30/18.
2. Structural letter provided by Burtner Engineering Services, PLLC, dated 07/03/18.
3. Structural analysis provided by Tower Engineering Professionals, project no. 48057.247643, dated 04/23/19.

CODE INTERPRETATIONS

Per Section 1609.1 and 3108.1 of the International Building Code, the determination of lateral loads for antenna supporting structures and antennas shall be determined using the TIA-222.

Per Section 1609.3 of the International Building Code, when required, the ultimate design wind speeds shall be converted to nominal design wind speeds using Table 1609.3.1 or Equation 16-33.

Per Section 3403 of the International Building Code, the existing structure is considered to have adequate strength for the proposed appurtenance configuration loading if the *additions* or *alterations* to the existing structure do not increase the gravity load on any structural element of the existing structure by more than five percent, unless the increased forces on the element are still in compliance with the code for new structures. In

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addition, if the *additions* or *alterations* to the existing structure do not increase the lateral load on any structural element of the existing structure by more than ten percent cumulative since the original construction, unless the element has the capacity to resist the increased forces determined in accordance with Sections 1609 and 1613.

ASSUMPTIONS AND DISCLAIMERS

The scope of this analysis pertains only to the structural system of the loads imparted by the T-Mobile equipment deployment and as such does not include examination of the loads imparted by the equipment installation of others. Furthermore, no qualification is made nor implied by this document for the structural members or elements supporting the aforementioned equipment installation.

All previously installed equipment (microwaves, radios, omnis etc.) not represented in the mount loading **Table A** is to be decommissioned and removed from all panel antenna mounting systems or relocated to a separate detached mounting system. These installation requirements must be implemented as previously described for this assessment to be valid.

Please note that many sizes of mounting frame members, attachment connections, and other supporting structures of the existing mount have not been provided for this analysis. As such, *Jacobs* assumed typical member sizes for mounting frame members, attachment connections and other supporting structures. The actual members used in the construction of the existing mount could significantly affect the analysis; therefore, upon field verification, if member sizes are found to be different from the assumed typical member sizes, additional analyses may be required.

All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

Member material grades have been assumed as follows, unless noted otherwise:

- Channel, Solid Round, Angle, Plate — ASTM A36 (Gr 36)
- HSS (Rectangular) — ASTM 500 (Gr B - 46)
- Pipe — ASTM A53 (Gr 35)
- Connection Bolts — A325
- U-Bolts — A307

Capacities up to 105.0% are considered acceptable based on the analysis used.

ATTACHMENTS

- Mount model
- Program input and output
- Calculations

MOUNT LOADING

Table A: Existing, Proposed and *Reserved* Appurtenance Configuration[1,2,3]

Elevation (AGL, ft)	Sector	Carrier	Position[4]	Equipment[5,6]
139	Alpha	AT&T	1	(1) CCI DPA-65R-BUUUU-H8 (Antenna)
				(1) Ericsson RRUS 32 (RRH)
				(1) Ericsson RRUS 11 B12 (RRH)
				(2) Andrew E15Z01P05 (TMA)

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139	Alpha	AT&T	2	(1) Ace XXQLH-654L8H8-iVT (Antenna)
				(1) Ericsson RRUS 8843 B2/B66A (RRH)
				(1) Raycap DC6-48-60-18-8C (Surge)
		USCC	3	(1) KMW AM-X-CW-18-65-00T-RET (Antenna)
				(1) KMW Smart Bias-T (Equip)
		-	4	-
		USCC	5	(1) KMW AM-X-CW-18-65-00T-RET (Antenna)
		T-Mobile	6	(1) Ericsson AIR21 B2P B4A (Antenna)
				(1) Ericsson KRY 112 489/2 (TMA)
		Verizon	7	(1) Andrew SBNHH-1D65C (Antenna)
				(1) Ericsson RRUS 12 B4 (RRH)
				(1) Ericsson KRY 112 89/1 (RRH)
				(1) Raycap RHSDC-1064-PF-48 (Surge)
		T-Mobile	8	**(1) RFS APXVAARR24 43-U-NA20 (Antenna)**
				(1) Ericsson Radio 4449 B71/B12 (RRH)
	Beta	AT&T	9	(1) CCI DPA-65R-BUUUU-H8 (Antenna)
				(1) Ericsson RRUS 32 (RRH)
				(1) Ericsson RRUS 11 B12 (RRH)
				(2) Andrew E15Z01P05 (TMA)
				(1) Raycap DC6-48-60-18-8F (Surge)
		Verizon	10	(1) Andrew SBNHH-1D65C (Antenna)
				(1) Ericsson RRUS 12 B2 (RRH)
		Unknown		(1) Unknown 1" Ø x 4ft Whip (Omni)
		AT&T	11	(1) Ace XXQLH-654L8H8-iVT (Antenna)
				(1) Ericsson RRUS 8843 B2/B66A (RRH)
		USCC	12	(1) KMW AM-X-CW-18-65-00T-RET (Antenna)
				(1) KMW Smart Bias-T (Equip)
			12A	(1) KMW AM-X-CW-18-65-00T-RET (Antenna)
		Verizon	13	(1) Andrew SBNHH-1D65C (Antenna)
				(1) Ericsson RRUS 12 B4 (RRH)
				(1) Ericsson KRY 112 89/1 (RRH)
				(1) Raycap RHSDC-1064-PF-48 (Surge)
		T-Mobile	14	(1) Ericsson AIR21 B2P B4A (Antenna)
				(1) Ericsson KRY 112 489/2 (TMA)
		Verizon	15	(1) Andrew SBNHH-1D65C (Antenna)
				(1) Ericsson RRUS 12 B2 (RRH)
		T-Mobile	16	**(1) RFS APXVAARR24 43-U-NA20 (Antenna)**
				(1) Ericsson Radio 4449 B71/B12 (RRH)
	Gamma	AT&T	17	(1) CCI DPA-65R-BUUUU-H8 (Antenna)
				(1) Ericsson RRUS 32 (RRH)
				(1) Ericsson RRUS 11 B12 (RRH)
				(2) Andrew E15Z01P05 (TMA)
				(1) Raycap DC6-48-60-18-8F (Surge)
		USCC	18	(1) KMW AM-X-CW-18-65-00T-RET (Antenna)
		Unknown		(1) Unknown 1" Ø x 4ft Whip (Omni)
		AT&T	19	(1) Ace XXQLH-654L8H8-iVT (Antenna)
				(1) Ericsson RRUS 8843 B2/B66A (RRH)

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139	Gamma	USCC	20	(1) KMW AM-X-CW-18-65-00T-RET (Antenna)
				(1) KMW Smart Bias-T (Equip)
		Verizon	21	(1) Andrew SBNHH-1D65C (Antenna)
				(1) Ericsson RRUS 12 B4 (RRH)
				(1) Ericsson KRY 112 89/1 (RRH)
				(1) Raycap RHSDC-3315-PF-48 (Surge)
		T-Mobile	22	(1) Ericsson AIR21 B2P B4A (Antenna)
				(1) Ericsson KRY 112 489/2 (TMA)
		Verizon	23	(1) Andrew SBNHH-1D65C (Antenna)
				(1) Ericsson RRUS 12 B2 (RRH)
		T-Mobile	24	**(1) RFS APXVAARR24 43-U-NA20 (Antenna)**
				(1) Ericsson Radio 4449 B71/B12 (RRH)

1 – Appurtenance Configuration for T-Mobile as reflected in T-Mobile Version R10.1, Configuration L600, updated 04/02/2019.
2 – Appurtenance Configuration of other carriers as reflected in TEP analysis, dated 04/23/2019.
3 – The evaluation and analysis is modeled for the worse case loading.
4 – Position 1 is defined as right-most (0°) mount location continuing clockwise when facing the tower corral.
5 – Proposed equipment shown in **bold**.
6 – Cable loading not considered for evaluation and analysis.

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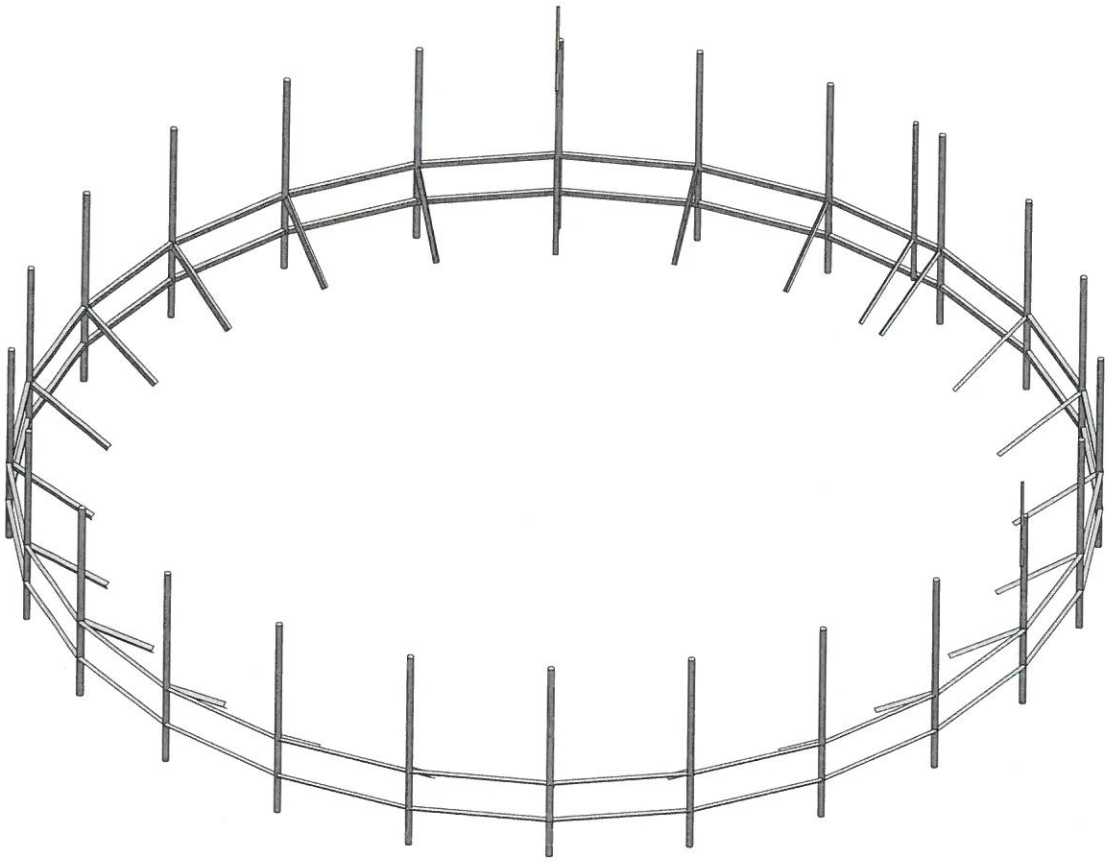
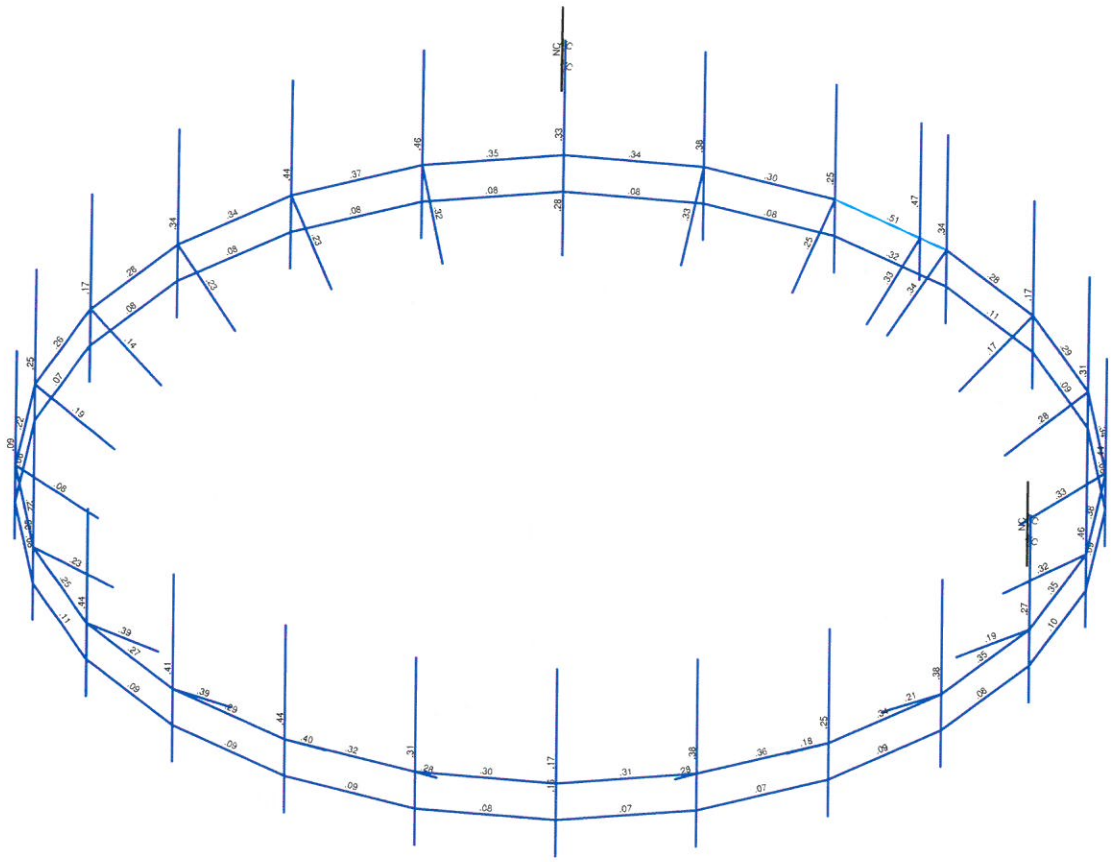


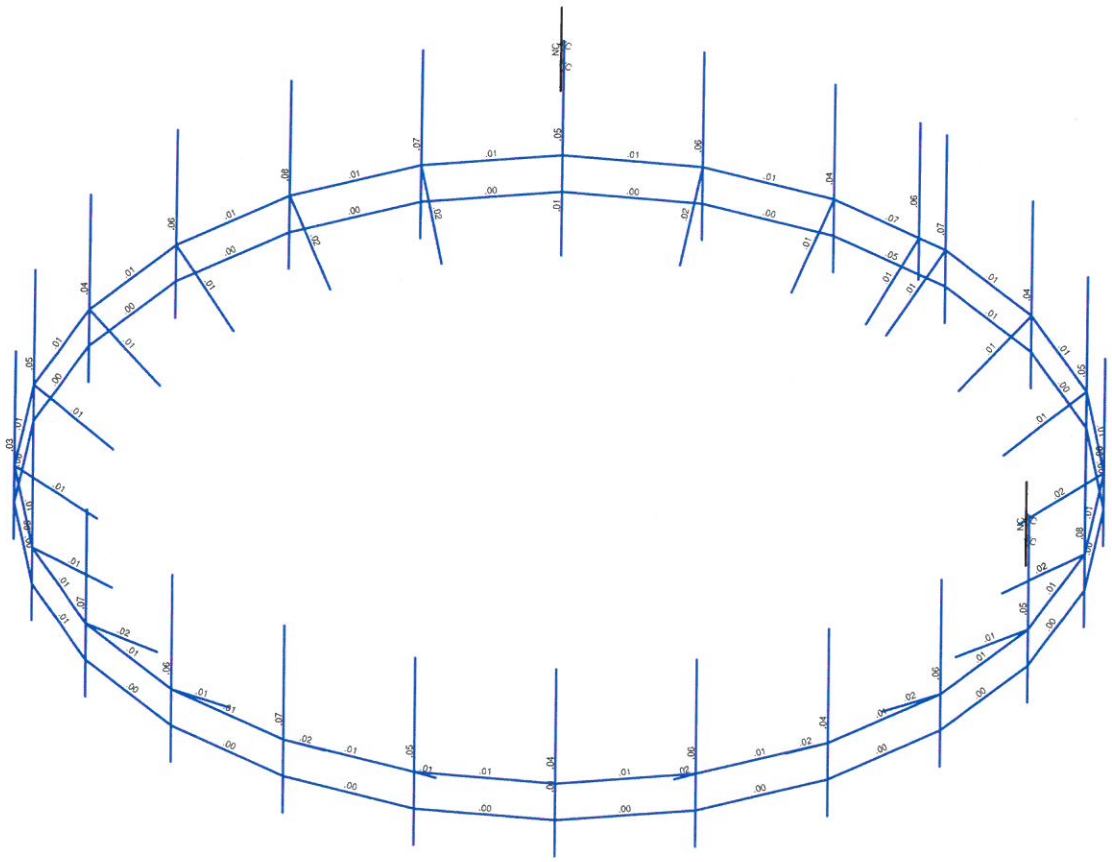
Loads: BLC 10, LIVE LOAD (SERVICE)
Envelope Only Solution

Jacobs Eng. Group, Inc.	WT Corral	Page 6
C. Wilkes		May 23, 2019 at 11:14 AM
EUTM0206 - Campbell Un...		Existing Corral.R3D



Member Code Checks Displayed (Enveloped)
Loads: BLC 10, LIVE LOAD (SERVICE)
Envelope Only Solution

Jacobs Eng. Group, Inc.	WT Corral	Page 7
C. Wilkes		May 23, 2019 at 11:14 AM
EUTM0206 - Campbell Un...		Existing Corral.R3D



Member Shear Checks Displayed (Enveloped)
Loads: BLC 10, LIVE LOAD (SERVICE)
Envelope Only Solution

Jacobs Eng. Group, Inc.	WT Corral	Page 8
C. Wilkes		May 23, 2019 at 11:15 AM
EUTM0206 - Campbell Un...		Existing Corral.R3D

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distri...	Area(...	Surfa...
1	DEAD LOAD	None			-1		62			
2	DEAD LOAD (ICE)	None					60	100		
3	WIND LOAD (NO ICE) FRONT	None					60	100		
4	WIND LOAD (NO ICE) SIDE	None					60	100		
5	WIND LOAD (ICE) FRONT	None					60	100		
6	WIND LOAD (ICE) SIDE	None					60	100		
7	LIVE LOAD (MAN)	None								
8	WIND LOAD (SERVICE) FRONT	None					60	100		
9	WIND LOAD (SERVICE) SIDE	None					60	100		
10	LIVE LOAD (SERVICE)	None								
11	SEISMIC LOAD (LATERAL) FRONT	None								
12	SEISMIC LOAD (LATERAL) SIDE	None								

Load Combinations

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	DEAD LOAD	Yes	Y		1	1.4																				
2	DEAD LOAD + WIND LOAD (NO ICE) 0 D...	Yes	Y		1	1.2			3	1.6	4															
3	DEAD LOAD + WIND LOAD (NO ICE) 30 ...	Yes	Y		1	1.2			3	1....	4	.8														
4	DEAD LOAD + WIND LOAD (NO ICE) 60 ...	Yes	Y		1	1.2			3	.8	4	1....														
5	DEAD LOAD + WIND LOAD (NO ICE) 90 ...	Yes	Y		1	1.2			3		4	1.6														
6	DEAD LOAD + WIND LOAD (NO ICE) 120...	Yes	Y		1	1.2			3	-.8	4	1....														
7	DEAD LOAD + WIND LOAD (NO ICE) 150...	Yes	Y		1	1.2			3	-1....	4	.8														
8	DEAD LOAD + WIND LOAD (NO ICE) 180...	Yes	Y		1	1.2			3	-1.6	4															
9	DEAD LOAD + WIND LOAD (NO ICE) 210...	Yes	Y		1	1.2			3	-1....	4	-.8														
10	DEAD LOAD + WIND LOAD (NO ICE) 240...	Yes	Y		1	1.2			3	-.8	4	-1....														
11	DEAD LOAD + WIND LOAD (NO ICE) 270...	Yes	Y		1	1.2			3		4	-1.6														
12	DEAD LOAD + WIND LOAD (NO ICE) 300...	Yes	Y		1	1.2			3	.8	4	-1....														
13	DEAD LOAD + WIND LOAD (NO ICE) 330...	Yes	Y		1	1.2			3	1....	4	-.8														
14	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5	1	6											
15	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5	.866	6	.5										
16	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5	.5	6	.866										
17	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5		6	1										
18	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5	-.5	6	.866										
19	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5	-.8...	6	.5										
20	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5	-1	6											
21	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5	-.8...	6	-.5										
22	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5	-.5	6	-.8...										
23	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5		6	-1										
24	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5	.5	6	-.8...										
25	DEAD LOAD + DEAD LOAD (ICE) + WIN...	Yes	Y		1	1.2	2	1					5	.866	6	-.5										
26	DEAD LOAD + LIVE LOAD (MAN)	Yes	Y		1	1.2											7	1.5								
27	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8	1	9		10	1.5		
28	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8	.866	9	.5	10	1.5		
29	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8	.5	9	.866	10	1.5		
30	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8		9	1	10	1.5		
31	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8	-.5	9	.866	10	1.5		
32	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8	-.8...	9	.5	10	1.5		
33	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8	-1	9		10	1.5		
34	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8	-.8...	9	-.5	10	1.5		
35	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8	-.5	9	-.8...	10	1.5		
36	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8		9	-1	10	1.5		
37	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8	.5	9	-.8...	10	1.5		
38	DEAD LOAD + LIVE LOAD (SERVICE) + ...	Yes	Y		1	1.2													8	.866	9	-.5	10	1.5		
39	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							

Load Combinations (Continued)

	Description	Solve	P...	S...	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..
40	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							
41	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							
42	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							
43	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							
44	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							
45	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							
46	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							
47	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							
48	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							
49	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							
50	DEAD LOAD + SEISMIC LOAD (VERTICA...	Yes	Y																							

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N115	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N89	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N116	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N90	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N117	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N91	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N118	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N92	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N119	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
10	N93	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
11	N120	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
12	N94	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
13	N121	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
14	N95	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
15	N122	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
16	N96	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
17	N123	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
18	N97	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
19	N124	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
20	N98	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
21	N125	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
22	N99	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
23	N126	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
24	N100	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
25	N127	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
26	N101	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
27	N128	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
28	N102	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
29	N129	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
30	N103	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
31	N130	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
32	N104	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
33	N131	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
34	N105	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
35	N132	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
36	N106	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
37	N133	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
38	N107	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
39	N134	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
40	N108	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
41	N135	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
42	N109	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
43	N136	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
44	N110	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
45	N137	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
46	N111	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
47	N138	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
48	N112	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
49	N113	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Antenna Pipe	PIPE_2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
2	Handrail	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
3	Mid Rail	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
4	Kicker	L2.5x2.5x4	VBrace	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
5	Mount Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N115			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
2	M2	N26	N138			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
3	M3	N25	N137			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
4	M4	N24	N136			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
5	M5	N23	N135			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
6	M6	N22	N134			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
7	M7	N21	N133			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
8	M8	N20	N132			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
9	M9	N19	N131			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
10	M10	N18	N130			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
11	M11	N17	N129			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
12	M12	N16	N128			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
13	M13	N15	N127			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
14	M14	N14	N126			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
15	M15	N13	N125			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
16	M16	N12	N124			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
17	M17	N11	N123			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
18	M18	N10	N122			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
19	M19	N9	N121			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
20	M20	N8	N120			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
21	M21	N7	N119			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
22	M22	N6	N118			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
23	M23	N5	N117			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
24	M24	N4	N116			Antenna Pipe	Column	Pipe	A53 Gr.B	Typical
25	M25	N38	N39		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
26	M26	N39	N40		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
27	M27	N40	N41		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
28	M28	N41	N42		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
29	M29	N42	N43		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
30	M30	N43	N44		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
31	M31	N44	N45		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
32	M32	N45	N46		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
33	M33	N46	N47		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
34	M34	N47	N48		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
35	M35	N48	N49		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
36	M36	N49	N50		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
37	M37	N50	N51		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
38	M38	N51	N52		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
39	M39	N52	N53		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
40	M40	N53	N54		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
41	M41	N54	N55		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
42	M42	N55	N56		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
43	M43	N56	N57		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
44	M44	N57	N58		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
45	M45	N58	N59		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
46	M46	N59	N60		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
47	M47	N60	N61		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
48	M48	N61	N38		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
49	M49	N63	N64		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
50	M50	N64	N65		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
51	M51	N65	N66		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
52	M52	N66	N67		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
53	M53	N67	N68		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
54	M54	N68	N69		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
55	M55	N69	N70		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
56	M56	N70	N71		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
57	M57	N71	N72		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
58	M58	N72	N73		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
59	M59	N73	N74		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
60	M60	N74	N75		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
61	M61	N75	N76		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
62	M62	N76	N77		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
63	M63	N77	N78		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
64	M64	N78	N79		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
65	M65	N79	N80		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
66	M66	N80	N81		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
67	M67	N81	N82		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
68	M68	N82	N83		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
69	M69	N83	N84		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
70	M70	N84	N85		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
71	M71	N85	N86		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
72	M72	N86	N63		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
73	M73	N38	N89			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
74	M74	N39	N90			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
75	M75	N40	N91			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
76	M76	N41	N92			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
77	M77	N42	N93			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
78	M78	N43	N94			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
79	M79	N44	N95			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
80	M80	N45	N96			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
81	M81	N46	N97			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
82	M82	N47	N98			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
83	M83	N48	N99			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
84	M84	N49	N100			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
85	M85	N50	N101			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
86	M86	N51	N102			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
87	M87	N52	N103			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
88	M88	N53	N104			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
89	M89	N54	N105			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
90	M90	N55	N106			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
91	M91	N56	N107			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
92	M92	N57	N108			Kicker	VBrace	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
93	M93	N58	N109			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
94	M94	N59	N110			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
95	M95	N60	N111			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
96	M96	N61	N112			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
97	M97	N62	N113			Kicker	VBrace	Single Angle	A36 Gr.36	Typical
98	M98	N27	N88			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
99	M99	N1	N36			Omni	None	None	RIGID	DR1
100	M100	N2	N37			Omni	None	None	RIGID	DR1
101	M101	N28	N29			RIGID	None	None	RIGID	Typical
102	M102	N32	N33			RIGID	None	None	RIGID	Typical
103	M103	N30	N31			RIGID	None	None	RIGID	Typical
104	M104	N34	N35			RIGID	None	None	RIGID	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp to...	Lcomp bo...	L-tor...	Kyy	Kzz	Cb	Func...
1	M1	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
2	M2	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
3	M3	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
4	M4	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
5	M5	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
6	M6	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
7	M7	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
8	M8	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
9	M9	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
10	M10	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
11	M11	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
12	M12	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
13	M13	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
14	M14	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
15	M15	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
16	M16	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
17	M17	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
18	M18	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
19	M19	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
20	M20	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
21	M21	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
22	M22	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
23	M23	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
24	M24	Antenna Pipe	108	Segment	Segment	Lbyy			2.1	2.1		Lateral
25	M25	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
26	M26	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
27	M27	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
28	M28	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
29	M29	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
30	M30	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
31	M31	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
32	M32	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
33	M33	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
34	M34	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
35	M35	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
36	M36	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
37	M37	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
38	M38	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
39	M39	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
40	M40	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp to...	Lcomp bo...	L-tor...	Kyy	Kzz	Cb	Func...
41	M41	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
42	M42	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
43	M43	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
44	M44	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
45	M45	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
46	M46	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
47	M47	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
48	M48	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
49	M49	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
50	M50	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
51	M51	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
52	M52	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
53	M53	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
54	M54	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
55	M55	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
56	M56	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
57	M57	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
58	M58	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
59	M59	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
60	M60	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
61	M61	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
62	M62	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
63	M63	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
64	M64	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
65	M65	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
66	M66	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
67	M67	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
68	M68	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
69	M69	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
70	M70	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
71	M71	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
72	M72	Handrail	66.96	Segment	Segment	Lbyy			.65	.65		Lateral
73	M73	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
74	M74	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
75	M75	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
76	M76	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
77	M77	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
78	M78	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
79	M79	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
80	M80	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
81	M81	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
82	M82	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
83	M83	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
84	M84	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
85	M85	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
86	M86	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
87	M87	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
88	M88	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
89	M89	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
90	M90	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
91	M91	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
92	M92	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
93	M93	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
94	M94	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
95	M95	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
96	M96	Kicker	49.204	Segment	Segment	Lbyy			.65	.65		Lateral
97	M97	Kicker	47.951	Segment	Segment	Lbyy			.65	.65		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp to...	Lcomp bo...	L-tor...	Kyy	Kzz	Cb	Func...
98	M98	Mount Pipe	90	Segment	Segment	Lbyy			2.1	2.1		Lateral

Plate Primary Data

Label	A Joint	B Joint	C Joint	D Joint	Material	Thickness[in]
No Data to Print ...						

Member Point Loads (BLC 1 : DEAD LOAD)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	M1	Z	-74	48
2	M1	Z	-31.8	48
3	M1	Z	-50.7	48
4	M1	Z	-55.12	48
5	M2	Z	-75	48
6	M2	Z	-109.4	48
7	M3	Z	-59.5	48
8	M3	Z	-1.32	48
9	M5	Z	-59.5	48
10	M7	Z	-16.1	48
11	M7	Z	-58	48
12	M7	Z	-49.6	48
13	M10	Z	-58	48
14	M10	Z	-49.6	48
15	M6	Z	-83	48
16	M6	Z	-15.4	48
17	M8	Z	-128	48
18	M8	Z	-75	48
19	M9	Z	-74	48
20	M9	Z	-31.8	48
21	M9	Z	-50.7	48
22	M9	Z	-55.12	48
23	M11	Z	-75	48
24	M11	Z	-109.4	48
25	M12	Z	-59.5	48
26	M12	Z	-1.32	48
27	M98	Z	-59.5	48
28	M13	Z	-16.1	48
29	M13	Z	-58	48
30	M13	Z	-49.6	48
31	M15	Z	-58	48
32	M15	Z	-49.6	48
33	M14	Z	-83	48
34	M14	Z	-15.4	48
35	M16	Z	-128	48
36	M16	Z	-75	48
37	M17	Z	-74	48
38	M17	Z	-31.8	48
39	M17	Z	-50.7	48
40	M17	Z	-55.12	48
41	M19	Z	-75	48
42	M19	Z	-109.4	48
43	M20	Z	-59.5	48
44	M20	Z	-1.32	48
45	M18	Z	-59.5	48
46	M21	Z	-16.1	48

Member Point Loads (BLC 1 : DEAD LOAD) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
47	M21	Z	-58	48
48	M21	Z	-49.6	48
49	M23	Z	-58	48
50	M23	Z	-49.6	48
51	M22	Z	-83	48
52	M22	Z	-15.4	48
53	M24	Z	-128	48
54	M24	Z	-75	48
55	M7	Z	-14	48
56	M13	Z	-14	48
57	M21	Z	-32	48
58	M2	Z	-32.8	48
59	M9	Z	-32.8	48
60	M17	Z	-26.2	48
61	M99	Z	-10	%50
62	M100	Z	-10	%50

Member Point Loads (BLC 2 : DEAD LOAD (ICE))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	M1	Z	-292.2	48
2	M1	Z	-51.4	48
3	M1	Z	-70.1	48
4	M1	Z	-78.8	48
5	M2	Z	-50	48
6	M2	Z	-386.2	48
7	M3	Z	-253.4	48
8	M3	Z	-3.1	48
9	M5	Z	-253.4	48
10	M7	Z	-21	48
11	M7	Z	-78	48
12	M7	Z	-265.3	48
13	M10	Z	-78	48
14	M10	Z	-265.3	48
15	M6	Z	-156.1	48
16	M6	Z	-17.4	48
17	M8	Z	-461	48
18	M8	Z	-47	48
19	M9	Z	-292.2	48
20	M9	Z	-51.4	48
21	M9	Z	-70.1	48
22	M9	Z	-78.8	48
23	M11	Z	-50	48
24	M11	Z	-386.2	48
25	M12	Z	-253.4	48
26	M12	Z	-3.1	48
27	M98	Z	-253.4	48
28	M13	Z	-21	48
29	M13	Z	-78	48
30	M13	Z	-265.3	48
31	M15	Z	-78	48
32	M15	Z	-265.3	48
33	M14	Z	-156.1	48
34	M14	Z	-17.4	48
35	M16	Z	-461	48
36	M16	Z	-47	48
37	M17	Z	-292.2	48

Member Point Loads (BLC 2 : DEAD LOAD (ICE)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
38	M17	Z	-51.4	48
39	M17	Z	-70.1	48
40	M17	Z	-78.8	48
41	M19	Z	-50	48
42	M19	Z	-386.2	48
43	M20	Z	-253.4	48
44	M20	Z	-3.1	48
45	M18	Z	-253.4	48
46	M21	Z	-21	48
47	M21	Z	-78	48
48	M21	Z	-265.3	48
49	M23	Z	-78	48
50	M23	Z	-265.3	48
51	M22	Z	-156.1	48
52	M22	Z	-17.4	48
53	M24	Z	-461	48
54	M24	Z	-47	48
55	M7	Z	-41.5	48
56	M13	Z	-41.5	48
57	M21	Z	-92.8	48
58	M2	Z	-95.3	48
59	M9	Z	-95.3	48
60	M17	Z	-89.8	48

Member Point Loads (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	M1	X	348.2	48
2	M1	X	49.6	48
3	M1	X	76.2	48
4	M1	X	78.1	48
5	M2	X	44.9	48
6	M2	X	468.4	48
7	M3	X	309	48
8	M3	X	2.3	48
9	M5	X	309	48
10	M7	X	16.4	48
11	M7	X	85.9	48
12	M7	X	313.1	48
13	M10	X	85.9	48
14	M10	X	313.1	48
15	M6	X	161.8	48
16	M6	X	15.3	48
17	M8	X	553	48
18	M8	X	44.9	48
19	M9	X	348.2	48
20	M9	X	49.6	48
21	M9	X	76.2	48
22	M9	X	78.1	48
23	M11	X	44.9	48
24	M11	X	468.4	48
25	M12	X	309	48
26	M12	X	2.3	48
27	M98	X	309	48
28	M13	X	16.4	48
29	M13	X	85.9	48
30	M13	X	313.1	48

Member Point Loads (BLC 3 : WIND LOAD (NO ICE) FRONT) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
31	M15	X	85.9	48
32	M15	X	313.1	48
33	M14	X	161.8	48
34	M14	X	15.3	48
35	M16	X	553	48
36	M16	X	44.9	48
37	M17	X	348.2	48
38	M17	X	49.6	48
39	M17	X	76.2	48
40	M17	X	78.1	48
41	M19	X	44.9	48
42	M19	X	468.4	48
43	M20	X	309	48
44	M20	X	2.3	48
45	M18	X	309	48
46	M21	X	16.4	48
47	M21	X	85.9	48
48	M21	X	313.1	48
49	M23	X	85.9	48
50	M23	X	313.1	48
51	M22	X	161.8	48
52	M22	X	15.3	48
53	M24	X	553	48
54	M24	X	44.9	48
55	M7	X	36.9	48
56	M13	X	36.9	48
57	M21	X	91.9	48
58	M2	X	79.2	48
59	M9	X	79.2	48
60	M17	X	74.8	48

Member Point Loads (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	M1	Y	204.1	48
2	M1	Y	23.1	48
3	M1	Y	32.6	48
4	M1	Y	48.5	48
5	M2	Y	37.8	48
6	M2	Y	217.6	48
7	M3	Y	185.8	48
8	M3	Y	1.3	48
9	M5	Y	185.8	48
10	M7	Y	15.3	48
11	M7	Y	35.1	48
12	M7	Y	210.5	48
13	M10	Y	35.1	48
14	M10	Y	210.5	48
15	M6	Y	115.3	48
16	M6	Y	10	48
17	M8	Y	242.8	48
18	M8	Y	31.5	48
19	M9	Y	204.1	48
20	M9	Y	23.1	48
21	M9	Y	32.6	48
22	M9	Y	48.5	48
23	M11	Y	37.8	48

Member Point Loads (BLC 4 : WIND LOAD (NO ICE) SIDE) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
24	M11	Y	217.6	48
25	M12	Y	185.8	48
26	M12	Y	1.3	48
27	M98	Y	185.8	48
28	M13	Y	15.3	48
29	M13	Y	35.1	48
30	M13	Y	210.5	48
31	M15	Y	35.1	48
32	M15	Y	210.5	48
33	M14	Y	115.3	48
34	M14	Y	10	48
35	M16	Y	242.8	48
36	M16	Y	31.5	48
37	M17	Y	204.1	48
38	M17	Y	23.1	48
39	M17	Y	32.6	48
40	M17	Y	48.5	48
41	M19	Y	37.8	48
42	M19	Y	217.6	48
43	M20	Y	185.8	48
44	M20	Y	1.3	48
45	M18	Y	185.8	48
46	M21	Y	15.3	48
47	M21	Y	35.1	48
48	M21	Y	210.5	48
49	M23	Y	35.1	48
50	M23	Y	210.5	48
51	M22	Y	115.3	48
52	M22	Y	10	48
53	M24	Y	242.8	48
54	M24	Y	31.5	48
55	M7	Y	29.6	48
56	M13	Y	29.6	48
57	M21	Y	59.9	48
58	M2	Y	79.2	48
59	M9	Y	79.2	48
60	M17	Y	74.8	48

Member Point Loads (BLC 5 : WIND LOAD (ICE) FRONT)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	M1	X	27.1	48
2	M1	X	5.8	48
3	M1	X	6.8	48
4	M1	X	7.1	48
5	M2	X	4.4	48
6	M2	X	35.1	48
7	M3	X	24.7	48
8	M3	X	.6	48
9	M5	X	24.7	48
10	M7	X	2.1	48
11	M7	X	7.6	48
12	M7	X	25	48
13	M10	X	7.6	48
14	M10	X	25	48
15	M6	X	13.6	48
16	M6	X	2	48

Member Point Loads (BLC 5 : WIND LOAD (ICE) FRONT) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
17	M8	X	40.8	48
18	M8	X	4.4	48
19	M9	X	27.1	48
20	M9	X	5.8	48
21	M9	X	6.8	48
22	M9	X	7.1	48
23	M11	X	4.4	48
24	M11	X	35.1	48
25	M12	X	24.7	48
26	M12	X	.6	48
27	M98	X	24.7	48
28	M13	X	2.1	48
29	M13	X	7.6	48
30	M13	X	25	48
31	M15	X	7.6	48
32	M15	X	25	48
33	M14	X	13.6	48
34	M14	X	2	48
35	M16	X	40.8	48
36	M16	X	4.4	48
37	M17	X	27.1	48
38	M17	X	5.8	48
39	M17	X	6.8	48
40	M17	X	7.1	48
41	M19	X	4.4	48
42	M19	X	35.1	48
43	M20	X	24.7	48
44	M20	X	.6	48
45	M18	X	24.7	48
46	M21	X	2.1	48
47	M21	X	7.6	48
48	M21	X	25	48
49	M23	X	7.6	48
50	M23	X	25	48
51	M22	X	13.6	48
52	M22	X	2	48
53	M24	X	40.8	48
54	M24	X	4.4	48
55	M7	X	3.8	48
56	M13	X	3.8	48
57	M21	X	8.1	48
58	M2	X	7.2	48
59	M9	X	7.2	48
60	M17	X	6.9	48

Member Point Loads (BLC 6 : WIND LOAD (ICE) SIDE)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	M1	Y	18	48
2	M1	Y	3.6	48
3	M1	Y	3.6	48
4	M1	Y	4.9	48
5	M2	Y	3.9	48
6	M2	Y	19	48
7	M3	Y	17	48
8	M3	Y	.5	48
9	M5	Y	17	48

Member Point Loads (BLC 6 : WIND LOAD (ICE) SIDE) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
10	M7	Y	2	48
11	M7	Y	3.8	48
12	M7	Y	18.6	48
13	M10	Y	3.8	48
14	M10	Y	18.6	48
15	M6	Y	10.4	48
16	M6	Y	1.5	48
17	M8	Y	20.6	48
18	M8	Y	3.4	48
19	M9	Y	18	48
20	M9	Y	3.6	48
21	M9	Y	3.6	48
22	M9	Y	4.9	48
23	M11	Y	3.9	48
24	M11	Y	19	48
25	M12	Y	17	48
26	M12	Y	.5	48
27	M98	Y	17	48
28	M13	Y	2	48
29	M13	Y	3.8	48
30	M13	Y	18.6	48
31	M15	Y	3.8	48
32	M15	Y	18.6	48
33	M14	Y	10.4	48
34	M14	Y	1.5	48
35	M16	Y	20.6	48
36	M16	Y	3.4	48
37	M17	Y	18	48
38	M17	Y	3.6	48
39	M17	Y	3.6	48
40	M17	Y	4.9	48
41	M19	Y	3.9	48
42	M19	Y	19	48
43	M20	Y	17	48
44	M20	Y	.5	48
45	M18	Y	17	48
46	M21	Y	2	48
47	M21	Y	3.8	48
48	M21	Y	18.6	48
49	M23	Y	3.8	48
50	M23	Y	18.6	48
51	M22	Y	10.4	48
52	M22	Y	1.5	48
53	M24	Y	20.6	48
54	M24	Y	3.4	48
55	M7	Y	3.3	48
56	M13	Y	3.3	48
57	M21	Y	5.8	48
58	M2	Y	7.2	48
59	M9	Y	7.2	48
60	M17	Y	6.9	48

Member Point Loads (BLC 8 : WIND LOAD (SERVICE) FRONT)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	M1	X	37.8	48
2	M1	X	5.4	48

Member Point Loads (BLC 8 : WIND LOAD (SERVICE) FRONT) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
3	M1	X	8.3	48
4	M1	X	8.5	48
5	M2	X	4.9	48
6	M2	X	50.9	48
7	M3	X	33.6	48
8	M3	X	.2	48
9	M5	X	33.6	48
10	M7	X	1.8	48
11	M7	X	9.3	48
12	M7	X	34	48
13	M10	X	9.3	48
14	M10	X	34	48
15	M6	X	17.6	48
16	M6	X	1.7	48
17	M8	X	60.1	48
18	M8	X	4.9	48
19	M9	X	37.8	48
20	M9	X	5.4	48
21	M9	X	8.3	48
22	M9	X	8.5	48
23	M11	X	4.9	48
24	M11	X	50.9	48
25	M12	X	33.6	48
26	M12	X	.2	48
27	M98	X	33.6	48
28	M13	X	1.8	48
29	M13	X	9.3	48
30	M13	X	34	48
31	M15	X	9.3	48
32	M15	X	34	48
33	M14	X	17.6	48
34	M14	X	1.7	48
35	M16	X	60.1	48
36	M16	X	4.9	48
37	M17	X	37.8	48
38	M17	X	5.4	48
39	M17	X	8.3	48
40	M17	X	8.5	48
41	M19	X	4.9	48
42	M19	X	50.9	48
43	M20	X	33.6	48
44	M20	X	.2	48
45	M18	X	33.6	48
46	M21	X	1.8	48
47	M21	X	9.3	48
48	M21	X	34	48
49	M23	X	9.3	48
50	M23	X	34	48
51	M22	X	17.6	48
52	M22	X	1.7	48
53	M24	X	60.1	48
54	M24	X	4.9	48
55	M7	X	4	48
56	M13	X	4	48
57	M21	X	10	48
58	M2	X	8.6	48
59	M9	X	8.6	48

Member Point Loads (BLC 8 : WIND LOAD (SERVICE) FRONT) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
60	M17	X	8.1	48

Member Point Loads (BLC 9 : WIND LOAD (SERVICE) SIDE)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	M1	Y	22.2	48
2	M1	Y	2.5	48
3	M1	Y	3.5	48
4	M1	Y	5.3	48
5	M2	Y	4.1	48
6	M2	Y	23.7	48
7	M3	Y	20.2	48
8	M3	Y	.1	48
9	M5	Y	20.2	48
10	M7	Y	1.7	48
11	M7	Y	3.8	48
12	M7	Y	22.9	48
13	M10	Y	3.8	48
14	M10	Y	22.9	48
15	M6	Y	12.5	48
16	M6	Y	1.1	48
17	M8	Y	26.4	48
18	M8	Y	3.4	48
19	M9	Y	22.2	48
20	M9	Y	2.5	48
21	M9	Y	3.5	48
22	M9	Y	5.3	48
23	M11	Y	4.1	48
24	M11	Y	23.7	48
25	M12	Y	20.2	48
26	M12	Y	.1	48
27	M98	Y	20.2	48
28	M13	Y	1.7	48
29	M13	Y	3.8	48
30	M13	Y	22.9	48
31	M15	Y	3.8	48
32	M15	Y	22.9	48
33	M14	Y	12.5	48
34	M14	Y	1.1	48
35	M16	Y	26.4	48
36	M16	Y	3.4	48
37	M17	Y	22.2	48
38	M17	Y	2.5	48
39	M17	Y	3.5	48
40	M17	Y	5.3	48
41	M19	Y	4.1	48
42	M19	Y	23.7	48
43	M20	Y	20.2	48
44	M20	Y	.1	48
45	M18	Y	20.2	48
46	M21	Y	1.7	48
47	M21	Y	3.8	48
48	M21	Y	22.9	48
49	M23	Y	3.8	48
50	M23	Y	22.9	48
51	M22	Y	12.5	48
52	M22	Y	1.1	48

Member Point Loads (BLC 9 : WIND LOAD (SERVICE) SIDE) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
53	M24	Y	26.4	48
54	M24	Y	3.4	48
55	M7	Y	3.2	48
56	M13	Y	3.2	48
57	M21	Y	6.5	48
58	M2	Y	8.6	48
59	M9	Y	8.6	48
60	M17	Y	8.1	48

Member Distributed Loads (BLC 2 : DEAD LOAD (ICE))

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
1	M1	Z	-.813	-.813	0	0
2	M2	Z	-.813	-.813	0	0
3	M3	Z	-.813	-.813	0	0
4	M4	Z	-.813	-.813	0	0
5	M5	Z	-.813	-.813	0	0
6	M6	Z	-.813	-.813	0	0
7	M7	Z	-.813	-.813	0	0
8	M8	Z	-.813	-.813	0	0
9	M9	Z	-.813	-.813	0	0
10	M10	Z	-.813	-.813	0	0
11	M11	Z	-.813	-.813	0	0
12	M12	Z	-.813	-.813	0	0
13	M13	Z	-.813	-.813	0	0
14	M14	Z	-.813	-.813	0	0
15	M15	Z	-.813	-.813	0	0
16	M16	Z	-.813	-.813	0	0
17	M17	Z	-.813	-.813	0	0
18	M18	Z	-.813	-.813	0	0
19	M19	Z	-.813	-.813	0	0
20	M20	Z	-.813	-.813	0	0
21	M21	Z	-.813	-.813	0	0
22	M22	Z	-.813	-.813	0	0
23	M23	Z	-.813	-.813	0	0
24	M24	Z	-.813	-.813	0	0
25	M25	Z	-.929	-.929	0	0
26	M26	Z	-.929	-.929	0	0
27	M27	Z	-.929	-.929	0	0
28	M28	Z	-.929	-.929	0	0
29	M29	Z	-.929	-.929	0	0
30	M30	Z	-.929	-.929	0	0
31	M31	Z	-.929	-.929	0	0
32	M32	Z	-.929	-.929	0	0
33	M33	Z	-.929	-.929	0	0
34	M34	Z	-.929	-.929	0	0
35	M35	Z	-.929	-.929	0	0
36	M36	Z	-.929	-.929	0	0
37	M37	Z	-.929	-.929	0	0
38	M38	Z	-.929	-.929	0	0
39	M39	Z	-.929	-.929	0	0
40	M40	Z	-.929	-.929	0	0
41	M41	Z	-.929	-.929	0	0
42	M42	Z	-.929	-.929	0	0
43	M43	Z	-.929	-.929	0	0
44	M44	Z	-.929	-.929	0	0

Member Distributed Loads (BLC 2 : DEAD LOAD (ICE)) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
45	M45	Z	-.929	-.929	0	0
46	M46	Z	-.929	-.929	0	0
47	M47	Z	-.929	-.929	0	0
48	M48	Z	-.929	-.929	0	0
49	M49	Z	-.929	-.929	0	0
50	M50	Z	-.929	-.929	0	0
51	M51	Z	-.929	-.929	0	0
52	M52	Z	-.929	-.929	0	0
53	M53	Z	-.929	-.929	0	0
54	M54	Z	-.929	-.929	0	0
55	M55	Z	-.929	-.929	0	0
56	M56	Z	-.929	-.929	0	0
57	M57	Z	-.929	-.929	0	0
58	M58	Z	-.929	-.929	0	0
59	M59	Z	-.929	-.929	0	0
60	M60	Z	-.929	-.929	0	0
61	M61	Z	-.929	-.929	0	0
62	M62	Z	-.929	-.929	0	0
63	M63	Z	-.929	-.929	0	0
64	M64	Z	-.929	-.929	0	0
65	M65	Z	-.929	-.929	0	0
66	M66	Z	-.929	-.929	0	0
67	M67	Z	-.929	-.929	0	0
68	M68	Z	-.929	-.929	0	0
69	M69	Z	-.929	-.929	0	0
70	M70	Z	-.929	-.929	0	0
71	M71	Z	-.929	-.929	0	0
72	M72	Z	-.929	-.929	0	0
73	M73	Z	-.929	-.929	0	0
74	M74	Z	-.929	-.929	0	0
75	M75	Z	-.929	-.929	0	0
76	M76	Z	-.929	-.929	0	0
77	M77	Z	-.929	-.929	0	0
78	M78	Z	-.929	-.929	0	0
79	M79	Z	-.929	-.929	0	0
80	M80	Z	-.929	-.929	0	0
81	M81	Z	-.929	-.929	0	0
82	M82	Z	-.929	-.929	0	0
83	M83	Z	-.929	-.929	0	0
84	M84	Z	-.929	-.929	0	0
85	M85	Z	-.929	-.929	0	0
86	M86	Z	-.929	-.929	0	0
87	M87	Z	-.929	-.929	0	0
88	M88	Z	-.929	-.929	0	0
89	M89	Z	-.929	-.929	0	0
90	M90	Z	-.929	-.929	0	0
91	M91	Z	-.929	-.929	0	0
92	M92	Z	-.929	-.929	0	0
93	M93	Z	-.929	-.929	0	0
94	M94	Z	-.929	-.929	0	0
95	M95	Z	-.929	-.929	0	0
96	M96	Z	-.929	-.929	0	0
97	M97	Z	-.929	-.929	0	0
98	M98	Z	-.725	-.725	0	0
99	M99	Z	-.482	-.482	0	0
100	M100	Z	-.482	-.482	0	0

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
1	M1	PX	.656	.656	0	0
2	M2	PX	.656	.656	0	0
3	M3	PX	.656	.656	0	0
4	M4	PX	.656	.656	0	0
5	M5	PX	.656	.656	0	0
6	M6	PX	.656	.656	0	0
7	M7	PX	.656	.656	0	0
8	M8	PX	.656	.656	0	0
9	M9	PX	.656	.656	0	0
10	M10	PX	.656	.656	0	0
11	M11	PX	.656	.656	0	0
12	M12	PX	.656	.656	0	0
13	M13	PX	.656	.656	0	0
14	M14	PX	.656	.656	0	0
15	M15	PX	.656	.656	0	0
16	M16	PX	.656	.656	0	0
17	M17	PX	.656	.656	0	0
18	M18	PX	.656	.656	0	0
19	M19	PX	.656	.656	0	0
20	M20	PX	.656	.656	0	0
21	M21	PX	.656	.656	0	0
22	M22	PX	.656	.656	0	0
23	M23	PX	.656	.656	0	0
24	M24	PX	.656	.656	0	0
25	M25	PX	.949	.949	0	0
26	M26	PX	.949	.949	0	0
27	M27	PX	.949	.949	0	0
28	M28	PX	.949	.949	0	0
29	M29	PX	.949	.949	0	0
30	M30	PX	.949	.949	0	0
31	M31	PX	.949	.949	0	0
32	M32	PX	.949	.949	0	0
33	M33	PX	.949	.949	0	0
34	M34	PX	.949	.949	0	0
35	M35	PX	.949	.949	0	0
36	M36	PX	.949	.949	0	0
37	M37	PX	.949	.949	0	0
38	M38	PX	.949	.949	0	0
39	M39	PX	.949	.949	0	0
40	M40	PX	.949	.949	0	0
41	M41	PX	.949	.949	0	0
42	M42	PX	.949	.949	0	0
43	M43	PX	.949	.949	0	0
44	M44	PX	.949	.949	0	0
45	M45	PX	.949	.949	0	0
46	M46	PX	.949	.949	0	0
47	M47	PX	.949	.949	0	0
48	M48	PX	.949	.949	0	0
49	M49	PX	.949	.949	0	0
50	M50	PX	.949	.949	0	0
51	M51	PX	.949	.949	0	0
52	M52	PX	.949	.949	0	0
53	M53	PX	.949	.949	0	0
54	M54	PX	.949	.949	0	0
55	M55	PX	.949	.949	0	0
56	M56	PX	.949	.949	0	0
57	M57	PX	.949	.949	0	0

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
58	M58	PX	.949	.949	0	0
59	M59	PX	.949	.949	0	0
60	M60	PX	.949	.949	0	0
61	M61	PX	.949	.949	0	0
62	M62	PX	.949	.949	0	0
63	M63	PX	.949	.949	0	0
64	M64	PX	.949	.949	0	0
65	M65	PX	.949	.949	0	0
66	M66	PX	.949	.949	0	0
67	M67	PX	.949	.949	0	0
68	M68	PX	.949	.949	0	0
69	M69	PX	.949	.949	0	0
70	M70	PX	.949	.949	0	0
71	M71	PX	.949	.949	0	0
72	M72	PX	.949	.949	0	0
73	M73	PX	.857	.857	0	0
74	M74	PX	.857	.857	0	0
75	M75	PX	.857	.857	0	0
76	M76	PX	.857	.857	0	0
77	M77	PX	.857	.857	0	0
78	M78	PX	.857	.857	0	0
79	M79	PX	.857	.857	0	0
80	M80	PX	.857	.857	0	0
81	M81	PX	.857	.857	0	0
82	M82	PX	.857	.857	0	0
83	M83	PX	.857	.857	0	0
84	M84	PX	.857	.857	0	0
85	M85	PX	.857	.857	0	0
86	M86	PX	.857	.857	0	0
87	M87	PX	.857	.857	0	0
88	M88	PX	.857	.857	0	0
89	M89	PX	.857	.857	0	0
90	M90	PX	.857	.857	0	0
91	M91	PX	.857	.857	0	0
92	M92	PX	.857	.857	0	0
93	M93	PX	.857	.857	0	0
94	M94	PX	.857	.857	0	0
95	M95	PX	.857	.857	0	0
96	M96	PX	.857	.857	0	0
97	M97	PX	.857	.857	0	0
98	M98	PX	.542	.542	0	0
99	M99	PX	.228	.228	0	0
100	M100	PX	.228	.228	0	0

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
1	M1	PY	.656	.656	0	0
2	M2	PY	.656	.656	0	0
3	M3	PY	.656	.656	0	0
4	M4	PY	.656	.656	0	0
5	M5	PY	.656	.656	0	0
6	M6	PY	.656	.656	0	0
7	M7	PY	.656	.656	0	0
8	M8	PY	.656	.656	0	0
9	M9	PY	.656	.656	0	0
10	M10	PY	.656	.656	0	0

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
11	M11	PY	.656	.656	0	0
12	M12	PY	.656	.656	0	0
13	M13	PY	.656	.656	0	0
14	M14	PY	.656	.656	0	0
15	M15	PY	.656	.656	0	0
16	M16	PY	.656	.656	0	0
17	M17	PY	.656	.656	0	0
18	M18	PY	.656	.656	0	0
19	M19	PY	.656	.656	0	0
20	M20	PY	.656	.656	0	0
21	M21	PY	.656	.656	0	0
22	M22	PY	.656	.656	0	0
23	M23	PY	.656	.656	0	0
24	M24	PY	.656	.656	0	0
25	M25	PY	.949	.949	0	0
26	M26	PY	.949	.949	0	0
27	M27	PY	.949	.949	0	0
28	M28	PY	.949	.949	0	0
29	M29	PY	.949	.949	0	0
30	M30	PY	.949	.949	0	0
31	M31	PY	.949	.949	0	0
32	M32	PY	.949	.949	0	0
33	M33	PY	.949	.949	0	0
34	M34	PY	.949	.949	0	0
35	M35	PY	.949	.949	0	0
36	M36	PY	.949	.949	0	0
37	M37	PY	.949	.949	0	0
38	M38	PY	.949	.949	0	0
39	M39	PY	.949	.949	0	0
40	M40	PY	.949	.949	0	0
41	M41	PY	.949	.949	0	0
42	M42	PY	.949	.949	0	0
43	M43	PY	.949	.949	0	0
44	M44	PY	.949	.949	0	0
45	M45	PY	.949	.949	0	0
46	M46	PY	.949	.949	0	0
47	M47	PY	.949	.949	0	0
48	M48	PY	.949	.949	0	0
49	M49	PY	.949	.949	0	0
50	M50	PY	.949	.949	0	0
51	M51	PY	.949	.949	0	0
52	M52	PY	.949	.949	0	0
53	M53	PY	.949	.949	0	0
54	M54	PY	.949	.949	0	0
55	M55	PY	.949	.949	0	0
56	M56	PY	.949	.949	0	0
57	M57	PY	.949	.949	0	0
58	M58	PY	.949	.949	0	0
59	M59	PY	.949	.949	0	0
60	M60	PY	.949	.949	0	0
61	M61	PY	.949	.949	0	0
62	M62	PY	.949	.949	0	0
63	M63	PY	.949	.949	0	0
64	M64	PY	.949	.949	0	0
65	M65	PY	.949	.949	0	0
66	M66	PY	.949	.949	0	0
67	M67	PY	.949	.949	0	0

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
68	M68	PY	.949	.949	0	0
69	M69	PY	.949	.949	0	0
70	M70	PY	.949	.949	0	0
71	M71	PY	.949	.949	0	0
72	M72	PY	.949	.949	0	0
73	M73	PY	.857	.857	0	0
74	M74	PY	.857	.857	0	0
75	M75	PY	.857	.857	0	0
76	M76	PY	.857	.857	0	0
77	M77	PY	.857	.857	0	0
78	M78	PY	.857	.857	0	0
79	M79	PY	.857	.857	0	0
80	M80	PY	.857	.857	0	0
81	M81	PY	.857	.857	0	0
82	M82	PY	.857	.857	0	0
83	M83	PY	.857	.857	0	0
84	M84	PY	.857	.857	0	0
85	M85	PY	.857	.857	0	0
86	M86	PY	.857	.857	0	0
87	M87	PY	.857	.857	0	0
88	M88	PY	.857	.857	0	0
89	M89	PY	.857	.857	0	0
90	M90	PY	.857	.857	0	0
91	M91	PY	.857	.857	0	0
92	M92	PY	.857	.857	0	0
93	M93	PY	.857	.857	0	0
94	M94	PY	.857	.857	0	0
95	M95	PY	.857	.857	0	0
96	M96	PY	.857	.857	0	0
97	M97	PY	.857	.857	0	0
98	M98	PY	.542	.542	0	0
99	M99	PY	.228	.228	0	0
100	M100	PY	.228	.228	0	0

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
1	M1	PX	.14	.14	0	0
2	M2	PX	.14	.14	0	0
3	M3	PX	.14	.14	0	0
4	M4	PX	.14	.14	0	0
5	M5	PX	.14	.14	0	0
6	M6	PX	.14	.14	0	0
7	M7	PX	.14	.14	0	0
8	M8	PX	.14	.14	0	0
9	M9	PX	.14	.14	0	0
10	M10	PX	.14	.14	0	0
11	M11	PX	.14	.14	0	0
12	M12	PX	.14	.14	0	0
13	M13	PX	.14	.14	0	0
14	M14	PX	.14	.14	0	0
15	M15	PX	.14	.14	0	0
16	M16	PX	.14	.14	0	0
17	M17	PX	.14	.14	0	0
18	M18	PX	.14	.14	0	0
19	M19	PX	.14	.14	0	0
20	M20	PX	.14	.14	0	0

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
21	M21	PX	.14	.14	0	0
22	M22	PX	.14	.14	0	0
23	M23	PX	.14	.14	0	0
24	M24	PX	.14	.14	0	0
25	M25	PX	.117	.117	0	0
26	M26	PX	.117	.117	0	0
27	M27	PX	.117	.117	0	0
28	M28	PX	.117	.117	0	0
29	M29	PX	.117	.117	0	0
30	M30	PX	.117	.117	0	0
31	M31	PX	.117	.117	0	0
32	M32	PX	.117	.117	0	0
33	M33	PX	.117	.117	0	0
34	M34	PX	.117	.117	0	0
35	M35	PX	.117	.117	0	0
36	M36	PX	.117	.117	0	0
37	M37	PX	.117	.117	0	0
38	M38	PX	.117	.117	0	0
39	M39	PX	.117	.117	0	0
40	M40	PX	.117	.117	0	0
41	M41	PX	.117	.117	0	0
42	M42	PX	.117	.117	0	0
43	M43	PX	.117	.117	0	0
44	M44	PX	.117	.117	0	0
45	M45	PX	.117	.117	0	0
46	M46	PX	.117	.117	0	0
47	M47	PX	.117	.117	0	0
48	M48	PX	.117	.117	0	0
49	M49	PX	.117	.117	0	0
50	M50	PX	.117	.117	0	0
51	M51	PX	.117	.117	0	0
52	M52	PX	.117	.117	0	0
53	M53	PX	.117	.117	0	0
54	M54	PX	.117	.117	0	0
55	M55	PX	.117	.117	0	0
56	M56	PX	.117	.117	0	0
57	M57	PX	.117	.117	0	0
58	M58	PX	.117	.117	0	0
59	M59	PX	.117	.117	0	0
60	M60	PX	.117	.117	0	0
61	M61	PX	.117	.117	0	0
62	M62	PX	.117	.117	0	0
63	M63	PX	.117	.117	0	0
64	M64	PX	.117	.117	0	0
65	M65	PX	.117	.117	0	0
66	M66	PX	.117	.117	0	0
67	M67	PX	.117	.117	0	0
68	M68	PX	.117	.117	0	0
69	M69	PX	.117	.117	0	0
70	M70	PX	.117	.117	0	0
71	M71	PX	.117	.117	0	0
72	M72	PX	.117	.117	0	0
73	M73	PX	.11	.11	0	0
74	M74	PX	.11	.11	0	0
75	M75	PX	.11	.11	0	0
76	M76	PX	.11	.11	0	0
77	M77	PX	.11	.11	0	0

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
78	M78	PX	.11	.11	0	0
79	M79	PX	.11	.11	0	0
80	M80	PX	.11	.11	0	0
81	M81	PX	.11	.11	0	0
82	M82	PX	.11	.11	0	0
83	M83	PX	.11	.11	0	0
84	M84	PX	.11	.11	0	0
85	M85	PX	.11	.11	0	0
86	M86	PX	.11	.11	0	0
87	M87	PX	.11	.11	0	0
88	M88	PX	.11	.11	0	0
89	M89	PX	.11	.11	0	0
90	M90	PX	.11	.11	0	0
91	M91	PX	.11	.11	0	0
92	M92	PX	.11	.11	0	0
93	M93	PX	.11	.11	0	0
94	M94	PX	.11	.11	0	0
95	M95	PX	.11	.11	0	0
96	M96	PX	.11	.11	0	0
97	M97	PX	.11	.11	0	0
98	M98	PX	.126	.126	0	0
99	M99	PX	.089	.089	0	0
100	M100	PX	.089	.089	0	0

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
1	M1	PY	.14	.14	0	0
2	M2	PY	.14	.14	0	0
3	M3	PY	.14	.14	0	0
4	M4	PY	.14	.14	0	0
5	M5	PY	.14	.14	0	0
6	M6	PY	.14	.14	0	0
7	M7	PY	.14	.14	0	0
8	M8	PY	.14	.14	0	0
9	M9	PY	.14	.14	0	0
10	M10	PY	.14	.14	0	0
11	M11	PY	.14	.14	0	0
12	M12	PY	.14	.14	0	0
13	M13	PY	.14	.14	0	0
14	M14	PY	.14	.14	0	0
15	M15	PY	.14	.14	0	0
16	M16	PY	.14	.14	0	0
17	M17	PY	.14	.14	0	0
18	M18	PY	.14	.14	0	0
19	M19	PY	.14	.14	0	0
20	M20	PY	.14	.14	0	0
21	M21	PY	.14	.14	0	0
22	M22	PY	.14	.14	0	0
23	M23	PY	.14	.14	0	0
24	M24	PY	.14	.14	0	0
25	M25	PY	.117	.117	0	0
26	M26	PY	.117	.117	0	0
27	M27	PY	.117	.117	0	0
28	M28	PY	.117	.117	0	0
29	M29	PY	.117	.117	0	0
30	M30	PY	.117	.117	0	0

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
31	M31	PY	.117	.117	0	0
32	M32	PY	.117	.117	0	0
33	M33	PY	.117	.117	0	0
34	M34	PY	.117	.117	0	0
35	M35	PY	.117	.117	0	0
36	M36	PY	.117	.117	0	0
37	M37	PY	.117	.117	0	0
38	M38	PY	.117	.117	0	0
39	M39	PY	.117	.117	0	0
40	M40	PY	.117	.117	0	0
41	M41	PY	.117	.117	0	0
42	M42	PY	.117	.117	0	0
43	M43	PY	.117	.117	0	0
44	M44	PY	.117	.117	0	0
45	M45	PY	.117	.117	0	0
46	M46	PY	.117	.117	0	0
47	M47	PY	.117	.117	0	0
48	M48	PY	.117	.117	0	0
49	M49	PY	.117	.117	0	0
50	M50	PY	.117	.117	0	0
51	M51	PY	.117	.117	0	0
52	M52	PY	.117	.117	0	0
53	M53	PY	.117	.117	0	0
54	M54	PY	.117	.117	0	0
55	M55	PY	.117	.117	0	0
56	M56	PY	.117	.117	0	0
57	M57	PY	.117	.117	0	0
58	M58	PY	.117	.117	0	0
59	M59	PY	.117	.117	0	0
60	M60	PY	.117	.117	0	0
61	M61	PY	.117	.117	0	0
62	M62	PY	.117	.117	0	0
63	M63	PY	.117	.117	0	0
64	M64	PY	.117	.117	0	0
65	M65	PY	.117	.117	0	0
66	M66	PY	.117	.117	0	0
67	M67	PY	.117	.117	0	0
68	M68	PY	.117	.117	0	0
69	M69	PY	.117	.117	0	0
70	M70	PY	.117	.117	0	0
71	M71	PY	.117	.117	0	0
72	M72	PY	.117	.117	0	0
73	M73	PY	.11	.11	0	0
74	M74	PY	.11	.11	0	0
75	M75	PY	.11	.11	0	0
76	M76	PY	.11	.11	0	0
77	M77	PY	.11	.11	0	0
78	M78	PY	.11	.11	0	0
79	M79	PY	.11	.11	0	0
80	M80	PY	.11	.11	0	0
81	M81	PY	.11	.11	0	0
82	M82	PY	.11	.11	0	0
83	M83	PY	.11	.11	0	0
84	M84	PY	.11	.11	0	0
85	M85	PY	.11	.11	0	0
86	M86	PY	.11	.11	0	0
87	M87	PY	.11	.11	0	0

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
88	M88	PY	.11	.11	0	0
89	M89	PY	.11	.11	0	0
90	M90	PY	.11	.11	0	0
91	M91	PY	.11	.11	0	0
92	M92	PY	.11	.11	0	0
93	M93	PY	.11	.11	0	0
94	M94	PY	.11	.11	0	0
95	M95	PY	.11	.11	0	0
96	M96	PY	.11	.11	0	0
97	M97	PY	.11	.11	0	0
98	M98	PY	.126	.126	0	0
99	M99	PY	.089	.089	0	0
100	M100	PY	.089	.089	0	0

Member Distributed Loads (BLC 8 : WIND LOAD (SERVICE) FRONT)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
1	M1	PX	.071	.071	0	0
2	M2	PX	.071	.071	0	0
3	M3	PX	.071	.071	0	0
4	M4	PX	.071	.071	0	0
5	M5	PX	.071	.071	0	0
6	M6	PX	.071	.071	0	0
7	M7	PX	.071	.071	0	0
8	M8	PX	.071	.071	0	0
9	M9	PX	.071	.071	0	0
10	M10	PX	.071	.071	0	0
11	M11	PX	.071	.071	0	0
12	M12	PX	.071	.071	0	0
13	M13	PX	.071	.071	0	0
14	M14	PX	.071	.071	0	0
15	M15	PX	.071	.071	0	0
16	M16	PX	.071	.071	0	0
17	M17	PX	.071	.071	0	0
18	M18	PX	.071	.071	0	0
19	M19	PX	.071	.071	0	0
20	M20	PX	.071	.071	0	0
21	M21	PX	.071	.071	0	0
22	M22	PX	.071	.071	0	0
23	M23	PX	.071	.071	0	0
24	M24	PX	.071	.071	0	0
25	M25	PX	.103	.103	0	0
26	M26	PX	.103	.103	0	0
27	M27	PX	.103	.103	0	0
28	M28	PX	.103	.103	0	0
29	M29	PX	.103	.103	0	0
30	M30	PX	.103	.103	0	0
31	M31	PX	.103	.103	0	0
32	M32	PX	.103	.103	0	0
33	M33	PX	.103	.103	0	0
34	M34	PX	.103	.103	0	0
35	M35	PX	.103	.103	0	0
36	M36	PX	.103	.103	0	0
37	M37	PX	.103	.103	0	0
38	M38	PX	.103	.103	0	0
39	M39	PX	.103	.103	0	0
40	M40	PX	.103	.103	0	0

Member Distributed Loads (BLC 8 : WIND LOAD (SERVICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
41	M41	PX	.103	.103	0	0
42	M42	PX	.103	.103	0	0
43	M43	PX	.103	.103	0	0
44	M44	PX	.103	.103	0	0
45	M45	PX	.103	.103	0	0
46	M46	PX	.103	.103	0	0
47	M47	PX	.103	.103	0	0
48	M48	PX	.103	.103	0	0
49	M49	PX	.103	.103	0	0
50	M50	PX	.103	.103	0	0
51	M51	PX	.103	.103	0	0
52	M52	PX	.103	.103	0	0
53	M53	PX	.103	.103	0	0
54	M54	PX	.103	.103	0	0
55	M55	PX	.103	.103	0	0
56	M56	PX	.103	.103	0	0
57	M57	PX	.103	.103	0	0
58	M58	PX	.103	.103	0	0
59	M59	PX	.103	.103	0	0
60	M60	PX	.103	.103	0	0
61	M61	PX	.103	.103	0	0
62	M62	PX	.103	.103	0	0
63	M63	PX	.103	.103	0	0
64	M64	PX	.103	.103	0	0
65	M65	PX	.103	.103	0	0
66	M66	PX	.103	.103	0	0
67	M67	PX	.103	.103	0	0
68	M68	PX	.103	.103	0	0
69	M69	PX	.103	.103	0	0
70	M70	PX	.103	.103	0	0
71	M71	PX	.103	.103	0	0
72	M72	PX	.103	.103	0	0
73	M73	PX	.093	.093	0	0
74	M74	PX	.093	.093	0	0
75	M75	PX	.093	.093	0	0
76	M76	PX	.093	.093	0	0
77	M77	PX	.093	.093	0	0
78	M78	PX	.093	.093	0	0
79	M79	PX	.093	.093	0	0
80	M80	PX	.093	.093	0	0
81	M81	PX	.093	.093	0	0
82	M82	PX	.093	.093	0	0
83	M83	PX	.093	.093	0	0
84	M84	PX	.093	.093	0	0
85	M85	PX	.093	.093	0	0
86	M86	PX	.093	.093	0	0
87	M87	PX	.093	.093	0	0
88	M88	PX	.093	.093	0	0
89	M89	PX	.093	.093	0	0
90	M90	PX	.093	.093	0	0
91	M91	PX	.093	.093	0	0
92	M92	PX	.093	.093	0	0
93	M93	PX	.093	.093	0	0
94	M94	PX	.093	.093	0	0
95	M95	PX	.093	.093	0	0
96	M96	PX	.093	.093	0	0
97	M97	PX	.093	.093	0	0

Member Distributed Loads (BLC 8 : WIND LOAD (SERVICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
98	M98	PX	.059	.059	0	0
99	M99	PX	.025	.025	0	0
100	M100	PX	.025	.025	0	0

Member Distributed Loads (BLC 9 : WIND LOAD (SERVICE) SIDE)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
1	M1	PY	.071	.071	0	0
2	M2	PY	.071	.071	0	0
3	M3	PY	.071	.071	0	0
4	M4	PY	.071	.071	0	0
5	M5	PY	.071	.071	0	0
6	M6	PY	.071	.071	0	0
7	M7	PY	.071	.071	0	0
8	M8	PY	.071	.071	0	0
9	M9	PY	.071	.071	0	0
10	M10	PY	.071	.071	0	0
11	M11	PY	.071	.071	0	0
12	M12	PY	.071	.071	0	0
13	M13	PY	.071	.071	0	0
14	M14	PY	.071	.071	0	0
15	M15	PY	.071	.071	0	0
16	M16	PY	.071	.071	0	0
17	M17	PY	.071	.071	0	0
18	M18	PY	.071	.071	0	0
19	M19	PY	.071	.071	0	0
20	M20	PY	.071	.071	0	0
21	M21	PY	.071	.071	0	0
22	M22	PY	.071	.071	0	0
23	M23	PY	.071	.071	0	0
24	M24	PY	.071	.071	0	0
25	M25	PY	.103	.103	0	0
26	M26	PY	.103	.103	0	0
27	M27	PY	.103	.103	0	0
28	M28	PY	.103	.103	0	0
29	M29	PY	.103	.103	0	0
30	M30	PY	.103	.103	0	0
31	M31	PY	.103	.103	0	0
32	M32	PY	.103	.103	0	0
33	M33	PY	.103	.103	0	0
34	M34	PY	.103	.103	0	0
35	M35	PY	.103	.103	0	0
36	M36	PY	.103	.103	0	0
37	M37	PY	.103	.103	0	0
38	M38	PY	.103	.103	0	0
39	M39	PY	.103	.103	0	0
40	M40	PY	.103	.103	0	0
41	M41	PY	.103	.103	0	0
42	M42	PY	.103	.103	0	0
43	M43	PY	.103	.103	0	0
44	M44	PY	.103	.103	0	0
45	M45	PY	.103	.103	0	0
46	M46	PY	.103	.103	0	0
47	M47	PY	.103	.103	0	0
48	M48	PY	.103	.103	0	0
49	M49	PY	.103	.103	0	0
50	M50	PY	.103	.103	0	0

Member Distributed Loads (BLC 9 : WIND LOAD (SERVICE) SIDE) (Continued)

	Member Label	Direction	Start Magnitude[lb/in,F,ksf]	End Magnitude[l...	Start Location[in,%]	End Location[in,%]
51	M51	PY	.103	.103	0	0
52	M52	PY	.103	.103	0	0
53	M53	PY	.103	.103	0	0
54	M54	PY	.103	.103	0	0
55	M55	PY	.103	.103	0	0
56	M56	PY	.103	.103	0	0
57	M57	PY	.103	.103	0	0
58	M58	PY	.103	.103	0	0
59	M59	PY	.103	.103	0	0
60	M60	PY	.103	.103	0	0
61	M61	PY	.103	.103	0	0
62	M62	PY	.103	.103	0	0
63	M63	PY	.103	.103	0	0
64	M64	PY	.103	.103	0	0
65	M65	PY	.103	.103	0	0
66	M66	PY	.103	.103	0	0
67	M67	PY	.103	.103	0	0
68	M68	PY	.103	.103	0	0
69	M69	PY	.103	.103	0	0
70	M70	PY	.103	.103	0	0
71	M71	PY	.103	.103	0	0
72	M72	PY	.103	.103	0	0
73	M73	PY	.093	.093	0	0
74	M74	PY	.093	.093	0	0
75	M75	PY	.093	.093	0	0
76	M76	PY	.093	.093	0	0
77	M77	PY	.093	.093	0	0
78	M78	PY	.093	.093	0	0
79	M79	PY	.093	.093	0	0
80	M80	PY	.093	.093	0	0
81	M81	PY	.093	.093	0	0
82	M82	PY	.093	.093	0	0
83	M83	PY	.093	.093	0	0
84	M84	PY	.093	.093	0	0
85	M85	PY	.093	.093	0	0
86	M86	PY	.093	.093	0	0
87	M87	PY	.093	.093	0	0
88	M88	PY	.093	.093	0	0
89	M89	PY	.093	.093	0	0
90	M90	PY	.093	.093	0	0
91	M91	PY	.093	.093	0	0
92	M92	PY	.093	.093	0	0
93	M93	PY	.093	.093	0	0
94	M94	PY	.093	.093	0	0
95	M95	PY	.093	.093	0	0
96	M96	PY	.093	.093	0	0
97	M97	PY	.093	.093	0	0
98	M98	PY	.059	.059	0	0
99	M99	PY	.025	.025	0	0
100	M100	PY	.025	.025	0	0

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N115	m...	203.1...	2	162.3...	5	2500....	2	.129	10	.265	2	.043	5
2		min	-205.7...	8	-163.6...	11	-1764....	8	-.128	4	-.267	8	-.042	11

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
3	N89	m...	2527....	8	89.26	13	2115....	8	.077	7	.169	2	.096	13
4		min	-2509....	2	-88.493	7	-2077....	2	-.075	13	-.183	8	-.099	7
5	N116	m...	228.5...	2	166.8...	5	2509....	2	.144	10	.281	2	.045	5
6		min	-230.0...	8	-168.9...	11	-1793....	8	-.142	4	-.282	8	-.045	11
7	N90	m...	2486....	8	573.9...	8	2141....	8	.131	8	.159	2	.107	13
8		min	-2467....	2	-567.8...	2	-2103....	2	-.125	2	-.172	8	-.109	7
9	N117	m...	135.4...	2	159.8...	6	1895....	3	.124	11	.139	2	.056	6
10		min	-136.7...	8	-163.4...	12	-1409....	9	-.121	5	-.14	8	-.056	12
11	N91	m...	1765....	9	954.0...	9	1657....	9	.135	8	.074	3	.094	2
12		min	-1747....	3	-943.4...	3	-1618....	3	-.127	2	-.086	9	-.096	8
13	N118	m...	154.2...	13	177.9...	7	1433....	3	.106	12	.079	13	.058	7
14		min	-155.7...	7	-182.7...	13	-970.4...	9	-.101	6	-.081	7	-.058	13
15	N92	m...	1079....	9	1006....	9	1194....	9	.112	8	.014	4	.091	2
16		min	-1064....	3	-990.36	3	-1154....	3	-.101	2	-.023	10	-.093	8
17	N119	m...	180.6...	2	121.18	4	1891....	4	.177	10	.125	2	.079	7
18		min	-180.1...	8	-124.5...	10	-1290....	10	-.173	4	-.124	8	-.079	13
19	N93	m...	1006....	10	1622....	10	1584....	10	.171	9	.026	6	.107	2
20		min	-995.3...	4	-1603....	4	-1544....	4	-.158	3	-.032	12	-.109	8
21	N120	m...	254.6...	2	42.299	7	1405....	4	.056	11	.135	13	.067	8
22		min	-253.7...	8	-46.877	13	-1032....	10	-.052	5	-.134	7	-.066	2
23	N94	m...	440.2...	10	1421....	10	1218....	10	.121	9	.059	8	.105	2
24		min	-434.6...	4	-1398....	4	-1178....	4	-.107	3	-.061	2	-.107	8
25	N121	m...	208.0...	2	52.554	5	1653....	5	.092	11	.112	13	.086	8
26		min	-206.8...	8	-55.806	11	-985.8...	11	-.088	5	-.111	7	-.086	2
27	N95	m...	72.552	9	1606....	11	1319....	11	.108	10	.08	9	.098	3
28		min	-73.118	3	-1582....	5	-1278....	5	-.093	4	-.078	3	-.101	9
29	N122	m...	280.0...	2	54.936	3	1393....	6	.057	11	.155	2	.073	8
30		min	-278.6...	8	-60.335	9	-1002....	12	-.053	5	-.153	8	-.073	2
31	N96	m...	361.8...	6	1421....	12	1195....	12	.074	11	.098	9	.1	3
32		min	-366.0...	12	-1396....	6	-1152....	6	-.061	5	-.093	3	-.103	9
33	N123	m...	234.5...	2	117.2...	5	2123....	6	.173	12	.194	13	.093	9
34		min	-233.7...	8	-120.2...	11	-1328....	12	-.17	6	-.192	7	-.092	3
35	N97	m...	976.4...	6	1817....	12	1721....	12	.098	12	.121	11	.088	4
36		min	-986.9...	12	-1795....	6	-1679....	6	-.086	6	-.111	5	-.091	10
37	N124	m...	238.5...	2	99.662	6	2215....	7	.154	13	.211	2	.092	9
38		min	-237.5...	8	-103.1...	12	-1504....	13	-.151	7	-.209	8	-.091	3
39	N98	m...	1533....	7	1610....	13	1847....	13	.073	2	.123	12	.079	5
40		min	-1548....	13	-1590....	7	-1804....	7	-.064	8	-.111	6	-.081	11
41	N125	m...	147.22	2	91.831	5	1981....	7	.085	13	.145	2	.079	9
42		min	-145.0...	8	-96.933	11	-1500....	13	-.082	7	-.141	8	-.078	3
43	N99	m...	1793....	7	1097....	13	1731....	13	.049	3	.114	12	.079	5
44		min	-1814....	13	-1081....	7	-1688....	7	-.043	9	-.1	6	-.082	11
45	N126	m...	52.337	6	144.1...	4	1586	8	.045	10	.023	6	.058	10
46		min	-46.088	12	-153.43	10	-1131....	2	-.04	5	-.015	12	-.058	4
47	N100	m...	1645....	8	467.4...	13	1372....	2	.052	4	.072	11	.079	5
48		min	-1674....	2	-458.3...	7	-1325....	8	-.05	10	-.058	5	-.081	11
49	N127	m...	259.1...	2	190.31	4	3102....	8	.085	10	.306	2	.079	12
50		min	-251.1...	8	-226.2...	10	-2346.9	2	-.064	4	-.301	8	-.074	6
51	N101	m...	2120....	8	90.57	13	1781....	2	.076	6	.148	13	.097	6
52		min	-2124....	2	-88.325	7	-1753....	8	-.079	12	-.132	7	-.101	12
53	N128	m...	121.1...	2	115.6...	6	1940....	8	.059	13	.153	2	.058	10
54		min	-121.85	8	-119.0...	12	-1552....	2	-.057	7	-.154	8	-.058	4
55	N102	m...	1963....	8	486.1...	9	1654....	2	.076	6	.085	2	.079	6
56		min	-1973....	2	-486.8...	3	-1624....	8	-.081	12	-.073	8	-.081	12
57	N129	m...	222.9...	2	94.619	5	2245....	9	.045	10	.255	2	.063	12
58		min	-221.1...	8	-98.142	11	-1568....	3	-.043	4	-.255	8	-.063	6
59	N103	m...	2003....	9	1105....	9	1896....	3	.122	7	.1	2	.092	7

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
60		min	-2015....	3	-1109....	3	-1863....	9	-.131	13	-.089	8	-.094	13
61	N130	m...	246.1...	2	123.4...	6	1894....	9	.068	12	.233	2	.064	12
62		min	-244.8...	8	-122.8...	12	-1377....	3	-.071	6	-.233	8	-.063	6
63	N104	m...	1420....	9	1343....	9	1620....	3	.122	8	.052	3	.086	7
64		min	-1429....	3	-1351....	3	-1588....	9	-.133	2	-.044	9	-.088	13
65	N131	m...	279.8...	2	126.1...	5	2145....	10	.146	10	.277	3	.077	13
66		min	-278.6...	8	-124.5...	11	-1326....	4	-.149	4	-.278	9	-.076	7
67	N105	m...	1073....	10	1760....	10	1723....	4	.146	9	.041	5	.087	8
68		min	-1081....	4	-1771....	4	-1688....	10	-.16	3	-.035	11	-.09	2
69	N132	m...	273.9...	2	75.895	6	1721....	10	.089	11	.231	3	.072	13
70		min	-273.9...	8	-72.279	12	-1002....	4	-.093	5	-.233	9	-.071	7
71	N106	m...	467.3...	10	1572....	10	1362....	4	.098	9	.042	7	.075	8
72		min	-472.5...	4	-1587....	4	-1327....	10	-.113	3	-.04	13	-.077	2
73	N133	m...	265.4...	2	102.1...	6	1654....	11	.129	12	.208	3	.067	13
74		min	-266.62	8	-98.662	12	-1093....	5	-.133	6	-.21	9	-.067	7
75	N107	m...	53.655	9	1659....	11	1373....	5	.073	10	.049	9	.061	9
76		min	-54.089	3	-1676....	5	-1338....	11	-.087	4	-.05	3	-.063	3
77	N134	m...	287.9...	3	13.826	13	1317....	12	.021	13	.211	3	.048	2
78		min	-290.5...	9	-10.351	6	-850.9...	6	-.025	7	-.215	9	-.048	8
79	N108	m...	353.7...	6	1292....	12	1078....	6	.022	11	.05	9	.057	9
80		min	-351.3...	12	-1310....	6	-1042....	12	-.035	5	-.055	3	-.059	3
81	N135	m...	188.1...	3	55.764	5	1471....	12	.077	12	.149	3	.063	2
82		min	-191.4...	9	-53.208	11	-1097....	6	-.08	6	-.153	9	-.063	8
83	N109	m...	775.3...	6	1371....	12	1283....	6	.036	12	.044	11	.042	10
84		min	-768.14	12	-1387....	6	-1247....	12	-.047	6	-.052	5	-.044	4
85	N136	m...	163.1...	4	210.1...	2	972.1...	13	.152	8	.114	4	.034	3
86		min	-167.0...	10	-207.4...	8	-742.1...	7	-.154	2	-.118	10	-.033	9
87	N110	m...	799.0...	7	769.4...	13	855.2...	7	.006	4	.047	9	.053	9
88		min	-787.0...	13	-783.8...	7	-818.6...	13	-.015	21	-.057	3	-.055	3
89	N137	m...	117.7...	2	170.0...	4	1659....	13	.128	10	.134	2	.044	4
90		min	-121.2...	8	-168.7...	10	-1283....	7	-.129	4	-.138	8	-.044	10
91	N111	m...	1530....	7	920.84	13	1460....	7	.025	3	.078	13	.051	11
92		min	-1515....	13	-931.2...	7	-1423....	13	-.03	9	-.09	7	-.053	5
93	N138	m...	240.9...	2	140.3...	4	2469....	2	.117	11	.301	2	.051	4
94		min	-243.7	8	-140.1...	10	-1719....	8	-.116	5	-.304	8	-.051	10
95	N112	m...	2377....	8	703.2...	2	2080....	8	.028	5	.176	13	.087	13
96		min	-2360....	2	-709.5...	8	-2042....	2	-.031	11	-.191	7	-.089	7
97	N113	m...	1024....	8	84.6	11	1000....	2	.104	6	.168	13	.117	6
98		min	-1044....	2	-78.516	5	-947.4...	8	-.118	12	-.132	7	-.131	12
99	Totals:	m...	23671...	8	16746...	11	22518...	23						
100		min	-2367...	2	-1674...	5	0	39						

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
1	M1	1	max	0	50	.859	11	1.311	8	0	50	0	50	0	50
2			min	0	1	-.861	5	-1.31	2	0	1	0	1	0	1
3		2	max	819.93	25	550.818	11	941.349	8	0	50	.575	8	.378	5
4			min	0	39	-550.819	5	-941.348	2	0	1	-.575	2	-.378	11
5		3	max	2500.748	2	162.408	5	204.549	2	.043	5	.265	2	.129	10
6			min	-1764.14	8	-163.689	11	-204.714	8	-.042	11	-.267	8	-.128	4
7	M2	1	max	0	50	.923	11	1.415	8	0	50	0	50	0	50
8			min	0	1	-.925	5	-1.415	2	0	1	0	1	0	1
9		2	max	865.626	25	592.961	11	1006.093	8	0	50	.608	8	.399	5
10			min	0	39	-592.963	5	-1006.093	2	0	1	-.608	2	-.399	11
11		3	max	2469.863	2	140.42	4	242.445	2	.051	4	.301	2	.117	11

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
12			min	-1719.425	8	-140.09	10	-242.628	8	-.051	10	-.304	8	-.116	5
13	M3	1	max	0	50	.238	11	.317	8	0	50	0	50	0	50
14			min	0	1	-.239	5	-.316	2	0	1	0	1	0	1
15		2	max	402.97	25	356.276	11	555.075	8	0	50	.378	8	.278	5
16			min	0	39	-356.277	5	-555.074	2	0	1	-.378	2	-.278	11
17		3	max	1659.619	13	170.063	4	118.078	2	.044	4	.134	2	.128	10
18			min	-1283.835	7	-168.784	10	-120.952	8	-.044	10	-.138	8	-.129	4
19	M4	1	max	0	50	.033	10	.038	8	0	50	0	50	0	50
20			min	0	1	-.034	4	-.037	2	0	1	0	1	0	1
21		2	max	73.486	25	56.711	11	56.716	8	0	50	.128	8	.128	5
22			min	0	39	-56.712	5	-56.716	2	0	1	-.128	2	-.128	11
23		3	max	972.103	13	210.25	2	163.098	4	.034	3	.114	4	.152	8
24			min	-742.144	7	-207.421	8	-167.064	10	-.033	9	-.118	10	-.154	2
25	M5	1	max	0	50	.22	11	.331	8	0	50	0	50	0	50
26			min	0	1	-.221	5	-.331	2	0	1	0	1	0	1
27		2	max	398.286	25	354.178	11	551.41	8	0	50	.376	8	.277	5
28			min	0	39	-354.18	5	-551.409	2	0	1	-.376	2	-.277	11
29		3	max	1471.439	12	55.634	5	188.239	3	.063	2	.149	3	.077	12
30			min	-1097.976	6	-53.39	11	-191.468	9	-.063	8	-.153	9	-.08	6
31	M6	1	max	0	50	.245	11	.368	8	0	50	0	50	0	50
32			min	0	1	-.247	5	-.368	2	0	1	0	1	0	1
33		2	max	365.066	25	257.403	11	340.407	8	0	50	.271	8	.229	5
34			min	0	39	-257.405	5	-340.407	2	0	1	-.271	2	-.229	11
35		3	max	1317.69	12	13.715	13	287.929	3	.048	2	.211	3	.021	13
36			min	-850.933	6	-10.44	6	-290.602	9	-.048	8	-.215	9	-.025	7
37	M7	1	max	0	50	.552	11	.815	8	0	50	0	50	0	50
38			min	0	1	-.554	5	-.816	2	0	1	0	1	0	1
39		2	max	644.526	25	522.031	11	781.173	8	0	50	.493	8	.362	5
40			min	0	39	-522.032	5	-781.174	2	0	1	-.493	2	-.362	11
41		3	max	1654.887	11	101.852	6	265.556	2	.067	13	.208	3	.129	12
42			min	-1093.021	5	-99.078	12	-266.642	8	-.067	7	-.21	9	-.133	6
43	M8	1	max	0	50	.749	11	1.376	8	0	50	0	50	0	50
44			min	0	1	-.75	5	-1.378	2	0	1	0	1	0	1
45		2	max	825.086	25	496.307	11	1014.695	8	0	50	.612	8	.35	5
46			min	0	39	-496.309	5	-1014.697	2	0	1	-.612	2	-.35	11
47		3	max	1721.219	10	75.822	6	273.966	2	.072	13	.231	3	.089	11
48			min	-1002.327	4	-72.434	12	-274.206	8	-.071	7	-.233	9	-.093	5
49	M9	1	max	0	50	1.152	11	1.698	8	0	50	0	50	0	50
50			min	0	1	-1.152	5	-1.701	2	0	1	0	1	0	1
51		2	max	954.59	25	677.831	11	1068.456	8	0	50	.64	8	.443	5
52			min	0	39	-677.83	5	-1068.459	2	0	1	-.64	2	-.443	11
53		3	max	2145.166	10	125.953	5	279.562	2	.077	13	.277	3	.146	10
54			min	-1326.088	4	-124.921	11	-279.235	8	-.076	7	-.278	9	-.149	4
55	M10	1	max	0	50	.011	11	.015	8	0	50	0	50	0	50
56			min	0	1	-.011	5	-.015	2	0	1	0	1	0	1
57		2	max	581.042	23	467.708	11	713.361	8	.003	8	.519	8	.394	5
58			min	0	39	-467.704	5	-713.363	2	-.003	2	-.519	2	-.398	11
59		3	max	1894.943	9	123.433	6	245.748	2	.064	12	.233	2	.068	12
60			min	-1377.875	3	-122.846	12	-245.424	8	-.063	6	-.233	8	-.071	6
61	M11	1	max	0	50	.717	11	1.113	8	0	50	0	50	0	50
62			min	0	1	-.714	5	-1.115	2	0	1	0	1	0	1
63		2	max	730.966	25	466.035	11	879.072	8	0	50	.543	8	.335	5
64			min	0	39	-466.033	5	-879.074	2	0	1	-.543	2	-.335	11
65		3	max	2245.276	9	94.631	5	222.234	2	.063	12	.255	2	.045	10
66			min	-1568.875	3	-98.091	11	-222.248	8	-.063	6	-.255	8	-.043	4
67	M12	1	max	0	50	.258	11	.318	8	0	50	0	50	0	50
68			min	0	1	-.257	5	-.319	2	0	1	0	1	0	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
69		2	max	402.97	25	356.297	11	555.077	8	0	50	.378	8	.278	5
70			min	0	39	-356.296	5	-555.078	2	0	1	-.378	2	-.278	11
71		3	max	1940.672	8	115.597	6	120.688	2	.058	10	.153	2	.059	13
72			min	-1552.313	2	-119.115	12	-122.453	8	-.058	4	-.154	8	-.057	7
73	M13	1	max	0	50	.591	11	.785	8	0	50	0	50	0	50
74			min	0	1	-.579	5	-.786	2	0	1	0	1	0	1
75		2	max	644.526	25	522.069	11	781.143	8	0	50	.493	8	.363	5
76			min	0	39	-522.057	5	-781.144	2	0	1	-.493	2	-.363	11
77		3	max	3102.642	8	190.453	4	257.752	2	.079	12	.306	2	.085	10
78			min	-2346.9	2	-225.972	10	-253.027	8	-.074	6	-.301	8	-.064	4
79	M14	1	max	0	50	.317	11	.311	8	0	50	0	50	0	50
80			min	0	1	-.314	5	-.313	2	0	1	0	1	0	1
81		2	max	365.066	25	257.476	11	340.349	8	0	50	.271	8	.229	5
82			min	0	39	-257.473	5	-340.351	2	0	1	-.271	2	-.229	11
83		3	max	1586	8	144.212	4	52.315	6	.058	10	.023	6	.045	10
84			min	-1131.047	2	-153.33	10	-46.111	12	-.058	4	-.015	12	-.04	5
85	M15	1	max	0	50	.447	11	.601	8	0	50	0	50	0	50
86			min	0	1	-.444	5	-.601	2	0	1	0	1	0	1
87		2	max	545.906	25	450.086	11	695.679	8	0	50	.449	8	.326	5
88			min	0	39	-450.083	5	-695.68	2	0	1	-.449	2	-.326	11
89		3	max	1981.252	7	91.795	5	146.903	2	.079	9	.145	2	.085	13
90			min	-1500.034	13	-96.948	11	-145.419	8	-.078	3	-.141	8	-.082	7
91	M16	1	max	0	50	.784	11	1.404	8	0	50	0	50	0	50
92			min	0	1	-.781	5	-1.403	2	0	1	0	1	0	1
93		2	max	825.086	25	496.342	11	1014.722	8	0	50	.612	8	.35	5
94			min	0	39	-496.339	5	-1014.721	2	0	1	-.612	2	-.35	11
95		3	max	2215.725	7	100.163	6	238.164	2	.092	9	.211	2	.154	13
96			min	-1504.855	13	-102.847	12	-238.126	8	-.091	3	-.209	8	-.151	7
97	M17	1	max	0	50	1.114	11	1.693	8	0	50	0	50	0	50
98			min	0	1	-1.111	5	-1.691	2	0	1	0	1	0	1
99		2	max	941.17	25	670.752	11	1061.411	8	0	50	.637	8	.439	5
100			min	0	39	-670.749	5	-1061.409	2	0	1	-.637	2	-.439	11
101		3	max	2123.384	6	117.722	5	234.424	2	.093	9	.194	13	.173	12
102			min	-1328.441	12	-119.958	11	-233.961	8	-.092	3	-.192	7	-.17	6
103	M18	1	max	0	50	.009	11	.014	8	0	50	0	50	0	50
104			min	0	1	-.009	5	-.014	2	0	1	0	1	0	1
105		2	max	433.422	23	371.822	11	569.12	8	.003	8	.447	8	.345	5
106			min	0	39	-371.817	5	-569.119	2	-.003	2	-.447	2	-.349	11
107		3	max	1393.92	6	54.922	3	280.095	2	.073	8	.155	2	.057	11
108			min	-1002.957	12	-60.337	9	-278.629	8	-.073	2	-.153	8	-.053	5
109	M19	1	max	0	50	.641	11	1.197	8	0	50	0	50	0	50
110			min	0	1	-.64	5	-1.195	2	0	1	0	1	0	1
111		2	max	730.966	25	465.96	11	879.155	8	0	50	.544	8	.335	5
112			min	0	39	-465.958	5	-879.153	2	0	1	-.544	2	-.335	11
113		3	max	1653.493	5	52.898	5	208.052	2	.086	8	.112	13	.092	11
114			min	-985.849	11	-55.589	11	-206.852	8	-.086	2	-.111	7	-.088	5
115	M20	1	max	0	50	.22	11	.37	8	0	50	0	50	0	50
116			min	0	1	-.219	5	-.369	2	0	1	0	1	0	1
117		2	max	402.97	25	356.259	11	555.128	8	0	50	.378	8	.278	5
118			min	0	39	-356.257	5	-555.127	2	0	1	-.378	2	-.278	11
119		3	max	1405.13	4	42.295	7	254.671	2	.067	8	.135	13	.056	11
120			min	-1032.649	10	-46.877	13	-253.757	8	-.066	2	-.134	7	-.052	5
121	M21	1	max	0	50	.658	11	1.01	8	0	50	0	50	0	50
122			min	0	1	-.657	5	-1.008	2	0	1	0	1	0	1
123		2	max	717.426	25	570.616	11	869.368	8	0	50	.538	8	.387	5
124			min	0	39	-570.615	5	-869.367	2	0	1	-.538	2	-.387	11
125		3	max	1891.059	4	121.906	4	180.745	2	.079	7	.125	2	.177	10

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
126			min	-1290.658	10	-124.084	10	-180.078	8	-.079	13	-.124	8	-.173	4
127	M22	1	max	0	50	.27	11	.354	8	0	50	0	50	0	50
128			min	0	1	-.27	5	-.353	2	0	1	0	1	0	1
129		2	max	365.066	25	257.429	11	340.393	8	0	50	.271	8	.229	5
130			min	0	39	-257.428	5	-340.391	2	0	1	-.271	2	-.229	11
131		3	max	1433.53	3	177.972	7	154.187	13	.058	7	.079	13	.106	12
132			min	-970.431	9	-182.753	13	-155.731	7	-.058	13	-.081	7	-.101	6
133	M23	1	max	0	50	.424	11	.597	8	0	50	0	50	0	50
134			min	0	1	-.423	5	-.596	2	0	1	0	1	0	1
135		2	max	545.906	25	450.062	11	695.676	8	0	50	.449	8	.326	5
136			min	0	39	-450.062	5	-695.674	2	0	1	-.449	2	-.326	11
137		3	max	1895.886	3	159.861	6	135.829	2	.056	6	.139	2	.124	11
138			min	-1409.715	9	-163.451	12	-136.427	8	-.056	12	-.14	8	-.121	5
139	M24	1	max	0	50	.774	11	1.368	8	0	50	0	50	0	50
140			min	0	1	-.774	5	-1.367	2	0	1	0	1	0	1
141		2	max	825.086	25	496.332	11	1014.686	8	0	50	.612	8	.35	5
142			min	0	39	-496.332	5	-1014.685	2	0	1	-.612	2	-.35	11
143		3	max	2509.406	2	166.881	5	229.964	2	.045	5	.281	2	.144	10
144			min	-1793.791	8	-168.918	11	-229.076	8	-.045	11	-.282	8	-.142	4
145	M25	1	max	3263.289	2	27.29	9	72.47	6	0	8	.146	12	.216	12
146			min	-3304.319	8	-27.567	3	-99.248	12	0	2	-.128	6	-.199	6
147		2	max	3256.71	2	28.963	13	86.027	6	0	8	.015	8	.019	2
148			min	-3297.741	8	-29.221	7	-85.691	12	0	2	-.024	2	-.028	8
149		3	max	3250.131	2	76.037	2	99.584	6	0	8	.133	5	.236	6
150			min	-3291.162	8	-76.293	8	-72.134	12	0	2	-.115	11	-.217	12
151	M26	1	max	3020.984	3	18.679	10	80.572	7	0	2	.156	12	.248	13
152			min	-3064.263	9	-18.925	4	-107.351	13	0	8	-.138	6	-.231	7
153		2	max	3014.401	3	31.385	2	94.129	7	0	2	.011	8	.026	2
154			min	-3057.68	9	-31.59	8	-93.793	13	0	8	-.02	2	-.035	8
155		3	max	3007.818	3	74.776	2	107.686	7	0	2	.135	6	.263	7
156			min	-3051.098	9	-74.982	8	-80.236	13	0	8	-.117	12	-.244	13
157	M27	1	max	2987.024	3	22.827	10	73.202	7	0	3	.155	13	.223	13
158			min	-3032.511	9	-23.101	4	-99.99	13	0	9	-.137	7	-.206	7
159		2	max	2978.032	3	22.478	2	86.759	7	0	3	.01	10	.022	2
160			min	-3023.519	9	-22.741	8	-86.433	13	0	9	-.019	4	-.031	8
161		3	max	2969.04	3	55.465	3	100.316	7	0	3	.127	6	.218	7
162			min	-3014.527	9	-55.728	9	-72.876	13	0	9	-.109	12	-.199	13
163	M28	1	max	3002.576	3	32.05	11	85.301	7	0	9	.154	13	.222	13
164			min	-3050.284	9	-32.369	5	-112.067	13	0	3	-.137	7	-.206	7
165		2	max	2993.584	3	22.047	2	98.858	7	0	9	.014	9	.015	6
166			min	-3041.292	9	-22.361	8	-98.51	13	0	3	-.023	3	-.024	12
167		3	max	2984.592	3	51.29	3	112.415	7	0	9	.176	7	.269	8
168			min	-3032.299	9	-51.601	9	-84.953	13	0	3	-.159	13	-.25	2
169	M29	1	max	2645.22	4	42.524	12	106.1	8	0	4	.193	2	.318	2
170			min	-2695.428	10	-42.793	6	-132.736	2	0	10	-.175	8	-.302	8
171		2	max	2651.803	4	30.755	2	119.657	8	0	4	.015	11	.023	3
172			min	-2702.011	10	-31.01	8	-119.179	2	0	10	-.024	5	-.032	9
173		3	max	2658.386	4	63.281	4	133.214	8	0	4	.188	7	.292	8
174			min	-2708.594	10	-63.517	10	-105.622	2	0	10	-.17	13	-.273	2
175	M30	1	max	2542.279	4	48.895	12	110.143	8	0	10	.193	2	.29	2
176			min	-2595.297	10	-49.26	6	-136.839	2	0	4	-.176	8	-.274	8
177		2	max	2544.688	4	26.203	3	123.7	8	0	10	.015	10	.016	6
178			min	-2597.706	10	-26.561	9	-123.282	2	0	4	-.024	4	-.025	12
179		3	max	2547.098	4	63.277	4	137.257	8	0	10	.209	8	.317	8
180			min	-2600.116	10	-63.625	10	-109.725	2	0	4	-.191	2	-.298	2
181	M31	1	max	2459.011	5	44.261	12	112.122	8	0	7	.214	2	.315	2
182			min	-2514.565	11	-44.56	6	-138.516	2	0	13	-.197	8	-.299	8

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
183		2	max	2452.432	5	27.128	3	125.679	8	0	7	.015	12	.02	4
184			min	-2507.986	11	-27.435	9	-124.959	2	0	13	-.024	6	-.029	10
185		3	max	2445.854	5	65.987	4	139.236	8	0	7	.204	8	.302	9
186			min	-2501.408	11	-66.275	10	-111.402	2	0	13	-.185	2	-.282	3
187	M32	1	max	2430.859	6	36.407	12	113.39	9	0	12	.211	3	.281	3
188			min	-2489.438	12	-36.868	6	-139.852	3	0	6	-.194	9	-.266	9
189		2	max	2424.276	6	23.756	3	126.948	9	0	12	.015	10	.015	7
190			min	-2482.856	12	-24.246	9	-126.295	3	0	6	-.024	4	-.024	13
191		3	max	2417.694	6	59.207	5	140.505	9	0	12	.226	8	.331	9
192			min	-2476.273	12	-59.659	11	-112.738	3	0	6	-.208	2	-.311	3
193	M33	1	max	2712.715	7	29.261	13	118.187	9	0	6	.23	3	.311	3
194			min	-2776.451	13	-29.61	7	-144.467	3	0	12	-.213	9	-.296	9
195		2	max	2721.707	7	24.729	4	131.744	9	0	6	.009	12	.019	6
196			min	-2785.443	13	-25.096	10	-130.91	3	0	12	-.018	6	-.028	12
197		3	max	2730.699	7	54.842	5	145.301	9	0	6	.227	9	.304	9
198			min	-2794.435	13	-55.177	11	-117.353	3	0	12	-.208	3	-.284	3
199	M34	1	max	3367.895	7	31.541	2	86.394	9	0	8	.181	3	.237	4
200			min	-3436.672	13	-31.892	8	-112.515	3	0	2	-.164	9	-.222	10
201		2	max	3376.887	7	18.539	5	99.952	9	0	8	.015	13	.011	7
202			min	-3445.664	13	-18.879	11	-98.958	3	0	2	-.024	7	-.02	13
203		3	max	3385.879	7	48.505	6	113.509	9	0	8	.194	9	.235	10
204			min	-3454.657	13	-48.825	12	-85.401	3	0	2	-.175	3	-.215	4
205	M35	1	max	3496.913	7	38.394	2	66.926	10	0	8	.137	4	.206	4
206			min	-3572.649	13	-38.999	8	-92.866	4	0	2	-.121	10	-.191	10
207		2	max	3509.821	8	16.814	6	80.483	10	0	8	.016	2	.014	7
208			min	-3587.552	2	-17.368	12	-79.309	4	0	2	-.025	8	-.023	13
209		3	max	3527.794	8	53.604	7	94.04	10	0	8	.148	9	.182	11
210			min	-3605.525	2	-54.17	13	-65.752	4	0	2	-.129	3	-.161	5
211	M36	1	max	3514.438	8	55.287	2	61.365	10	0	2	.121	5	.184	4
212			min	-3603.684	2	-54.679	8	-86.714	4	0	8	-.107	11	-.17	10
213		2	max	3521.017	8	11.199	4	74.922	10	0	2	.014	13	.025	8
214			min	-3610.262	2	-10.587	10	-73.157	4	0	8	-.022	7	-.035	2
215		3	max	3527.596	8	45.261	8	88.479	10	0	2	.157	10	.168	10
216			min	-3616.841	2	-44.653	2	-59.6	4	0	8	-.134	4	-.149	4
217	M37	1	max	3729.911	8	156.933	6	625.668	13	.002	3	.29	7	.436	6
218			min	-3773.125	2	-184.958	12	-727.829	7	-.002	9	-.227	13	-.401	12
219		2	max	3944.7	8	14.601	8	126.721	11	.001	9	.059	4	.041	5
220			min	-3928.927	2	-11.725	13	-122.972	5	-.001	3	-.071	10	-.049	11
221		3	max	3938.122	8	64.571	8	140.278	11	.001	9	.197	10	.22	12
222			min	-3922.348	2	-61.689	2	-109.414	5	-.001	3	-.169	4	-.199	6
223	M38	1	max	3719.623	8	28.13	3	72.333	12	0	2	.14	6	.203	6
224			min	-3722.921	2	-28.954	9	-98.439	6	0	8	-.123	12	-.19	12
225		2	max	3701.649	8	23.876	7	85.89	12	0	2	.016	2	.01	9
226			min	-3704.948	2	-24.644	13	-84.882	6	0	8	-.025	8	-.019	3
227		3	max	3683.676	8	64.366	8	99.447	12	0	2	.134	11	.235	13
228			min	-3686.975	2	-65.161	2	-71.325	6	0	8	-.116	5	-.214	7
229	M39	1	max	3271.066	9	25.026	5	90.62	13	0	8	.169	7	.264	7
230			min	-3281.898	3	-25.329	11	-116.841	7	0	2	-.152	13	-.249	13
231		2	max	3262.074	9	28.281	8	104.177	13	0	8	.009	3	.019	9
232			min	-3272.906	3	-28.542	2	-103.284	7	0	2	-.018	9	-.028	3
233		3	max	3253.082	9	60.277	8	117.734	13	0	8	.164	12	.272	13
234			min	-3263.914	3	-60.539	2	-89.727	7	0	2	-.145	6	-.252	7
235	M40	1	max	2926.474	9	34.212	6	107.847	13	0	3	.188	7	.292	7
236			min	-2942.106	3	-34.599	12	-134.338	7	0	9	-.171	13	-.276	13
237		2	max	2917.481	9	29.439	8	121.404	13	0	3	.012	3	.011	11
238			min	-2933.114	3	-29.805	2	-120.781	7	0	9	-.021	9	-.02	5
239		3	max	2908.489	9	57.049	9	134.961	13	0	3	.203	13	.308	13

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
240			min	-2924.122	3	-57.41	3	-107.224	7	0	9	-.185	7	-.288	7
241	M41	1	max	2429.279	10	46.105	6	123.316	2	0	11	.213	8	.352	8
242			min	-2450.326	4	-46.43	12	-149.869	8	0	5	-.196	2	-.336	2
243		2	max	2435.861	10	34.848	8	136.873	2	0	11	.014	5	.019	10
244			min	-2456.909	4	-35.158	2	-136.312	8	0	5	-.023	11	-.028	4
245		3	max	2442.444	10	63.766	10	150.43	2	0	11	.227	13	.343	2
246			min	-2463.491	4	-64.056	4	-122.755	8	0	5	-.209	7	-.323	8
247	M42	1	max	2370.982	11	49.95	6	114.561	2	0	7	.212	8	.327	8
248			min	-2396.388	5	-50.241	12	-141.166	8	0	13	-.194	2	-.311	2
249		2	max	2377.561	11	27.566	9	128.119	2	0	7	.014	5	.019	10
250			min	-2402.966	5	-27.853	3	-127.608	8	0	13	-.023	11	-.028	4
251		3	max	2384.14	11	63.953	10	141.676	2	0	7	.208	13	.304	2
252			min	-2409.545	5	-64.228	4	-114.051	8	0	13	-.19	7	-.285	8
253	M43	1	max	2743.609	12	42.612	6	79.161	2	0	12	.17	8	.239	8
254			min	-2771.871	6	-42.885	12	-105.808	8	0	6	-.153	2	-.223	2
255		2	max	2741.2	12	18.697	9	92.718	2	0	12	.017	6	.026	10
256			min	-2769.461	6	-18.988	3	-92.251	8	0	6	-.026	12	-.035	4
257		3	max	2738.79	12	60.096	11	106.275	2	0	12	.15	2	.212	3
258			min	-2767.052	6	-60.361	5	-78.694	8	0	6	-.132	8	-.192	9
259	M44	1	max	2790.583	12	39.543	6	59.937	3	0	5	.135	9	.17	8
260			min	-2820.901	6	-39.812	12	-86.613	9	0	11	-.118	3	-.153	2
261		2	max	2784	12	11.629	9	73.495	3	0	5	.012	5	.009	12
262			min	-2814.319	6	-11.919	3	-73.056	9	0	11	-.021	11	-.018	6
263		3	max	2777.417	12	50.556	11	87.052	3	0	5	.143	2	.193	3
264			min	-2807.736	6	-50.824	5	-59.499	9	0	11	-.125	8	-.174	9
265	M45	1	max	3016.935	13	30.726	6	43.903	3	0	13	.119	9	.149	9
266			min	-3049.144	7	-30.974	12	-70.531	9	0	7	-.101	3	-.133	3
267		2	max	3025.927	13	9.049	10	57.46	3	0	13	.016	7	.018	11
268			min	-3058.136	7	-9.316	4	-56.973	9	0	7	-.025	13	-.027	5
269		3	max	3034.92	13	43.299	12	71.017	3	0	13	.1	2	.124	4
270			min	-3067.128	7	-43.548	6	-43.416	9	0	7	-.082	8	-.105	10
271	M46	1	max	2929.203	13	37.862	7	38.017	3	0	7	.086	10	.124	9
272			min	-2963.642	7	-38.18	13	-64.661	9	0	13	-.068	4	-.108	3
273		2	max	2938.195	13	6.702	10	51.574	3	0	7	.008	6	.012	3
274			min	-2972.635	7	-7.018	4	-51.104	9	0	13	-.017	12	-.021	9
275		3	max	2947.188	13	36.094	13	65.131	3	0	7	.118	3	.135	4
276			min	-2981.627	7	-36.411	7	-37.547	9	0	13	-.1	9	-.116	10
277	M47	1	max	3062.329	13	36.295	8	60.645	4	0	8	.119	10	.176	10
278			min	-3098.807	7	-36.655	2	-87.362	10	0	2	-.101	4	-.16	4
279		2	max	3068.911	13	16.85	12	74.202	4	0	8	.01	7	.015	2
280			min	-3105.39	7	-17.186	6	-73.805	10	0	2	-.019	13	-.024	8
281		3	max	3075.494	13	54.958	13	87.759	4	0	8	.151	4	.186	5
282			min	-3111.972	7	-55.298	7	-60.248	10	0	2	-.133	10	-.167	11
283	M48	1	max	3160.868	2	33.429	9	68.784	5	0	2	.137	11	.208	11
284			min	-3199.636	8	-33.725	3	-95.467	11	0	8	-.119	5	-.192	5
285		2	max	3167.447	2	26.656	13	82.341	5	0	2	.016	8	.023	2
286			min	-3206.215	8	-26.91	7	-81.91	11	0	8	-.025	2	-.032	8
287		3	max	3174.026	2	70.65	2	95.899	5	0	2	.149	4	.213	6
288			min	-3212.794	8	-70.916	8	-68.353	11	0	8	-.131	10	-.194	12
289	M49	1	max	890.895	2	45.509	8	0	50	0	5	.05	13	.035	6
290			min	-912.763	8	-45.611	2	-44.591	15	0	11	-.032	7	-.017	12
291		2	max	884.317	2	11.528	4	7.856	8	0	5	.014	8	.009	2
292			min	-906.185	8	-11.621	10	-7.601	2	0	11	-.023	2	-.018	8
293		3	max	877.738	2	54.329	2	45.544	21	0	5	.04	3	.073	9
294			min	-899.606	8	-54.431	8	0	39	0	11	-.022	9	-.055	3
295	M50	1	max	891.559	2	47.328	8	0	50	0	7	.055	13	.042	7
296			min	-912.64	8	-47.489	2	-44.514	14	0	13	-.037	7	-.025	13

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
297		2	max	873.586	2	11.153	6	5.633	8	0	7	.012	8	.007	2
298			min	-894.667	8	-11.274	12	-5.311	2	0	13	-.021	2	-.016	8
299		3	max	855.612	2	43.073	3	45.546	20	0	7	.033	4	.054	9
300			min	-876.693	8	-43.214	9	0	39	0	13	-.015	10	-.035	3
301	M51	1	max	733.036	2	38.343	9	0	50	0	8	.058	2	.029	20
302			min	-753.641	8	-38.485	3	-44.755	14	0	2	-.04	8	-.004	2
303		2	max	708.484	2	7.285	6	10.851	8	0	8	.01	9	.007	4
304			min	-729.089	8	-7.389	12	-10.569	2	0	2	-.019	3	-.016	10
305		3	max	692.891	3	35.789	3	45.79	20	0	8	.039	6	.049	9
306			min	-715.911	9	-35.931	9	0	39	0	2	-.02	12	-.03	3
307	M52	1	max	489.799	4	28.98	10	1.307	8	0	5	.054	2	.029	14
308			min	-514.434	10	-29.06	4	-45.042	15	0	11	-.036	8	-.01	8
309		2	max	498.792	4	10.503	5	14.864	8	0	5	.009	10	.008	3
310			min	-523.426	10	-10.586	11	-14.614	2	0	11	-.018	4	-.017	9
311		3	max	507.784	4	45.213	4	45.952	21	0	5	.049	6	.073	10
312			min	-532.418	10	-45.294	10	-1.057	2	0	11	-.031	12	-.054	4
313	M53	1	max	515.234	4	42.114	10	0	50	0	9	.058	3	.029	21
314			min	-539.3	10	-42.269	4	-44.65	15	0	3	-.04	9	-.009	4
315		2	max	521.817	4	11.275	7	10.668	8	0	9	.011	11	.012	6
316			min	-545.883	10	-11.403	13	-10.303	2	0	3	-.02	5	-.021	12
317		3	max	528.4	4	48.231	5	45.915	21	0	9	.058	7	.051	10
318			min	-552.466	10	-48.359	11	0	39	0	3	-.04	13	-.032	4
319	M54	1	max	491.301	5	44.621	11	.019	9	0	7	.062	3	.029	24
320			min	-515.605	11	-44.72	5	-44.987	15	0	13	-.045	9	-.011	6
321		2	max	497.88	5	10.688	7	13.576	9	0	7	.013	11	.011	4
322			min	-522.183	11	-10.793	13	-13.294	3	0	13	-.022	5	-.02	10
323		3	max	504.458	5	55.22	5	46.08	21	0	7	.063	7	.064	11
324			min	-528.762	11	-55.319	11	0	39	0	13	-.044	13	-.046	5
325	M55	1	max	519.744	5	48.81	11	0	50	0	9	.066	3	.03	11
326			min	-543.272	11	-48.986	5	-44.656	15	0	3	-.049	9	-.013	5
327		2	max	513.165	5	10.514	8	13.323	9	0	9	.014	11	.012	6
328			min	-536.693	11	-10.689	2	-12.875	3	0	3	-.023	5	-.021	12
329		3	max	506.587	5	50.954	5	46.168	21	0	9	.061	7	.055	11
330			min	-530.114	11	-51.13	11	0	39	0	3	-.042	13	-.036	5
331	M56	1	max	670.18	6	41.842	11	0	50	0	8	.065	3	.03	22
332			min	-691.915	12	-41.921	5	-44.647	16	0	2	-.048	9	-.002	5
333		2	max	676.205	7	14.804	8	11.448	9	0	8	.011	11	.011	4
334			min	-694.697	13	-14.88	2	-11.165	3	0	2	-.02	5	-.02	10
335		3	max	682.788	7	50.013	6	45.8	22	0	8	.061	7	.064	12
336			min	-701.28	13	-50.064	12	0	39	0	2	-.042	13	-.045	6
337	M57	1	max	705.194	6	37.505	11	0	50	0	9	.059	4	.037	10
338			min	-724.305	12	-37.673	5	-44.377	16	0	3	-.042	10	-.02	4
339		2	max	696.202	6	18.093	9	6.378	10	0	9	.01	12	.005	6
340			min	-715.313	12	-18.229	3	-5.957	4	0	3	-.019	6	-.015	24
341		3	max	698.665	7	44.825	7	45.944	22	0	9	.063	8	.056	13
342			min	-715.858	13	-44.947	13	0	39	0	3	-.045	2	-.038	7
343	M58	1	max	654.258	7	31.864	12	0	50	0	11	.049	4	.029	25
344			min	-667.621	13	-32.001	6	-44.635	16	0	5	-.032	10	-.011	7
345		2	max	663.25	7	10.686	9	11.761	9	0	11	.01	13	.008	7
346			min	-676.613	13	-10.808	3	-11.32	3	0	5	-.019	7	-.017	13
347		3	max	672.242	7	42.783	7	46.294	22	0	11	.064	9	.038	13
348			min	-685.605	13	-42.91	13	0	39	0	5	-.046	3	-.019	7
349	M59	1	max	728.163	7	42.375	13	2.821	9	0	12	.044	5	.058	2
350			min	-733.299	13	-42.607	7	-44.724	16	0	6	-.026	11	-.041	8
351		2	max	734.746	7	4.103	11	16.378	9	0	12	.012	2	.011	8
352			min	-739.882	13	-4.315	5	-15.881	3	0	6	-.021	8	-.019	2
353		3	max	741.328	7	44.339	8	46.642	22	0	12	.068	9	.034	24

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
354			min	-746.465	13	-44.576	2	-2.324	3	0	6	-.049	3	-.013	5
355	M60	1	max	887.91	8	53.452	2	7.183	10	0	9	.046	6	.064	3
356			min	-874.647	2	-53.414	8	-44.049	16	0	3	-.029	12	-.048	9
357		2	max	894.489	8	4.214	13	20.74	10	0	9	.017	2	.026	8
358			min	-881.226	2	-4.206	7	-19.703	4	0	3	-.025	8	-.034	2
359		3	max	901.067	8	46.525	8	48.073	22	0	9	.068	9	.041	10
360			min	-887.804	2	-46.487	2	-6.146	4	0	3	-.048	3	-.021	4
361	M61	1	max	826.628	8	185.311	9	397.369	3	.001	2	.186	9	.345	9
362			min	-825.153	2	-178.678	3	-542.157	9	-.001	8	-.116	3	-.268	3
363		2	max	645.35	8	45.87	2	82.81	10	0	9	.034	4	.068	3
364			min	-712.732	2	-46.708	8	-76.254	4	0	3	-.046	10	-.081	9
365		3	max	638.771	8	3.262	8	96.367	10	0	9	.108	10	.128	9
366			min	-706.154	2	-4.1	2	-62.696	4	0	3	-.082	4	-.099	3
367	M62	1	max	673.74	9	39.36	2	0	50	0	10	.045	6	.029	16
368			min	-719.149	3	-39.499	8	-44.811	17	0	4	-.027	12	-.008	10
369		2	max	667.157	9	7.525	10	10.528	12	0	10	.013	2	.017	8
370			min	-712.567	3	-7.677	4	-10.244	6	0	4	-.022	8	-.026	2
371		3	max	660.574	9	47.917	9	46.035	23	0	10	.055	10	.045	2
372			min	-705.984	3	-48.055	3	0	39	0	4	-.037	4	-.026	8
373	M63	1	max	728.621	9	41.919	3	0	50	0	12	.046	7	.061	3
374			min	-762.404	3	-42.015	9	-44.427	16	0	6	-.029	13	-.044	9
375		2	max	719.629	9	12.036	13	9.407	10	0	12	.01	3	.004	9
376			min	-753.411	3	-12.134	7	-9.013	4	0	6	-.019	9	-.015	15
377		3	max	710.637	9	33.686	10	45.897	22	0	12	.052	11	.033	17
378			min	-744.419	3	-33.755	4	0	39	0	6	-.034	5	0	11
379	M64	1	max	635.675	10	36.467	3	0	50	0	11	.038	7	.046	3
380			min	-664.653	4	-36.587	9	-44.472	16	0	5	-.021	13	-.029	9
381		2	max	644.667	10	13.701	13	5.42	10	0	11	.009	4	.006	9
382			min	-673.645	4	-13.834	7	-5.143	5	0	5	-.018	10	-.015	16
383		3	max	653.659	10	41.509	11	45.723	22	0	11	.058	11	.045	6
384			min	-682.637	4	-41.601	5	0	39	0	5	-.04	5	-.027	12
385	M65	1	max	663.716	9	47.211	4	0	50	0	2	.036	8	.075	3
386			min	-688.27	4	-47.364	10	-44.658	16	0	8	-.019	2	-.058	9
387		2	max	669.888	10	18.428	2	9.861	10	0	2	.011	5	.011	11
388			min	-694.852	4	-18.589	8	-9.502	4	0	8	-.02	11	-.019	5
389		3	max	676.471	10	47.112	11	45.953	22	0	2	.061	12	.057	7
390			min	-701.435	4	-47.236	5	0	39	0	8	-.043	6	-.038	13
391	M66	1	max	710.204	10	50.347	4	0	50	0	13	.039	9	.069	3
392			min	-732.598	4	-50.473	10	-44.544	16	0	7	-.022	3	-.052	9
393		2	max	712.614	10	17.68	2	7.44	10	0	13	.013	5	.01	11
394			min	-735.008	4	-17.809	8	-7.133	4	0	7	-.022	11	-.019	5
395		3	max	715.023	10	53.864	12	45.683	22	0	13	.064	12	.058	7
396			min	-737.417	4	-53.952	6	0	39	0	7	-.046	6	-.04	13
397	M67	1	max	667.602	10	53.786	5	0	50	0	4	.044	9	.064	4
398			min	-688.446	4	-53.907	11	-44.686	18	0	10	-.026	3	-.047	10
399		2	max	658.614	10	9.93	3	8.742	12	0	4	.014	5	.013	12
400			min	-679.458	4	-10.054	9	-8.511	6	0	10	-.023	11	-.022	6
401		3	max	649.626	10	46.033	11	45.766	24	0	4	.056	12	.032	18
402			min	-670.47	4	-46.153	5	0	39	0	10	-.038	6	-.002	12
403	M68	1	max	465.012	11	45.135	5	0	50	0	13	.043	10	.047	5
404			min	-487.714	5	-45.231	11	-44.495	18	0	7	-.025	4	-.029	11
405		2	max	447.039	11	10.217	2	4.373	13	0	13	.011	5	.01	10
406			min	-469.741	5	-10.315	8	-4.15	7	0	7	-.02	11	-.019	4
407		3	max	429.066	11	44.85	12	45.427	24	0	13	.051	13	.042	7
408			min	-451.768	5	-44.932	6	0	39	0	7	-.033	7	-.024	13
409	M69	1	max	430.978	12	40.867	6	0	50	0	6	.037	10	.049	6
410			min	-454.283	6	-40.992	12	-44.521	19	0	12	-.019	4	-.032	12

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
411		2	max	421.986	12	6.26	4	7.375	2	0	6	.01	6	.012	13
412			min	-445.29	6	-6.377	10	-7.088	8	0	12	-.019	12	-.021	7
413		3	max	412.994	12	33.282	12	45.637	25	0	6	.041	13	.032	18
414			min	-436.298	6	-33.406	6	0	39	0	12	-.023	7	-.002	10
415	M70	1	max	643.931	2	31.032	7	0	50	0	2	.032	11	.029	19
416			min	-663.925	8	-31.117	13	-44.379	23	0	8	-.014	5	-.006	13
417		2	max	668.483	2	7.887	2	4.193	5	0	2	.009	7	.005	12
418			min	-688.477	8	-7.982	8	-3.96	11	0	8	-.018	13	-.015	18
419		3	max	693.035	2	43.156	13	45.312	17	0	2	.046	2	.053	7
420			min	-713.029	8	-43.242	7	0	39	0	8	-.028	8	-.035	13
421	M71	1	max	833.766	2	32.385	7	0	50	0	2	.033	12	.034	4
422			min	-854.432	8	-32.45	13	-44.67	14	0	8	-.015	6	-.017	10
423		2	max	851.739	2	17.235	3	9.358	8	0	2	.011	8	.005	13
424			min	-872.405	8	-17.311	9	-9.169	2	0	8	-.02	2	-.015	19
425		3	max	869.712	2	58.466	2	45.581	20	0	2	.048	2	.092	8
426			min	-890.378	8	-58.523	8	0	39	0	8	-.029	8	-.074	2
427	M72	1	max	871.57	2	42.823	7	0	50	0	6	.043	13	.04	5
428			min	-893.272	8	-42.958	13	-44.617	15	0	12	-.025	7	-.023	11
429		2	max	878.149	2	14	4	8	9	0	6	.014	8	.011	2
430			min	-899.851	8	-14.107	10	-7.719	3	0	12	-.023	2	-.019	8
431		3	max	884.728	2	57.65	2	45.672	21	0	6	.045	3	.078	9
432			min	-906.429	8	-57.773	8	0	39	0	12	-.027	9	-.06	3
433	M73	1	max	3248.916	8	158.422	2	80.885	9	.001	5	.125	8	.43	2
434			min	-3235.044	2	-144.488	8	-79.603	3	-.001	11	-.132	2	-.427	8
435		2	max	3271.293	8	137.986	2	78.774	8	.001	5	.033	8	.103	2
436			min	-3245.273	2	-139.844	8	-77.531	2	-.001	11	-.029	2	-.106	8
437		3	max	3293.669	8	117.549	2	89.52	7	.001	5	.051	3	.209	7
438			min	-3255.502	2	-135.2	8	-88.258	13	-.001	11	-.059	9	-.197	13
439	M74	1	max	3281.613	8	166.21	2	84.766	9	.001	6	.134	8	.44	2
440			min	-3267.383	2	-152.219	8	-83.564	3	-.001	12	-.141	2	-.437	8
441		2	max	3304.301	8	145.533	2	84.646	8	.001	6	.036	8	.098	3
442			min	-3277.923	2	-147.335	8	-83.451	2	-.001	12	-.032	2	-.101	9
443		3	max	3326.99	8	124.856	2	93.959	7	.001	6	.05	3	.236	8
444			min	-3288.464	2	-142.451	8	-92.722	13	-.001	12	-.058	9	-.224	2
445	M75	1	max	2546.524	9	120.425	3	62.683	9	.001	6	.083	9	.305	3
446			min	-2530.796	3	-106.387	9	-61.521	3	-.001	12	-.09	3	-.302	9
447		2	max	2573.322	9	96.587	3	64.417	8	.001	6	.024	9	.06	3
448			min	-2545.446	3	-98.342	9	-63.233	2	-.001	12	-.02	3	-.065	9
449		3	max	2600.12	9	74.066	2	76.683	8	.001	6	.03	5	.185	8
450			min	-2560.096	3	-91.658	8	-75.498	2	-.001	12	-.038	11	-.174	2
451	M76	1	max	1842.425	9	78.206	3	38.31	9	.001	7	.036	9	.176	3
452			min	-1825.044	3	-64.278	9	-37.066	3	-.001	13	-.042	3	-.173	9
453		2	max	1869.892	9	53.854	3	49.959	8	.001	7	.01	10	.027	4
454			min	-1840.363	3	-55.718	9	-48.695	2	-.001	13	-.006	4	-.031	10
455		3	max	1897.359	9	29.578	2	69.714	8	.001	7	.031	7	.144	8
456			min	-1855.682	3	-47.274	8	-68.45	2	-.001	13	-.039	13	-.133	2
457	M77	1	max	2424.923	10	123.144	3	55.301	10	.002	7	.094	9	.303	4
458			min	-2407.639	4	-109.237	9	-54.061	4	-.002	13	-.1	3	-.3	10
459		2	max	2451.721	10	100.592	3	65.954	9	.002	7	.024	10	.063	4
460			min	-2422.289	4	-102.477	9	-64.672	3	-.002	13	-.02	4	-.067	10
461		3	max	2478.518	10	78.04	3	83.129	8	.002	7	.033	6	.2	9
462			min	-2436.939	4	-95.718	9	-81.803	2	-.002	13	-.041	12	-.188	3
463	M78	1	max	1873.569	10	84.627	4	36.032	10	.002	8	.05	10	.196	4
464			min	-1855.056	4	-70.617	10	-34.796	4	-.002	2	-.057	4	-.193	10
465		2	max	1897.422	10	63.055	4	54.557	9	.002	8	.013	10	.039	5
466			min	-1866.761	4	-64.837	10	-53.273	3	-.002	2	-.008	4	-.043	11
467		3	max	1921.275	10	41.483	4	79.418	8	.002	8	.039	7	.167	9

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
468			min	-1878.466	4	-59.057	10	-78.119	2	-.002	2	-.047	13	-.155	3
469	M79	1	max	2032.743	11	89.564	5	40.695	11	.002	8	.064	11	.221	5
470			min	-2013.169	5	-75.789	11	-39.318	5	-.002	2	-.071	5	-.218	11
471		2	max	2055.12	11	69.128	5	49.01	10	.002	8	.017	11	.058	6
472			min	-2023.397	5	-71.144	11	-47.579	4	-.002	2	-.013	5	-.062	12
473		3	max	2077.496	11	48.98	4	73.599	9	.002	8	.043	7	.159	9
474			min	-2033.626	5	-66.841	10	-72.11	3	-.002	2	-.051	13	-.147	3
475	M80	1	max	1844.408	12	83.413	5	36.801	11	.002	8	.058	12	.199	5
476			min	-1822.498	6	-69.823	11	-35.329	5	-.002	2	-.065	6	-.197	11
477		2	max	1868.261	12	62.737	5	48.799	10	.002	8	.014	12	.055	7
478			min	-1834.203	6	-64.939	11	-47.262	4	-.002	2	-.01	6	-.059	13
479		3	max	1892.114	12	42.06	5	72.726	9	.002	8	.049	8	.15	10
480			min	-1845.908	6	-60.055	11	-71.142	3	-.002	2	-.058	2	-.137	4
481	M81	1	max	2635.134	12	133.378	6	59.519	12	.002	9	.109	12	.349	6
482			min	-2614.207	6	-119.678	12	-58.044	6	-.002	3	-.115	6	-.346	12
483		2	max	2661.932	12	109.54	6	56.733	12	.002	9	.025	12	.105	7
484			min	-2628.857	6	-111.633	12	-55.257	6	-.002	3	-.022	6	-.108	13
485		3	max	2688.73	12	85.703	6	68.806	11	.002	9	.063	8	.166	11
486			min	-2643.507	6	-103.587	12	-67.265	5	-.002	3	-.072	2	-.153	5
487	M82	1	max	2842.059	13	133.018	7	57.262	13	.002	9	.114	13	.356	7
488			min	-2820.221	7	-119.27	13	-55.823	7	-.002	3	-.12	7	-.354	13
489		2	max	2869.526	13	108.666	7	55.667	12	.002	9	.025	13	.107	8
490			min	-2835.541	7	-110.71	13	-54.208	6	-.002	3	-.021	7	-.11	2
491		3	max	2896.993	13	84.314	7	66.361	11	.002	9	.069	8	.145	12
492			min	-2850.86	7	-102.15	13	-64.82	5	-.002	3	-.077	2	-.133	6
493	M83	1	max	2682.475	13	109.351	7	36.8	13	.002	10	.097	13	.272	7
494			min	-2659.557	7	-95.587	13	-35.308	7	-.002	4	-.103	7	-.27	13
495		2	max	2709.273	13	85.513	7	45.535	12	.002	10	.02	2	.084	8
496			min	-2674.207	7	-87.542	13	-44.028	6	-.002	4	-.015	8	-.088	2
497		3	max	2736.071	13	61.676	7	66.32	11	.002	10	.056	9	.131	12
498			min	-2688.857	7	-79.497	13	-64.751	5	-.002	4	-.065	3	-.118	6
499	M84	1	max	2165.044	2	62.611	7	10.694	2	.001	10	.054	2	.129	7
500			min	-2137.038	8	-49.01	13	-9.222	8	-.001	4	-.06	8	-.127	13
501		2	max	2187.732	2	41.039	7	33.269	11	.001	10	.011	2	.043	8
502			min	-2147.579	8	-43.23	13	-31.8	5	-.001	4	-.006	8	-.047	2
503		3	max	2210.421	2	19.466	7	65.161	11	.001	10	.042	10	.114	11
504			min	-2158.119	8	-37.45	13	-63.691	5	-.001	4	-.051	4	-.101	5
505	M85	1	max	2725.72	2	138.343	8	68.44	2	.001	11	.104	2	.387	8
506			min	-2729.257	8	-125.688	2	-65.148	8	-.001	5	-.112	8	-.389	2
507		2	max	2748.096	2	117.906	8	74.208	13	.001	11	.024	2	.107	8
508			min	-2739.486	8	-121.044	2	-70.992	7	-.001	5	-.02	8	-.111	2
509		3	max	2770.473	2	97.469	8	91.075	13	.001	11	.058	9	.189	13
510			min	-2749.714	8	-116.4	2	-87.859	7	-.001	5	-.065	3	-.173	7
511	M86	1	max	2574.295	2	96.808	8	33.848	3	.001	11	.085	2	.231	8
512			min	-2571.935	8	-82.267	2	-33.109	9	-.001	5	-.092	8	-.226	2
513		2	max	2596.983	2	76.131	8	42.037	13	.001	11	.02	3	.062	9
514			min	-2582.475	8	-77.383	2	-41.239	7	-.001	5	-.016	9	-.065	3
515		3	max	2619.672	2	55.454	8	65.992	12	.001	11	.045	10	.134	13
516			min	-2593.016	8	-72.499	2	-65.171	6	-.001	5	-.053	4	-.123	7
517	M87	1	max	2926.079	3	131.748	8	52.073	3	.002	12	.118	3	.327	9
518			min	-2920.41	9	-117.817	2	-50.575	9	-.002	6	-.125	9	-.324	3
519		2	max	2952.877	3	110.898	8	60.455	2	.002	12	.028	3	.084	9
520			min	-2935.06	9	-112.76	2	-58.951	8	-.002	6	-.024	9	-.088	3
521		3	max	2979.675	3	90.049	8	79.698	13	.002	12	.05	10	.179	13
522			min	-2949.71	9	-107.703	2	-78.169	7	-.002	6	-.058	4	-.167	7
523	M88	1	max	2492.149	3	116.451	9	40.794	3	.002	13	.1	3	.279	9
524			min	-2486.878	9	-102.173	3	-39.608	9	-.002	7	-.107	9	-.275	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
525		2	max	2519.616	3	92.099	9	51.941	2	.002	13	.022	3	.068	10
526			min	-2502.197	9	-93.613	3	-50.722	8	-.002	7	-.018	9	-.072	4
527		3	max	2547.083	3	67.747	9	71.696	2	.002	13	.041	11	.162	2
528			min	-2517.516	9	-85.053	3	-70.477	8	-.002	7	-.049	5	-.15	8
529	M89	1	max	2641.672	4	130.924	9	45.407	4	.002	13	.124	3	.322	10
530			min	-2633.774	10	-117.196	3	-43.981	10	-.002	7	-.131	9	-.319	4
531		2	max	2668.47	4	108.372	9	55.546	3	.002	13	.027	3	.085	10
532			min	-2648.424	10	-110.437	3	-54.071	9	-.002	7	-.023	9	-.088	4
533		3	max	2695.268	4	85.82	9	75.026	2	.002	13	.048	11	.176	3
534			min	-2663.074	10	-103.677	3	-73.495	8	-.002	7	-.057	5	-.163	9
535	M90	1	max	2095.421	4	95.859	10	28.687	5	.002	2	.091	4	.217	10
536			min	-2085.887	10	-82.094	4	-27.372	11	-.002	8	-.098	10	-.214	4
537		2	max	2119.274	4	74.287	10	37.09	3	.002	2	.019	4	.061	11
538			min	-2097.592	10	-76.314	4	-35.672	9	-.002	8	-.015	10	-.065	5
539		3	max	2143.127	4	52.714	10	61.907	3	.002	2	.037	12	.135	3
540			min	-2109.297	10	-70.534	4	-60.49	9	-.002	8	-.046	6	-.123	9
541	M91	1	max	2121.416	5	89.708	11	36.577	6	.002	2	.082	5	.217	11
542			min	-2111.107	11	-75.756	5	-35.396	12	-.002	8	-.088	11	-.214	5
543		2	max	2143.793	5	69.272	11	31.542	4	.002	2	.018	5	.066	12
544			min	-2121.336	11	-71.112	5	-30.289	10	-.002	8	-.014	11	-.07	6
545		3	max	2166.169	5	48.835	11	54.539	3	.002	2	.043	12	.106	3
546			min	-2131.565	11	-66.468	5	-53.222	9	-.002	8	-.051	6	-.094	9
547	M92	1	max	1685.904	6	54.071	11	22.244	7	.001	2	.042	6	.115	12
548			min	-1674.3	12	-40.11	5	-21.073	13	-.001	8	-.048	12	-.113	6
549		2	max	1709.757	6	33.394	11	20.939	4	.001	2	.01	7	.037	12
550			min	-1686.005	12	-35.225	5	-19.72	10	-.001	8	-.006	13	-.041	6
551		3	max	1733.61	6	12.717	11	50.244	3	.001	2	.035	2	.081	3
552			min	-1697.71	12	-31.13	17	-48.992	9	-.001	8	-.043	8	-.069	9
553	M93	1	max	1988.714	6	78.906	12	36.398	7	.001	3	.064	6	.184	13
554			min	-1977.19	12	-64.799	6	-35.294	13	-.001	9	-.07	12	-.181	7
555		2	max	2015.512	6	55.068	12	24.512	6	.001	3	.014	7	.054	13
556			min	-1991.84	12	-56.753	6	-23.432	12	-.001	9	-.01	13	-.059	7
557		3	max	2042.31	6	31.23	12	40.099	4	.001	3	.036	2	.072	5
558			min	-2006.491	12	-48.708	6	-38.926	10	-.001	9	-.044	8	-.061	11
559	M94	1	max	1353.712	7	32.728	12	8.238	9	0	3	.015	6	.041	11
560			min	-1340.838	13	-18.601	6	-7.071	3	0	9	-.022	12	-.038	5
561		2	max	1381.179	7	12.132	10	20.37	4	0	3	.007	21	.008	13
562			min	-1356.157	13	-13.844	4	-19.224	10	0	9	-.003	4	-.013	7
563		3	max	1408.646	7	7.068	8	47.36	4	0	3	.024	4	.076	3
564			min	-1371.476	13	-29.562	16	-46.214	10	0	9	-.032	10	-.065	9
565	M95	1	max	2256.543	7	95.438	13	43.216	8	.001	4	.074	7	.231	13
566			min	-2243.659	13	-81.38	7	-41.987	2	-.001	10	-.081	13	-.228	7
567		2	max	2283.341	7	71.6	13	38.355	7	.001	4	.016	8	.059	2
568			min	-2258.31	13	-73.335	7	-37.168	13	-.001	10	-.012	2	-.063	8
569		3	max	2310.139	7	47.762	13	52.759	6	.001	4	.033	3	.104	6
570			min	-2272.96	13	-65.289	7	-51.571	12	-.001	10	-.041	9	-.092	12
571	M96	1	max	3188.992	8	159.902	2	80.993	8	.001	4	.132	7	.441	2
572			min	-3176.097	2	-145.992	8	-79.703	2	-.001	10	-.139	13	-.438	8
573		2	max	3211.681	8	139.225	2	75.376	8	.001	4	.033	8	.113	2
574			min	-3186.637	2	-141.107	8	-74.087	2	-.001	10	-.03	2	-.116	8
575		3	max	3234.369	8	118.549	2	85.934	7	.001	4	.054	3	.206	7
576			min	-3197.178	2	-136.223	8	-84.66	13	-.001	10	-.063	9	-.194	13
577	M97	1	max	1394.603	2	141.298	8	69.448	2	.001	10	.126	2	.412	8
578			min	-1370.543	8	-138.144	2	-61.279	7	-.001	4	-.129	8	-.429	2
579		2	max	1416.743	2	121.46	7	86.799	13	.001	10	.036	3	.14	8
580			min	-1380.536	8	-132.987	13	-78.889	7	-.001	4	-.033	9	-.138	2
581		3	max	1438.884	2	103.434	7	109.702	12	.001	10	.045	9	.239	12

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[l...	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Moment[k-ft]	LC	z-z Mom...	LC
582			min	-1390.528	8	-130.109	13	-101.947	6	-.001	4	-.059	3	-.2	6
583	M98	1	max	0	50	.355	11	.555	8	0	50	0	50	0	50
584			min	0	1	-.345	5	-.549	2	0	1	0	1	0	1
585		2	max	48.244	25	39.379	11	39.579	8	0	50	.075	8	.074	5
586			min	0	39	-39.369	5	-39.573	2	0	1	-.075	2	-.075	11
587		3	max	0	50	0	4	0	2	0	50	0	50	0	50
588			min	0	1	0	22	0	8	0	1	0	1	0	1
589	M99	1	max	0	50	.005	23	.005	20	0	50	0	7	0	10
590			min	0	1	-.003	17	-.005	14	0	1	0	8	0	3
591		2	max	39.898	23	21.484	11	21.512	8	.002	2	.009	8	.01	5
592			min	0	39	-21.482	5	-21.512	2	-.002	8	-.009	2	-.009	11
593		3	max	0	50	.001	17	.002	14	0	50	0	7	0	11
594			min	0	1	-.002	23	-.002	20	0	1	0	13	0	5
595	M100	1	max	0	50	.005	23	.005	20	0	50	0	7	0	5
596			min	0	1	-.004	17	-.005	14	0	1	0	3	0	3
597		2	max	39.898	24	21.463	11	21.522	8	.002	2	.009	8	.01	5
598			min	0	39	-21.461	5	-21.522	2	-.002	8	-.009	2	-.009	11
599		3	max	0	50	.002	17	.003	14	0	50	0	3	0	5
600			min	0	1	-.003	23	-.002	20	0	1	0	6	0	6
601	M101	1	max	12.634	11	0	50	12.606	8	0	8	0	8	0	5
602			min	-12.604	5	-16.33	20	-12.586	2	0	2	0	2	0	11
603		2	max	12.634	11	0	50	12.606	8	0	8	.001	8	.001	17
604			min	-12.604	5	-16.33	20	-12.586	2	0	2	-.001	2	0	39
605		3	max	12.634	11	0	50	12.606	8	0	8	.002	8	.003	17
606			min	-12.604	5	-16.33	20	-12.586	2	0	2	-.002	2	0	39
607	M102	1	max	30.121	5	51.466	20	30.126	2	.031	2	.003	8	.033	11
608			min	-30.136	11	0	39	-30.125	8	-.031	8	-.003	2	-.029	5
609		2	max	30.121	5	51.466	20	30.126	2	.031	2	0	8	.031	11
610			min	-30.136	11	0	39	-30.125	8	-.031	8	0	2	-.03	5
611		3	max	30.121	5	51.466	20	30.126	2	.031	2	.002	2	.03	11
612			min	-30.136	11	0	39	-30.125	8	-.031	8	-.002	8	-.032	5
613	M103	1	max	12.604	11	0	50	12.595	8	0	8	0	7	0	5
614			min	-12.573	5	-16.33	20	-12.599	2	0	2	0	9	0	11
615		2	max	12.604	11	0	50	12.595	8	0	8	.001	8	.001	17
616			min	-12.573	5	-16.33	20	-12.599	2	0	2	-.001	2	0	39
617		3	max	12.604	11	0	50	12.595	8	0	8	.002	8	.003	17
618			min	-12.573	5	-16.33	20	-12.599	2	0	2	-.002	2	0	39
619	M104	1	max	30.09	5	51.466	20	30.109	2	.031	2	.003	8	.033	11
620			min	-30.09	11	0	39	-30.105	8	-.031	8	-.003	2	-.029	5
621		2	max	30.09	5	51.466	20	30.109	2	.031	2	0	8	.031	11
622			min	-30.09	11	0	39	-30.105	8	-.031	8	0	2	-.03	5
623		3	max	30.09	5	51.466	20	30.109	2	.031	2	.002	2	.03	11
624			min	-30.09	11	0	39	-30.105	8	-.031	8	-.002	8	-.032	5

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
1	M1	1	max	0	50	.001	11	.002	8	0	50	0	50	0	50	0	50
2			min	0	1	-.001	5	-.002	2	0	1	0	1	0	1	0	1
3		2	max	.509	25	.684	11	1.169	8	4.497	11	4.497	5	6.842	8	6.842	2
4			min	0	39	-.684	5	-1.169	2	-4.497	5	-4.497	11	-6.842	2	-6.842	8
5		3	max	1.553	2	.202	5	.254	2	1.521	4	1.539	10	3.151	2	3.175	8
6			min	-1.096	8	-.203	11	-.254	8	-1.539	10	-1.521	4	-3.175	8	-3.151	2
7	M2	1	max	0	50	.001	11	.002	8	0	50	0	50	0	50	0	50
8			min	0	1	-.001	5	-.002	2	0	1	0	1	0	1	0	1
9		2	max	.538	25	.737	11	1.25	8	4.751	11	4.751	5	7.232	8	7.232	2

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
10			min	0	39	-.737	5	-1.25	2	-4.751	5	-4.751	11	-7.232	2	-7.232	8
11		3	max	1.534	2	.174	4	.301	2	1.38	5	1.389	11	3.586	2	3.612	8
12			min	-1.068	8	-.174	10	-.301	8	-1.389	11	-1.38	5	-3.612	8	-3.586	2
13	M3	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
14			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
15		2	max	.25	25	.443	11	.69	8	3.311	11	3.311	5	4.497	8	4.497	2
16			min	0	39	-.443	5	-.69	2	-3.311	5	-3.311	11	-4.497	2	-4.497	8
17		3	max	1.031	13	.211	4	.147	2	1.533	4	1.525	10	1.599	2	1.645	8
18			min	-.797	7	-.21	10	-.15	8	-1.525	10	-1.533	4	-1.645	8	-1.599	2
19	M4	1	max	0	50	0	10	0	8	0	50	0	50	0	50	0	50
20			min	0	1	0	4	0	2	0	1	0	1	0	1	0	1
21		2	max	.046	25	.07	11	.07	8	1.519	11	1.519	5	1.519	8	1.519	2
22			min	0	39	-.07	5	-.07	2	-1.519	5	-1.519	11	-1.519	2	-1.519	8
23		3	max	.604	13	.261	2	.203	4	1.83	2	1.804	8	1.352	4	1.406	10
24			min	-.461	7	-.258	8	-.208	10	-1.804	8	-1.83	2	-1.406	10	-1.352	4
25	M5	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
26			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
27		2	max	.247	25	.44	11	.685	8	3.297	11	3.297	5	4.476	8	4.476	2
28			min	0	39	-.44	5	-.685	2	-3.297	5	-3.297	11	-4.476	2	-4.476	8
29		3	max	.914	12	.069	5	.234	3	.947	6	.921	12	1.774	3	1.823	9
30			min	-.682	6	-.066	11	-.238	9	-.921	12	-.947	6	-1.823	9	-1.774	3
31	M6	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
32			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
33		2	max	.227	25	.32	11	.423	8	2.723	11	2.723	5	3.222	8	3.222	2
34			min	0	39	-.32	5	-.423	2	-2.723	5	-2.723	11	-3.222	2	-3.222	8
35		3	max	.818	12	.017	13	.358	3	.295	7	.245	13	2.514	3	2.556	9
36			min	-.529	6	-.013	6	-.361	9	-.245	13	-.295	7	-2.556	9	-2.514	3
37	M7	1	max	0	50	0	11	.001	8	0	50	0	50	0	50	0	50
38			min	0	1	0	5	-.001	2	0	1	0	1	0	1	0	1
39		2	max	.4	25	.648	11	.97	8	4.311	11	4.312	5	5.865	8	5.865	2
40			min	0	39	-.648	5	-.97	2	-4.312	5	-4.311	11	-5.865	2	-5.865	8
41		3	max	1.028	11	.127	6	.33	2	1.586	6	1.54	12	2.47	3	2.501	9
42			min	-.679	5	-.123	12	-.331	8	-1.54	12	-1.586	6	-2.501	9	-2.47	3
43	M8	1	max	0	50	0	11	.002	8	0	50	0	50	0	50	0	50
44			min	0	1	0	5	-.002	2	0	1	0	1	0	1	0	1
45		2	max	.512	25	.617	11	1.26	8	4.168	11	4.168	5	7.281	8	7.281	2
46			min	0	39	-.617	5	-1.26	2	-4.168	5	-4.168	11	-7.281	2	-7.281	8
47		3	max	1.069	10	.094	6	.34	2	1.105	5	1.053	11	2.75	3	2.767	9
48			min	-.623	4	-.09	12	-.341	8	-1.053	11	-1.105	5	-2.767	9	-2.75	3
49	M9	1	max	0	50	.001	11	.002	8	0	50	0	50	0	50	0	50
50			min	0	1	-.001	5	-.002	2	0	1	0	1	0	1	0	1
51		2	max	.593	25	.842	11	1.327	8	5.267	11	5.267	5	7.616	8	7.616	2
52			min	0	39	-.842	5	-1.327	2	-5.267	5	-5.267	11	-7.616	2	-7.616	8
53		3	max	1.332	10	.156	5	.347	2	1.776	4	1.742	10	3.295	3	3.302	9
54			min	-.824	4	-.155	11	-.347	8	-1.742	10	-1.776	4	-3.302	9	-3.295	3
55	M10	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
56			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
57		2	max	.361	23	.581	11	.886	8	4.733	11	4.685	5	6.177	8	6.178	2
58			min	0	39	-.581	5	-.886	2	-4.685	5	-4.733	11	-6.178	2	-6.177	8
59		3	max	1.177	9	.153	6	.305	2	.841	6	.814	12	2.771	2	2.772	8
60			min	-.856	3	-.153	12	-.305	8	-.814	12	-.841	6	-2.772	8	-2.771	2
61	M11	1	max	0	50	0	11	.001	8	0	50	0	50	0	50	0	50
62			min	0	1	0	5	-.001	2	0	1	0	1	0	1	0	1
63		2	max	.454	25	.579	11	1.092	8	3.986	11	3.986	5	6.462	8	6.462	2
64			min	0	39	-.579	5	-1.092	2	-3.986	5	-3.986	11	-6.462	2	-6.462	8
65		3	max	1.395	9	.118	5	.276	2	.514	4	.534	10	3.037	2	3.033	8
66			min	-.974	3	-.122	11	-.276	8	-.534	10	-.514	4	-3.033	8	-3.037	2

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
67	M12	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
68			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
69		2	max	.25	25	.443	11	.69	8	3.312	11	3.312	5	4.497	8	4.497	2
70			min	0	39	-.443	5	-.69	2	-3.312	5	-3.312	11	-4.497	2	-4.497	8
71		3	max	1.205	8	.144	6	.15	2	.678	7	.703	13	1.819	2	1.834	8
72			min	-.964	2	-.148	12	-.152	8	-.703	13	-.678	7	-1.834	8	-1.819	2
73	M13	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
74			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
75		2	max	.4	25	.649	11	.97	8	4.314	11	4.313	5	5.864	8	5.864	2
76			min	0	39	-.649	5	-.97	2	-4.313	5	-4.314	11	-5.864	2	-5.864	8
77		3	max	1.927	8	.237	4	.32	2	.755	4	1.014	10	3.64	2	3.584	8
78			min	-1.458	2	-.281	10	-.314	8	-1.014	10	-.755	4	-3.584	8	-3.64	2
79	M14	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
80			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
81		2	max	.227	25	.32	11	.423	8	2.727	11	2.726	5	3.219	8	3.219	2
82			min	0	39	-.32	5	-.423	2	-2.726	5	-2.727	11	-3.219	2	-3.219	8
83		3	max	.985	8	.179	4	.065	6	.472	5	.541	10	.269	6	.184	12
84			min	-.703	2	-.19	10	-.057	12	-.541	10	-.472	5	-.184	12	-.269	6
85	M15	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
86			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
87		2	max	.339	25	.559	11	.864	8	3.879	11	3.878	5	5.347	8	5.347	2
88			min	0	39	-.559	5	-.864	2	-3.878	5	-3.879	11	-5.347	2	-5.347	8
89		3	max	1.231	7	.114	5	.182	2	.97	7	1.011	13	1.719	2	1.681	8
90			min	-.932	13	-.12	11	-.181	8	-1.011	13	-.97	7	-1.681	8	-1.719	2
91	M16	1	max	0	50	0	11	.002	8	0	50	0	50	0	50	0	50
92			min	0	1	0	5	-.002	2	0	1	0	1	0	1	0	1
93		2	max	.512	25	.617	11	1.261	8	4.17	11	4.17	5	7.283	8	7.283	2
94			min	0	39	-.617	5	-1.261	2	-4.17	5	-4.17	11	-7.283	2	-7.283	8
95		3	max	1.376	7	.124	6	.296	2	1.8	7	1.834	13	2.514	2	2.485	8
96			min	-.935	13	-.128	12	-.296	8	-1.834	13	-1.8	7	-2.485	8	-2.514	2
97	M17	1	max	0	50	.001	11	.002	8	0	50	0	50	0	50	0	50
98			min	0	1	-.001	5	-.002	2	0	1	0	1	0	1	0	1
99		2	max	.585	25	.833	11	1.319	8	5.223	11	5.223	5	7.574	8	7.574	2
100			min	0	39	-.833	5	-1.319	2	-5.223	5	-5.223	11	-7.574	2	-7.574	8
101		3	max	1.319	6	.146	5	.291	2	2.028	6	2.058	12	2.306	13	2.284	7
102			min	-.825	12	-.149	11	-.291	8	-2.058	12	-2.028	6	-2.284	7	-2.306	13
103	M18	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
104			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
105		2	max	.269	24	.462	11	.707	8	4.157	11	4.109	5	5.312	8	5.312	2
106			min	0	39	-.462	5	-.707	2	-4.109	5	-4.157	11	-5.312	2	-5.312	8
107		3	max	.866	6	.068	3	.348	2	.628	5	.677	11	1.85	2	1.815	8
108			min	-.623	12	-.075	9	-.346	8	-.677	11	-.628	5	-1.815	8	-1.85	2
109	M19	1	max	0	50	0	11	.001	8	0	50	0	50	0	50	0	50
110			min	0	1	0	5	-.001	2	0	1	0	1	0	1	0	1
111		2	max	.454	25	.579	11	1.092	8	3.982	11	3.982	5	6.466	8	6.466	2
112			min	0	39	-.579	5	-1.092	2	-3.982	5	-3.982	11	-6.466	2	-6.466	8
113		3	max	1.027	5	.066	5	.258	2	1.047	5	1.096	11	1.331	13	1.315	7
114			min	-.612	11	-.069	11	-.257	8	-1.096	11	-1.047	5	-1.315	7	-1.331	13
115	M20	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
116			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
117		2	max	.25	25	.443	11	.69	8	3.31	11	3.31	5	4.5	8	4.5	2
118			min	0	39	-.443	5	-.69	2	-3.31	5	-3.31	11	-4.5	2	-4.5	8
119		3	max	.873	4	.053	7	.316	2	.62	5	.665	11	1.602	13	1.595	7
120			min	-.641	10	-.058	13	-.315	8	-.665	11	-.62	5	-1.595	7	-1.602	13
121	M21	1	max	0	50	0	11	.001	8	0	50	0	50	0	50	0	50
122			min	0	1	0	5	-.001	2	0	1	0	1	0	1	0	1
123		2	max	.446	25	.709	11	1.08	8	4.606	11	4.605	5	6.399	8	6.399	2

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
124			min	0	39	-.709	5	-1.08	2	-4.605	5	-4.606	11	-6.399	2	-6.399	8
125		3	max	1.175	4	.151	4	.225	2	2.058	4	2.102	10	1.483	2	1.475	8
126			min	-.802	10	-.154	10	-.224	8	-2.102	10	-2.058	4	-1.475	8	-1.483	2
127	M22	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
128			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
129		2	max	.227	25	.32	11	.423	8	2.724	11	2.724	5	3.222	8	3.222	2
130			min	0	39	-.32	5	-.423	2	-2.724	5	-2.724	11	-3.222	2	-3.222	8
131		3	max	.89	3	.221	7	.192	13	1.207	6	1.264	12	.943	13	.962	7
132			min	-.603	9	-.227	13	-.193	7	-1.264	12	-1.207	6	-.962	7	-.943	13
133	M23	1	max	0	50	0	11	0	8	0	50	0	50	0	50	0	50
134			min	0	1	0	5	0	2	0	1	0	1	0	1	0	1
135		2	max	.339	25	.559	11	.864	8	3.877	11	3.877	5	5.347	8	5.346	2
136			min	0	39	-.559	5	-.864	2	-3.877	5	-3.877	11	-5.346	2	-5.347	8
137		3	max	1.178	3	.199	6	.169	2	1.435	5	1.476	11	1.651	2	1.664	8
138			min	-.876	9	-.203	12	-.169	8	-1.476	11	-1.435	5	-1.664	8	-1.651	2
139	M24	1	max	0	50	0	11	.002	8	0	50	0	50	0	50	0	50
140			min	0	1	0	5	-.002	2	0	1	0	1	0	1	0	1
141		2	max	.512	25	.617	11	1.26	8	4.169	11	4.169	5	7.281	8	7.281	2
142			min	0	39	-.617	5	-1.26	2	-4.169	5	-4.169	11	-7.281	2	-7.281	8
143		3	max	1.559	2	.207	5	.286	2	1.689	4	1.718	10	3.342	2	3.35	8
144			min	-1.114	8	-.21	11	-.285	8	-1.718	10	-1.689	4	-3.35	8	-3.342	2
145	M25	1	max	2.742	2	.052	9	.139	6	3.624	6	3.925	12	5.373	12	5.579	6
146			min	-2.777	8	-.053	3	-.191	12	-3.925	12	-3.624	6	-4.72	6	-6.351	12
147		2	max	2.737	2	.056	13	.165	6	.513	8	.35	2	.571	8	1.065	2
148			min	-2.771	8	-.056	7	-.165	12	-.35	2	-.513	8	-.901	2	-.675	8
149		3	max	2.731	2	.146	2	.191	6	3.953	12	4.299	6	4.915	5	5.025	11
150			min	-2.766	8	-.146	8	-.138	12	-4.299	6	-3.954	12	-4.251	11	-5.81	5
151	M26	1	max	2.539	3	.036	10	.155	7	4.204	7	4.506	13	5.75	12	6.031	6
152			min	-2.575	9	-.036	4	-.206	13	-4.506	13	-4.204	7	-5.102	6	-6.796	12
153		2	max	2.533	3	.06	2	.181	7	.646	8	.482	2	.418	8	.884	2
154			min	-2.569	9	-.061	8	-.18	13	-.482	2	-.646	8	-.748	2	-.494	8
155		3	max	2.528	3	.144	2	.207	7	4.443	13	4.786	7	4.989	6	5.108	12
156			min	-2.564	9	-.144	8	-.154	13	-4.786	7	-4.443	13	-4.321	12	-5.897	6
157	M27	1	max	2.51	3	.044	10	.141	7	3.755	7	4.056	13	5.717	13	5.985	7
158			min	-2.548	9	-.044	4	-.192	13	-4.056	13	-3.755	7	-5.063	7	-6.758	13
159		2	max	2.503	3	.043	2	.167	7	.557	8	.393	2	.361	10	.816	4
160			min	-2.541	9	-.044	8	-.166	13	-.393	2	-.557	8	-.691	4	-.426	10
161		3	max	2.495	3	.106	3	.193	7	3.627	13	3.971	7	4.703	6	4.774	12
162			min	-2.533	9	-.107	9	-.14	13	-3.971	7	-3.627	13	-4.038	12	-5.559	6
163	M28	1	max	2.523	3	.062	11	.164	7	3.744	7	4.042	13	5.703	13	5.967	7
164			min	-2.563	9	-.062	5	-.215	13	-4.042	13	-3.744	7	-5.048	7	-6.742	13
165		2	max	2.516	3	.042	2	.19	7	.43	12	.266	6	.506	9	.989	3
166			min	-2.556	9	-.043	8	-.189	13	-.266	6	-.43	12	-.837	3	-.599	9
167		3	max	2.508	3	.098	3	.216	7	4.554	2	4.899	8	6.513	7	6.919	13
168			min	-2.548	9	-.099	9	-.163	13	-4.899	8	-4.554	2	-5.854	13	-7.699	7
169	M29	1	max	2.223	4	.082	12	.204	8	5.498	8	5.794	2	7.119	2	7.656	8
170			min	-2.265	10	-.082	6	-.255	2	-5.794	2	-5.498	8	-6.477	8	-8.415	2
171		2	max	2.228	4	.059	2	.23	8	.579	9	.415	3	.542	11	1.03	5
172			min	-2.271	10	-.06	8	-.229	2	-.415	3	-.579	9	-.871	5	-.64	11
173		3	max	2.234	4	.121	4	.256	8	4.97	2	5.319	8	6.939	7	7.403	13
174			min	-2.276	10	-.122	10	-.203	2	-5.319	8	-4.97	2	-6.263	13	-8.202	7
175	M30	1	max	2.136	4	.094	12	.211	8	4.987	8	5.281	2	7.141	2	7.668	8
176			min	-2.181	10	-.095	6	-.263	2	-5.281	2	-4.987	8	-6.487	8	-8.441	2
177		2	max	2.138	4	.05	3	.238	8	.459	12	.295	6	.569	10	1.063	4
178			min	-2.183	10	-.051	9	-.237	2	-.295	6	-.459	12	-.899	4	-.673	10
179		3	max	2.14	4	.121	4	.264	8	5.42	2	5.771	8	7.726	8	8.351	2
180			min	-2.185	10	-.122	10	-.211	2	-5.771	8	-5.42	2	-7.064	2	-9.132	8

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
181	M31	1	max	2.066	5	.085	12	.215	8	5.447	8	5.733	2	7.896	2	8.59	8
182			min	-2.113	11	-.086	6	-.266	2	-5.733	2	-5.447	8	-7.267	8	-9.334	2
183		2	max	2.061	5	.052	3	.241	8	.534	10	.371	4	.559	12	1.05	6
184			min	-2.108	11	-.053	9	-.24	2	-.371	4	-.534	10	-.889	6	-.661	12
185		3	max	2.055	5	.127	4	.267	8	5.132	3	5.491	9	7.527	8	8.085	2
186			min	-2.102	11	-.127	10	-.214	2	-5.491	9	-5.132	3	-6.84	2	-8.897	8
187	M32	1	max	2.043	6	.07	12	.218	9	4.841	9	5.121	3	7.792	3	8.446	9
188			min	-2.092	12	-.071	6	-.269	3	-5.121	3	-4.841	9	-7.146	9	-9.21	3
189		2	max	2.037	6	.046	3	.244	9	.431	13	.266	7	.548	10	1.038	4
190			min	-2.086	12	-.047	9	-.242	3	-.266	7	-.431	13	-.878	4	-.648	10
191		3	max	2.032	6	.114	5	.27	9	5.651	3	6.014	9	8.361	8	9.087	2
192			min	-2.081	12	-.115	11	-.216	3	-6.014	9	-5.651	3	-7.688	2	-9.883	8
193	M33	1	max	2.28	7	.056	13	.227	9	5.383	9	5.663	3	8.486	3	9.292	9
194			min	-2.333	13	-.057	7	-.277	3	-5.663	3	-5.383	9	-7.861	9	-10.031	3
195		2	max	2.287	7	.047	4	.253	9	.515	12	.352	6	.347	12	.8	6
196			min	-2.341	13	-.048	10	-.251	3	-.352	6	-.515	12	-.677	6	-.41	12
197		3	max	2.295	7	.105	5	.279	9	5.167	3	5.535	9	8.371	9	9.079	3
198			min	-2.348	13	-.106	11	-.225	3	-5.535	9	-5.167	3	-7.68	3	-9.895	9
199	M34	1	max	2.83	7	.061	2	.166	9	4.036	10	4.313	4	6.665	3	7.152	9
200			min	-2.888	13	-.061	8	-.216	3	-4.313	4	-4.036	10	-6.051	9	-7.878	3
201		2	max	2.838	7	.036	5	.192	9	.362	13	.198	7	.542	13	1.029	7
202			min	-2.896	13	-.036	11	-.19	3	-.198	7	-.362	13	-.87	7	-.64	13
203		3	max	2.845	7	.093	6	.218	9	3.904	4	4.273	10	7.156	9	7.626	3
204			min	-2.903	13	-.094	12	-.164	3	-4.273	10	-3.904	4	-6.452	3	-8.459	9
205	M35	1	max	2.939	7	.074	2	.128	10	3.483	10	3.746	4	5.069	4	5.264	10
206			min	-3.002	13	-.075	8	-.178	4	-3.746	4	-3.483	10	-4.453	10	-5.992	4
207		2	max	2.949	8	.032	6	.155	10	.413	13	.254	7	.598	2	1.098	8
208			min	-3.015	2	-.033	12	-.152	4	-.254	7	-.413	13	-.929	8	-.707	2
209		3	max	2.965	8	.103	7	.181	10	2.931	5	3.317	11	5.452	9	5.615	3
210			min	-3.03	2	-.104	13	-.126	4	-3.317	11	-2.931	5	-4.751	3	-6.444	9
211	M36	1	max	2.953	8	.106	2	.118	10	3.087	10	3.352	4	4.483	5	4.657	11
212			min	-3.028	2	-.105	8	-.166	4	-3.352	4	-3.087	10	-3.94	11	-5.299	5
213		2	max	2.959	8	.022	4	.144	10	.637	2	.457	8	.517	13	.95	7
214			min	-3.034	2	-.02	10	-.14	4	-.457	8	-.637	2	-.803	7	-.611	13
215		3	max	2.964	8	.087	8	.17	10	2.704	4	3.053	10	5.808	10	5.829	4
216			min	-3.039	2	-.086	2	-.114	4	-3.053	10	-2.704	4	-4.931	4	-6.866	10
217	M37	1	max	3.134	8	.301	6	1.201	13	7.298	12	7.935	6	10.693	7	9.894	13
218			min	-3.171	2	-.355	12	-1.397	7	-7.935	6	-7.298	12	-8.37	13	-12.639	7
219		2	max	3.315	8	.028	8	.243	11	.884	11	.751	5	2.16	4	3.115	10
220			min	-3.302	2	-.023	13	-.236	5	-.751	5	-.884	11	-2.636	10	-2.554	4
221		3	max	3.309	8	.124	8	.269	11	3.614	6	4.004	12	7.266	10	7.371	4
222			min	-3.296	2	-.118	2	-.21	5	-4.004	12	-3.614	6	-6.236	4	-8.588	10
223	M38	1	max	3.126	8	.054	3	.139	12	3.45	12	3.701	6	5.181	6	5.361	12
224			min	-3.129	2	-.056	9	-.189	6	-3.701	6	-3.45	12	-4.536	12	-6.124	6
225		2	max	3.111	8	.046	7	.165	12	.349	3	.176	9	.599	2	1.091	8
226			min	-3.113	2	-.047	13	-.163	6	-.176	9	-.349	3	-.923	8	-.708	2
227		3	max	3.096	8	.124	8	.191	12	3.899	7	4.276	13	4.949	11	5.042	5
228			min	-3.098	2	-.125	2	-.137	6	-4.276	13	-3.899	7	-4.266	5	-5.85	11
229	M39	1	max	2.749	9	.048	5	.174	13	4.531	13	4.813	7	6.238	7	6.65	13
230			min	-2.758	3	-.049	11	-.224	7	-4.813	7	-4.531	13	-5.626	13	-7.374	7
231		2	max	2.741	9	.054	8	.2	13	.516	3	.353	9	.344	3	.798	9
232			min	-2.75	3	-.055	2	-.198	7	-.353	9	-.516	3	-.675	9	-.407	3
233		3	max	2.734	9	.116	8	.226	13	4.587	7	4.953	13	6.041	12	6.308	6
234			min	-2.743	3	-.116	2	-.172	7	-4.953	13	-4.587	7	-5.337	6	-7.14	12
235	M40	1	max	2.459	9	.066	6	.207	13	5.02	13	5.306	7	6.954	7	7.467	13
236			min	-2.472	3	-.066	12	-.258	7	-5.306	7	-5.02	13	-6.317	13	-8.22	7
237		2	max	2.452	9	.057	8	.233	13	.36	5	.195	11	.449	3	.924	9

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
238			min	-2.465	3	-.057	2	-.232	7	-.195	11	-.36	5	-.782	9	-.531	3
239		3	max	2.444	9	.11	9	.259	13	5.248	7	5.606	13	7.495	13	8.064	7
240			min	-2.457	3	-.11	3	-.206	7	-5.606	13	-5.248	7	-6.822	7	-8.859	13
241	M41	1	max	2.041	10	.089	6	.237	2	6.115	2	6.407	8	7.881	8	8.562	2
242			min	-2.059	4	-.089	12	-.288	8	-6.407	8	-6.115	2	-7.243	2	-9.316	8
243		2	max	2.047	10	.067	8	.263	2	.506	4	.342	10	.521	5	1.008	11
244			min	-2.065	4	-.068	2	-.262	8	-.342	10	-.506	4	-.853	11	-.616	5
245		3	max	2.052	10	.122	10	.289	2	5.882	8	6.236	2	8.379	13	9.105	7
246			min	-2.07	4	-.123	4	-.236	8	-6.236	2	-5.882	8	-7.703	7	-9.905	13
247	M42	1	max	1.992	11	.096	6	.22	2	5.654	2	5.947	8	7.816	8	8.48	2
248			min	-2.014	5	-.096	12	-.271	8	-5.947	8	-5.654	2	-7.174	2	-9.239	8
249		2	max	1.998	11	.053	9	.246	2	.507	4	.342	10	.514	5	.998	11
250			min	-2.019	5	-.053	3	-.245	8	-.342	10	-.507	4	-.845	11	-.607	5
251		3	max	2.003	11	.123	10	.272	2	5.187	8	5.538	2	7.673	13	8.273	7
252			min	-2.025	5	-.123	4	-.219	8	-5.538	2	-5.187	8	-6.999	7	-9.07	13
253	M43	1	max	2.306	12	.082	6	.152	2	4.061	2	4.356	8	6.282	8	6.663	2
254			min	-2.329	6	-.082	12	-.203	8	-4.356	8	-4.061	2	-5.637	2	-7.426	8
255		2	max	2.304	12	.036	9	.178	2	.637	4	.473	10	.639	6	1.146	12
256			min	-2.327	6	-.036	3	-.177	8	-.473	10	-.637	4	-.97	12	-.755	6
257		3	max	2.302	12	.115	11	.204	2	3.501	9	3.849	3	5.542	2	5.76	8
258			min	-2.325	6	-.116	5	-.151	8	-3.849	3	-3.501	9	-4.873	8	-6.551	2
259	M44	1	max	2.345	12	.076	6	.115	3	2.792	2	3.086	8	5.003	9	5.15	3
260			min	-2.371	6	-.076	12	-.166	9	-3.086	8	-2.792	2	-4.357	3	-5.914	9
261		2	max	2.339	12	.022	9	.141	3	.333	6	.168	12	.455	5	.928	11
262			min	-2.365	6	-.023	3	-.14	9	-.168	12	-.333	6	-.785	11	-.538	5
263		3	max	2.334	12	.097	11	.167	3	3.169	9	3.517	3	5.267	2	5.434	8
264			min	-2.359	6	-.098	5	-.114	9	-3.517	3	-3.169	9	-4.597	8	-6.226	2
265	M45	1	max	2.535	13	.059	6	.084	3	2.425	3	2.719	9	4.378	9	4.416	3
266			min	-2.562	7	-.059	12	-.135	9	-2.719	9	-2.425	3	-3.736	3	-5.175	9
267		2	max	2.543	13	.017	10	.11	3	.487	5	.322	11	.575	7	1.07	13
268			min	-2.57	7	-.018	4	-.109	9	-.322	11	-.487	5	-.905	13	-.68	7
269		3	max	2.55	13	.083	12	.136	3	1.903	10	2.25	4	3.707	2	3.586	8
270			min	-2.577	7	-.084	6	-.083	9	-2.25	4	-1.903	10	-3.034	8	-4.382	2
271	M46	1	max	2.462	13	.073	7	.073	3	1.962	3	2.255	9	3.177	10	2.987	4
272			min	-2.49	7	-.073	13	-.124	9	-2.255	9	-1.962	3	-2.527	4	-3.756	10
273		2	max	2.469	13	.013	10	.099	3	.375	9	.21	3	.314	6	.761	12
274			min	-2.498	7	-.013	4	-.098	9	-.21	3	-.375	9	-.644	12	-.371	6
275		3	max	2.477	13	.069	13	.125	3	2.114	10	2.462	4	4.362	3	4.367	9
276			min	-2.506	7	-.07	7	-.072	9	-2.462	4	-2.114	10	-3.694	9	-5.156	3
277	M47	1	max	2.573	13	.07	8	.116	4	2.913	4	3.208	10	4.382	10	4.405	4
278			min	-2.604	7	-.07	2	-.168	10	-3.208	10	-2.913	4	-3.727	4	-5.18	10
279		2	max	2.579	13	.032	12	.142	4	.431	8	.267	2	.385	7	.845	13
280			min	-2.61	7	-.033	6	-.142	10	-.267	2	-.431	8	-.715	13	-.455	7
281		3	max	2.584	13	.106	13	.168	4	3.032	11	3.379	5	5.585	4	5.822	10
282			min	-2.615	7	-.106	7	-.116	10	-3.379	5	-3.032	11	-4.925	10	-6.601	4
283	M48	1	max	2.656	2	.064	9	.132	5	3.493	5	3.79	11	5.057	11	5.212	5
284			min	-2.689	8	-.065	3	-.183	11	-3.79	11	-3.493	5	-4.41	5	-5.978	11
285		2	max	2.662	2	.051	13	.158	5	.576	8	.412	2	.592	8	1.091	2
286			min	-2.694	8	-.052	7	-.157	11	-.412	2	-.576	8	-.923	2	-.7	8
287		3	max	2.667	2	.136	2	.184	5	3.532	12	3.879	6	5.499	4	5.708	10
288			min	-2.7	8	-.136	8	-.131	11	-3.879	6	-3.532	12	-4.829	10	-6.5	4
289	M49	1	max	.749	2	.087	8	0	50	.316	12	.629	6	1.845	13	1.414	7
290			min	-.767	8	-.088	2	-.086	15	-.629	6	-.316	12	-1.196	7	-2.181	13
291		2	max	.743	2	.022	4	.015	8	.333	8	.172	2	.522	8	1.006	2
292			min	-.761	8	-.022	10	-.015	2	-.172	2	-.333	8	-.851	2	-.617	8
293		3	max	.738	2	.104	2	.087	21	.992	3	1.33	9	1.465	3	.939	9
294			min	-.756	8	-.105	8	0	39	-1.33	9	-.992	3	-.794	9	-1.731	3

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
295	M50	1	max	.749	2	.091	8	0	50	.45	13	.759	7	2.012	13	1.613	7
296			min	-.767	8	-.091	2	-.085	14	-.759	7	-.45	13	-1.364	7	-2.379	13
297		2	max	.734	2	.021	6	.011	8	.286	8	.125	2	.46	8	.932	2
298			min	-.752	8	-.022	12	-.01	2	-.125	2	-.286	8	-.788	2	-.543	8
299		3	max	.719	2	.083	3	.087	20	.638	3	.979	9	1.22	4	.65	10
300			min	-.737	8	-.083	9	0	39	-.979	9	-.638	3	-.549	10	-1.443	4
301	M51	1	max	.616	2	.074	9	0	50	.077	2	.533	20	2.136	2	1.758	8
302			min	-.633	8	-.074	3	-.086	14	-.533	20	-.077	2	-1.487	8	-2.525	2
303		2	max	.595	2	.014	6	.021	8	.291	10	.13	4	.384	9	.842	3
304			min	-.613	8	-.014	12	-.02	2	-.13	4	-.291	10	-.712	3	-.454	9
305		3	max	.582	3	.069	3	.088	20	.548	3	.889	9	1.422	6	.892	12
306			min	-.602	9	-.069	9	0	39	-.889	9	-.548	3	-.754	12	-1.681	6
307	M52	1	max	.412	4	.056	10	.003	8	.174	8	.521	14	1.992	2	1.588	8
308			min	-.432	10	-.056	4	-.086	15	-.521	14	-.174	8	-1.343	8	-2.355	2
309		2	max	.419	4	.02	5	.029	8	.302	9	.141	3	.32	10	.766	4
310			min	-.44	10	-.02	11	-.028	2	-.141	3	-.302	9	-.648	4	-.378	10
311		3	max	.427	4	.087	4	.088	21	.985	4	1.321	10	1.827	6	1.372	12
312			min	-.447	10	-.087	10	-.002	2	-1.321	10	-.985	4	-1.16	12	-2.16	6
313	M53	1	max	.433	4	.081	10	0	50	.163	4	.529	21	2.129	3	1.756	9
314			min	-.453	10	-.081	4	-.086	15	-.529	21	-.163	4	-1.486	9	-2.517	3
315		2	max	.439	4	.022	7	.02	8	.374	12	.213	6	.424	11	.889	5
316			min	-.459	10	-.022	13	-.02	2	-.213	6	-.374	12	-.752	5	-.501	11
317		3	max	.444	4	.093	5	.088	21	.583	4	.927	10	2.139	7	1.733	13
318			min	-.464	10	-.093	11	0	39	-.927	10	-.583	4	-1.466	13	-2.529	7
319	M54	1	max	.413	5	.086	11	0	9	.195	6	.534	24	2.297	3	1.95	9
320			min	-.433	11	-.086	5	-.086	15	-.534	24	-.195	6	-1.649	9	-2.716	3
321		2	max	.418	5	.021	7	.026	9	.369	10	.208	4	.492	11	.97	5
322			min	-.439	11	-.021	13	-.026	3	-.208	4	-.369	10	-.821	5	-.582	11
323		3	max	.424	5	.106	5	.088	21	.832	5	1.169	11	2.308	7	1.938	13
324			min	-.444	11	-.106	11	0	39	-1.169	11	-.832	5	-1.639	13	-2.728	7
325	M55	1	max	.437	5	.094	11	0	50	.238	5	.543	11	2.448	3	2.137	9
326			min	-.457	11	-.094	5	-.086	15	-.543	11	-.238	5	-1.808	9	-2.894	3
327		2	max	.431	5	.02	8	.026	9	.385	12	.224	6	.511	11	.992	5
328			min	-.451	11	-.021	2	-.025	3	-.224	6	-.385	12	-.839	5	-.604	11
329		3	max	.426	5	.098	5	.089	21	.654	5	1.001	11	2.237	7	1.845	13
330			min	-.445	11	-.098	11	0	39	-1.001	11	-.654	5	-1.56	13	-2.644	7
331	M56	1	max	.563	6	.08	11	0	50	.044	5	.539	22	2.405	3	2.079	9
332			min	-.581	12	-.08	5	-.086	16	-.539	22	-.044	5	-1.759	9	-2.843	3
333		2	max	.568	7	.028	8	.022	9	.364	10	.204	4	.401	11	.862	5
334			min	-.584	13	-.029	2	-.021	3	-.204	4	-.364	10	-.729	5	-.474	11
335		3	max	.574	7	.096	6	.088	22	.82	6	1.156	12	2.234	7	1.847	13
336			min	-.589	13	-.096	12	0	39	-1.156	12	-.82	6	-1.563	13	-2.641	7
337	M57	1	max	.593	6	.072	11	0	50	.365	4	.67	10	2.178	4	1.817	10
338			min	-.609	12	-.072	5	-.085	16	-.67	10	-.365	4	-1.537	10	-2.574	4
339		2	max	.585	6	.035	9	.012	10	.279	24	.085	6	.362	12	.816	6
340			min	-.601	12	-.035	3	-.011	4	-.085	6	-.279	24	-.69	6	-.428	12
341		3	max	.587	7	.086	7	.088	22	.684	7	1.028	13	2.328	8	1.949	2
342			min	-.602	13	-.086	13	0	39	-1.028	13	-.684	7	-1.649	2	-2.752	8
343	M58	1	max	.55	7	.061	12	0	50	.204	7	.525	25	1.818	4	1.396	10
344			min	-.561	13	-.061	6	-.086	16	-.525	25	-.204	7	-1.181	10	-2.149	4
345		2	max	.557	7	.021	9	.023	9	.305	13	.144	7	.361	13	.815	7
346			min	-.569	13	-.021	3	-.022	3	-.144	7	-.305	13	-.689	7	-.427	13
347		3	max	.565	7	.082	7	.089	22	.354	7	.699	13	2.374	9	1.999	3
348			min	-.576	13	-.082	13	0	39	-.699	13	-.354	7	-1.691	3	-2.806	9
349	M59	1	max	.612	7	.081	13	.005	9	.748	8	1.049	2	1.61	5	1.146	11
350			min	-.616	13	-.082	7	-.086	16	-1.049	2	-.748	8	-.97	11	-1.903	5
351		2	max	.617	7	.008	11	.031	9	.353	2	.194	8	.442	2	.911	8

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
352			min	-.622	13	-.008	5	-.03	3	-.194	8	-.353	2	-.771	8	-.522	2
353		3	max	.623	7	.085	8	.09	22	.242	5	.624	24	2.503	9	2.157	3
354			min	-.627	13	-.086	2	-.004	3	-.624	24	-.242	5	-1.825	3	-2.958	9
355	M60	1	max	.746	8	.103	2	.014	10	.875	9	1.169	3	1.697	6	1.287	12
356			min	-.735	2	-.103	8	-.085	16	-1.169	3	-.875	9	-1.089	12	-2.006	6
357		2	max	.752	8	.008	13	.04	10	.621	2	.466	8	.609	2	1.085	8
358			min	-.741	2	-.008	7	-.038	4	-.466	8	-.621	2	-.917	8	-.72	2
359		3	max	.757	8	.089	8	.092	22	.375	4	.742	10	2.528	9	2.089	3
360			min	-.746	2	-.089	2	-.012	4	-.742	10	-.375	4	-1.767	3	-2.988	9
361	M61	1	max	.695	8	.356	9	.763	3	4.871	3	6.269	9	6.858	9	5.069	3
362			min	-.693	2	-.343	3	-1.041	9	-6.269	9	-4.871	3	-4.288	3	-8.107	9
363		2	max	.542	8	.088	2	.159	10	1.482	9	1.241	3	1.259	4	2.025	10
364			min	-.599	2	-.09	8	-.146	4	-1.24	3	-1.482	9	-1.713	10	-1.488	4
365		3	max	.537	8	.006	8	.185	10	1.805	3	2.329	9	3.984	10	3.567	4
366			min	-.593	2	-.008	2	-.12	4	-2.329	9	-1.805	3	-3.018	4	-4.709	10
367	M62	1	max	.566	9	.076	2	0	50	.143	10	.528	16	1.663	6	1.194	12
368			min	-.604	3	-.076	8	-.086	17	-.528	16	-.143	10	-1.01	12	-1.966	6
369		2	max	.561	9	.014	10	.02	12	.467	2	.306	8	.474	2	.945	8
370			min	-.599	3	-.015	4	-.02	6	-.306	8	-.467	2	-.8	8	-.56	2
371		3	max	.555	9	.092	9	.088	23	.477	8	.819	2	2.045	10	1.623	4
372			min	-.593	3	-.092	3	0	39	-.819	2	-.477	8	-1.373	4	-2.417	10
373	M63	1	max	.612	9	.08	3	0	50	.796	9	1.102	3	1.707	7	1.267	13
374			min	-.641	3	-.081	9	-.085	16	-1.102	3	-.796	9	-1.072	13	-2.018	7
375		2	max	.605	9	.023	13	.018	10	.278	15	.067	9	.373	3	.83	9
376			min	-.633	3	-.023	7	-.017	4	-.067	9	-.278	15	-.702	9	-.44	3
377		3	max	.597	9	.065	10	.088	22	.017	11	.598	17	1.935	11	1.483	5
378			min	-.626	3	-.065	4	0	39	-.598	17	-.017	11	-1.255	5	-2.288	11
379	M64	1	max	.534	10	.07	3	0	50	.519	9	.83	3	1.421	7	.916	13
380			min	-.559	4	-.07	9	-.085	16	-.83	3	-.519	9	-.775	13	-1.68	7
381		2	max	.542	10	.026	13	.01	10	.279	16	.115	9	.337	4	.787	10
382			min	-.566	4	-.027	7	-.01	5	-.115	9	-.279	16	-.666	10	-.399	4
383		3	max	.549	10	.08	11	.088	22	.487	12	.826	6	2.156	11	1.756	5
384			min	-.574	4	-.08	5	0	39	-.826	6	-.487	12	-1.486	5	-2.549	11
385	M65	1	max	.558	9	.091	4	0	50	1.053	9	1.359	3	1.33	8	.812	2
386			min	-.578	4	-.091	10	-.086	16	-1.359	3	-1.053	9	-.687	2	-1.572	8
387		2	max	.563	10	.035	2	.019	10	.354	5	.193	11	.424	5	.89	11
388			min	-.584	4	-.036	8	-.018	4	-.193	11	-.354	5	-.753	11	-.501	5
389		3	max	.568	10	.09	11	.088	22	.69	13	1.033	7	2.261	12	1.877	6
390			min	-.589	4	-.091	5	0	39	-1.033	7	-.69	13	-1.588	6	-2.672	12
391	M66	1	max	.597	10	.097	4	0	50	.952	9	1.261	3	1.45	9	.951	3
392			min	-.616	4	-.097	10	-.086	16	-1.261	3	-.952	9	-.805	3	-1.714	9
393		2	max	.599	10	.034	2	.014	10	.339	5	.178	11	.495	5	.973	11
394			min	-.618	4	-.034	8	-.014	4	-.178	11	-.339	5	-.823	11	-.585	5
395		3	max	.601	10	.103	12	.088	22	.722	13	1.061	7	2.378	12	2.018	6
396			min	-.62	4	-.104	6	0	39	-1.061	7	-.722	13	-1.707	6	-2.811	12
397	M67	1	max	.561	10	.103	5	0	50	.856	10	1.167	4	1.624	9	1.155	3
398			min	-.579	4	-.104	11	-.086	18	-1.167	4	-.856	10	-.977	3	-1.92	9
399		2	max	.553	10	.019	3	.017	12	.396	6	.235	12	.518	5	1	11
400			min	-.571	4	-.019	9	-.016	6	-.235	12	-.396	6	-.846	11	-.612	5
401		3	max	.546	10	.088	11	.088	24	.037	12	.585	18	2.055	12	1.639	6
402			min	-.563	4	-.089	5	0	39	-.585	18	-.037	12	-1.387	6	-2.429	12
403	M68	1	max	.391	11	.087	5	0	50	.535	11	.849	5	1.57	10	1.09	4
404			min	-.41	5	-.087	11	-.085	18	-.849	5	-.535	11	-.922	4	-1.856	10
405		2	max	.376	11	.02	2	.008	13	.343	4	.182	10	.402	5	.863	11
406			min	-.395	5	-.02	8	-.008	7	-.182	10	-.343	4	-.73	11	-.475	5
407		3	max	.361	11	.086	12	.087	24	.436	13	.773	7	1.871	13	1.42	7
408			min	-.38	5	-.086	6	0	39	-.773	7	-.436	13	-1.202	7	-2.211	13

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
409	M69	1	max	.362	12	.078	6	0	50	.582	12	.893	6	1.353	10	.835	4
410			min	-.382	6	-.079	12	-.085	19	-.893	6	-.582	12	-.706	4	-1.6	10
411		2	max	.355	12	.012	4	.014	2	.375	7	.214	13	.366	6	.821	12
412			min	-.374	6	-.012	10	-.014	8	-.214	13	-.375	7	-.695	12	-.433	6
413		3	max	.347	12	.064	12	.088	25	.029	10	.577	18	1.511	13	.994	7
414			min	-.367	6	-.064	6	0	39	-.577	18	-.029	10	-.841	7	-1.786	13
415	M70	1	max	.541	2	.06	7	0	50	.108	13	.535	19	1.184	11	.631	5
416			min	-.558	8	-.06	13	-.085	23	-.535	19	-.108	13	-.534	5	-1.399	11
417		2	max	.562	2	.015	2	.008	5	.279	18	.087	12	.339	7	.789	13
418			min	-.579	8	-.015	8	-.008	11	-.087	12	-.279	18	-.668	13	-.401	7
419		3	max	.582	2	.083	13	.087	17	.635	13	.972	7	1.687	2	1.203	8
420			min	-.599	8	-.083	7	0	39	-.972	7	-.635	13	-1.018	8	-1.995	2
421	M71	1	max	.701	2	.062	7	0	50	.311	10	.626	4	1.212	12	.662	6
422			min	-.718	8	-.062	13	-.086	14	-.626	4	-.311	10	-.56	6	-1.433	12
423		2	max	.716	2	.033	3	.018	8	.28	19	.084	13	.418	8	.883	2
424			min	-.733	8	-.033	9	-.018	2	-.084	13	-.28	19	-.747	2	-.494	8
425		3	max	.731	2	.112	2	.088	20	1.34	2	1.675	8	1.758	2	1.287	8
426			min	-.748	8	-.112	8	0	39	-1.675	8	-1.34	2	-1.089	8	-2.078	2
427	M72	1	max	.732	2	.082	7	0	50	.416	11	.728	5	1.581	13	1.103	7
428			min	-.751	8	-.082	13	-.086	15	-.728	5	-.416	11	-.934	7	-1.869	13
429		2	max	.738	2	.027	4	.015	9	.354	8	.193	2	.533	8	1.018	2
430			min	-.756	8	-.027	10	-.015	3	-.193	2	-.354	8	-.862	2	-.63	8
431		3	max	.743	2	.111	2	.088	21	1.085	3	1.425	9	1.65	3	1.157	9
432			min	-.762	8	-.111	8	0	39	-1.425	9	-1.085	3	-.979	9	-1.95	3
433	M73	1	max	2.73	8	.304	2	.155	9	7.762	8	7.82	2	4.614	8	5.744	2
434			min	-2.719	2	-.277	8	-.153	3	-7.82	2	-7.762	8	-4.859	2	-5.454	8
435		2	max	2.749	8	.265	2	.151	8	1.934	8	1.865	2	1.221	8	1.272	2
436			min	-2.727	2	-.269	8	-.149	2	-1.865	2	-1.934	8	-1.076	2	-1.443	8
437		3	max	2.768	8	.226	2	.172	7	3.58	13	3.802	7	1.867	3	2.576	9
438			min	-2.736	2	-.26	8	-.169	13	-3.802	7	-3.58	13	-2.179	9	-2.207	3
439	M74	1	max	2.758	8	.319	2	.163	9	7.952	8	8.012	2	4.956	8	6.148	2
440			min	-2.746	2	-.292	8	-.16	3	-8.012	2	-7.952	8	-5.201	2	-5.858	8
441		2	max	2.777	8	.279	2	.163	8	1.845	9	1.776	3	1.319	8	1.388	2
442			min	-2.755	2	-.283	8	-.16	2	-1.776	3	-1.845	9	-1.175	2	-1.559	8
443		3	max	2.796	8	.24	2	.18	7	4.069	2	4.286	8	1.836	3	2.538	9
444			min	-2.763	2	-.274	8	-.178	13	-4.286	8	-4.069	2	-2.147	9	-2.171	3
445	M75	1	max	2.14	9	.231	3	.12	9	5.494	9	5.549	3	3.069	9	3.915	3
446			min	-2.127	3	-.204	9	-.118	3	-5.549	3	-5.494	9	-3.312	3	-3.628	9
447		2	max	2.162	9	.185	3	.124	8	1.177	9	1.101	3	.871	9	.854	3
448			min	-2.139	3	-.189	9	-.121	2	-1.101	3	-1.177	9	-.723	3	-1.029	9
449		3	max	2.185	9	.142	2	.147	8	3.158	2	3.368	8	1.09	5	1.655	11
450			min	-2.151	3	-.176	8	-.145	2	-3.368	8	-3.158	2	-1.4	11	-1.289	5
451	M76	1	max	1.548	9	.15	3	.074	9	3.155	9	3.203	3	1.322	9	1.847	3
452			min	-1.534	3	-.123	9	-.071	3	-3.203	3	-3.155	9	-1.562	3	-1.563	9
453		2	max	1.571	9	.103	3	.096	8	.564	10	.487	4	.38	10	.273	4
454			min	-1.547	3	-.107	9	-.093	2	-.487	4	-.564	10	-.231	4	-.45	10
455		3	max	1.594	9	.057	2	.134	8	2.413	2	2.626	8	1.139	7	1.711	13
456			min	-1.559	3	-.091	8	-.131	2	-2.626	8	-2.413	2	-1.448	13	-1.347	7
457	M77	1	max	2.038	10	.236	3	.106	10	5.458	10	5.512	4	3.465	9	4.383	3
458			min	-2.023	4	-.21	9	-.104	4	-5.512	4	-5.458	10	-3.708	3	-4.095	9
459		2	max	2.06	10	.193	3	.127	9	1.213	10	1.14	4	.874	10	.859	4
460			min	-2.036	4	-.197	9	-.124	3	-1.14	4	-1.213	10	-.727	4	-1.033	10
461		3	max	2.083	10	.15	3	.16	8	3.42	3	3.638	9	1.213	6	1.802	12
462			min	-2.048	4	-.184	9	-.157	2	-3.638	9	-3.42	3	-1.525	12	-1.433	6
463	M78	1	max	1.574	10	.162	4	.069	10	3.515	10	3.565	4	1.863	10	2.49	4
464			min	-1.559	4	-.136	10	-.067	4	-3.565	4	-3.515	10	-2.107	4	-2.203	10
465		2	max	1.594	10	.121	4	.105	9	.789	11	.71	5	.463	10	.37	4

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
466			min	-1.569	4	-.124	10	-.102	3	-.71	5	-.789	11	-.313	4	-.548	10
467		3	max	1.615	10	.08	4	.152	8	2.823	3	3.035	9	1.427	7	2.046	13
468			min	-1.579	4	-.113	10	-.15	2	-3.035	9	-2.823	3	-1.731	13	-1.686	7
469	M79	1	max	1.708	11	.172	5	.078	11	3.971	11	4.017	5	2.37	11	3.086	5
470			min	-1.692	5	-.146	11	-.075	5	-4.017	5	-3.971	11	-2.611	5	-2.801	11
471		2	max	1.727	11	.133	5	.094	10	1.124	12	1.051	6	.615	11	.554	5
472			min	-1.7	5	-.137	11	-.091	4	-1.051	6	-1.124	12	-.468	5	-.727	11
473		3	max	1.746	11	.094	4	.141	9	2.666	3	2.897	9	1.573	7	2.228	13
474			min	-1.709	5	-.128	10	-.138	3	-2.897	9	-2.666	3	-1.885	13	-1.86	7
475	M80	1	max	1.55	12	.16	5	.071	11	3.588	11	3.617	5	2.159	12	2.822	6
476			min	-1.532	6	-.134	11	-.068	5	-3.617	5	-3.588	11	-2.387	6	-2.552	12
477		2	max	1.57	12	.12	5	.094	10	1.079	13	.996	7	.535	12	.45	6
478			min	-1.541	6	-.125	11	-.091	4	-.996	7	-1.079	13	-.381	6	-.632	12
479		3	max	1.59	12	.081	5	.14	9	2.498	4	2.724	10	1.822	8	2.519	2
480			min	-1.551	6	-.115	11	-.137	3	-2.724	10	-2.498	4	-2.131	2	-2.154	8
481	M81	1	max	2.214	12	.256	6	.114	12	6.298	12	6.345	6	4.02	12	5.04	6
482			min	-2.197	6	-.23	12	-.111	6	-6.345	6	-6.298	12	-4.263	6	-4.751	12
483		2	max	2.237	12	.21	6	.109	12	1.97	13	1.902	7	.94	12	.939	6
484			min	-2.209	6	-.214	12	-.106	6	-1.902	7	-1.97	13	-.795	6	-1.111	12
485		3	max	2.259	12	.165	6	.132	11	2.776	5	3.013	11	2.338	8	3.132	2
486			min	-2.221	6	-.199	12	-.129	5	-3.013	11	-2.776	5	-2.65	2	-2.763	8
487	M82	1	max	2.388	13	.255	7	.11	13	6.434	13	6.481	7	4.192	13	5.242	7
488			min	-2.37	7	-.229	13	-.107	7	-6.481	7	-6.434	13	-4.435	7	-4.955	13
489		2	max	2.411	13	.209	7	.107	12	2.008	2	1.938	8	.908	13	.9	7
490			min	-2.383	7	-.213	13	-.104	6	-1.938	8	-2.008	2	-.761	7	-1.074	13
491		3	max	2.434	13	.162	7	.127	11	2.412	6	2.643	12	2.531	8	3.356	2
492			min	-2.396	7	-.196	13	-.124	5	-2.643	12	-2.412	6	-2.84	2	-2.992	8
493	M83	1	max	2.254	13	.21	7	.071	13	4.91	13	4.95	7	3.57	13	4.507	7
494			min	-2.235	7	-.184	13	-.068	7	-4.95	7	-4.91	13	-3.813	7	-4.219	13
495		2	max	2.277	13	.164	7	.087	12	1.605	2	1.53	8	.723	2	.676	8
496			min	-2.247	7	-.168	13	-.085	6	-1.53	8	-1.605	2	-.572	8	-.854	2
497		3	max	2.299	13	.118	7	.127	11	2.152	6	2.378	12	2.083	9	2.82	3
498			min	-2.26	7	-.153	13	-.124	5	-2.378	12	-2.152	6	-2.385	3	-2.463	9
499	M84	1	max	1.819	2	.12	7	.021	2	2.314	13	2.352	7	2.001	2	2.632	8
500			min	-1.796	8	-.094	13	-.018	8	-2.352	7	-2.314	13	-2.227	8	-2.365	2
501		2	max	1.838	2	.079	7	.064	11	.856	2	.781	8	.389	2	.274	8
502			min	-1.805	8	-.083	13	-.061	5	-.781	8	-.856	2	-.232	8	-.459	2
503		3	max	1.857	2	.037	7	.125	11	1.843	5	2.073	11	1.562	10	2.21	4
504			min	-1.814	8	-.072	13	-.122	5	-2.073	11	-1.843	5	-1.869	4	-1.846	10
505	M85	1	max	2.291	2	.266	8	.131	2	7.086	2	7.037	8	3.826	2	4.87	8
506			min	-2.293	8	-.241	2	-.125	8	-7.037	8	-7.086	2	-4.12	8	-4.523	2
507		2	max	2.309	2	.226	8	.142	13	2.027	2	1.939	8	.886	2	.885	8
508			min	-2.302	8	-.232	2	-.136	7	-1.939	8	-2.027	2	-.749	8	-1.048	2
509		3	max	2.328	2	.187	8	.175	13	3.153	7	3.442	13	2.126	9	2.842	3
510			min	-2.311	8	-.223	2	-.169	7	-3.442	13	-3.153	7	-2.404	3	-2.513	9
511	M86	1	max	2.163	2	.186	8	.065	3	4.107	2	4.202	8	3.153	2	4.015	8
512			min	-2.161	8	-.158	2	-.064	9	-4.202	8	-4.107	2	-3.396	8	-3.727	2
513		2	max	2.182	2	.146	8	.081	13	1.18	3	1.12	9	.733	3	.686	9
514			min	-2.17	8	-.149	2	-.079	7	-1.12	9	-1.18	3	-.58	9	-.867	3
515		3	max	2.201	2	.106	8	.127	12	2.238	7	2.44	13	1.655	10	2.31	4
516			min	-2.179	8	-.139	2	-.125	6	-2.44	13	-2.238	7	-1.954	4	-1.957	10
517	M87	1	max	2.459	3	.253	8	.1	3	5.895	3	5.95	9	4.341	3	5.438	9
518			min	-2.454	9	-.226	2	-.097	9	-5.95	9	-5.895	3	-4.6	9	-5.131	3
519		2	max	2.481	3	.213	8	.116	2	1.595	3	1.531	9	1.042	3	1.061	9
520			min	-2.466	9	-.216	2	-.113	8	-1.531	9	-1.595	3	-.897	9	-1.232	3
521		3	max	2.504	3	.173	8	.153	13	3.03	7	3.263	13	1.847	10	2.537	4
522			min	-2.479	9	-.207	2	-.15	7	-3.263	13	-3.03	7	-2.147	4	-2.183	10

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
523	M88	1	max	2.094	3	.224	9	.078	3	5.001	3	5.072	9	3.675	3	4.65	9
524			min	-2.09	9	-.196	3	-.076	9	-5.072	9	-5.001	3	-3.934	9	-4.344	3
525		2	max	2.117	3	.177	9	.1	2	1.31	4	1.243	10	.812	3	.788	9
526			min	-2.103	9	-.18	3	-.097	8	-1.243	10	-1.31	4	-.666	9	-.96	3
527		3	max	2.14	3	.13	9	.138	2	2.728	8	2.943	2	1.521	11	2.151	5
528			min	-2.116	9	-.163	3	-.135	8	-2.943	2	-2.728	8	-1.819	5	-1.798	11
529	M89	1	max	2.22	4	.251	9	.087	4	5.807	4	5.859	10	4.586	3	5.713	9
530			min	-2.213	10	-.225	3	-.084	10	-5.859	10	-5.807	4	-4.833	9	-5.421	3
531		2	max	2.242	4	.208	9	.107	3	1.61	4	1.544	10	1.01	3	1.022	9
532			min	-2.226	10	-.212	3	-.104	9	-1.544	10	-1.61	4	-.865	9	-1.193	3
533		3	max	2.265	4	.165	9	.144	2	2.969	9	3.204	3	1.786	11	2.48	5
534			min	-2.238	10	-.199	3	-.141	8	-3.204	3	-2.969	9	-2.098	5	-2.111	11
535	M90	1	max	1.761	4	.184	10	.055	5	3.9	4	3.948	10	3.369	4	4.266	10
536			min	-1.753	10	-.158	4	-.053	11	-3.948	10	-3.9	4	-3.609	10	-3.982	4
537		2	max	1.781	4	.143	10	.071	3	1.186	5	1.116	11	.686	4	.638	10
538			min	-1.763	10	-.147	4	-.068	9	-1.116	11	-1.186	5	-.54	10	-.811	4
539		3	max	1.801	4	.101	10	.119	3	2.229	9	2.459	3	1.373	12	1.995	6
540			min	-1.773	10	-.135	4	-.116	9	-2.459	3	-2.229	9	-1.688	6	-1.623	12
541	M91	1	max	1.783	5	.172	11	.07	6	3.896	5	3.95	11	3.012	5	3.844	11
542			min	-1.774	11	-.145	5	-.068	12	-3.95	11	-3.896	5	-3.252	11	-3.56	5
543		2	max	1.802	5	.133	11	.061	4	1.269	6	1.194	12	.659	5	.604	11
544			min	-1.783	11	-.137	5	-.058	10	-1.194	12	-1.269	6	-.511	11	-.779	5
545		3	max	1.82	5	.094	11	.105	3	1.715	9	1.934	3	1.585	12	2.241	6
546			min	-1.791	11	-.128	5	-.102	9	-1.934	3	-1.715	9	-1.896	6	-1.874	12
547	M92	1	max	1.417	6	.104	11	.043	7	2.048	6	2.101	12	1.552	6	2.115	12
548			min	-1.407	12	-.077	5	-.04	13	-2.101	12	-2.048	6	-1.79	12	-1.834	6
549		2	max	1.437	6	.064	11	.04	4	.743	6	.665	12	.369	7	.259	13
550			min	-1.417	12	-.068	5	-.038	10	-.665	12	-.743	6	-.219	13	-.436	7
551		3	max	1.457	6	.024	11	.096	3	1.263	9	1.476	3	1.279	2	1.877	8
552			min	-1.427	12	-.06	17	-.094	9	-1.476	3	-1.263	9	-1.588	8	-1.512	2
553	M93	1	max	1.671	6	.151	12	.07	7	3.291	7	3.346	13	2.357	6	3.071	12
554			min	-1.662	12	-.124	6	-.068	13	-3.346	13	-3.291	7	-2.598	12	-2.786	6
555		2	max	1.694	6	.106	12	.047	6	1.069	7	.99	13	.527	7	.446	13
556			min	-1.674	12	-.109	6	-.045	12	-.99	13	-1.069	7	-.378	13	-.623	7
557		3	max	1.716	6	.06	12	.077	4	1.101	11	1.305	5	1.333	2	1.937	8
558			min	-1.686	12	-.094	6	-.075	10	-1.305	5	-1.101	11	-1.638	8	-1.576	2
559	M94	1	max	1.138	7	.063	12	.016	9	.689	5	.741	11	.562	6	.948	12
560			min	-1.127	13	-.036	6	-.014	3	-.741	11	-.689	5	-.802	12	-.664	6
561		2	max	1.161	7	.023	10	.039	4	.232	7	.149	13	.264	21	.126	4
562			min	-1.14	13	-.027	4	-.037	10	-.149	13	-.232	7	-.106	4	-.312	21
563		3	max	1.184	7	.014	8	.091	4	1.185	9	1.387	3	.872	4	1.386	10
564			min	-1.153	13	-.057	16	-.089	10	-1.387	3	-1.185	9	-1.173	10	-1.031	4
565	M95	1	max	1.896	7	.183	13	.083	8	4.146	7	4.199	13	2.732	7	3.517	13
566			min	-1.885	13	-.156	7	-.081	2	-4.199	13	-4.146	7	-2.975	13	-3.229	7
567		2	max	1.919	7	.137	13	.074	7	1.149	8	1.07	2	.607	8	.539	2
568			min	-1.898	13	-.141	7	-.071	13	-1.07	2	-1.149	8	-.456	2	-.717	8
569		3	max	1.941	7	.092	13	.101	6	1.678	12	1.885	6	1.218	3	1.798	9
570			min	-1.91	13	-.125	7	-.099	12	-1.885	6	-1.678	12	-1.521	9	-1.44	3
571	M96	1	max	2.68	8	.307	2	.156	8	7.966	8	8.023	2	4.876	7	6.054	13
572			min	-2.669	2	-.28	8	-.153	2	-8.023	2	-7.966	8	-5.122	13	-5.764	7
573		2	max	2.699	8	.267	2	.145	8	2.117	8	2.049	2	1.234	8	1.288	2
574			min	-2.678	2	-.271	8	-.142	2	-2.049	2	-2.117	8	-1.089	2	-1.458	8
575		3	max	2.718	8	.228	2	.165	7	3.528	13	3.751	7	1.997	3	2.73	9
576			min	-2.687	2	-.262	8	-.163	13	-3.751	7	-3.528	13	-2.31	9	-2.361	3
577	M97	1	max	1.172	2	.271	8	.133	2	7.805	2	7.501	8	4.665	2	5.646	8
578			min	-1.152	8	-.265	2	-.118	7	-7.501	8	-7.805	2	-4.776	8	-5.514	2
579		2	max	1.191	2	.233	7	.167	13	2.518	2	2.541	8	1.322	3	1.457	9

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
580			min	-1.16	8	-.255	13	-.151	7	-2.541	8	-2.518	2	-1.232	9	-1.563	3
581		3	max	1.209	2	.199	7	.211	12	3.648	6	4.345	12	1.674	9	2.573	3
582			min	-1.169	8	-.25	13	-.196	6	-4.345	12	-3.648	6	-2.176	3	-1.978	9
583	M98	1	max	0	50	0	11	.001	8	0	50	0	50	0	50	0	50
584			min	0	1	0	5	-.001	2	0	1	0	1	0	1	0	1
585		2	max	.047	25	.077	11	.078	8	1.693	11	1.692	5	1.71	8	1.71	2
586			min	0	39	-.077	5	-.078	2	-1.692	5	-1.693	11	-1.71	2	-1.71	8
587		3	max	0	50	0	4	0	2	0	50	0	50	0	50	0	50
588			min	0	1	0	22	0	8	0	1	0	1	0	1	0	1
589	M99	1	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
590			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
591		2	max	0	25	0	50	0	50	0	50	0	50	0	50	0	50
592			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
593		3	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
594			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
595	M100	1	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
596			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
597		2	max	0	25	0	50	0	50	0	50	0	50	0	50	0	50
598			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
599		3	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
600			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
601	M101	1	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
602			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
603		2	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
604			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
605		3	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
606			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
607	M102	1	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
608			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
609		2	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
610			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
611		3	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
612			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
613	M103	1	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
614			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
615		2	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
616			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
617		3	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
618			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
619	M104	1	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
620			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
621		2	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
622			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1
623		3	max	0	50	0	50	0	50	0	50	0	50	0	50	0	50
624			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shea...	Loc.....	L...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M37	L2.5x2.5x4	.513	0	7	.065	0 z	7	37622....	38556	1.114	2.537	3...	H2-1
2	M98	PIPE_2.0	.469	65.204	8	.061	66....	9	7373.6...	32130	1.872	1.872	1...	H1-1b
3	M9	PIPE_2.5	.462	65.02	2	.074	66....	7	17052....	50715	3.596	3.596	1...	H1-1b
4	M17	PIPE_2.5	.459	65.02	8	.084	66....	2	17052....	50715	3.596	3.596	1...	H1-1b
5	M16	PIPE_2.5	.439	65.02	8	.078	66....	2	17052....	50715	3.596	3.596	1...	H1-1b
6	M8	PIPE_2.5	.439	65.02	2	.077	66....	2	17052....	50715	3.596	3.596	1...	H1-1b
7	M24	PIPE_2.5	.439	65.02	8	.067	65....	8	17052....	50715	3.596	3.596	3...	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shea...	Loc.....	L...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
8	M2	PIPE_2.5	.436	65.02	8	.075	66....	9	17052....	50715	3.596	3.596	3...	H1-1b
9	M1	PIPE_2.5	.410	65.02	8	.063	65....	8	17052....	50715	3.596	3.596	2...	H1-1b
10	M74	L2.5x2.5x4	.400	0	8	.017	0 y	13	30579....	38556	1.114	2.537	2...	H2-1
11	M96	L2.5x2.5x4	.392	0	8	.016	0 y	2	30579....	38556	1.114	2.537	2...	H2-1
12	M73	L2.5x2.5x4	.387	0	8	.015	0 y	13	30579....	38556	1.114	2.537	2...	H2-1
13	M19	PIPE_2.5	.385	65.02	8	.062	66....	13	17052....	50715	3.596	3.596	1	H1-1b
14	M11	PIPE_2.5	.385	65.02	2	.059	65....	2	17052....	50715	3.596	3.596	1...	H1-1b
15	M21	PIPE_2.5	.380	65.02	8	.058	65....	8	17052....	50715	3.596	3.596	4...	H1-1b
16	M33	L2.5x2.5x4	.377	66.96	8	.012	66.... z	9	25099....	38556	1.114	2.537	2...	H2-1
17	M41	L2.5x2.5x4	.373	0	8	.013	66.... z	13	25099....	38556	1.114	2.537	2...	H2-1
18	M29	L2.5x2.5x4	.356	0	2	.012	66.... z	8	25099....	38556	1.114	2.537	2...	H2-1
19	M40	L2.5x2.5x4	.352	0	8	.012	66.... z	13	25099....	38556	1.114	2.537	2...	H2-1
20	M32	L2.5x2.5x4	.350	66.96	8	.012	66.... z	8	25099....	38556	1.114	2.537	2...	H2-1
21	M31	L2.5x2.5x4	.346	0	3	.012	66.... z	8	25099....	38556	1.114	2.531	2...	H2-1
22	M42	L2.5x2.5x4	.345	66.96	13	.012	66.... z	2	25099....	38556	1.114	2.537	2...	H2-1
23	M7	PIPE_2.5	.344	65.02	2	.060	66....	8	17052....	50715	3.596	3.596	1...	H1-1b
24	M13	PIPE_2.5	.344	65.02	2	.065	66....	9	17052....	50715	3.596	3.596	4...	H1-1b
25	M39	L2.5x2.5x4	.339	0	7	.010	66.... z	13	25099....	38556	1.114	2.535	2...	H2-1
26	M30	L2.5x2.5x4	.338	66.96	8	.012	66.... z	8	25099....	38556	1.114	2.537	2...	H2-1
27	M34	L2.5x2.5x4	.336	66.96	9	.011	66.... z	9	25099....	38556	1.114	2.537	2...	H2-1
28	M85	L2.5x2.5x4	.336	0	2	.014	0 y	9	30579....	38556	1.114	2.537	2...	H2-1
29	M82	L2.5x2.5x4	.334	0	13	.018	0 y	8	30579....	38556	1.114	2.537	2...	H2-1
30	M10	PIPE_2.5	.331	65.02	2	.049	65....	2	28468....	50715	3.596	3.596	1...	H1-1b
31	M87	L2.5x2.5x4	.329	0	3	.016	0 y	8	30579....	38556	1.114	2.537	2...	H2-1
32	M97	L2.5x2.5x4	.328	0	2	.014	0 y	8	30937....	38556	1.114	2.537	2...	H2-1
33	M61	L2.5x2.5x4	.323	0	9	.051	0 z	9	37622....	38556	1.114	2.537	2...	H2-1
34	M26	L2.5x2.5x4	.322	0	13	.010	66.... z	7	25099....	38556	1.114	2.52	2...	H2-1
35	M89	L2.5x2.5x4	.322	0	4	.018	0 y	8	30579....	38556	1.114	2.537	2...	H2-1
36	M81	L2.5x2.5x4	.320	0	12	.018	0 y	8	30579....	38556	1.114	2.537	2...	H2-1
37	M28	L2.5x2.5x4	.315	0	2	.012	66.... z	8	25099....	38556	1.114	2.537	2...	H2-1
38	M15	PIPE_2.5	.309	65.02	2	.052	66....	2	17052....	50715	3.596	3.596	4...	H1-1b
39	M23	PIPE_2.5	.309	65.02	8	.046	65....	8	17052....	50715	3.596	3.596	3...	H1-1b
40	M38	L2.5x2.5x4	.303	0	7	.009	66.... z	13	25099....	38556	1.114	2.537	2...	H2-1
41	M27	L2.5x2.5x4	.300	0	2	.009	66.... z	7	25099....	38556	1.114	2.517	2...	H2-1
42	M25	L2.5x2.5x4	.292	0	13	.009	66.... z	6	25099....	38556	1.114	2.531	2...	H2-1
43	M35	L2.5x2.5x4	.285	66.96	9	.009	66.... z	9	25099....	38556	1.114	2.537	2...	H2-1
44	M43	L2.5x2.5x4	.285	66.96	13	.009	66.... z	2	25099....	38556	1.114	2.537	2...	H2-1
45	M36	L2.5x2.5x4	.282	66.96	9	.009	66.... z	10	25099....	38556	1.114	2.514	2...	H2-1
46	M83	L2.5x2.5x4	.281	0	13	.013	0 y	8	30579....	38556	1.114	2.537	2...	H2-1
47	M77	L2.5x2.5x4	.281	0	10	.017	0 y	2	30579....	38556	1.114	2.537	2...	H2-1
48	M88	L2.5x2.5x4	.279	0	3	.015	0 y	8	30579....	38556	1.114	2.537	2...	H2-1
49	M75	L2.5x2.5x4	.277	0	9	.015	0 y	2	30579....	38556	1.114	2.537	2...	H2-1
50	M18	PIPE_2.5	.273	65.02	8	.052	66....	13	28468....	50715	3.596	3.596	1...	H1-1b
51	M48	L2.5x2.5x4	.267	0	12	.008	66.... z	5	25099....	38556	1.114	2.525	2...	H2-1
52	M44	L2.5x2.5x4	.263	66.96	2	.007	66.... z	3	25099....	38556	1.114	2.537	2...	H2-1
53	M20	PIPE_2.5	.252	65.02	8	.040	85....	8	17052....	50715	3.596	3.596	3...	H1-1b
54	M12	PIPE_2.5	.252	65.02	2	.037	65....	2	17052....	50715	3.596	3.596	1...	H1-1b
55	M3	PIPE_2.5	.252	65.02	8	.050	66....	8	17052....	50715	3.596	3.596	1...	H1-1b
56	M5	PIPE_2.5	.250	65.02	8	.046	66....	8	17052....	50715	3.596	3.596	1...	H1-1b
57	M86	L2.5x2.5x4	.250	0	2	.011	49.... z	12	30579....	38556	1.114	2.537	2...	H2-1
58	M47	L2.5x2.5x4	.246	66.96	3	.008	66.... z	3	25099....	38556	1.114	2.522	2...	H2-1
59	M90	L2.5x2.5x4	.235	0	4	.016	49.... z	2	30579....	38556	1.114	2.537	2...	H2-1
60	M95	L2.5x2.5x4	.230	0	7	.011	0 y	2	30579....	38556	1.114	2.537	2...	H2-1
61	M91	L2.5x2.5x4	.227	0	5	.013	49.... z	2	30579....	38556	1.114	2.537	2...	H2-1
62	M45	L2.5x2.5x4	.221	66.96	2	.008	66.... z	2	25099....	38556	1.114	2.537	2...	H2-1
63	M46	L2.5x2.5x4	.216	66.96	2	.007	66.... z	2	25099....	38556	1.114	2.528	2...	H2-1
64	M79	L2.5x2.5x4	.210	0	11	.016	49.... z	8	30579....	38556	1.114	2.537	2...	H2-1

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shea...	Loc.....	L...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
65	M93	L2.5x2.5x4	.193	0	6	.011	0 y	2	30579....	38556	1.114	2.537	2...	H2-1
66	M80	L2.5x2.5x4	.188	0	12	.015	49.... z	9	30579....	38556	1.114	2.537	2...	H2-1
67	M78	L2.5x2.5x4	.183	0	10	.015	49.... z	8	30579....	38556	1.114	2.537	2...	H2-1
68	M6	PIPE_2.5	.168	65.02	2	.036	85....	8	17052....	50715	3.596	3.596	4...	H1-1b
69	M22	PIPE_2.5	.168	65.02	8	.035	87....	13	17052....	50715	3.596	3.596	3...	H1-1b
70	M14	PIPE_2.5	.168	65.02	2	.036	66....	3	17052....	50715	3.596	3.596	3...	H1-1b
71	M84	L2.5x2.5x4	.167	0	13	.011	49.... z	11	30579....	38556	1.114	2.537	2...	H2-1
72	M76	L2.5x2.5x4	.161	0	9	.012	49.... z	7	30579....	38556	1.114	2.537	2...	H2-1
73	M92	L2.5x2.5x4	.137	0	6	.010	49.... z	2	30579....	38556	1.114	2.537	1...	H2-1
74	M71	L2.5x2.5x4	.106	66.96	2	.005	66.... y	8	25099....	38556	1.114	2.537	2...	H2-1
75	M60	L2.5x2.5x4	.106	66.96	9	.005	0 y	8	25099....	38556	1.114	2.455	1...	H2-1
76	M56	L2.5x2.5x4	.096	66.96	7	.005	66.... y	12	25099....	38556	1.114	2.537	2...	H2-1
77	M72	L2.5x2.5x4	.094	66.96	3	.005	66.... y	8	25099....	38556	1.114	2.537	2...	H2-1
78	M57	L2.5x2.5x4	.092	66.96	7	.004	66.... y	13	25099....	38556	1.114	2.537	2...	H2-1
79	M50	L2.5x2.5x4	.091	0	2	.005	0 y	2	25099....	38556	1.114	2.537	3...	H2-1
80	M4	PIPE_2.5	.088	85.959	3	.029	85....	9	45408....	50715	3.596	3.596	2...	H1-1b
81	M49	L2.5x2.5x4	.087	66.96	3	.005	66.... y	8	25099....	38556	1.114	2.537	2...	H2-1
82	M54	L2.5x2.5x4	.087	66.96	6	.005	66.... y	11	25099....	38556	1.114	2.537	3...	H2-1
83	M59	L2.5x2.5x4	.085	66.96	9	.004	0 y	7	25099....	38556	1.114	2.53	2...	H2-1
84	M58	L2.5x2.5x4	.085	66.96	8	.004	66.... z	22	25099....	38556	1.114	2.537	2...	H2-1
85	M67	L2.5x2.5x4	.084	0	10	.005	0 y	11	25099....	38556	1.114	2.537	2...	H2-1
86	M66	L2.5x2.5x4	.084	0	9	.005	66.... y	12	25099....	38556	1.114	2.537	2...	H2-1
87	M64	L2.5x2.5x4	.083	66.96	11	.004	66.... y	5	25099....	38556	1.114	2.537	3...	H2-1
88	M51	L2.5x2.5x4	.083	0	2	.004	66.... z	20	25099....	38556	1.114	2.537	3...	H2-1
89	M70	L2.5x2.5x4	.082	66.96	2	.004	66.... y	7	25099....	38556	1.114	2.537	3...	H2-1
90	M62	L2.5x2.5x4	.081	66.96	9	.004	66.... y	3	25099....	38556	1.114	2.444	1...	H2-1
91	M65	L2.5x2.5x4	.081	0	9	.004	0 y	10	25099....	38556	1.114	2.537	2...	H2-1
92	M55	L2.5x2.5x4	.078	0	4	.004	66.... y	11	25099....	38556	1.114	2.537	2...	H2-1
93	M63	L2.5x2.5x4	.078	0	8	.004	66.... z	23	25099....	38556	1.114	2.537	2...	H2-1
94	M94	L2.5x2.5x4	.076	49.204	8	.007	49.... z	3	30579....	38556	1.114	2.537	2...	H2-1
95	M52	L2.5x2.5x4	.075	66.96	5	.004	66.... y	10	25099....	38556	1.114	2.537	2...	H2-1
96	M53	L2.5x2.5x4	.074	0	3	.004	66.... y	11	25099....	38556	1.114	2.537	3...	H2-1
97	M68	L2.5x2.5x4	.070	66.96	12	.004	66.... y	6	25099....	38556	1.114	2.537	3...	H2-1
98	M69	L2.5x2.5x4	.061	0	11	.004	0 y	12	25099....	38556	1.114	2.537	2...	H2-1

Envelope Plate/Shell Principal Stresses

Plate	Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
No Data to Print ...											

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	ERICSSON	
Model #	AIR 21 B4A/B2P	
Length	55	in
Width	12	in
Depth	7.9	in
Weight	83	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	4.583	(w/o ice)
Length / Width	3.781	(w/ ice)
C_a	1.293	(w/o ice)
C_a	0.728	(w/ ice)
$(EPA)_A$	5.924	ft^2 (w/o ice)
$(EPA)_A$	4.574	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)
$F_A = q_z G_h (EPA)_A$	161.846	lb (w/o ice)
	-	
$F_A = q_z G_h (EPA)_A$	13.579	lb (w/ ice)
	-	
$F_A = q_z G_h (EPA)_A$	17.590	lb (service)
	-	
Ice Weight	156.133	lb
Weight	239.133	(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	105.986		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	34.940		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	7	x	1
		x	
		x	
		x	

Side

Manufacturer	ERICSSON	
Model #	AIR 21 B4A/B2P	
Length	55	in
Width	12	in
Depth	7.9	in
Weight	83	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	6.962	(w/o ice)
Length / Depth	5.145	(w/ ice)
C_a	1.398	(w/o ice)
C_a	0.759	(w/ ice)
$(EPA)_A$	4.219	ft^2 (w/o ice)
$(EPA)_A$	3.501	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)
$F_A = q_z G_h (EPA)_A$	115.263	lb (w/o ice)
	-	
$F_A = q_z G_h (EPA)_A$	10.394	lb (w/ ice)
	-	
$F_A = q_z G_h (EPA)_A$	12.527	lb (service)
	-	
Ice Weight	156.133	lb
Weight	239.133	(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	69.774		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	23.002		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	7	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	ERICSSON	
Model #	KRY 112 489/2	
Length	11	in
Width	6.1	in
Depth	3.94	in
Weight	15.4	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	1.803	(w/o ice)
Length / Width	1.512	(w/ ice)
C_a	1.200	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	0.559	ft^2 (w/o ice)
$(EPA)_A$	0.672	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)

$F_A = q_z G_h (EPA)_A$	15.276	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	1.997	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	1.660	lb	(service)
	-		
Ice Weight	17.445	lb	
Weight	32.845		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{iz}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	53.876		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	17.761		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	7	x	1
		x	
		x	
		x	

Side

Manufacturer	ERICSSON	
Model #	KRY 112 489/2	
Length	11	in
Width	6.1	in
Depth	3.94	in
Weight	15.4	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	2.792	(w/o ice)
Length / Depth	1.954	(w/ ice)
C_a	1.213	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	0.365	ft^2 (w/o ice)
$(EPA)_A$	0.521	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)

$F_A = q_z G_h (EPA)_A$	9.973	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	1.546	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	1.084	lb	(service)
	-		
Ice Weight	17.445	lb	
Weight	32.845		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{iz}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	34.799		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	11.472		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	7	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	RFS/CELWAVE	
Model #	APXVAARR24_43-U-NA20	
Length	95.9	in
Width	24	in
Depth	8.7	in
Weight	128	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	3.996	(w/o ice)
Length / Width	3.618	(w/ ice)
C_a	1.266	(w/o ice)
C_a	0.725	(w/ ice)
$(EPA)_A$	20.243	ft^2 (w/o ice)
$(EPA)_A$	13.736	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)

$F_A = q_z G_h (EPA)_A$	552.998	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	40.784	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	60.101	lb	(service)
	-		
Ice Weight	460.981	lb	
Weight	588.981		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	211.971		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	69.881		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	8	x	1
		x	
		x	
		x	

Side

Manufacturer	RFS/CELWAVE	
Model #	APXVAARR24_43-U-NA20	
Length	95.9	in
Width	24	in
Depth	8.7	in
Weight	128	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	11.023	(w/o ice)
Length / Depth	8.169	(w/ ice)
C_a	1.534	(w/o ice)
C_a	0.826	(w/ ice)
$(EPA)_A$	8.889	ft^2 (w/o ice)
$(EPA)_A$	6.933	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)

$F_A = q_z G_h (EPA)_A$	242.821	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	20.584	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	26.390	lb	(service)
	-		
Ice Weight	460.981	lb	
Weight	588.981		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	76.840		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	25.332		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	8	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer / Model #	ERICSSON RADIO 4449 B12/B71		
Length	14.95	in	
Width	13.19	in	
Depth	9.25	in	
Weight	75	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Width	1.133		(w/o ice)
Length / Width	1.106		(w/ ice)
C_a	1.200		(w/o ice)
C_a	0.700		(w/ ice)
$(EPA)_A$	1.643	ft^2	(w/o ice)
$(EPA)_A$	1.491	ft^2	(w/ ice)
Angle	0.524	rad	(30 deg)
$F_A = q_z G_h (EPA)_A$	44.891	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	4.426	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	4.879	lb	(service)
	-		
Ice Weight	47.035	lb	
Weight	122.035		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	116.496		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	38.405		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position			
	8	x	1
		x	
		x	
		x	

Side

Manufacturer / Model #	ERICSSON RADIO 4449 B12/B71		
Length	14.95	in	
Width	13.19	in	
Depth	9.25	in	
Weight	75	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Depth	1.616		(w/o ice)
Length / Depth	1.448		(w/ ice)
C_a	1.200		(w/o ice)
C_a	0.700		(w/ ice)
$(EPA)_A$	1.152	ft^2	(w/o ice)
$(EPA)_A$	1.138	ft^2	(w/ ice)
Angle	1.047	rad	(60 deg)
$F_A = q_z G_h (EPA)_A$	31.482	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	3.379	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	3.422	lb	(service)
	-		
Ice Weight	47.035	lb	
Weight	122.035		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	81.697		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	26.933		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position			
	8	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	ACE		
Model #	XXQLH-654L8H8-IVT		
Length	96	in	
Width	19.7	in	
Depth	7.5	in	
Weight	109.4	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Width	4.873		(w/o ice)
Length / Width	4.294		(w/ ice)
C_a	1.305		(w/o ice)
C_a	0.740		(w/ ice)
$(EPA)_A$	17.145	ft^2	(w/o ice)
$(EPA)_A$	11.838	ft^2	(w/ ice)
Angle	0.524	rad	(30 deg)
$F_A = q_z G_h (EPA)_A$	468.382	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	35.147	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	50.905	lb	(service)
	-		
Ice Weight	386.151	lb	
Weight	495.551		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	173.993		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	57.360		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	2	x	1
		x	
		x	
		x	

Side

Manufacturer	ACE		
Model #	XXQLH-654L8H8-IVT		
Length	96	in	
Width	19.7	in	
Depth	7.5	in	
Weight	109.4	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Depth	12.800		(w/o ice)
Length / Depth	9.072		(w/ ice)
C_a	1.593		(w/o ice)
C_a	0.846		(w/ ice)
$(EPA)_A$	7.967	ft^2	(w/o ice)
$(EPA)_A$	6.407	ft^2	(w/ ice)
Angle	1.047	rad	(60 deg)
$F_A = q_z G_h (EPA)_A$	217.638	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	19.023	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	23.653	lb	(service)
	-		
Ice Weight	386.151	lb	
Weight	495.551		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	66.241		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	21.838		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	2	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	ERICSSON		
Model #	RADIO 8843 B2/B66A		
Length	14.96	in	
Width	13.19	in	
Depth	11.1	in	
Weight	75	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Width	1.134		(w/o ice)
Length / Width	1.106		(w/ ice)
C_a	1.200		(w/o ice)
C_a	0.700		(w/ ice)
$(EPA)_A$	1.644	ft^2	(w/o ice)
$(EPA)_A$	1.492	ft^2	(w/ ice)
Angle	0.524	rad	(30 deg)
$F_A = q_z G_h (EPA)_A$	44.921	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	4.428	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	4.882	lb	(service)
	-		
Ice Weight	50.045	lb	
Weight	125.045		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	116.496		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	38.405		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	2	x	1
		x	
		x	
		x	

Side

Manufacturer	ERICSSON		
Model #	RADIO 8843 B2/B66A		
Length	14.96	in	
Width	13.19	in	
Depth	11.1	in	
Weight	75	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Depth	1.348		(w/o ice)
Length / Depth	1.265		(w/ ice)
C_a	1.200		(w/o ice)
C_a	0.700		(w/ ice)
$(EPA)_A$	1.384	ft^2	(w/o ice)
$(EPA)_A$	1.304	ft^2	(w/ ice)
Angle	1.047	rad	(60 deg)
$F_A = q_z G_h (EPA)_A$	37.803	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	3.873	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	4.109	lb	(service)
	-		
Ice Weight	50.045	lb	
Weight	125.045		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	98.037		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	32.320		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	2	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	CCI ANTENNAS	
Model #	DPA-65R-BUUUU-H8	
Length	92.7	in
Width	14.4	in
Depth	7.3	in
Weight	74	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	6.438	(w/o ice)
Length / Width	5.383	(w/ ice)
C_a	1.375	(w/o ice)
C_a	0.764	(w/ ice)
$(EPA)_A$	12.746	ft^2 (w/o ice)
$(EPA)_A$	9.115	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)
$F_A = q_z G_h (EPA)_A$	348.209	lb (w/o ice)
	-	
$F_A = q_z G_h (EPA)_A$	27.063	lb (w/ ice)
	-	
$F_A = q_z G_h (EPA)_A$	37.844	lb (service)
	-	
Ice Weight	292.214	lb
Weight	366.214	(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{ii}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	127.183		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	41.928		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	1	x	1
		x	
		x	
		x	

Side

Manufacturer	CCI ANTENNAS	
Model #	DPA-65R-BUUUU-H8	
Length	92.7	in
Width	14.4	in
Depth	7.3	in
Weight	74	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	12.699	(w/o ice)
Length / Depth	8.934	(w/ ice)
C_a	1.590	(w/o ice)
C_a	0.843	(w/ ice)
$(EPA)_A$	7.472	ft^2 (w/o ice)
$(EPA)_A$	6.059	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)
$F_A = q_z G_h (EPA)_A$	204.119	lb (w/o ice)
	-	
$F_A = q_z G_h (EPA)_A$	17.991	lb (w/ ice)
	-	
$F_A = q_z G_h (EPA)_A$	22.184	lb (service)
	-	
Ice Weight	292.214	lb
Weight	366.214	(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{ii}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	64.475		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	21.255		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	1	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	ERICSSON	
Model #	RRUS 32	
Length	27.56	in
Width	12.44	in
Depth	7.4	in
Weight	55.12	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	2.215	(w/o ice)
Length / Width	1.951	(w/ ice)
C_a	1.200	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	2.857	ft^2 (w/o ice)
$(EPA)_A$	2.398	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)

$F_A = q_z G_h (EPA)_A$	78.051	lb (w/o ice)
	-	
$F_A = q_z G_h (EPA)_A$	7.121	lb (w/ ice)
	-	
$F_A = q_z G_h (EPA)_A$	8.483	lb (service)
	-	
Ice Weight	78.760	lb
Weight	133.880	(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_{1i})/K_{1i}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	109.872		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	36.221		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	1	x	1
		x	
		x	
		x	

Side

Manufacturer	ERICSSON	
Model #	RRUS 32	
Length	27.56	in
Width	12.44	in
Depth	7.4	in
Weight	55.12	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	3.724	(w/o ice)
Length / Depth	2.856	(w/ ice)
C_a	1.254	(w/o ice)
C_a	0.708	(w/ ice)
$(EPA)_A$	1.777	ft^2 (w/o ice)
$(EPA)_A$	1.657	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)

$F_A = q_z G_h (EPA)_A$	48.534	lb (w/o ice)
	-	
$F_A = q_z G_h (EPA)_A$	4.919	lb (w/ ice)
	-	
$F_A = q_z G_h (EPA)_A$	5.275	lb (service)
	-	
Ice Weight	78.760	lb
Weight	133.880	(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_{1i})/K_{1i}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	65.358		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	21.547		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	1	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	ERICSSON	
Model #	RRUS 11 B12	
Length	19.7	in
Width	17	in
Depth	7.2	in
Weight	50.7	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	1.159	(w/o ice)
Length / Width	1.132	(w/ ice)
C_a	1.200	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	2.791	ft^2 (w/o ice)
$(EPA)_A$	2.304	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)

$F_A = q_z G_h (EPA)_A$	76.242	lb (w/o ice)
	-	
$F_A = q_z G_h (EPA)_A$	6.842	lb (w/ ice)
	-	
$F_A = q_z G_h (EPA)_A$	8.286	lb (service)
	-	
Ice Weight	70.149	lb
Weight	120.849	(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_{it})/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	150.146		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	49.499		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	1	x	1
		x	
		x	
		x	

Side

Manufacturer	ERICSSON	
Model #	RRUS 11 B12	
Length	19.7	in
Width	17	in
Depth	7.2	in
Weight	50.7	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	2.736	(w/o ice)
Length / Depth	2.172	(w/ ice)
C_a	1.210	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	1.192	ft^2 (w/o ice)
$(EPA)_A$	1.201	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)

$F_A = q_z G_h (EPA)_A$	32.573	lb (w/o ice)
	-	
$F_A = q_z G_h (EPA)_A$	3.565	lb (w/ ice)
	-	
$F_A = q_z G_h (EPA)_A$	3.540	lb (service)
	-	
Ice Weight	70.149	lb
Weight	120.849	(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_{it})/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	63.591		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	20.964		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	1	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	ANDREW		
Model #	E15Z01P05		
Length	15.8	in	
Width	6.9	in	
Depth	2.9	in	
Weight	15.9	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Width	2.290		(w/o ice)
Length / Width	1.859		(w/ ice)
C_a	1.200		(w/o ice)
C_a	0.700		(w/ ice)
$(EPA)_A$	0.909	ft^2	(w/o ice)
$(EPA)_A$	0.971	ft^2	(w/ ice)
Angle	0.524	rad	(30 deg)
$F_A = q_z G_h (EPA)_A$	24.819	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	2.882	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	2.697	lb	(service)
	-		
Ice Weight	25.678	lb	
Weight	41.578		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{iz}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	60.942		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	20.091		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	1	x	2
		x	
		x	
		x	

Side

Manufacturer	ANDREW		
Model #	E15Z01P05		
Length	15.8	in	
Width	6.9	in	
Depth	2.9	in	
Weight	15.9	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Depth	5.448		(w/o ice)
Length / Depth	3.027		(w/ ice)
C_a	1.331		(w/o ice)
C_a	0.712		(w/ ice)
$(EPA)_A$	0.424	ft^2	(w/o ice)
$(EPA)_A$	0.606	ft^2	(w/ ice)
Angle	1.047	rad	(60 deg)
$F_A = q_z G_h (EPA)_A$	11.570	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	1.799	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	1.257	lb	(service)
	-		
Ice Weight	25.678	lb	
Weight	41.578		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{iz}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	25.613		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	8.444		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	1	x	2
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	RAYCAP	
Model #	DC6-48-60-18-8C	
Length	31.41	in
Width	10.24	in
Depth	10.24	in
Weight	26.2	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	3.067	(w/o ice)
Length / Width	2.545	(w/ ice)
C_a	1.225	(w/o ice)
C_a	0.701	(w/ ice)
$(EPA)_A$	2.737	ft^2 (w/o ice)
$(EPA)_A$	2.326	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)

$F_A = q_z G_h (EPA)_A$	74.761	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	6.907	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	8.125	lb	(service)
	-		
Ice Weight	89.801	lb	
Weight	116.001		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	90.441		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	29.816		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	14	x	1
		x	
		x	
		x	

Side

Manufacturer	RAYCAP	
Model #	DC6-48-60-18-8C	
Length	31.41	in
Width	10.24	in
Depth	10.24	in
Weight	26.2	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	3.067	(w/o ice)
Length / Depth	2.545	(w/ ice)
C_a	1.225	(w/o ice)
C_a	0.701	(w/ ice)
$(EPA)_A$	2.737	ft^2 (w/o ice)
$(EPA)_A$	2.326	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)

$F_A = q_z G_h (EPA)_A$	74.761	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	6.907	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	8.125	lb	(service)
	-		
Ice Weight	89.801	lb	
Weight	116.001		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	90.441		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	29.816		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	14	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	RAYCAP	
Model #	DC6-48-60-18-8F	
Length	31.25	in
Width	11	in
Depth	11	in
Weight	32.8	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	2.841	(w/o ice)
Length / Width	2.400	(w/ ice)
C_a	1.215	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	2.901	ft^2 (w/o ice)
$(EPA)_A$	2.441	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)

$F_A = q_z G_h (EPA)_A$	79.244	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	7.247	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	8.612	lb	(service)
	-		
Ice Weight	95.266	lb	
Weight	128.066		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	97.154		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	32.029		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	12	x	1
	13	x	1
		x	
		x	

Side

Manufacturer	RAYCAP	
Model #	DC6-48-60-18-8F	
Length	31.25	in
Width	11	in
Depth	11	in
Weight	32.8	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	2.841	(w/o ice)
Length / Depth	2.400	(w/ ice)
C_a	1.215	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	2.901	ft^2 (w/o ice)
$(EPA)_A$	2.441	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)

$F_A = q_z G_h (EPA)_A$	79.244	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	7.247	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	8.612	lb	(service)
	-		
Ice Weight	95.266	lb	
Weight	128.066		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	97.154		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	32.029		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	12	x	1
	13	x	1
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	ANDREW		
Model #	SBNHH-1D65C		
Length	96.5	in	
Width	11.9	in	
Depth	7.1	in	
Weight	49.6	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Width	8.109		(w/o ice)
Length / Width	6.506		(w/ ice)
C_a	1.437		(w/o ice)
C_a	0.789		(w/ ice)
$(EPA)_A$	11.459	ft^2	(w/o ice)
$(EPA)_A$	8.415	ft^2	(w/ ice)
Angle	0.524	rad	(30 deg)
$F_A = q_z G_h (EPA)_A$	313.053	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	24.986	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	34.023	lb	(service)
	-		
Ice Weight	265.267	lb	
Weight	314.867		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{ii}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	105.102		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	34.649		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position			
	5	x	1
	6	x	1
		x	
		x	

Side

Manufacturer	ANDREW		
Model #	SBNHH-1D65C		
Length	96.5	in	
Width	11.9	in	
Depth	7.1	in	
Weight	49.6	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Depth	13.592		(w/o ice)
Length / Depth	9.463		(w/ ice)
C_a	1.620		(w/o ice)
C_a	0.855		(w/ ice)
$(EPA)_A$	7.707	ft^2	(w/o ice)
$(EPA)_A$	6.268	ft^2	(w/ ice)
Angle	1.047	rad	(60 deg)
$F_A = q_z G_h (EPA)_A$	210.533	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	18.610	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	22.881	lb	(service)
	-		
Ice Weight	265.267	lb	
Weight	314.867		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{ii}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	62.708		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	20.673		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position			
	5	x	1
	6	x	1
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING ANTENNA MOUNTING SYSTEM

ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	ERICSSON	
Model #	RRUS 12	
Length	20.4	in
Width	18.5	in
Depth	7.5	in
Weight	58	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	1.103	(w/o ice)
Length / Width	1.087	(w/ ice)
C_a	1.200	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	3.145	ft^2 (w/o ice)
$(EPA)_A$	2.548	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)

$F_A = q_z G_h (EPA)_A$	85.917	lb (w/o ice)
	-	
$F_A = q_z G_h (EPA)_A$	7.565	lb (w/ ice)
	-	
$F_A = q_z G_h (EPA)_A$	9.338	lb (service)
	-	
Ice Weight	78.039	lb
Weight	136.039	(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_{i2})/K_{i2}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	163.395		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	53.866		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	5	x	1
	6	x	1
		x	
		x	

Side

Manufacturer	ERICSSON	
Model #	RRUS 12	
Length	20.4	in
Width	18.5	in
Depth	7.5	in
Weight	58	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	2.720	(w/o ice)
Length / Depth	2.177	(w/ ice)
C_a	1.210	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	1.285	ft^2 (w/o ice)
$(EPA)_A$	1.272	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)

$F_A = q_z G_h (EPA)_A$	35.115	lb (w/o ice)
	-	
$F_A = q_z G_h (EPA)_A$	3.776	lb (w/ ice)
	-	
$F_A = q_z G_h (EPA)_A$	3.816	lb (service)
	-	
Ice Weight	78.039	lb
Weight	136.039	(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_{i2})/K_{i2}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	66.241		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	21.838		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	5	x	1
	6	x	1
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	ERICSSON	
Model #	KRY 112 89/1	
Length	12	in
Width	6	in
Depth	5.6	in
Weight	16.1	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	2.000	(w/o ice)
Length / Width	1.634	(w/ ice)
C_a	1.200	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	0.600	ft^2 (w/o ice)
$(EPA)_A$	0.711	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)

$F_A = q_z G_h (EPA)_A$	16.391	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	2.112	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	1.781	lb	(service)
	-		
Ice Weight	21.032	lb	
Weight	37.132		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	52.993		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	17.470		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	5	x	1
		x	
		x	
		x	

Side

Manufacturer	ERICSSON	
Model #	KRY 112 89/1	
Length	12	in
Width	6	in
Depth	5.6	in
Weight	16.1	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	2.143	(w/o ice)
Length / Depth	1.706	(w/ ice)
C_a	1.200	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	0.560	ft^2 (w/o ice)
$(EPA)_A$	0.681	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)

$F_A = q_z G_h (EPA)_A$	15.298	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	2.023	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	1.663	lb	(service)
	-		
Ice Weight	21.032	lb	
Weight	37.132		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	49.460		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	16.305		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	5	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	RAYCAP	
Model #	RHSDC-1064-PF-48	
Length	15.95	in
Width	10.15	in
Depth	8.15	in
Weight	14	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	1.571	(w/o ice)
Length / Width	1.426	(w/ ice)
C_a	1.200	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	1.349	ft^2 (w/o ice)
$(EPA)_A$	1.285	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)

$F_A = q_z G_h (EPA)_A$	36.856	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	3.815	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	4.006	lb	(service)
	-		
Ice Weight	41.482	lb	
Weight	55.482		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	89.646		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	29.554		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	9	x	1
	10	x	1
		x	
		x	

Side

Manufacturer	RAYCAP	
Model #	RHSDC-1064-PF-48	
Length	15.95	in
Width	10.15	in
Depth	8.15	in
Weight	14	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	1.957	(w/o ice)
Length / Depth	1.672	(w/ ice)
C_a	1.200	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	1.083	ft^2 (w/o ice)
$(EPA)_A$	1.096	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)

$F_A = q_z G_h (EPA)_A$	29.593	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	3.254	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	3.216	lb	(service)
	-		
Ice Weight	41.482	lb	
Weight	55.482		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	71.982		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	23.730		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	9	x	1
	10	x	1
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	RAYCAP	
Model #	RHSDC-3315-PF-48	
Length	25.66	in
Width	15.73	in
Depth	10.25	in
Weight	32	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Width	1.631	(w/o ice)
Length / Width	1.517	(w/ ice)
C_a	1.200	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	3.364	ft^2 (w/o ice)
$(EPA)_A$	2.717	ft^2 (w/ ice)
Angle	0.524	rad (30 deg)

$F_A = q_z G_h (EPA)_A$	91.889	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	8.068	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	9.987	lb	(service)
	-		
Ice Weight	92.788	lb	
Weight	124.788		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	138.930		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	45.801		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	11	x	1
		x	
		x	
		x	

Side

Manufacturer	RAYCAP	
Model #	RHSDC-3315-PF-48	
Length	25.66	in
Width	15.73	in
Depth	10.25	in
Weight	32	lb
Radial Ice (t_i)	0.75	in
Tower Type	S	(S, G or M)
Tower Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Angle	N	
Length / Depth	2.503	(w/o ice)
Length / Depth	2.124	(w/ ice)
C_a	1.200	(w/o ice)
C_a	0.700	(w/ ice)
$(EPA)_A$	2.192	ft^2 (w/o ice)
$(EPA)_A$	1.942	ft^2 (w/ ice)
Angle	1.047	rad (60 deg)

$F_A = q_z G_h (EPA)_A$	59.884	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	5.765	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	6.508	lb	(service)
	-		
Ice Weight	92.788	lb	
Weight	124.788		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	90.529		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	29.845		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	11	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	KMW COMMUNICATIONS		
Model #	AM-X-CD-17-65-00T-RET		
Length	96	in	
Width	11.8	in	
Depth	6	in	
Weight	59.5	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Width	8.136		(w/o ice)
Length / Width	6.516		(w/ ice)
C_a	1.438		(w/o ice)
C_a	0.789		(w/ ice)
$(EPA)_A$	11.311	ft^2	(w/o ice)
$(EPA)_A$	8.321	ft^2	(w/ ice)
Angle	0.524	rad	(30 deg)
$F_A = q_z G_h (EPA)_A$	309.003	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	24.706	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	33.583	lb	(service)
	-		
Ice Weight	253.409	lb	
Weight	312.909		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	104.219		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	34.358		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position			
	3	x	1
	4	x	1
		x	
		x	

Side

Manufacturer	KMW COMMUNICATIONS		
Model #	AM-X-CD-17-65-00T-RET		
Length	96	in	
Width	11.8	in	
Depth	6	in	
Weight	59.5	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Depth	16.000		(w/o ice)
Length / Depth	10.510		(w/ ice)
C_a	1.700		(w/o ice)
C_a	0.878		(w/ ice)
$(EPA)_A$	6.800	ft^2	(w/o ice)
$(EPA)_A$	5.739	ft^2	(w/ ice)
Angle	1.047	rad	(60 deg)
$F_A = q_z G_h (EPA)_A$	185.766	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	17.041	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	20.190	lb	(service)
	-		
Ice Weight	253.409	lb	
Weight	312.909		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	52.993		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	17.470		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position			
	3	x	1
	4	x	1
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING
ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Manufacturer	KMW COMMUNICATIONS
Model #	SMART BIAS T 700 MHZ

Length	3.54	in	
Width	2.83	in	
Depth	1.66	in	
Weight	1.32	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Width	1.251		(w/o ice)
Length / Width	1.113		(w/ ice)
C_a	1.200		(w/o ice)
C_a	0.700		(w/ ice)
$(EPA)_A$	0.083	ft^2	(w/o ice)
$(EPA)_A$	0.214	ft^2	(w/ ice)
Angle	0.524	rad	(30 deg)

$F_A = q_z G_h (EPA)_A$	2.281	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	0.636	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	0.248	lb	(service)
	-		
Ice Weight	3.129	lb	
Weight	4.449		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	24.995		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	8.240		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	3	x	1
		x	
		x	
		x	

Side

Manufacturer	KMW COMMUNICATIONS
Model #	SMART BIAS T 700 MHZ

Length	3.54	in	
Width	2.83	in	
Depth	1.66	in	
Weight	1.32	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Angle	N		
Length / Depth	2.133		(w/o ice)
Length / Depth	1.367		(w/ ice)
C_a	1.200		(w/o ice)
C_a	0.700		(w/ ice)
$(EPA)_A$	0.049	ft^2	(w/o ice)
$(EPA)_A$	0.174	ft^2	(w/ ice)
Angle	1.047	rad	(60 deg)

$F_A = q_z G_h (EPA)_A$	1.338	lb	(w/o ice)
	-		
$F_A = q_z G_h (EPA)_A$	0.518	lb	(w/ ice)
	-		
$F_A = q_z G_h (EPA)_A$	0.145	lb	(service)
	-		
Ice Weight	3.129	lb	
Weight	4.449		(w/ ice)

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_e K_t)/K_{it}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	14.661		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	4.833		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Position	3	x	1
		x	
		x	
		x	

JACOBS™

WIND/ICE/SERVICE LOADING ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Member Size	Antenna Pipe A Pipe 2.5		
Length	108	in	
Width/Diameter	2.88	in	
Depth	2.88	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	R		
Shielding Factor (K_a)	1		
Length / Width	37.500		(w/o ice)
Length / Width	17.570		(w/ ice)
C_a	1.200		(w/o ice)
C_a	1.035		(w/ ice)
$(EPA)_A$	2.592	ft^2	(w/o ice)
$(EPA)_A$	5.082	ft^2	(w/ ice)

$F_A = q_z G_h (EPA)_A$	70.810	lb	(w/o ice)
	0.656	lb/in	
$F_A = q_z G_h (EPA)_A$	15.088	lb	(w/ ice)
	0.140	lb/in	
$F_A = q_z G_h (EPA)_A$	7.696	lb	(service)
	0.071	lb/in	
Ice Weight	87.831	lb	
	0.813	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	23.468		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	7.737		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Quantity	1	(12 max)

Side

Member Size	Antenna Pipe A Pipe 2.5		
Length	108	in	
Width/Diameter	2.88	in	
Depth	2.88	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	R		
Shielding Factor (K_a)	1		
Length / Depth	37.500		(w/o ice)
Length / Depth	17.570		(w/ ice)
C_a	1.200		(w/o ice)
C_a	1.035		(w/ ice)
$(EPA)_A$	2.592	ft^2	(w/o ice)
$(EPA)_A$	5.082	ft^2	(w/ ice)

$F_A = q_z G_h (EPA)_A$	70.810	lb	(w/o ice)
	0.656	lb/in	
$F_A = q_z G_h (EPA)_A$	15.088	lb	(w/ ice)
	0.140	lb/in	
$F_A = q_z G_h (EPA)_A$	7.696	lb	(service)
	0.071	lb/in	
Ice Weight	87.831	lb	
	0.813	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	23.468		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	7.737		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Quantity	1	(12 max)

JACOBS™

WIND/ICE/SERVICE LOADING ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Member	Handrail	
Size	L2.5x2.5	
Length	67	in
Width/Diameter	2.5	in
Depth	2.5	in
Weight	0	lb
Radial Ice (t_i)	0.75	in
Structure Type	S	(S, G or M)
Structure Height (h)	136.5	ft
Antenna Centerline (z)	139	ft
3-s Gust Wind Speed (V)	91	mph (w/o ice)
3-s Gust Wind Speed (V_i)	30	mph (w/ ice)
3-s Gust Wind Speed (V_s)	30	mph (service)
Structure Class	II	(I, II or III)
Exposure Category	C	(B, C or D)
Topographic Category	1	(1, 2, 3 or 4)
Crest Height	0	ft
Round or Flat (R / F)	F	
Shielding Factor (K_a)	1	
Length / Width	26.800	(w/o ice)
Length / Width	11.815	(w/ ice)
C_a	2.000	(w/o ice)
C_a	0.907	(w/ ice)
$(EPA)_A$	2.326	ft^2 (w/o ice)
$(EPA)_A$	2.647	ft^2 (w/ ice)

$F_A = q_z G_h (EPA)_A$	63.554	lb	(w/o ice)
	0.949	lb/in	
$F_A = q_z G_h (EPA)_A$	7.859	lb	(w/ ice)
	0.117	lb/in	
$F_A = q_z G_h (EPA)_A$	6.907	lb	(service)
	0.103	lb/in	
Ice Weight	62.232	lb	
	0.929	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	20.372		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	6.716		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Quantity	1	(18 max)

Side

Member	Handrail		
Size	L2.5x2.5		
Length	67	in	
Width/Diameter	2.5	in	
Depth	2.5	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Length / Depth	26.800		(w/o ice)
Length / Depth	11.815		(w/ ice)
C_a	2.000		(w/o ice)
C_a	0.907		(w/ ice)
$(EPA)_A$	2.326	ft^2	(w/o ice)
$(EPA)_A$	2.647	ft^2	(w/ ice)

$F_A = q_z G_h (EPA)_A$	63.554	lb	(w/o ice)
	0.949	lb/in	
$F_A = q_z G_h (EPA)_A$	7.859	lb	(w/ ice)
	0.117	lb/in	
$F_A = q_z G_h (EPA)_A$	6.907	lb	(service)
	0.103	lb/in	
Ice Weight	62.232	lb	
	0.929	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	20.372		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	6.716		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Quantity	1	(18 max)

JACOBS™

WIND/ICE/SERVICE LOADING ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Member Size	Mid Rail L2.5x2.5		
Length	67	in	
Width/Diameter	2.5	in	
Depth	2.5	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Length / Width	26.800		(w/o ice)
Length / Width	11.815		(w/ ice)
C_a	2.000		(w/o ice)
C_a	0.907		(w/ ice)
$(EPA)_A$	2.326	ft^2	(w/o ice)
$(EPA)_A$	2.647	ft^2	(w/ ice)
$F_A = q_z G_h (EPA)_A$	63.554	lb	(w/o ice)
	0.949	lb/in	
$F_A = q_z G_h (EPA)_A$	7.859	lb	(w/ ice)
	0.117	lb/in	
$F_A = q_z G_h (EPA)_A$	6.907	lb	(service)
	0.103	lb/in	
Ice Weight	62.232	lb	
	0.929	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	20.372		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	6.716		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Quantity	1	(18 max)

Side

Member Size	Mid Rail L2.5x2.5		
Length	67	in	
Width/Diameter	2.5	in	
Depth	2.5	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Length / Depth	26.800		(w/o ice)
Length / Depth	11.815		(w/ ice)
C_a	2.000		(w/o ice)
C_a	0.907		(w/ ice)
$(EPA)_A$	2.326	ft^2	(w/o ice)
$(EPA)_A$	2.647	ft^2	(w/ ice)
$F_A = q_z G_h (EPA)_A$	63.554	lb	(w/o ice)
	0.949	lb/in	
$F_A = q_z G_h (EPA)_A$	7.859	lb	(w/ ice)
	0.117	lb/in	
$F_A = q_z G_h (EPA)_A$	6.907	lb	(service)
	0.103	lb/in	
Ice Weight	62.232	lb	
	0.929	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	20.372		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	6.716		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)

Quantity	1	(18 max)

JACOBS™

WIND/ICE/SERVICE LOADING ANTENNA MOUNTING SYSTEM
ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Member	Kicker		
Size	L2.5x2.5		
Length	48	in	
Width/Diameter	2.5	in	
Depth	2.5	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Length / Width	19.200		(w/o ice)
Length / Width	8.629		(w/ ice)
C_a	1.807		(w/o ice)
C_a	0.836		(w/ ice)
$(EPA)_A$	1.506	ft^2	(w/o ice)
$(EPA)_A$	1.782	ft^2	(w/ ice)
$F_A = q_z G_h (EPA)_A$	41.130	lb	(w/o ice)
	0.857	lb/in	
$F_A = q_z G_h (EPA)_A$	5.292	lb	(w/ ice)
	0.110	lb/in	
$F_A = q_z G_h (EPA)_A$	4.470	lb	(service)
	0.093	lb/in	
Ice Weight	44.584	lb	
	0.929	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	20.372		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	6.716		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)
Quantity	1		(12 max)

Side

Member	Kicker		
Size	L2.5x2.5		
Length	48	in	
Width/Diameter	2.5	in	
Depth	2.5	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	F		
Shielding Factor (K_a)	1		
Length / Depth	19.200		(w/o ice)
Length / Depth	8.629		(w/ ice)
C_a	1.807		(w/o ice)
C_a	0.836		(w/ ice)
$(EPA)_A$	1.506	ft^2	(w/o ice)
$(EPA)_A$	1.782	ft^2	(w/ ice)
$F_A = q_z G_h (EPA)_A$	41.130	lb	(w/o ice)
	0.857	lb/in	
$F_A = q_z G_h (EPA)_A$	5.292	lb	(w/ ice)
	0.110	lb/in	
$F_A = q_z G_h (EPA)_A$	4.470	lb	(service)
	0.093	lb/in	
Ice Weight	44.584	lb	
	0.929	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	20.372		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	6.716		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)
Quantity	1		(12 max)

JACOBS™

WIND/ICE/SERVICE LOADING ANTENNA MOUNTING SYSTEM

ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Member Size	Mount Pipe Pipe 2.0		
Length	92	in	
Width/Diameter	2.38	in	
Depth	2.38	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	R		
Shielding Factor (K_a)	1		
Length / Width	38.655		(w/o ice)
Length / Width	16.336		(w/ ice)
C_a	1.200		(w/o ice)
C_a	1.007		(w/ ice)
$(EPA)_A$	1.825	ft^2	(w/o ice)
$(EPA)_A$	3.903	ft^2	(w/ ice)
$F_A = q_z G_h (EPA)_A$	49.847	lb	(w/o ice)
	0.542	lb/in	
$F_A = q_z G_h (EPA)_A$	11.588	lb	(w/ ice)
	0.126	lb/in	
$F_A = q_z G_h (EPA)_A$	5.418	lb	(service)
	0.059	lb/in	
Ice Weight	66.707	lb	
	0.725	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_1)/K_{1t}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	19.394		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	6.394		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)
Quantity	1		(12 max)

Side

Member Size	Mount Pipe Pipe 2.0		
Length	92	in	
Width/Diameter	2.38	in	
Depth	2.38	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	R		
Shielding Factor (K_a)	1		
Length / Depth	38.655		(w/o ice)
Length / Depth	16.336		(w/ ice)
C_a	1.200		(w/o ice)
C_a	1.007		(w/ ice)
$(EPA)_A$	1.825	ft^2	(w/o ice)
$(EPA)_A$	3.903	ft^2	(w/ ice)
$F_A = q_z G_h (EPA)_A$	49.847	lb	(w/o ice)
	0.542	lb/in	
$F_A = q_z G_h (EPA)_A$	11.588	lb	(w/ ice)
	0.126	lb/in	
$F_A = q_z G_h (EPA)_A$	5.418	lb	(service)
	0.059	lb/in	
Ice Weight	66.707	lb	
	0.725	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_1)/K_{1t}]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	19.394		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	6.394		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)
Quantity	1		(12 max)

JACOBS™

WIND/ICE/SERVICE LOADING ANTENNA MOUNTING SYSTEM

ANSI/TIA-222-G

Project Number:	EUTM0206
Site Name:	5RA0195A
Engineer:	C. Wilkes
Date:	05/23/2019
Carrier:	T-Mobile
Reviewed By:	B. Bartlett

Input Data

Front

Member Size	Omni SR 1"		
Length	48	in	
Width/Diameter	1	in	
Depth	1	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Structure Type	S	(S, G or M)	
Structure Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	R		
Shielding Factor (K_a)	1		
Length / Width	48.000		(w/o ice)
Length / Width	11.529		(w/ ice)
C_a	1.200		(w/o ice)
C_a	0.901		(w/ ice)
$(EPA)_A$	0.400	ft^2	(w/o ice)
$(EPA)_A$	1.437	ft^2	(w/ ice)
$F_A = q_z G_h (EPA)_A$	10.927	lb	(w/o ice)
	0.228	lb/in	
$F_A = q_z G_h (EPA)_A$	4.266	lb	(w/ ice)
	0.089	lb/in	
$F_A = q_z G_h (EPA)_A$	1.188	lb	(service)
	0.025	lb/in	
Ice Weight	23.123	lb	
	0.482	lb/in	

Equations

$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	8.149		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	2.686		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)
Quantity	2		(18 max)

Side

Member Size	Omni SR 1"		
Length	48	in	
Width/Diameter	1	in	
Depth	1	in	
Weight	0	lb	
Radial Ice (t_i)	0.75	in	
Tower Type	S	(S, G or M)	
Tower Height (h)	136.5	ft	
Antenna Centerline (z)	139	ft	
3-s Gust Wind Speed (V)	91	mph	(w/o ice)
3-s Gust Wind Speed (V_i)	30	mph	(w/ ice)
3-s Gust Wind Speed (V_s)	30	mph	(service)
Structure Class	II	(I, II or III)	
Exposure Category	C	(B, C or D)	
Topographic Category	1	(1, 2, 3 or 4)	
Crest Height	0	ft	
Round or Flat (R / F)	R		
Shielding Factor (K_a)	1		
Length / Depth	48.000		(w/o ice)
Length / Depth	11.529		(w/ ice)
C_a	1.200		(w/o ice)
C_a	0.901		(w/ ice)
$(EPA)_A$	0.400	ft^2	(w/o ice)
$(EPA)_A$	1.437	ft^2	(w/ ice)
$F_A = q_z G_h (EPA)_A$	10.927	lb	(w/o ice)
	0.228	lb/in	
$F_A = q_z G_h (EPA)_A$	4.266	lb	(w/ ice)
	0.089	lb/in	
$F_A = q_z G_h (EPA)_A$	1.188	lb	(service)
	0.025	lb/in	
Ice Weight	23.123	lb	
	0.482	lb/in	

Equations

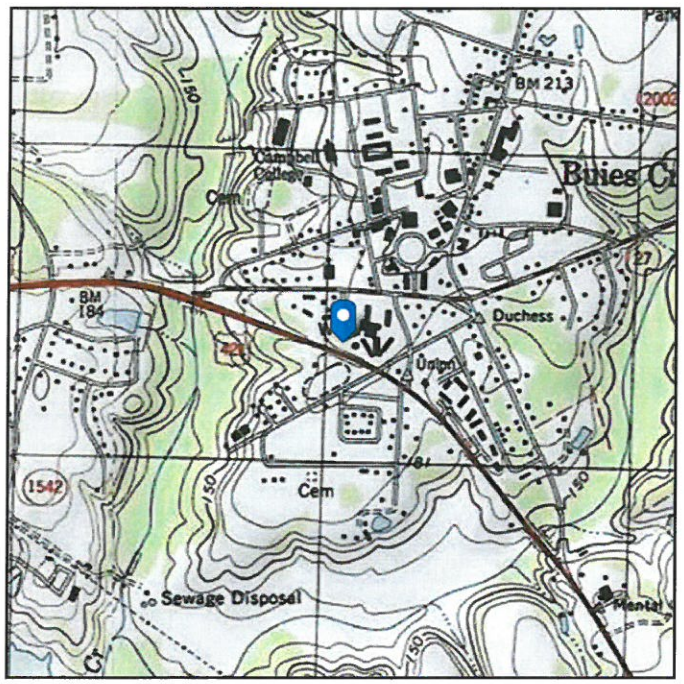
$K_z = 2.01[z/z_g]^{(2/a)}$	1.356		$K_{zmin} \le K_z \le 2.01$
$K_h = e^{[(f)(z)/h]}$	1.000E+00		
$K_{zt} = [1+(K_c K_t)/K_h]^2$	1.000		
$K_{iz} = [z/33]^{(0.10)}$	1.155	ft	$K_{iz} \le 1.4$
$t_{iz} = 2(t_i)(I)(K_{iz})(K_{zt})^{(0.35)}$	1.732	in	(w/ ice)
$C = (IK_{zt}K_z)^{0.5}(V)(D)$	8.149		(w/o ice)
$C = (IK_{zt}K_z)^{0.5}(V_i)(D)$	2.686		(w/ ice)
$G_h =$	1.000		
$K_d =$	0.95		
$q_z = 0.00256K_zK_{zt}K_dV^2I$	27.319	psf	(w/o ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(w/ ice)
$q_z = 0.00256K_zK_{zt}K_dV_i^2I$	2.969	psf	(service)
Quantity	2		(18 max)

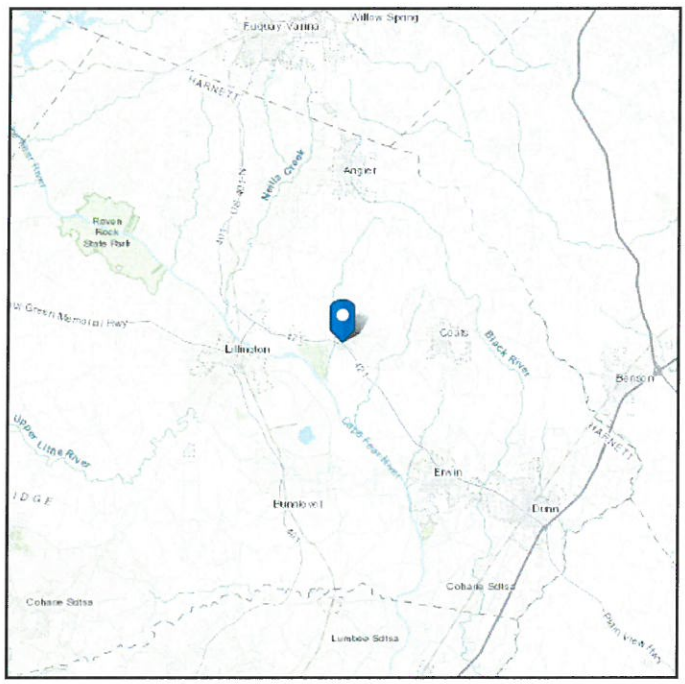
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class:

Elevation: 189.98 ft (NAVD 88)
Latitude: 35.405832
Longitude: -78.741662





Wind

Results:

Wind Speed:	117 Vmph
10-year MRI	76 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Mon May 20 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

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Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	30 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon May 20 2019

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.