

Date: **December 13, 2024**



Morrison Hershfield
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Subject: **Structural Analysis Report**

Carrier Designation: **T-Mobile Co-Locate**
Site Number: 9JK2819A
Site Name: SE Lake City

Crown Castle Designation: **BU Number:** 846221
Site Name: SE Lake City
JDE Job Number: 2128640
Work Order Number: 2344537
Order Number: 683697 Rev. 0

Engineering Firm Designation: **Morrison Hershfield Project Number:** CN12-319R1 / 2400001

Site Data: **603 Southwest Wendy Terrace, Lake City, Columbia County, FL 32025**
Latitude 30° 6' 46.56", Longitude -82° 37' 5.17"
300 Foot – Cellxion Guyed Tower

Morrison Hershfield is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Proposed Equipment Configuration

Sufficient Capacity

This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2023 Florida Building Code, 8th Edition. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

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Certificate of Authorization #10187



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1) INTRODUCTION

This tower is a 300 ft guyed tower designed by Cellxion.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	119 mph
Exposure Category:	C
Topographic Factor:	1
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
258.0	258.0	3	commscope	FFVV-65C-R3-V1_TMO w/ Mount Pipe	2	1-5/8
		3	ericsson	AIR 6419 B41_TMO_CCIV2 w/ Mount Pipe		
		3	-	10' Mount Pipe [#P2.5 SCH40]		
		1	-	Sector Mount [SM 503-3]		
	257.0	3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
270.0	272.0	3	andrew	DBXLH-9090C-R2M w/ Mount Pipe	18 6 3 3	1-5/8 3/4 3/8 516
		6	commscope	NNHH-65B-R4 w/ Mount Pipe		
		3	commscope	SBNHH-1D65B w/ Mount Pipe		
		6	ericsson	RRUS 11		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 4426 B66		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS 4478 B5		
		6	andrew	E15Z01P06		
		1	raycap	DC6-48-60-18-8C		
		2	raycap	DC6-48-60-18-8F		
	270.0	6	andrew	CBC819-DF		
		1	-	Sector Mount [SM 502-3]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4552457	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	5167325	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4720742	CCISITES

3.1) Analysis Method

tnxTower (version 8.2.4.3), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Morrison Hershfield should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	300 - 280	Leg	2	1	-38.32	96.63	39.7	Pass
T2	280 - 260	Leg	2	49	-61.91	96.63	64.1	Pass
T3	260 - 240	Leg	2	97	-58.81	96.63	60.9	Pass
T4	240 - 220	Leg	2 1/2	145	-45.93	176.22	26.1	Pass
T5	220 - 200	Leg	2 1/4	194	-40.38	133.83	30.2	Pass
T6	200 - 180	Leg	2 1/4	242	-49.11	133.83	36.7	Pass
T7	180 - 160	Leg	2 1/4	290	-57.79	133.83	43.2	Pass
T8	160 - 140	Leg	2 1/4	338	-44.91	133.83	33.6	Pass
T9	140 - 120	Leg	2 1/4	386	-50.72	133.83	37.9	Pass
T10	120 - 100	Leg	2 1/4	433	-58.87	133.83	44.0	Pass
T11	100 - 80	Leg	2 1/4	481	-61.78	133.83	46.2	Pass
T12	80 - 60	Leg	2 1/4	529	-65.11	133.83	48.7	Pass
T13	60 - 40	Leg	2 1/4	577	-66.55	133.83	49.7	Pass
T14	40 - 20	Leg	2 1/2	625	-68.41	176.22	38.8	Pass
T15	20 - 6.8125	Leg	2 1/2	673	-63.78	176.26	36.2	Pass
T16	6.8125 - 0	Leg	2 1/2	704	-60.17	220.92	27.2	Pass
T1	300 - 280	Diagonal	1 1/4	11	-8.13	21.77	37.3	Pass
T2	280 - 260	Diagonal	1 1/8	94	-7.85	15.13	51.9	Pass
T3	260 - 240	Diagonal	1 3/8	106	-9.45	29.49	32.0	Pass
T4	240 - 220	Diagonal	1 3/8	189	-10.81	29.96	36.1	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T5	220 - 200	Diagonal	1 1/4	238	-6.70	21.98	30.5	Pass
T6	200 - 180	Diagonal	1 3/8	250	-7.55	29.73	25.4	Pass
T7	180 - 160	Diagonal	1 3/8	333	-7.87	29.73	26.5	Pass
T8	160 - 140	Diagonal	1 1/8	382	-5.39	15.31	35.2	Pass
T9	140 - 120	Diagonal	1 1/4	394	-6.33	21.98	28.8	Pass
T10	120 - 100	Diagonal	1 3/8	442	-7.30	29.73	24.5	Pass
T11	100 - 80	Diagonal	1 1/4	525	-6.97	21.98	31.7	Pass
T12	80 - 60	Diagonal	1 1/8	540	-4.77	15.31	31.1	Pass
T13	60 - 40	Diagonal	1 1/8	607	-5.23	15.31	34.2	Pass
T14	40 - 20	Diagonal	1 1/8	636	-5.37	15.49	34.7	Pass
T15	20 - 6.8125	Diagonal	1 1/8	680	-5.88	15.50	37.9	Pass
T1	300 - 280	Horizontal	1	23	-3.79	16.58	22.9	Pass
T2	280 - 260	Horizontal	7/8	91	-2.83	10.97	25.8	Pass
T3	260 - 240	Horizontal	1	110	-3.95	16.58	23.8	Pass
T4	240 - 220	Horizontal	1 1/4	173	10.44	41.75	25.0	Pass
T5	220 - 200	Horizontal	7/8	235	4.14	20.46	20.2	Pass
T6	200 - 180	Horizontal	7/8	254	4.53	20.46	22.2	Pass
T7	180 - 160	Horizontal	7/8	330	4.94	20.46	24.1	Pass
T8	160 - 140	Horizontal	7/8	379	3.25	20.46	15.9	Pass
T9	140 - 120	Horizontal	7/8	398	3.81	20.46	18.6	Pass
T10	120 - 100	Horizontal	1	460	4.72	26.72	17.7	Pass
T11	100 - 80	Horizontal	7/8	522	4.18	20.46	20.5	Pass
T12	80 - 60	Horizontal	7/8	544	2.94	20.46	14.4	Pass
T13	60 - 40	Horizontal	7/8	604	3.49	20.46	17.1	Pass
T14	40 - 20	Horizontal	7/8	640	3.33	20.46	16.3	Pass
T15	20 - 6.8125	Horizontal	7/8	685	4.19	20.46	20.5	Pass
T16	6.8125 - 0	Horizontal	L4x4x3/8	712	-1.07	94.71	29.7	Pass
T1	300 - 280	Secondary Horizontal	3/4	13	-0.00	10.42	0.0	Pass
T2	280 - 260	Secondary Horizontal	3/4	61	-0.00	10.42	0.0	Pass
T3	260 - 240	Secondary Horizontal	3/4	144	-0.00	10.42	0.0	Pass
T4	240 - 220	Secondary Horizontal	3/4	157	-0.00	10.45	0.0	Pass
T5	220 - 200	Secondary Horizontal	3/4	205	-0.00	10.43	0.0	Pass
T6	200 - 180	Secondary Horizontal	3/4	288	-0.00	10.43	0.0	Pass
T7	180 - 160	Secondary Horizontal	3/4	301	0.00	15.03	0.0	Pass
T8	160 - 140	Secondary Horizontal	3/4	384	-0.00	10.43	0.0	Pass
T9	140 - 120	Secondary Horizontal	3/4	432	-0.00	10.43	0.0	Pass
T10	120 - 100	Secondary Horizontal	3/4	445	0.00	15.03	0.0	Pass
T11	100 - 80	Secondary Horizontal	3/4	528	0.00	15.03	0.0	Pass
T12	80 - 60	Secondary	3/4	576	0.00	15.03	0.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
		Horizontal						
T13	60 - 40	Secondary Horizontal	3/4	624	-0.00	10.43	0.0	Pass
T14	40 - 20	Secondary Horizontal	3/4	672	-0.00	10.45	0.0	Pass
T15	20 - 6.8125	Secondary Horizontal	3/4	703	-0.00	10.45	0.0	Pass
T1	300 - 280	Top Girt	1	4	-0.90	16.58	5.4	Pass
T2	280 - 260	Top Girt	7/8	54	-2.00	10.97	18.2	Pass
T3	260 - 240	Top Girt	1	100	2.01	26.72	7.5	Pass
T4	240 - 220	Top Girt	1 1/4	150	-3.00	28.46	10.5	Pass
T5	220 - 200	Top Girt	7/8	198	2.41	20.46	11.8	Pass
T6	200 - 180	Top Girt	7/8	244	1.88	20.46	9.2	Pass
T7	180 - 160	Top Girt	7/8	292	2.67	20.46	13.1	Pass
T8	160 - 140	Top Girt	7/8	342	2.00	20.46	9.8	Pass
T9	140 - 120	Top Girt	7/8	389	-1.02	11.07	9.2	Pass
T10	120 - 100	Top Girt	1	438	2.42	26.72	9.0	Pass
T11	100 - 80	Top Girt	7/8	484	2.41	20.46	11.8	Pass
T12	80 - 60	Top Girt	7/8	532	-1.23	11.07	11.1	Pass
T13	60 - 40	Top Girt	7/8	580	-1.31	11.07	11.8	Pass
T14	40 - 20	Top Girt	7/8	630	-1.22	11.17	10.9	Pass
T15	20 - 6.8125	Top Girt	7/8	678	2.16	20.46	10.6	Pass
T16	6.8125 - 0	Top Girt	L4x4x3/8	709	10.59	97.30	10.9	Pass
T1	300 - 280	Bottom Girt	1	8	3.49	26.72	13.1	Pass
T2	280 - 260	Bottom Girt	7/8	57	-1.30	10.97	11.8	Pass
T3	260 - 240	Bottom Girt	1	103	-2.37	16.58	14.3	Pass
T4	240 - 220	Bottom Girt	1 1/4	152	2.91	41.75	7.0	Pass
T5	220 - 200	Bottom Girt	7/8	199	1.78	20.46	8.7	Pass
T6	200 - 180	Bottom Girt	7/8	247	2.62	20.46	12.8	Pass
T7	180 - 160	Bottom Girt	7/8	296	2.16	20.46	10.6	Pass
T8	160 - 140	Bottom Girt	7/8	343	-0.90	11.07	8.1	Pass
T9	140 - 120	Bottom Girt	7/8	391	2.13	20.46	10.4	Pass
T10	120 - 100	Bottom Girt	1	439	2.56	26.72	9.6	Pass
T11	100 - 80	Bottom Girt	7/8	489	-1.23	11.07	11.1	Pass
T12	80 - 60	Bottom Girt	7/8	535	-1.23	11.07	11.1	Pass
T13	60 - 40	Bottom Girt	7/8	585	-1.31	11.07	11.8	Pass
T14	40 - 20	Bottom Girt	7/8	633	-1.22	11.17	10.9	Pass
T1	300 - 280	Guy A@290	3/4 [ECP-24000]	735	14.77	36.73	40.2	Pass
T4	240 - 220	Guy A@230	3/4 [ECP-24000]	753	14.68	36.73	40.0	Pass
T7	180 - 160	Guy A@173.193	3/4 [ECP-24000]	763	12.57	36.73	34.2	Pass
T10	120 - 100	Guy A@113.193	3/4 [ECP-24000]	769	12.25	36.73	33.4	Pass
T13	60 - 40	Guy A@53.1927	1/2 [ECP-23000]	775	5.62	16.95	33.2	Pass
T1	300 - 280	Guy B@290	3/4 [ECP-24000]	729	15.10	36.73	41.1	Pass
T4	240 - 220	Guy B@230	3/4 [ECP-24000]	747	15.76	36.73	42.9	Pass
T7	180 - 160	Guy B@173.193	3/4 [ECP-24000]	762	13.34	36.73	36.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T10	120 - 100	Guy B@113.193	3/4 [ECP-24000]	768	13.28	36.73	36.1	Pass
T13	60 - 40	Guy B@53.1927	1/2 [ECP-23000]	774	6.05	16.95	35.7	Pass
T1	300 - 280	Guy C@290	3/4 [ECP-24000]	723	15.10	36.73	41.1	Pass
T4	240 - 220	Guy C@230	3/4 [ECP-24000]	741	15.88	36.73	43.2	Pass
T7	180 - 160	Guy C@173.193	3/4 [ECP-24000]	758	14.05	36.73	38.2	Pass
T10	120 - 100	Guy C@113.193	3/4 [ECP-24000]	764	13.93	36.73	37.9	Pass
T13	60 - 40	Guy C@53.1927	1/2 [ECP-23000]	770	6.37	16.95	37.6	Pass
T7	180 - 160	Top Guy Pull-Off@173.193	2x3/8	760	4.21	25.51	16.5	Pass
T10	120 - 100	Top Guy Pull-Off@113.193	2x3/8	766	3.69	25.51	14.5	Pass
T13	60 - 40	Top Guy Pull-Off@53.1927	2x3/8	773	2.89	25.51	11.3	Pass
T1	300 - 280	Torque Arm Top@290	L3 1/2x3 1/2x3/8	737	14.08	72.11	19.5 33.4 (b)	Pass
T4	240 - 220	Torque Arm Top@230	L3 1/2x3 1/2x3/8	755	16.12	72.11	22.3 38.2 (b)	Pass
T1	300 - 280	Torque Arm Bottom@290	L3 1/2x3 1/2x3/8	727	-19.42	74.43	26.1 34.2 (b)	Pass
T4	240 - 220	Torque Arm Bottom@230	L3 1/2x3 1/2x3/8	745	-17.03	74.67	22.8 30.0 (b)	Pass
							Summary	
						Leg (T2)	64.1	Pass
						Diagonal (T2)	51.9	Pass
						Horizontal (T16)	29.7	Pass
						Secondary Horizontal (T10)	0.0	Pass
						Top Girt (T2)	18.2	Pass
						Bottom Girt (T3)	14.3	Pass
						Guy A (T1)	40.2	Pass
						Guy B (T4)	42.9	Pass
						Guy C (T4)	43.2	Pass
						Top Guy Pull-Off (T7)	16.5	Pass
						Torque Arm Top (T4)	38.2	Pass
						Torque Arm Bottom (T1)	34.2	Pass
						Bolt Checks	38.2	Pass
						Rating =	64.1	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Base Foundation (Structure)	0	25.4	Pass
1	Base Foundation (Soil Interaction)		62.2	Pass
1	Guy Anchor Shaft	0	76.7	Pass
1	Guy Anchor Foundation Structural		9.4	Pass
1	Guy Anchor Foundation Soil Interaction		22.6	Pass

Structure Rating (max from all components) =	76.7%*
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Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) *Rating per TIA-222-H, Section 15.5.

4.1) Recommendations

The tower and its base and anchor foundations have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 300.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 3.00 ft at the top and tapered at the base.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in Columbia County, Florida.

Tower base elevation above sea level: 87.00 ft.

Basic wind speed of 119 mph.

Risk Category II.

Exposure Category C.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Deflections calculated using a wind speed of 60 mph.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

Safety factor used in guy design is 1.

Tower analysis based on target reliabilities in accordance with Annex S.

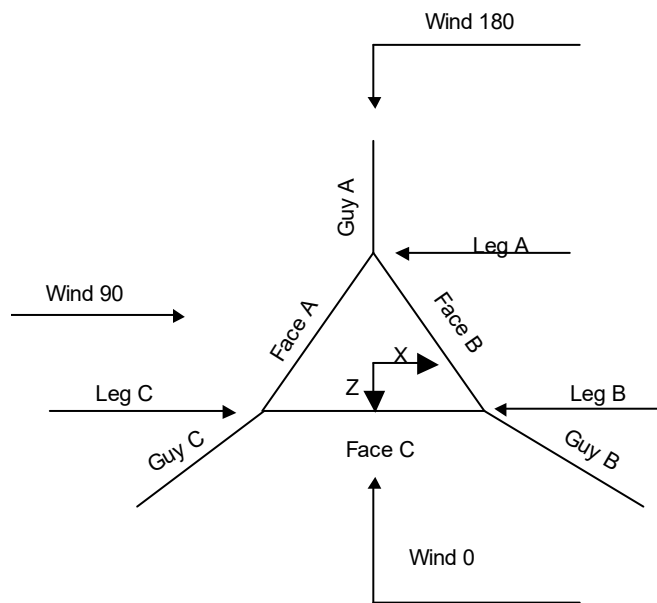
Load Modification Factors used: $K_{es}(F_w) = 0.95$.

Maximum demand-capacity ratio is: 1.05.

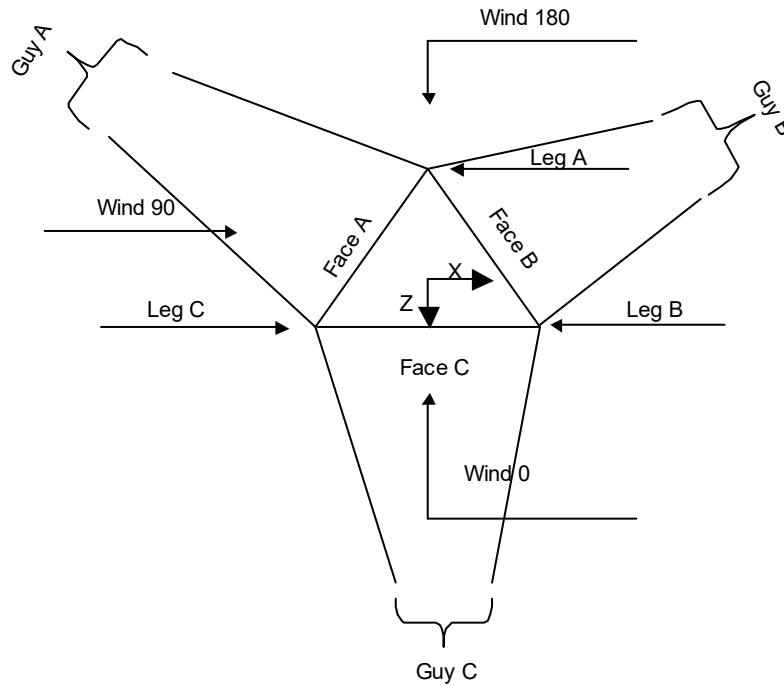
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Horizontals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Consider Moments - Diagonals	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
Use Moment Magnification	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Stress Ratios	√ Retension Guys To Initial Tension	Offset Girt At Foundation
√ Use Code Safety Factors - Guys	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Escalate Ice	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Always Use Max Kz	√ Project Wind Area of Appurtenances	Use TIA-222-H Bracing Resist. Exemption
Use Special Wind Profile	√ Alternative Appurt. EPA Calculation	Use TIA-222-H Tension Splice Exemption
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
√ SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Pole Without Linear Attachments
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole With Shroud Or No Appurtenances
Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules	Outside and Inside Corner Radii Are Known



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	300.00-280.00			3.00	1	20.00
T2	280.00-260.00			3.00	1	20.00
T3	260.00-240.00			3.00	1	20.00
T4	240.00-220.00			3.00	1	20.00
T5	220.00-200.00			3.00	1	20.00
T6	200.00-180.00			3.00	1	20.00
T7	180.00-160.00			3.00	1	20.00
T8	160.00-140.00			3.00	1	20.00
T9	140.00-120.00			3.00	1	20.00
T10	120.00-100.00			3.00	1	20.00
T11	100.00-80.00			3.00	1	20.00
T12	80.00-60.00			3.00	1	20.00
T13	60.00-40.00			3.00	1	20.00
T14	40.00-20.00			3.00	1	20.00
T15	20.00-6.81			3.00	1	13.19
T16	6.81-0.00			3.00	1	6.81

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	300.00-280.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T2	280.00-260.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T3	260.00-240.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T4	240.00-220.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T5	220.00-200.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T6	200.00-180.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T7	180.00-160.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T8	160.00-140.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T9	140.00-120.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T10	120.00-100.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T11	100.00-80.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T12	80.00-60.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T13	60.00-40.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T14	40.00-20.00	3.19	Diag Up	No	Yes+Steps	5.0625	5.0625
T15	20.00-6.81	3.19	Diag Up	No	Yes+Steps	5.0625	0.0000
T16	6.81-0.00	1.30	X Brace	No	Yes	3.6250	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 300.00-280.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T2 280.00-260.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1 1/8	A36 (36 ksi)
T3 260.00-240.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T4 240.00-220.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T5 220.00-200.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T6 200.00-180.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T7 180.00-160.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T8 160.00-140.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/8	A36 (36 ksi)
T9 140.00-120.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T10 120.00-100.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T11 100.00-80.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T12 80.00-60.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/8	A36 (36 ksi)
T13 60.00-40.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/8	A36 (36 ksi)
T14 40.00-20.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 1/8	A36 (36 ksi)
T15 20.00-6.81	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 1/8	A36 (36 ksi)
T16 6.81-0.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 300.00-280.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T2 280.00-260.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T3 260.00-240.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T4 240.00-220.00	Solid Round	1 1/4	A36 (36 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T5 220.00-200.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T6 200.00-180.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T7 180.00-160.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T8 160.00-140.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T9 140.00-120.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T10 120.00-100.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T11 100.00-80.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T12 80.00-60.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T13 60.00-40.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T14 40.00-20.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T15 20.00-6.81	Solid Round	7/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T16 6.81-0.00	Equal Angle	L4x4x3/8	A36 (36 ksi)	Equal Angle	L4x4x3/8	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 300.00-280.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T2 280.00-260.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T3 260.00-240.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T4 240.00-220.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T5 220.00-200.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T6 200.00-180.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T7 180.00-160.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T8 160.00-140.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T9 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T10 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T11 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T12 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T13 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T14 40.00-20.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T15 20.00-6.81	None	Flat Bar		A36	Solid Round	7/8	A36

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T16 6.81-0.00	None	Flat Bar		(36 ksi) A36 (36 ksi)	Equal Angle	L4x4x3/8	(36 ksi) A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 300.00-280.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 280.00-260.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 260.00-240.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T4 240.00-220.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T5 220.00-200.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T6 200.00-180.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T7 180.00-160.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T8 160.00-140.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T9 140.00-120.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T10 120.00-100.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T11 100.00-80.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T12 80.00-60.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T13 60.00-40.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T14 40.00-20.00	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T15 20.00-6.81	Solid Round	3/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 300.00-280.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T2 280.00-260.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T3 260.00-240.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T4 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T5 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T6 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T7 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
T8 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T9 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T10 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T11 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T12 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T13 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T14 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T15 20.00-6.81	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000
T16 6.81-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1 300.00-280.00	No	Yes	1	1	1	1	1	1	1	1
T2 280.00-260.00	No	Yes	1	1	1	1	1	1	1	1
T3 260.00-240.00	No	Yes	1	1	1	1	1	1	1	1
T4 240.00-220.00	No	Yes	1	1	1	1	1	1	1	1
T5 220.00-200.00	No	Yes	1	1	1	1	1	1	1	1
T6 200.00-180.00	No	Yes	1	1	1	1	1	1	1	1
T7 180.00-160.00	No	Yes	1	1	1	1	1	1	1	1
T8 160.00-140.00	No	Yes	1	1	1	1	1	1	1	1
T9 140.00-120.00	No	Yes	1	1	1	1	1	1	1	1
T10 120.00-100.00	No	Yes	1	1	1	1	1	1	1	1
T11 100.00-80.00	No	Yes	1	1	1	1	1	1	1	1
T12 80.00-60.00	No	Yes	1	1	1	1	1	1	1	1
T13 60.00-40.00	No	Yes	1	1	1	1	1	1	1	1
T14 40.00-20.00	No	Yes	1	1	1	1	1	1	1	1
T15 20.00-6.81	No	Yes	1	1	1	1	1	1	1	1
T16 6.81-0.00	Yes	Yes	1	1	1	1	1	1	1	1

¹Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 300.00-280.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T2 280.00-260.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T3 260.00-240.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T4 240.00-220.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T5 220.00-200.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T6 200.00-180.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T7 180.00-160.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T8 160.00-140.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T9 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T10 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T11 100.00-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T12 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T13 60.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T14 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T15 20.00-6.81	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T16 6.81-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub- Diagonal		Redundant Sub- Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 300.00-280.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
		(1)		(1)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75	0.0000	0.75							0.0000	0.75 (3)	0.0000	0.75 (3)
		(2)		(2)							0.0000	0.75 (4)	0.0000	0.75 (4)
T2 280.00-260.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
		(1)		(1)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75	0.0000	0.75							0.0000	0.75 (3)	0.0000	0.75 (3)
		(2)		(2)							0.0000	0.75 (4)	0.0000	0.75 (4)
T3 260.00-240.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
		(1)		(1)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75	0.0000	0.75							0.0000	0.75 (3)	0.0000	0.75 (3)
		(2)		(2)							0.0000	0.75 (4)	0.0000	0.75 (4)

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub- Diagonal		Redundant Sub- Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T4 240.00- 220.00	0.0000	0.75 (3)	0.0000	0.75 (3)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
T5 220.00- 200.00	0.0000	0.75 (4)	0.0000	0.75 (4)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T6 200.00- 180.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
T7 180.00- 160.00	0.0000	0.75 (2)	0.0000	0.75 (2)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
T8 160.00- 140.00	0.0000	0.75 (3)	0.0000	0.75 (3)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
T9 140.00- 120.00	0.0000	0.75 (4)	0.0000	0.75 (4)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T10 120.00- 100.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
T11 100.00- 80.00	0.0000	0.75 (2)	0.0000	0.75 (2)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub- Diagonal		Redundant Sub- Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T12 80.00- 60.00	0.0000	0.75 (3)	0.0000	0.75 (3)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
T13 60.00- 40.00	0.0000	0.75 (4)	0.0000	0.75 (4)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T14 40.00- 20.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
T15 20.00- 6.81	0.0000	0.75 (2)	0.0000	0.75 (2)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
T16 6.81-0.00	0.0000	0.75 (3)	0.0000	0.75 (3)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 300.00- 280.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T2 280.00- 260.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T3 260.00- 240.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T4 240.00- 220.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T5 220.00- 200.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T6 200.00- 180.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T7 180.00- 160.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T8 160.00- 140.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T9 140.00- 120.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T10 120.00- 100.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T11 100.00- 80.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T12 80.00- 60.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T13 60.00- 40.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T14 40.00- 20.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T15 20.00- 6.81	Flange	0.0000	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T16 6.81-0.00	Flange	0.0000	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0

Guy Data

Guy Elevation	Guy Grade	Guy Size	Initial Tension	%	Guy Modulus	Guy Weight	L_u	Anchor Radius	Anchor Azimuth Adj.	Anchor Elevation	End Fitting Efficiency
ft			K		ksi	plf	ft	ft	°	ft	%
290	EHS	A 3/4 [ECP- 24000]	5.83	10%	24000	1.155	365.59	225.00	0.0000	0.00	100%
		B 24000]	5.83	10%	24000	1.155	365.59	225.00	0.0000	0.00	100%
		C 3/4 [ECP- 24000]	5.83	10%	24000	1.155	365.59	225.00	0.0000	0.00	100%
		3/4 [ECP- 24000]									
230	EHS	A 3/4 [ECP- 24000]	5.83	10%	24000	1.155	320.15	225.00	0.0000	0.00	100%
		B 24000]	5.83	10%	24000	1.155	320.15	225.00	0.0000	0.00	100%
		C 3/4 [ECP- 24000]	5.83	10%	24000	1.155	320.15	225.00	0.0000	0.00	100%
		3/4 [ECP- 24000]									
173.193	EHS	A 3/4 [ECP- 24000]	5.83	10%	24000	1.155	282.38	225.00	0.0000	0.00	100%
		B 24000]	5.83	10%	24000	1.155	282.38	225.00	0.0000	0.00	100%
		C 3/4 [ECP- 24000]	5.83	10%	24000	1.155	282.38	225.00	0.0000	0.00	100%
		3/4 [ECP- 24000]									
113.193	EHS	A 3/4 [ECP- 24000]	5.83	10%	24000	1.155	250.16	225.00	0.0000	0.00	100%
		B 24000]	5.83	10%	24000	1.155	250.16	225.00	0.0000	0.00	100%
		C 3/4 [ECP- 24000]	5.83	10%	24000	1.155	250.16	225.00	0.0000	0.00	100%
		3/4 [ECP- 24000]									

53.1927	EHS	A	1/2 [ECP- 23000]	2.69	10%	23000	0.517	229.35	225.00	0.0000	0.00	100%
		B	23000]	2.69	10%	23000	0.517	229.35	225.00	0.0000	0.00	100%
		C	1/2 [ECP- 23000]	2.69	10%	23000	0.517	229.35	225.00	0.0000	0.00	100%
			1/2 [ECP- 23000]									

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
290	Torque Arm	7.00	20.0000	Bat Ear	A36 (36 ksi)	Equal Angle	L3 1/2x3 1/2x3/8
230	Torque Arm	7.00	20.0000	Bat Ear	A36 (36 ksi)	Equal Angle	L3 1/2x3 1/2x3/8
173.193	Corner						
113.193	Corner						
53.1927	Corner						

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
290.00	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Solid Round	
230.00	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Solid Round	
173.19	A36 (36 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	2x3/8
113.19	A36 (36 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	2x3/8
53.19	A36 (36 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	2x3/8

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
290	0.42	0.42	0.42		12.88 6.2 sec/pulse	12.88 6.2 sec/pulse	12.88 6.2 sec/pulse	
230	0.37	0.37	0.37		9.94 5.4 sec/pulse	9.94 5.4 sec/pulse	9.94 5.4 sec/pulse	
173.193	0.33	0.33	0.33		7.77 4.8 sec/pulse	7.77 4.8 sec/pulse	7.77 4.8 sec/pulse	
113.193	0.29	0.29	0.29		6.14 4.3 sec/pulse	6.14 4.3 sec/pulse	6.14 4.3 sec/pulse	
53.1927	0.12	0.12	0.12		5.03 3.9 sec/pulse	5.03 3.9 sec/pulse	5.03 3.9 sec/pulse	

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K_x	K_y	K_x	K_y	K_x	K_y
290	No	No	1	1	0.7	0.7	1	1
230	No	No	1	1	0.7	0.7	1	1
173.193	No	No			0.7	0.7	1	1
113.193	No	No			0.7	0.7	1	1
53.1927	No	No			0.7	0.7	1	1

Guy Data (cont'd)

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
290	0.8750 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
230	0.8750 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
173.193	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
113.193	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
53.1927	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
290	A	145.00	40		
	B	145.00	40		
	C	145.00	40		
230	A	115.00	38		
	B	115.00	38		
	C	115.00	38		
173.193	A	86.60	36		
	B	86.60	36		
	C	86.60	36		
113.193	A	56.60	33		
	B	56.60	33		
	C	56.60	33		
53.1927	A	26.60	28		
	B	26.60	28		
	C	26.60	28		

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
290	A	52.4401	6.16	-0.06	4.96	-3.65	-10.03	12.90	-17.38

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
230	A	52.4401	5.83	0.06	4.96	-3.65	-10.03	-12.90	17.38
			6.16						
	B	52.4401	5.83	3.19	4.96	1.78	20.07	12.90	0.00
			6.16						
	B	52.4401	5.83	3.14	4.96	1.88	-10.03	-12.90	-17.38
			6.16						
	C	52.4401	5.83	-3.14	4.96	1.88	-10.03	12.90	17.38
			6.16						
	C	52.4401	5.83	-3.19	4.96	1.78	20.07	-12.90	0.00
			6.16						
	A	45.8844	5.83	0.00	29.79	0.00	-0.00	0.00	0.00
			Sum:						
173.193	A	45.8844	6.10	-0.07	4.47	-4.15	-9.02	14.65	-15.63
			5.83						
	A	45.8844	6.10	0.07	4.47	-4.15	-9.02	-14.65	15.63
			5.83						
	B	45.8844	6.10	3.63	4.47	2.02	18.05	14.65	0.00
			5.83						
	B	45.8844	6.10	3.56	4.47	2.13	-9.02	-14.65	-15.63
			5.83						
	C	45.8844	6.10	-3.56	4.47	2.13	-9.02	14.65	15.63
			5.83						
	C	45.8844	6.10	-3.63	4.47	2.02	18.05	-14.65	0.00
			5.83						
113.193	A	37.8013	5.83	0.00	26.79	0.00	-0.00	0.00	0.00
			Sum:						
	A	37.8013	6.03	0.00	3.80	-4.68	-6.58	0.00	0.00
			5.83						
	B	37.8013	6.03	4.06	3.80	2.34	3.29	0.00	-5.70
			5.83						
	C	37.8013	6.03	-4.06	3.80	2.34	3.29	-0.00	5.70
			5.83						
	A	26.8842	5.83	0.00	11.39	0.00	0.00	0.00	0.00
			Sum:						
	B	26.8842	5.96	0.00	2.81	-5.26	-4.87	0.00	0.00
			5.83						
53.1927	B	26.8842	5.96	4.55	2.81	2.63	2.43	0.00	-4.22
			5.83						
	C	26.8842	5.96	-4.55	2.81	2.63	2.43	-0.00	4.22
			5.83						
	A	13.4007	5.83	0.00	8.43	0.00	0.00	0.00	0.00
			Sum:						
	A	13.4007	2.72	0.00	0.69	-2.63	-1.19	0.00	0.00
			2.69						
	B	13.4007	2.72	2.28	0.69	1.31	0.59	0.00	-1.03
			2.69						
	C	13.4007	2.72	-2.28	0.69	1.31	0.59	0.00	1.03
			2.69						
			Sum:	0.00	2.06	0.00	0.00	0.00	0.00

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
290	A	52.4401	6.16	-0.06	4.96	-3.65	-10.03	12.90	-17.38
			5.83						
	A	52.4401	6.16	0.06	4.96	-3.65	-10.03	-12.90	17.38
			5.83						
	B	52.4401	6.16	3.19	4.96	1.78	20.07	12.90	0.00
			5.83						
	B	52.4401	6.16	3.14	4.96	1.88	-10.03	-12.90	-17.38
			5.83						

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
230	C	52.4401	6.16 5.83	-3.14	4.96	1.88	-10.03	12.90	17.38
	C	52.4401	6.16 5.83	-3.19	4.96	1.78	20.07	-12.90	0.00
	A	45.8844	Sum: 6.10 5.83	0.00 -0.07	29.79 4.47	0.00 -4.15	-0.00 -9.02	0.00 14.65	0.00 -15.63
	A	45.8844	6.10 5.83	0.07	4.47	-4.15	-9.02	-14.65	15.63
	B	45.8844	6.10 5.83	3.63	4.47	2.02	18.05	14.65	0.00
	B	45.8844	6.10 5.83	3.56	4.47	2.13	-9.02	-14.65	-15.63
	C	45.8844	6.10 5.83	-3.56	4.47	2.13	-9.02	14.65	15.63
	C	45.8844	6.10 5.83	-3.63	4.47	2.02	18.05	-14.65	0.00
173.193	A	37.8013	Sum: 6.03 5.83	0.00 0.00	26.79 3.80	0.00 -4.68	-0.00 -6.58	0.00 0.00	0.00 0.00
	B	37.8013	6.03 5.83	4.06	3.80	2.34	3.29	0.00	-5.70
	C	37.8013	6.03 5.83	-4.06	3.80	2.34	3.29	-0.00	5.70
	A	26.8842	Sum: 5.96 5.83	0.00 0.00	11.39 2.81	0.00 -5.26	0.00 -4.87	0.00 0.00	0.00 0.00
113.193	B	26.8842	5.96 5.83	4.55	2.81	2.63	2.43	0.00	-4.22
	C	26.8842	5.96 5.83	-4.55	2.81	2.63	2.43	-0.00	4.22
	A	13.4007	Sum: 2.72 2.69	0.00 0.00	8.43 0.69	0.00 -2.63	0.00 -1.19	0.00 0.00	0.00 0.00
	B	13.4007	2.72 2.69	2.28	0.69	1.31	0.59	0.00	-1.03
53.1927	C	13.4007	2.72 2.69	-2.28	0.69	1.31	0.59	0.00	1.03
	Sum:			0.00	2.06	0.00	0.00	0.00	0.00

Guy-Tensioning Information

Temperature At Time Of Tensioning																
Guy Elevation ft	H ft	V ft	0 F		20 F		40 F		60 F		80 F		100 F		120 F	
			Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft
290	A	223.01	290.00	6.835	11.03	6.493	11.60	6.157	12.21	5.830	12.88	5.512	13.61	5.204	14.39	4.907
	B	223.01	290.00	6.835	11.03	6.493	11.60	6.157	12.21	5.830	12.88	5.512	13.61	5.204	14.39	4.907
	C	223.01	290.00	6.835	11.03	6.493	11.60	6.157	12.21	5.830	12.88	5.512	13.61	5.204	14.39	4.907
230	A	223.01	230.00	7.151	8.13	6.699	8.67	6.258	9.27	5.830	9.94	5.418	10.68	5.024	11.49	4.652
	B	223.01	230.00	7.151	8.13	6.699	8.67	6.258	9.27	5.830	9.94	5.418	10.68	5.024	11.49	4.652
	C	223.01	230.00	7.151	8.13	6.699	8.67	6.258	9.27	5.830	9.94	5.418	10.68	5.024	11.49	4.652
173.193	A	223.27	173.19	7.542	6.03	6.953	6.53	6.381	7.11	5.830	7.77	5.305	8.53	4.812	9.39	4.357
	B	223.27	173.19	7.542	6.03	6.953	6.53	6.381	7.11	5.830	7.77	5.305	8.53	4.812	9.39	4.357
	C	223.27	173.19	7.542	6.03	6.953	6.53	6.381	7.11	5.830	7.77	5.305	8.53	4.812	9.39	4.357
113.193	A	223.27	113.19	8.031	4.47	7.271	4.93	6.534	5.48	5.830	6.14	5.169	6.91	4.562	7.82	4.023
	B	223.27	113.19	8.031	4.47	7.271	4.93	6.534	5.48	5.830	6.14	5.169	6.91	4.562	7.82	4.023
	C	223.27	113.19	8.031	4.47	7.271	4.93	6.534	5.48	5.830	6.14	5.169	6.91	4.562	7.82	4.023
53.1927	A	223.27	53.19	3.830	3.54	3.437	3.94	3.056	4.43	2.690	5.03	2.347	5.77	2.036	6.64	1.763
	B	223.27	53.19	3.830	3.54	3.437	3.94	3.056	4.43	2.690	5.03	2.347	5.77	2.036	6.64	1.763
	C	223.27	53.19	3.830	3.54	3.437	3.94	3.056	4.43	2.690	5.03	2.347	5.77	2.036	6.64	1.763

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf

Safety Line 3/8	C	No	No	Ar (CaAa)	300.00 - 7.00	0.0000	-0.3	1	1	0.3750	0.3750		0.22
1/2" Light Cable	A	No	No	Ar (CaAa)	300.00 - 7.00	0.0000	0.49	1	1	0.8500 0.7500	0.5800		0.25
1/2" Light Cable	B	No	No	Ar (CaAa)	300.00 - 7.00	0.0000	-0.49	1	1	0.8500 0.7500	0.5800		0.25
waveguide bracket	A	No	No	Af (CaAa)	300.00 - 7.00	0.0000	0	1	1	1.7500	1.7500		1.27
waveguide bracket	B	No	No	Af (CaAa)	300.00 - 7.00	0.0000	0	1	1	1.7500	1.7500		1.27

ATCB- B01(5/16)	A	No	No	Ar (CaAa)	270.00 - 7.00	1.0000	-0.03	2	2	0.3150	0.3150		0.07
LDF7-50A(1- 5/8)	A	No	No	Ar (CaAa)	270.00 - 7.00	0.0000	0.2	6	6	0.5000	1.9800		0.82
FB-L98-002- XXX(3/8)	A	No	No	Ar (CaAa)	270.00 - 7.00	2.0000	-0.03	1	1	0.3937	0.3937		0.06
WR- VG86ST- BRD(3/4)	A	No	No	Ar (CaAa)	270.00 - 7.00	0.0000	-0.03	2	2	0.5000	0.7950		0.58
LDF7-50A(1- 5/8)	B	No	No	Ar (CaAa)	270.00 - 7.00	0.0000	0.07	12	8	0.5000	1.9800		0.82
WR- VG86ST- BRD(3/4)	B	No	No	Ar (CaAa)	270.00 - 7.00	0.0000	0.35	4	1	0.5000	0.7950		0.58
FB-L98B- 002- XXX(3/8)	B	No	No	Ar (CaAa)	270.00 - 7.00	0.0000	0.37	2	1	0.3937	0.3937		0.06
ATCB- B01(5/16)	B	No	No	Ar (CaAa)	270.00 - 7.00	2.0000	0.37	1	1	0.3150	0.3150		0.07

HB158- 21U6S24- xxM_TMO(1- 5/8)	C	No	No	Ar (CaAa)	260.00 - 7.00	0.0000	0	2	2	0.5000	1.9960		2.50

Feed Line/Linear Appurtenances Section Areas

Tower Section n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	300.00-280.00	A	0.000	0.000	6.993	0.000	0.03
		B	0.000	0.000	6.993	0.000	0.03
		C	0.000	0.000	0.750	0.000	0.00
T2	280.00-260.00	A	0.000	0.000	21.487	0.000	0.09
		B	0.000	0.000	35.036	0.000	0.15
		C	0.000	0.000	0.750	0.000	0.00
T3	260.00-240.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T4	240.00-220.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T5	220.00-200.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T6	200.00-180.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10

Tower Sectio n	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
T7	180.00-160.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T8	160.00-140.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T9	140.00-120.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T10	120.00-100.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T11	100.00-80.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T12	80.00-60.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T13	60.00-40.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T14	40.00-20.00	A	0.000	0.000	35.981	0.000	0.16
		B	0.000	0.000	63.078	0.000	0.28
		C	0.000	0.000	8.734	0.000	0.10
T15	20.00-6.81	A	0.000	0.000	23.387	0.000	0.10
		B	0.000	0.000	41.001	0.000	0.18
		C	0.000	0.000	5.677	0.000	0.07
T16	6.81-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
T1	300.00-280.00	0.2302	-1.9532	0.2302	-1.9532
T2	280.00-260.00	2.4679	-3.9127	2.4679	-3.9127
T3	260.00-240.00	3.0554	-3.8314	3.0554	-3.8314
T4	240.00-220.00	2.9231	-3.7044	2.9231	-3.7044
T5	220.00-200.00	3.0312	-3.8084	3.0312	-3.8084
T6	200.00-180.00	3.0140	-3.7920	3.0140	-3.7920
T7	180.00-160.00	2.9557	-3.7453	2.9557	-3.7453
T8	160.00-140.00	3.0488	-3.8251	3.0488	-3.8251
T9	140.00-120.00	3.0312	-3.8084	3.0312	-3.8084
T10	120.00-100.00	2.9429	-3.7329	2.9429	-3.7329
T11	100.00-80.00	3.0312	-3.8084	3.0312	-3.8084
T12	80.00-60.00	3.0488	-3.8251	3.0488	-3.8251
T13	60.00-40.00	2.9884	-3.7770	2.9884	-3.7770
T14	40.00-20.00	2.9937	-3.7725	2.9937	-3.7725
T15	20.00-6.81	2.9896	-3.7686	2.9896	-3.7686
T16	6.81-0.00	0.0000	0.0000	0.0000	0.0000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	Safety Line 3/8	280.00 - 300.00	0.6000	0.6000
T1	3	1/2" Light Cable	280.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	4	1/2" Light Cable	300.00 280.00 - 300.00	0.6000	0.6000
T1	5	waveguide bracket	280.00 - 300.00	0.6000	0.6000
T1	6	waveguide bracket	280.00 - 300.00	0.6000	0.6000
T2	2	Safety Line 3/8	260.00 - 280.00	0.6000	0.6000
T2	3	1/2" Light Cable	260.00 - 280.00	0.6000	0.6000
T2	4	1/2" Light Cable	260.00 - 280.00	0.6000	0.6000
T2	5	waveguide bracket	260.00 - 280.00	0.6000	0.6000
T2	6	waveguide bracket	260.00 - 280.00	0.6000	0.6000
T2	8	ATCB-B01(5/16)	260.00 - 270.00	0.6000	0.6000
T2	9	LDF7-50A(1-5/8)	260.00 - 270.00	0.6000	0.6000
T2	10	FB-L98-002-XXX(3/8)	260.00 - 270.00	0.6000	0.6000
T2	11	WR-VG86ST-BRD(3/4)	260.00 - 270.00	0.6000	0.6000
T2	12	LDF7-50A(1-5/8)	260.00 - 270.00	0.6000	0.6000
T2	13	WR-VG86ST-BRD(3/4)	260.00 - 270.00	0.6000	0.6000
T2	14	FB-L98B-002-XXX(3/8)	260.00 - 270.00	0.6000	0.6000
T2	15	ATCB-B01(5/16)	260.00 - 270.00	0.6000	0.6000
T3	2	Safety Line 3/8	240.00 - 260.00	0.6000	0.6000
T3	3	1/2" Light Cable	240.00 - 260.00	0.6000	0.6000
T3	4	1/2" Light Cable	240.00 - 260.00	0.6000	0.6000
T3	5	waveguide bracket	240.00 - 260.00	0.6000	0.6000
T3	6	waveguide bracket	240.00 - 260.00	0.6000	0.6000
T3	8	ATCB-B01(5/16)	240.00 - 260.00	0.6000	0.6000
T3	9	LDF7-50A(1-5/8)	240.00 - 260.00	0.6000	0.6000
T3	10	FB-L98-002-XXX(3/8)	240.00 - 260.00	0.6000	0.6000
T3	11	WR-VG86ST-BRD(3/4)	240.00 - 260.00	0.6000	0.6000
T3	12	LDF7-50A(1-5/8)	240.00 - 260.00	0.6000	0.6000
T3	13	WR-VG86ST-BRD(3/4)	240.00 - 260.00	0.6000	0.6000
T3	14	FB-L98B-002-XXX(3/8)	240.00 - 260.00	0.6000	0.6000
T3	15	ATCB-B01(5/16)	240.00 - 260.00	0.6000	0.6000
T3	17	HB158-21U6S24-xxM_TMO(1-5/8)	240.00 - 260.00	0.6000	0.6000
T4	2	Safety Line 3/8	220.00 - 240.00	0.6000	0.6000
T4	3	1/2" Light Cable	220.00 - 240.00	0.6000	0.6000
T4	4	1/2" Light Cable	220.00 - 240.00	0.6000	0.6000
T4	5	waveguide bracket	220.00 - 240.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	6	waveguide bracket	220.00 - 240.00	0.6000	0.6000
T4	8	ATCB-B01(5/16)	220.00 - 240.00	0.6000	0.6000
T4	9	LDF7-50A(1-5/8)	220.00 - 240.00	0.6000	0.6000
T4	10	FB-L98-002-XXX(3/8)	220.00 - 240.00	0.6000	0.6000
T4	11	WR-VG86ST-BRD(3/4)	220.00 - 240.00	0.6000	0.6000
T4	12	LDF7-50A(1-5/8)	220.00 - 240.00	0.6000	0.6000
T4	13	WR-VG86ST-BRD(3/4)	220.00 - 240.00	0.6000	0.6000
T4	14	FB-L98B-002-XXX(3/8)	220.00 - 240.00	0.6000	0.6000
T4	15	ATCB-B01(5/16)	220.00 - 240.00	0.6000	0.6000
T4	17	HB158-21U6S24-xxM_TMO(1-5/8)	220.00 - 240.00	0.6000	0.6000
T5	2	Safety Line 3/8	200.00 - 220.00	0.6000	0.6000
T5	3	1/2" Light Cable	200.00 - 220.00	0.6000	0.6000
T5	4	1/2" Light Cable	200.00 - 220.00	0.6000	0.6000
T5	5	waveguide bracket	200.00 - 220.00	0.6000	0.6000
T5	6	waveguide bracket	200.00 - 220.00	0.6000	0.6000
T5	8	ATCB-B01(5/16)	200.00 - 220.00	0.6000	0.6000
T5	9	LDF7-50A(1-5/8)	200.00 - 220.00	0.6000	0.6000
T5	10	FB-L98-002-XXX(3/8)	200.00 - 220.00	0.6000	0.6000
T5	11	WR-VG86ST-BRD(3/4)	200.00 - 220.00	0.6000	0.6000
T5	12	LDF7-50A(1-5/8)	200.00 - 220.00	0.6000	0.6000
T5	13	WR-VG86ST-BRD(3/4)	200.00 - 220.00	0.6000	0.6000
T5	14	FB-L98B-002-XXX(3/8)	200.00 - 220.00	0.6000	0.6000
T5	15	ATCB-B01(5/16)	200.00 - 220.00	0.6000	0.6000
T5	17	HB158-21U6S24-xxM_TMO(1-5/8)	200.00 - 220.00	0.6000	0.6000
T6	2	Safety Line 3/8	180.00 - 200.00	0.6000	0.6000
T6	3	1/2" Light Cable	180.00 - 200.00	0.6000	0.6000
T6	4	1/2" Light Cable	180.00 - 200.00	0.6000	0.6000
T6	5	waveguide bracket	180.00 - 200.00	0.6000	0.6000
T6	6	waveguide bracket	180.00 - 200.00	0.6000	0.6000
T6	8	ATCB-B01(5/16)	180.00 - 200.00	0.6000	0.6000
T6	9	LDF7-50A(1-5/8)	180.00 - 200.00	0.6000	0.6000
T6	10	FB-L98-002-XXX(3/8)	180.00 - 200.00	0.6000	0.6000
T6	11	WR-VG86ST-BRD(3/4)	180.00 - 200.00	0.6000	0.6000
T6	12	LDF7-50A(1-5/8)	180.00 - 200.00	0.6000	0.6000
T6	13	WR-VG86ST-BRD(3/4)	180.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T6	14	FB-L98B-002-XXX(3/8)	200.00 180.00 -	0.6000	0.6000
T6	15	ATCB-B01(5/16)	200.00 180.00 -	0.6000	0.6000
T6	17	HB158-21U6S24-xxM_TMO(1-5/8)	200.00 180.00 -	0.6000	0.6000
T7	2	Safety Line 3/8	200.00 160.00 -	0.6000	0.6000
T7	3	1/2" Light Cable	180.00 160.00 -	0.6000	0.6000
T7	4	1/2" Light Cable	180.00 160.00 -	0.6000	0.6000
T7	5	waveguide bracket	180.00 160.00 -	0.6000	0.6000
T7	6	waveguide bracket	180.00 160.00 -	0.6000	0.6000
T7	8	ATCB-B01(5/16)	180.00 160.00 -	0.6000	0.6000
T7	9	LDF7-50A(1-5/8)	180.00 160.00 -	0.6000	0.6000
T7	10	FB-L98-002-XXX(3/8)	180.00 160.00 -	0.6000	0.6000
T7	11	WR-VG86ST-BRD(3/4)	180.00 160.00 -	0.6000	0.6000
T7	12	LDF7-50A(1-5/8)	180.00 160.00 -	0.6000	0.6000
T7	13	WR-VG86ST-BRD(3/4)	180.00 160.00 -	0.6000	0.6000
T7	14	FB-L98B-002-XXX(3/8)	180.00 160.00 -	0.6000	0.6000
T7	15	ATCB-B01(5/16)	180.00 160.00 -	0.6000	0.6000
T7	17	HB158-21U6S24-xxM_TMO(1-5/8)	180.00 160.00 -	0.6000	0.6000
T8	2	Safety Line 3/8	160.00 140.00 -	0.6000	0.6000
T8	3	1/2" Light Cable	160.00 140.00 -	0.6000	0.6000
T8	4	1/2" Light Cable	160.00 140.00 -	0.6000	0.6000
T8	5	waveguide bracket	160.00 140.00 -	0.6000	0.6000
T8	6	waveguide bracket	160.00 140.00 -	0.6000	0.6000
T8	8	ATCB-B01(5/16)	160.00 140.00 -	0.6000	0.6000
T8	9	LDF7-50A(1-5/8)	160.00 140.00 -	0.6000	0.6000
T8	10	FB-L98-002-XXX(3/8)	160.00 140.00 -	0.6000	0.6000
T8	11	WR-VG86ST-BRD(3/4)	160.00 140.00 -	0.6000	0.6000
T8	12	LDF7-50A(1-5/8)	160.00 140.00 -	0.6000	0.6000
T8	13	WR-VG86ST-BRD(3/4)	160.00 140.00 -	0.6000	0.6000
T8	14	FB-L98B-002-XXX(3/8)	160.00 140.00 -	0.6000	0.6000
T8	15	ATCB-B01(5/16)	160.00 140.00 -	0.6000	0.6000
T8	17	HB158-21U6S24-xxM_TMO(1-5/8)	160.00 140.00 -	0.6000	0.6000
T9	2	Safety Line 3/8	140.00 120.00 -	0.6000	0.6000
T9	3	1/2" Light Cable	140.00 120.00 -	0.6000	0.6000
T9	4	1/2" Light Cable	140.00 120.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T9	5	waveguide bracket	120.00 - 140.00	0.6000	0.6000
T9	6	waveguide bracket	120.00 - 140.00	0.6000	0.6000
T9	8	ATCB-B01(5/16)	120.00 - 140.00	0.6000	0.6000
T9	9	LDF7-50A(1-5/8)	120.00 - 140.00	0.6000	0.6000
T9	10	FB-L98-002-XXX(3/8)	120.00 - 140.00	0.6000	0.6000
T9	11	WR-VG86ST-BRD(3/4)	120.00 - 140.00	0.6000	0.6000
T9	12	LDF7-50A(1-5/8)	120.00 - 140.00	0.6000	0.6000
T9	13	WR-VG86ST-BRD(3/4)	120.00 - 140.00	0.6000	0.6000
T9	14	FB-L98B-002-XXX(3/8)	120.00 - 140.00	0.6000	0.6000
T9	15	ATCB-B01(5/16)	120.00 - 140.00	0.6000	0.6000
T9	17	HB158-21U6S24- xxM_TMO(1-5/8)	120.00 - 140.00	0.6000	0.6000
T10	2	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T10	3	1/2" Light Cable	100.00 - 120.00	0.6000	0.6000
T10	4	1/2" Light Cable	100.00 - 120.00	0.6000	0.6000
T10	5	waveguide bracket	100.00 - 120.00	0.6000	0.6000
T10	6	waveguide bracket	100.00 - 120.00	0.6000	0.6000
T10	8	ATCB-B01(5/16)	100.00 - 120.00	0.6000	0.6000
T10	9	LDF7-50A(1-5/8)	100.00 - 120.00	0.6000	0.6000
T10	10	FB-L98-002-XXX(3/8)	100.00 - 120.00	0.6000	0.6000
T10	11	WR-VG86ST-BRD(3/4)	100.00 - 120.00	0.6000	0.6000
T10	12	LDF7-50A(1-5/8)	100.00 - 120.00	0.6000	0.6000
T10	13	WR-VG86ST-BRD(3/4)	100.00 - 120.00	0.6000	0.6000
T10	14	FB-L98B-002-XXX(3/8)	100.00 - 120.00	0.6000	0.6000
T10	15	ATCB-B01(5/16)	100.00 - 120.00	0.6000	0.6000
T10	17	HB158-21U6S24- xxM_TMO(1-5/8)	100.00 - 120.00	0.6000	0.6000
T11	2	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T11	3	1/2" Light Cable	80.00 - 100.00	0.6000	0.6000
T11	4	1/2" Light Cable	80.00 - 100.00	0.6000	0.6000
T11	5	waveguide bracket	80.00 - 100.00	0.6000	0.6000
T11	6	waveguide bracket	80.00 - 100.00	0.6000	0.6000
T11	8	ATCB-B01(5/16)	80.00 - 100.00	0.6000	0.6000
T11	9	LDF7-50A(1-5/8)	80.00 - 100.00	0.6000	0.6000
T11	10	FB-L98-002-XXX(3/8)	80.00 - 100.00	0.6000	0.6000
T11	11	WR-VG86ST-BRD(3/4)	80.00 - 100.00	0.6000	0.6000
T11	12	LDF7-50A(1-5/8)	80.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T11	13	WR-VG86ST-BRD(3/4)	100.00 80.00 -	0.6000	0.6000
T11	14	FB-L98B-002-XXX(3/8)	100.00 80.00 -	0.6000	0.6000
T11	15	ATCB-B01(5/16)	100.00 80.00 -	0.6000	0.6000
T11	17	HB158-21U6S24- xxM_TMO(1-5/8)	100.00 80.00 -	0.6000	0.6000
T12	2	Safety Line 3/8	100.00 60.00 -	0.6000	0.6000
T12	3	1/2" Light Cable	80.00 60.00 -	0.6000	0.6000
T12	4	1/2" Light Cable	80.00 60.00 -	0.6000	0.6000
T12	5	waveguide bracket	80.00 60.00 -	0.6000	0.6000
T12	6	waveguide bracket	80.00 60.00 -	0.6000	0.6000
T12	8	ATCB-B01(5/16)	80.00 60.00 -	0.6000	0.6000
T12	9	LDF7-50A(1-5/8)	80.00 60.00 -	0.6000	0.6000
T12	10	FB-L98-002-XXX(3/8)	80.00 60.00 -	0.6000	0.6000
T12	11	WR-VG86ST-BRD(3/4)	80.00 60.00 -	0.6000	0.6000
T12	12	LDF7-50A(1-5/8)	80.00 60.00 -	0.6000	0.6000
T12	13	WR-VG86ST-BRD(3/4)	80.00 60.00 -	0.6000	0.6000
T12	14	FB-L98B-002-XXX(3/8)	80.00 60.00 -	0.6000	0.6000
T12	15	ATCB-B01(5/16)	80.00 60.00 -	0.6000	0.6000
T12	17	HB158-21U6S24- xxM_TMO(1-5/8)	80.00 60.00 -	0.6000	0.6000
T13	2	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T13	3	1/2" Light Cable	60.00 40.00 -	0.6000	0.6000
T13	4	1/2" Light Cable	60.00 40.00 -	0.6000	0.6000
T13	5	waveguide bracket	60.00 40.00 -	0.6000	0.6000
T13	6	waveguide bracket	60.00 40.00 -	0.6000	0.6000
T13	8	ATCB-B01(5/16)	60.00 40.00 -	0.6000	0.6000
T13	9	LDF7-50A(1-5/8)	60.00 40.00 -	0.6000	0.6000
T13	10	FB-L98-002-XXX(3/8)	60.00 40.00 -	0.6000	0.6000
T13	11	WR-VG86ST-BRD(3/4)	60.00 40.00 -	0.6000	0.6000
T13	12	LDF7-50A(1-5/8)	60.00 40.00 -	0.6000	0.6000
T13	13	WR-VG86ST-BRD(3/4)	60.00 40.00 -	0.6000	0.6000
T13	14	FB-L98B-002-XXX(3/8)	60.00 40.00 -	0.6000	0.6000
T13	15	ATCB-B01(5/16)	60.00 40.00 -	0.6000	0.6000
T13	17	HB158-21U6S24- xxM_TMO(1-5/8)	60.00 40.00 -	0.6000	0.6000
T14	2	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T14	3	1/2" Light Cable	40.00 20.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T14	4	1/2" Light Cable	20.00 - 40.00	0.6000	0.6000
T14	5	waveguide bracket	20.00 - 40.00	0.6000	0.6000
T14	6	waveguide bracket	20.00 - 40.00	0.6000	0.6000
T14	8	ATCB-B01(5/16)	20.00 - 40.00	0.6000	0.6000
T14	9	LDF7-50A(1-5/8)	20.00 - 40.00	0.6000	0.6000
T14	10	FB-L98-002-XXX(3/8)	20.00 - 40.00	0.6000	0.6000
T14	11	WR-VG86ST-BRD(3/4)	20.00 - 40.00	0.6000	0.6000
T14	12	LDF7-50A(1-5/8)	20.00 - 40.00	0.6000	0.6000
T14	13	WR-VG86ST-BRD(3/4)	20.00 - 40.00	0.6000	0.6000
T14	14	FB-L98B-002-XXX(3/8)	20.00 - 40.00	0.6000	0.6000
T14	15	ATCB-B01(5/16)	20.00 - 40.00	0.6000	0.6000
T14	17	HB158-21U6S24-xxM_TMO(1-5/8)	20.00 - 40.00	0.6000	0.6000
T15	2	Safety Line 3/8	7.00 - 20.00	0.6000	0.6000
T15	3	1/2" Light Cable	7.00 - 20.00	0.6000	0.6000
T15	4	1/2" Light Cable	7.00 - 20.00	0.6000	0.6000
T15	5	waveguide bracket	7.00 - 20.00	0.6000	0.6000
T15	6	waveguide bracket	7.00 - 20.00	0.6000	0.6000
T15	8	ATCB-B01(5/16)	7.00 - 20.00	0.6000	0.6000
T15	9	LDF7-50A(1-5/8)	7.00 - 20.00	0.6000	0.6000
T15	10	FB-L98-002-XXX(3/8)	7.00 - 20.00	0.6000	0.6000
T15	11	WR-VG86ST-BRD(3/4)	7.00 - 20.00	0.6000	0.6000
T15	12	LDF7-50A(1-5/8)	7.00 - 20.00	0.6000	0.6000
T15	13	WR-VG86ST-BRD(3/4)	7.00 - 20.00	0.6000	0.6000
T15	14	FB-L98B-002-XXX(3/8)	7.00 - 20.00	0.6000	0.6000
T15	15	ATCB-B01(5/16)	7.00 - 20.00	0.6000	0.6000
T15	17	HB158-21U6S24-xxM_TMO(1-5/8)	7.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K

Flash Beacon Lighting	A	From Leg	0.00 0.00 2.00	0.0000	300.00	No Ice	2.70	2.70	0.05
Lightning Rod 5/8" x 3' on 10' Pole	C	From Face	0.00 0.00 -6.50	0.0000	300.00	No Ice	2.56	2.56	0.05
Side Light	A	From Leg	0.50 0.00 0.00	0.0000	155.00	No Ice	0.26	0.26	0.01
Side Light	B	From Leg	0.50 0.00 0.00	0.0000	155.00	No Ice	0.26	0.26	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
Side Light	C	From Leg	0.50 0.00 0.00	0.0000	155.00	No Ice	0.26	0.26	0.01
***** Platform Mount [LP 601-1] *****	C	None		0.0000	300.00	No Ice	28.50	28.50	1.12
DBXLH-9090C-R2M w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	270.00	No Ice	14.06	6.70	0.10
DBXLH-9090C-R2M w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	270.00	No Ice	14.06	6.70	0.10
DBXLH-9090C-R2M w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	270.00	No Ice	14.06	6.70	0.10
NNHH-65B-R4 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	270.00	No Ice	7.55	4.23	0.11
NNHH-65B-R4 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	270.00	No Ice	7.55	4.23	0.11
NNHH-65B-R4 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	270.00	No Ice	7.55	4.23	0.11
SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	60.0000	270.00	No Ice	4.09	3.30	0.07
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	70.0000	270.00	No Ice	4.09	3.30	0.07
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	60.0000	270.00	No Ice	4.09	3.30	0.07
NNHH-65B-R4 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	60.0000	270.00	No Ice	7.55	4.23	0.11
NNHH-65B-R4 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	70.0000	270.00	No Ice	7.55	4.23	0.11
NNHH-65B-R4 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	70.0000	270.00	No Ice	7.55	4.23	0.11
(2) E15Z01P06	A	From Leg	4.00 0.00 2.00	0.0000	270.00	No Ice	1.31	0.34	0.02
(2) E15Z01P06	B	From Leg	4.00 0.00 2.00	0.0000	270.00	No Ice	1.31	0.34	0.02
(2) E15Z01P06	C	From Leg	4.00 0.00 2.00	0.0000	270.00	No Ice	1.31	0.34	0.02
(2) CBC819-DF	A	From Leg	4.00 0.00 0.00	0.0000	270.00	No Ice	0.45	0.07	0.00
(2) CBC819-DF	B	From Leg	4.00 0.00 0.00	0.0000	270.00	No Ice	0.45	0.07	0.00
(2) CBC819-DF	C	From Leg	4.00 0.00 0.00	0.0000	270.00	No Ice	0.45	0.07	0.00
(2) RRUS 11	A	From Leg	4.00 0.00 2.00	0.0000	270.00	No Ice	2.78	1.19	0.05
(2) RRUS 11	B	From Leg	4.00 0.00	0.0000	270.00	No Ice	2.78	1.19	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
(2) RRUS 11	C	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	2.78	1.19	0.05
RRUS 32 B30	A	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	2.73	1.67	0.05
RRUS 32 B30	B	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	2.73	1.67	0.05
RRUS 32 B30	C	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	2.73	1.67	0.05
RRUS 4478 B14	A	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	1.84	1.06	0.06
RRUS 4478 B14	B	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	1.84	1.06	0.06
RRUS 4478 B14	C	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	1.84	1.06	0.06
RRUS 4426 B66	A	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	1.64	0.73	0.05
RRUS 4426 B66	B	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	1.64	0.73	0.05
RRUS 4426 B66	C	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	1.64	0.73	0.05
RRUS 4478 B5	A	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	1.84	1.06	0.06
RRUS 4478 B5	B	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	1.84	1.06	0.06
RRUS 4478 B5	C	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	1.84	1.06	0.06
DC6-48-60-18-8F	A	From Leg	2.00 2.00 0.00	0.0000	270.00	No Ice	0.92	0.92	0.02
DC6-48-60-18-8F	B	From Leg	2.00 2.00 0.00	0.0000	270.00	No Ice	0.92	0.92	0.02
DC6-48-60-18-8C	C	From Leg	2.00 2.00 0.00	0.0000	270.00	No Ice	2.74	2.74	0.03
10' x 2" Mount Pipe	A	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	2.38	2.38	0.04
10' x 2" Mount Pipe	B	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	2.38	2.38	0.04
10' x 2" Mount Pipe	C	From Leg	2.00 4.00 0.00	0.0000	270.00	No Ice	2.38	2.38	0.04
Sector Mount [SM 502-3] *****	C	None	2.00	0.0000	270.00	No Ice	29.82	29.82	1.67
FFVV-65C-R3-V1_TMO w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	20.0000	258.00	No Ice	12.97	6.20	0.16
FFVV-65C-R3-V1_TMO w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	258.00	No Ice	12.97	6.20	0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
FFVV-65C-R3-V1_TMO w/ Mount Pipe	C	From Leg	0.00 4.00 0.00 0.00	5.0000	258.00	No Ice	12.97	6.20	0.16
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00 0.00 -1.00	0.0000	258.00	No Ice	2.14	1.69	0.11
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00 0.00 -1.00	0.0000	258.00	No Ice	2.14	1.69	0.11
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00 0.00 -1.00	0.0000	258.00	No Ice	2.14	1.69	0.11
Radio 4480_TMOV2	A	From Leg	4.00 0.00 -1.00	0.0000	258.00	No Ice	2.88	1.40	0.08
Radio 4480_TMOV2	B	From Leg	4.00 0.00 -1.00	0.0000	258.00	No Ice	2.88	1.40	0.08
Radio 4480_TMOV2	C	From Leg	4.00 0.00 -1.00	0.0000	258.00	No Ice	2.88	1.40	0.08
10' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	258.00	No Ice	2.38	2.38	0.04
10' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	258.00	No Ice	2.38	2.38	0.04
10' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	258.00	No Ice	2.38	2.38	0.04
Sector Mount [SM 503-3] ***	A	None	0.0000	0.0000	258.00	No Ice	30.43	30.43	1.69
AIR 6419 B41_TMO_CCIV2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	20.0000	258.00	No Ice	5.79	2.97	0.10
AIR 6419 B41_TMO_CCIV2 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	258.00	No Ice	5.79	2.97	0.10
AIR 6419 B41_TMO_CCIV2 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	5.0000	258.00	No Ice	5.79	2.97	0.10
10' Mount Pipe [#P2.5 SCH40]	A	From Leg	4.00 0.00 0.00	0.0000	258.00	No Ice	2.88	2.88	0.06
10' Mount Pipe [#P2.5 SCH40]	B	From Leg	4.00 0.00 0.00	0.0000	258.00	No Ice	2.88	2.88	0.06
10' Mount Pipe [#P2.5 SCH40]	C	From Leg	4.00 0.00 0.00	0.0000	258.00	No Ice	2.88	2.88	0.06
***** ***** *****									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy

Comb. No.	Description
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy
14	Dead+Wind 0 deg - Service+Guy
15	Dead+Wind 30 deg - Service+Guy
16	Dead+Wind 60 deg - Service+Guy
17	Dead+Wind 90 deg - Service+Guy
18	Dead+Wind 120 deg - Service+Guy
19	Dead+Wind 150 deg - Service+Guy
20	Dead+Wind 180 deg - Service+Guy
21	Dead+Wind 210 deg - Service+Guy
22	Dead+Wind 240 deg - Service+Guy
23	Dead+Wind 270 deg - Service+Guy
24	Dead+Wind 300 deg - Service+Guy
25	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	300 - 280	Leg	Max Tension	10	13.13	0.66	-0.64
			Max. Compression	4	-43.71	0.03	0.00
			Max. Mx	11	-11.62	1.15	0.02
			Max. My	2	-27.60	-0.12	0.96
			Max. Vy	11	2.76	1.15	0.02
			Max. Vx	2	2.30	-0.12	0.96
		Diagonal	Max Tension	11	5.50	0.00	0.00
			Max. Compression	13	-8.13	0.00	0.00
			Max. Mx	11	5.50	0.01	0.00
			Max. My	11	-2.12	0.00	-0.00
			Max. Vy	11	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Horizontal	Max Tension	11	5.31	0.00	0.00
			Max. Compression	4	-3.79	0.00	0.00
			Max. Mx	4	1.10	0.00	0.00
			Max. My	11	-3.36	0.00	0.00
			Max. Vy	4	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	11	0.00	-0.00	-0.00
			Max. Compression	5	-0.00	-0.00	-0.00
			Max. Mx	9	0.00	-0.00	0.00
			Max. My	11	0.00	-0.00	-0.00
			Max. Vy	9	0.00	-0.00	0.00
			Max. Vx	5	0.00	-0.00	-0.00
		Top Girt	Max Tension	4	0.64	0.00	0.00
			Max. Compression	10	-0.64	0.00	0.00
			Max. Mx	4	-0.29	0.00	0.00
			Max. My	11	0.52	0.00	0.00
			Max. Vy	4	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Bottom Girt	Max Tension	12	3.49	0.00	0.00
			Max. Compression	6	-2.14	0.00	0.00
			Max. Mx	6	1.42	0.00	0.00
			Max. My	11	-1.35	0.00	0.00
			Max. Vy	6	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Guy A	Bottom Tension	8	14.44		
			Top Tension	8	14.77		

Section n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T2	280 - 260	Guy B	Top Cable Vert	8	11.95		
			Top Cable Norm	8	8.69		
			Top Cable Tan	8	0.01		
			Bot Cable Vert	8	-11.17		
			Bot Cable Norm	8	9.15		
			Bot Cable Tan	8	0.01		
			Bottom Tension	12	14.77		
			Top Tension	12	15.10		
			Top Cable Vert	12	12.21		
			Top Cable Norm	12	8.89		
		Guy C	Top Cable Tan	12	0.01		
			Bot Cable Vert	12	-11.43		
			Bot Cable Norm	12	9.35		
			Bot Cable Tan	12	0.01		
			Bottom Tension	4	14.77		
			Top Tension	4	15.10		
			Top Cable Vert	4	12.21		
			Top Cable Norm	4	8.89		
			Top Cable Tan	4	0.01		
			Bot Cable Vert	4	-11.43		
		Torque Arm Top	Bot Cable Norm	4	9.35		
			Bot Cable Tan	4	0.01		
			Max Tension	11	14.08	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	6	9.21	-0.02	0.00
			Max. My	11	14.08	0.00	-0.00
			Max. Vy	2	0.02	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Torque Arm Bottom	Max Tension	1	0.00	0.00	0.00
			Max. Compression	4	-19.42	0.00	0.00
			Max. Mx	11	-9.98	-0.02	0.00
			Max. My	11	-3.14	0.00	0.00
			Max. Vy	11	0.02	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Leg	Max Tension	10	34.38	-0.05	0.03
			Max. Compression	4	-63.20	0.05	-0.03
			Max. Mx	11	-11.79	-1.17	-0.01
			Max. My	2	-27.61	0.12	-0.98
			Max. Vy	11	2.75	-0.01	0.00
			Max. Vx	2	2.29	-0.00	-0.01
		Diagonal	Max Tension	7	4.68	0.00	0.00
			Max. Compression	13	-7.85	0.00	0.00
			Max. Mx	11	4.13	0.01	0.00
			Max. My	11	-5.69	0.00	-0.00
			Max. Vy	11	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Horizontal	Max Tension	12	4.74	0.00	0.00
			Max. Compression	6	-2.83	0.00	0.00
			Max. Mx	7	-0.65	0.00	0.00
			Max. My	11	-2.47	0.00	0.00
			Max. Vy	7	-0.00	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	11	0.00	-0.00	-0.00
			Max. Compression	5	-0.00	-0.00	-0.00
			Max. Mx	9	0.00	-0.00	0.00
			Max. My	11	0.00	-0.00	-0.00
			Max. Vy	9	0.00	-0.00	0.00
			Max. Vx	5	0.00	-0.00	-0.00
		Top Girt	Max Tension	10	2.96	0.00	0.00
			Max. Compression	4	-2.00	0.00	0.00
			Max. Mx	6	-0.73	0.00	0.00
			Max. My	11	-1.58	0.00	0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Bottom Girt	Max Tension	11	1.07	0.00	0.00
			Max. Compression	5	-0.02	0.00	0.00
			Max. Mx	6	0.15	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T3	260 - 240	Leg	Max. My	3	1.04	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	3	0.00	0.00	0.00
			Max Tension	10	26.27	0.13	-0.07
		Diagonal	Max. Compression	4	-60.56	-0.16	0.37
			Max. Mx	5	-17.83	0.81	-0.05
			Max. My	2	-18.87	-0.07	-0.76
			Max. Vy	11	-2.97	0.44	0.04
			Max. Vx	2	-2.73	0.02	0.39
			Max Tension	5	6.40	0.00	0.00
			Max. Compression	11	-9.45	0.00	0.00
			Max. Mx	13	5.39	0.01	0.00
			Max. My	11	1.77	0.00	-0.00
			Max. Vy	13	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Horizontal	Max Tension	11	5.90	0.00	0.00
			Max. Compression	5	-3.95	0.00	0.00
			Max. Mx	10	1.14	0.00	0.00
			Max. My	11	5.90	0.00	-0.00
		Secondary Horizontal	Max. Vy	10	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
			Max Tension	5	0.00	-0.00	-0.00
			Max. Compression	11	-0.00	-0.00	-0.00
			Max. Mx	13	-0.00	-0.00	0.00
			Max. My	2	0.00	-0.00	0.00
			Max. Vy	13	0.00	-0.00	0.00
			Max. Vx	2	-0.00	-0.00	0.00
		Top Girt	Max Tension	12	2.01	0.00	0.00
			Max. Compression	6	-0.93	0.00	0.00
			Max. Mx	6	0.96	0.00	0.00
			Max. My	3	1.83	0.00	-0.00
		Bottom Girt	Max. Vy	6	-0.01	0.00	0.00
			Max. Vx	3	0.00	0.00	0.00
			Max Tension	10	3.35	0.00	0.00
			Max. Compression	4	-2.37	0.00	0.00
			Max. Mx	12	1.88	0.00	0.00
			Max. My	11	3.15	0.00	-0.00
			Max. Vy	12	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T4	240 - 220	Leg	Max Tension	4	11.06	-0.19	0.09
			Max. Compression	10	-45.93	0.08	-0.03
			Max. Mx	11	-18.61	1.69	0.16
			Max. My	2	-18.88	0.11	1.54
		Diagonal	Max. Vy	11	-2.96	1.69	0.16
			Max. Vx	2	-2.72	0.11	1.54
			Max Tension	5	7.48	0.00	0.00
			Max. Compression	11	-10.81	0.00	0.00
			Max. Mx	13	6.41	0.01	0.00
			Max. My	11	2.99	0.00	-0.00
			Max. Vy	13	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Horizontal	Max Tension	4	10.44	0.00	0.00
			Max. Compression	10	-5.89	0.00	0.00
			Max. Mx	12	1.29	0.01	0.00
			Max. My	11	6.67	0.00	-0.00
		Secondary Horizontal	Max. Vy	12	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
			Max Tension	5	0.00	-0.00	-0.00
			Max. Compression	11	-0.00	-0.00	-0.00
			Max. Mx	13	-0.00	-0.00	0.00
			Max. My	2	-0.00	-0.00	0.00
			Max. Vy	13	0.00	-0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Top Girt	Max Tension	4	4.22	0.00	0.00
			Max. Compression	10	-3.00	0.00	0.00
			Max. Mx	12	-0.90	0.01	0.00
			Max. My	11	3.80	0.00	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T5	220 - 200	Bottom Girt	Max. Vy	12	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
			Max Tension	11	2.91	0.00	0.00
			Max. Compression	5	-0.64	0.00	0.00
			Max. Mx	12	1.38	0.01	0.00
			Max. My	11	1.00	0.00	-0.00
		Guy A	Max. Vy	12	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
			Bottom Tension	8	14.41		
			Top Tension	8	14.68		
			Top Cable Vert	8	10.75		
			Top Cable Norm	8	9.99		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-10.10		
			Bot Cable Norm	8	10.28		
			Bot Cable Tan	8	0.00		
		Guy B	Bottom Tension	12	15.49		
			Top Tension	12	15.76		
			Top Cable Vert	12	11.53		
			Top Cable Norm	12	10.75		
			Top Cable Tan	12	0.00		
			Bot Cable Vert	12	-10.88		
			Bot Cable Norm	12	11.03		
			Bot Cable Tan	12	0.00		
		Guy C	Bottom Tension	4	15.61		
			Top Tension	4	15.88		
			Top Cable Vert	4	11.61		
			Top Cable Norm	4	10.83		
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-10.96		
			Bot Cable Norm	4	11.12		
			Bot Cable Tan	4	0.00		
		Torque Arm Top	Max Tension	11	16.12	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	6	10.07	-0.02	0.00
			Max. My	11	5.87	0.00	-0.00
			Max. Vy	6	0.02	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Torque Arm Bottom	Max Tension	1	0.00	0.00	0.00
			Max. Compression	4	-17.03	0.00	0.00
			Max. Mx	13	-7.92	-0.02	0.00
			Max. My	11	-1.72	0.00	0.00
			Max. Vy	13	0.02	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-43.14	-0.46	-0.17
			Max. Mx	11	-30.36	-0.80	-0.02
			Max. My	3	-29.68	0.37	-0.61
			Max. Vy	11	2.39	0.21	0.02
			Max. Vx	3	1.83	-0.11	0.16
		Diagonal	Max Tension	5	0.54	0.00	0.00
			Max. Compression	12	-6.70	0.00	0.00
			Max. Mx	9	-2.80	0.01	0.00
			Max. My	11	-4.93	0.00	-0.00
			Max. Vy	9	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Horizontal	Max Tension	12	4.14	0.00	0.00
			Max. Compression	6	-0.20	0.00	0.00
			Max. Mx	12	2.79	0.00	0.00
			Max. My	11	3.06	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	6	0.00	-0.00	-0.00
			Max. Compression	11	-0.00	-0.00	-0.00
			Max. Mx	13	-0.00	-0.00	0.00
			Max. My	2	0.00	-0.00	0.00
			Max. Vy	13	0.00	-0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T6	200 - 180	Top Girt	Max. Vx	2	-0.00	-0.00	0.00
			Max Tension	11	2.41	0.00	0.00
			Max. Compression	5	-0.48	0.00	0.00
			Max. Mx	12	1.95	0.00	0.00
			Max. My	11	0.98	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	11	1.78	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	1.57	0.00	0.00
			Max. My	11	1.78	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
		Leg	Max. Vx	11	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-52.36	-0.02	-0.03
			Max. Mx	11	-46.82	-0.73	-0.42
			Max. My	3	-20.13	-0.10	-0.78
			Max. Vy	11	-1.82	0.04	0.01
		Diagonal	Max. Vx	3	-1.85	-0.01	0.00
			Max Tension	5	1.36	0.00	0.00
			Max. Compression	11	-7.55	0.00	0.00
			Max. Mx	9	-0.91	0.01	0.00
			Max. My	11	-2.63	0.00	-0.00
			Max. Vy	9	-0.01	0.00	0.00
		Horizontal	Max. Vx	11	0.00	0.00	0.00
			Max Tension	11	4.53	0.00	0.00
			Max. Compression	5	-0.70	0.00	0.00
			Max. Mx	4	1.82	0.00	0.00
			Max. My	11	3.55	0.00	-0.00
			Max. Vy	4	-0.00	0.00	0.00
		Secondary Horizontal	Max. Vx	11	0.00	0.00	0.00
			Max Tension	5	0.00	-0.00	-0.00
			Max. Compression	11	-0.00	-0.00	-0.00
			Max. Mx	13	-0.00	-0.00	0.00
			Max. My	2	0.00	-0.00	0.00
			Max. Vy	13	0.00	-0.00	0.00
T7	180 - 160	Top Girt	Max. Vx	5	0.00	0.00	0.00
			Max Tension	11	1.88	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	4	0.96	0.00	0.00
			Max. My	11	1.88	0.00	-0.00
			Max. Vy	4	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	11	2.62	0.00	0.00
			Max. Compression	5	-0.42	0.00	0.00
			Max. Mx	10	0.50	0.00	0.00
			Max. My	11	2.62	0.00	-0.00
			Max. Vy	10	-0.00	0.00	0.00
		Leg	Max. Vx	11	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-57.79	0.01	-0.01
			Max. Mx	11	-36.13	0.83	-0.02
			Max. My	3	-17.27	0.08	0.78
			Max. Vy	11	1.90	0.83	-0.02
		Diagonal	Max. Vx	3	-1.85	0.08	0.78
			Max Tension	5	1.68	0.00	0.00
			Max. Compression	11	-7.87	0.00	0.00
			Max. Mx	9	0.99	0.01	0.00
			Max. My	11	-2.56	0.00	-0.00
			Max. Vy	9	-0.01	0.00	0.00
		Horizontal	Max. Vx	11	0.00	0.00	0.00
			Max Tension	11	4.94	0.00	0.00
			Max. Compression	5	-1.12	0.00	0.00
			Max. Mx	4	1.67	0.00	0.00
			Max. My	11	4.94	0.00	-0.00
			Max. Vy	4	-0.00	0.00	0.00
		Secondary	Max. Vx	11	0.00	0.00	0.00
			Max Tension	5	0.00	-0.00	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T8	160 - 140	Horizontal	Max. Compression	11	-0.00	-0.00	-0.00
			Max. Mx	4	0.00	-0.00	-0.00
			Max. My	5	0.00	-0.00	-0.00
			Max. Vy	4	0.00	-0.00	-0.00
			Max. Vx	5	0.00	0.00	0.00
		Top Girt	Max Tension	11	2.67	0.00	0.00
			Max. Compression	5	-0.62	0.00	0.00
			Max. Mx	10	1.62	0.00	0.00
			Max. My	11	2.67	0.00	-0.00
			Max. Vy	10	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	11	2.16	0.00	0.00
			Max. Compression	6	-0.25	0.00	0.00
			Max. Mx	4	0.72	0.00	0.00
			Max. My	11	0.64	0.00	-0.00
		Guy A	Max. Vy	4	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
			Bottom Tension	8	12.37		
			Top Tension	8	12.57		
			Top Cable Vert	8	7.89		
		Guy B	Top Cable Norm	8	9.79		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-7.38		
			Bot Cable Norm	8	9.93		
			Bot Cable Tan	8	0.00		
		Guy C	Bottom Tension	12	13.14		
			Top Tension	12	13.34		
			Top Cable Vert	12	8.36		
			Top Cable Norm	12	10.39		
			Top Cable Tan	12	0.00		
		Top Guy Pull-Off	Bot Cable Vert	12	-7.84		
			Bot Cable Norm	12	10.54		
			Bot Cable Tan	12	0.00		
			Bottom Tension	4	13.85		
			Top Tension	4	14.05		
		Leg	Top Cable Vert	4	8.79		
			Top Cable Norm	4	10.95		
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-8.28		
			Bot Cable Norm	4	11.10		
		Diagonal	Bot Cable Tan	4	0.00		
			Max Tension	11	4.21	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	10	3.71	0.00	0.00
			Max. My	11	3.27	0.00	-0.00
		Horizontal	Max. Vy	10	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-47.76	0.39	-0.09
			Max. Mx	11	-36.49	-0.77	0.03
		Secondary Horizontal	Max. My	2	-33.01	0.18	-0.64
			Max. Vy	11	1.90	0.03	0.01
			Max. Vx	2	1.59	-0.01	0.03
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-5.39	0.00	0.00
		Horizontal	Max. Mx	5	-2.06	0.01	0.00
			Max. My	5	-2.85	0.00	0.00
			Max. Vy	5	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
			Max Tension	12	3.25	0.00	0.00
		Secondary Horizontal	Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	2.14	0.00	0.00
			Max. My	11	1.49	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	5	0.00	-0.00	-0.00
			Max. Compression	11	-0.00	-0.00	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T9	140 - 120	Top Girt	Max. Mx	4	0.00	-0.00	-0.00
			Max. My	5	0.00	-0.00	-0.00
			Max. Vy	4	0.00	-0.00	-0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	11	2.00	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	4	1.36	0.00	0.00
			Max. My	11	0.76	0.00	-0.00
			Max. Vy	4	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Bottom Girt	Max Tension	11	1.40	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	6	0.83	0.00	0.00
			Max. My	5	0.70	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-54.14	-0.02	-0.02
			Max. Mx	5	-42.28	0.80	-0.01
			Max. My	8	-43.88	-0.17	0.63
		Diagonal	Max. Vy	5	2.00	-0.04	0.01
			Max. Vx	8	1.59	0.00	-0.04
			Max Tension	5	0.10	0.00	0.00
			Max. Compression	11	-6.33	0.00	0.00
			Max. Mx	5	-1.79	0.01	0.00
			Max. My	5	-4.63	0.00	0.00
			Max. Vy	5	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Horizontal	Max Tension	11	3.81	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	6	1.93	0.00	0.00
			Max. My	11	2.90	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	5	0.00	-0.00	-0.00
			Max. Compression	11	-0.00	-0.00	-0.00
			Max. Mx	4	0.00	-0.00	-0.00
			Max. My	5	0.00	-0.00	-0.00
			Max. Vy	4	0.00	-0.00	-0.00
			Max. Vx	5	0.00	0.00	0.00
		Top Girt	Max Tension	11	1.58	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	6	0.95	0.00	0.00
			Max. My	11	1.58	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Bottom Girt	Max Tension	11	2.13	0.00	0.00
			Max. Compression	4	-0.09	0.00	0.00
			Max. Mx	6	0.61	0.00	0.00
			Max. My	5	-0.04	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T10	120 - 100	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	11	-58.87	0.01	0.01
			Max. Mx	11	-46.86	0.90	0.02
			Max. My	8	-46.08	-0.19	-0.76
			Max. Vy	11	2.09	0.90	0.02
			Max. Vx	8	-1.76	-0.19	-0.76
		Diagonal	Max Tension	11	1.71	0.00	0.00
			Max. Compression	5	-7.30	0.00	0.00
			Max. Mx	2	0.18	0.01	0.00
			Max. My	5	-0.94	0.00	0.00
			Max. Vy	2	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Horizontal	Max Tension	5	4.72	0.00	0.00
			Max. Compression	11	-1.12	0.00	0.00
			Max. Mx	12	3.48	0.00	0.00
			Max. My	6	-0.19	0.00	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T11	100 - 80	Secondary Horizontal	Max. Vy	12	-0.01	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
			Max Tension	10	0.00	-0.00	-0.00
			Max. Compression	6	-0.00	-0.00	0.00
			Max. Mx	6	-0.00	-0.00	0.00
			Max. My	2	0.00	-0.00	0.00
			Max. Vy	6	0.00	-0.00	0.00
			Max. Vx	2	-0.00	-0.00	0.00
			Max Tension	4	2.42	0.00	0.00
			Max. Compression	5	-0.13	0.00	0.00
		Top Girt	Max. Mx	6	1.49	0.00	0.00
			Max. My	5	-0.13	0.00	-0.00
			Max. Vy	6	-0.01	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	4	2.56	0.00	0.00
			Max. Compression	10	-0.51	0.00	0.00
			Max. Mx	6	1.58	0.00	0.00
			Max. My	6	1.77	0.00	0.00
			Max. Vy	6	-0.01	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Bottom Girt	Bottom Tension	8	12.12		
			Top Tension	8	12.25		
			Top Cable Vert	8	5.70		
			Top Cable Norm	8	10.85		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-5.31		
			Bot Cable Norm	8	10.90		
			Bot Cable Tan	8	0.00		
			Bottom Tension	11	13.14		
			Top Tension	11	13.28		
		Guy A	Top Cable Vert	11	6.17		
			Top Cable Norm	11	11.76		
			Top Cable Tan	11	0.08		
			Bot Cable Vert	11	-5.76		
			Bot Cable Norm	11	11.81		
			Bot Cable Tan	11	0.09		
			Bottom Tension	4	13.80		
			Top Tension	4	13.93		
			Top Cable Vert	4	6.45		
			Top Cable Norm	4	12.35		
		Guy B	Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-6.07		
			Bot Cable Norm	4	12.39		
			Bot Cable Tan	4	0.00		
			Max Tension	11	3.69	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	3.33	0.00	0.00
			Max. My	6	1.95	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
		Guy C	Max Tension	1	0.00	0.00	0.00
			Max. Compression	4	-64.97	0.02	-0.02
			Max. Mx	11	-46.88	-0.86	-0.01
			Max. My	8	-46.09	0.19	0.72
			Max. Vy	11	2.08	0.02	0.00
			Max. Vx	8	-1.76	-0.00	-0.02
			Max Tension	11	0.84	0.00	0.00
			Max. Compression	5	-6.97	0.00	0.00
			Max. Mx	2	-0.29	0.01	0.00
			Max. My	5	-2.97	0.00	0.00
		Top Guy Pull-Off	Max. Vy	2	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
			Max Tension	5	4.18	0.00	0.00
			Max. Compression	11	-0.38	0.00	0.00
			Max. Mx	10	1.77	0.00	0.00
			Max. My	6	3.41	0.00	0.00
			Max. Vy	10	-0.00	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Leg	Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T12	80 - 60	Secondary Horizontal	Max Tension	10	0.00	-0.00	-0.00
			Max. Compression	6	-0.00	-0.00	-0.00
			Max. Mx	9	0.00	-0.00	0.00
			Max. My	2	0.00	-0.00	0.00
			Max. Vy	9	0.00	-0.00	0.00
		Top Girt	Max. Vx	2	-0.00	-0.00	0.00
			Max Tension	5	2.41	0.00	0.00
			Max. Compression	11	-0.31	0.00	0.00
			Max. Mx	6	0.46	0.00	0.00
			Max. My	6	2.27	0.00	0.00
		Bottom Girt	Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
			Max Tension	5	1.72	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	13	0.62	0.00	0.00
		Leg	Max. My	5	1.72	0.00	-0.00
			Max. Vy	13	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	4	-65.11	0.01	-0.01
		Diagonal	Max. Mx	5	-47.14	0.76	-0.00
			Max. My	9	-45.51	-0.34	0.59
			Max. Vy	5	1.76	0.02	0.01
			Max. Vx	9	1.38	-0.01	0.01
			Max Tension	1	0.00	0.00	0.00
		Horizontal	Max. Compression	5	-4.77	0.00	0.00
			Max. Mx	5	-2.71	0.01	0.00
			Max. My	5	-4.73	0.00	0.00
			Max. Vy	5	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	5	2.94	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	10	1.70	0.00	0.00
			Max. My	5	1.81	0.00	-0.00
			Max. Vy	10	-0.00	0.00	0.00
T13	60 - 40	Secondary Horizontal	Max. Vx	5	0.00	0.00	0.00
			Max Tension	5	0.00	-0.00	-0.00
			Max. Compression	11	-0.00	-0.00	-0.00
			Max. Mx	4	0.00	-0.00	-0.00
			Max. My	5	0.00	-0.00	-0.00
		Top Girt	Max. Vy	4	0.00	-0.00	-0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	5	1.61	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	10	0.84	0.00	0.00
		Bottom Girt	Max. My	5	1.61	0.00	-0.00
			Max. Vy	10	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	5	1.80	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
		Leg	Max. Mx	12	0.96	0.00	0.00
			Max. My	5	0.90	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
		Diagonal	Max. Compression	4	-69.28	0.07	0.02
			Max. Mx	5	-47.16	-0.73	0.02
			Max. My	9	-45.52	0.31	-0.58
			Max. Vy	5	1.77	-0.73	0.02
			Max. Vx	9	1.39	0.31	-0.58
		Horizontal	Max Tension	11	0.24	0.00	0.00
			Max. Compression	5	-5.23	0.00	0.00
			Max. Mx	5	-4.98	0.01	0.00
			Max. My	5	-3.67	0.00	0.00
			Max. Vy	5	-0.01	0.00	0.00
		Horizontal	Max. Vx	5	-0.00	0.00	0.00
			Max Tension	5	3.49	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T14	40 - 20	Secondary Horizontal	Max. Compression	11	-0.08	0.00	0.00
			Max. Mx	12	1.14	0.00	0.00
			Max. My	5	3.24	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	5	0.00	-0.00	-0.00
		Top Girt	Max. Compression	11	-0.00	-0.00	-0.00
			Max. Mx	4	0.00	-0.00	-0.00
			Max. My	5	0.00	-0.00	-0.00
			Max. Vy	4	0.00	-0.00	-0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	5	2.01	0.00	0.00
		Bottom Girt	Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	0.50	0.00	0.00
			Max. My	5	0.84	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	5	1.70	0.00	0.00
		Guy A	Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	0.52	0.00	0.00
			Max. My	5	1.70	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Bottom Tension	8	5.59		
			Top Tension	8	5.62		
			Top Cable Vert	8	1.36		
			Top Cable Norm	8	5.45		
			Top Cable Tan	8	0.00		
		Guy B	Bot Cable Vert	8	-1.23		
			Bot Cable Norm	8	5.46		
			Bot Cable Tan	8	0.00		
			Bottom Tension	11	6.02		
			Top Tension	11	6.05		
			Top Cable Vert	11	1.47		
			Top Cable Norm	11	5.87		
			Top Cable Tan	11	0.03		
			Bot Cable Vert	11	-1.32		
			Bot Cable Norm	11	5.88		
		Guy C	Bot Cable Tan	11	0.04		
			Bottom Tension	4	6.34		
			Top Tension	4	6.37		
			Top Cable Vert	4	1.54		
			Top Cable Norm	4	6.18		
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-1.41		
			Bot Cable Norm	4	6.19		
			Bot Cable Tan	4	0.00		
		Top Guy Pull-Off	Max Tension	5	2.89	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	1.25	0.00	0.00
			Max. My	5	2.36	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	4	-69.28	0.37	0.32
			Max. Mx	5	-49.61	0.82	-0.00
			Max. My	9	-48.39	-0.36	0.64
		Diagonal	Max. Vy	5	1.89	0.03	0.01
			Max. Vx	9	1.49	-0.02	0.01
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-5.37	0.00	0.00
			Max. Mx	5	-3.11	0.01	0.00
			Max. My	5	-5.26	0.00	0.00
			Max. Vy	5	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Horizontal	Max Tension	5	3.33	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	1.07	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T15	20 - 6.8125	Secondary Horizontal	Max. My	5	2.04	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	5	0.00	-0.00	-0.00
			Max. Compression	11	-0.00	-0.00	-0.00
			Max. Mx	4	0.00	-0.00	-0.00
			Max. My	5	0.00	-0.00	-0.00
			Max. Vy	4	0.00	-0.00	-0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	5	1.70	0.00	0.00
		Top Girt	Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	0.72	0.00	0.00
			Max. My	5	1.70	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	5	1.99	0.00	0.00
			Max. Compression	11	-0.01	0.00	0.00
			Max. Mx	12	0.74	0.00	0.00
			Max. My	5	1.03	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	5	0.00	0.00	0.00
			Max Tension	5	1.99	0.00	0.00
			Max. Compression	11	-0.01	0.00	0.00
			Max. Mx	12	0.74	0.00	0.00
			Max. My	5	1.03	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	4	-67.00	0.03	0.44
		Leg	Max. Mx	5	-55.24	-1.38	0.37
			Max. My	9	-53.12	0.36	-1.33
			Max. Vy	5	1.89	-0.77	0.02
			Max. Vx	9	1.50	0.33	-0.62
		Diagonal	Max Tension	12	0.36	0.00	0.00
			Max. Compression	6	-5.88	0.00	0.00
			Max. Mx	5	-2.27	0.01	0.00
			Max. My	5	-5.47	0.00	0.00
			Max. Vy	5	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Horizontal	Max Tension	5	4.19	0.00	0.00
			Max. Compression	12	-0.21	0.00	0.00
			Max. Mx	12	0.95	0.00	0.00
			Max. My	5	1.79	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	5	0.00	-0.00	-0.00
			Max. Compression	11	-0.00	-0.00	-0.00
			Max. Mx	4	0.00	-0.00	-0.00
			Max. My	11	-0.00	-0.00	-0.00
			Max. Vy	4	0.00	-0.00	-0.00
			Max. Vx	11	0.00	-0.00	-0.00
		Top Girt	Max Tension	5	2.16	0.00	0.00
			Max. Compression	11	-0.16	0.00	0.00
			Max. Mx	12	0.27	0.00	0.00
			Max. My	5	1.00	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T16	6.8125 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	4	-60.17	0.43	-0.63
			Max. Mx	5	-48.15	-3.49	-0.17
			Max. My	5	-46.43	-0.10	-2.25
			Max. Vy	5	15.36	-3.49	-0.17
			Max. Vx	5	2.32	0.04	0.90
		Horizontal	Max Tension	5	0.19	-1.99	-0.18
			Max. Compression	5	-1.28	1.64	0.13
			Max. Mx	5	0.06	2.75	0.35
			Max. My	5	-0.18	-2.28	-0.48
			Max. Vy	5	-9.09	2.75	0.35
			Max. Vx	5	-1.40	2.75	0.35
		Top Girt	Max Tension	5	10.59	0.04	-0.74
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	5	10.59	2.11	-0.32
			Max. My	5	9.53	0.07	-0.76

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	5	-0.74	2.11	-0.32
			Max. Vx	5	-0.17	1.95	-0.26

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	4	154.45	-1.39	0.83
	Max. H _x	11	152.95	1.70	-0.01
	Max. H _z	2	143.54	0.02	1.50
	Max. M _x	1	0.00	0.01	-0.00
	Max. M _z	1	0.00	0.01	-0.00
	Max. Torsion	5	7.26	-1.69	0.03
	Min. Vert	1	115.82	0.01	-0.00
	Min. H _x	5	153.01	-1.69	0.03
	Min. H _z	8	152.29	-0.00	-1.34
	Min. M _x	1	0.00	0.01	-0.00
	Min. M _z	1	0.00	0.01	-0.00
Guy C @ 225 ft Elev 0 ft Azimuth 240 deg	Min. Torsion	11	1.63	1.70	-0.01
	Max. Vert	10	-6.37	-5.21	3.00
	Max. H _x	10	-6.37	-5.21	3.00
	Max. H _z	4	-59.92	-60.70	35.03
	Min. Vert	4	-59.92	-60.70	35.03
	Min. H _x	4	-59.92	-60.70	35.03
	Min. H _z	10	-6.37	-5.21	3.00
Guy B @ 225 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-6.87	5.80	3.35
	Max. H _x	12	-58.07	58.49	33.80
	Max. H _z	12	-58.07	58.49	33.80
	Min. Vert	12	-58.07	58.49	33.80
	Min. H _x	6	-6.87	5.80	3.35
	Min. H _z	6	-6.87	5.80	3.35
Guy A @ 225 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-7.75	0.00	-7.88
	Max. H _x	11	-33.77	2.52	-38.59
	Max. H _z	2	-7.75	0.00	-7.88
	Min. Vert	8	-56.15	0.00	-64.88
	Min. H _x	5	-33.65	-2.51	-38.54
	Min. H _z	8	-56.15	0.00	-64.88

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	115.82	-0.01	0.00	0.00	0.00	-3.38
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	143.54	-0.02	-1.50	0.00	0.00	-2.57
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	150.18	0.72	-1.28	0.00	0.00	-1.94
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	154.45	1.39	-0.83	0.00	0.00	-4.67
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	153.01	1.69	-0.03	0.00	0.00	-7.26
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	145.11	1.43	0.82	0.00	0.00	-6.49

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 150 deg	149.23	0.71	1.21	0.00	0.00	-5.31
- No Ice+1.0 Guy						
1.2 Dead+1.0 Wind 180 deg	152.29	0.00	1.34	0.00	0.00	-6.02
- No Ice+1.0 Guy						
1.2 Dead+1.0 Wind 210 deg	149.96	-0.73	1.28	0.00	0.00	-6.81
- No Ice+1.0 Guy						
1.2 Dead+1.0 Wind 240 deg	147.56	-1.52	0.89	0.00	0.00	-4.09
- No Ice+1.0 Guy						
1.2 Dead+1.0 Wind 270 deg	152.95	-1.70	0.01	0.00	0.00	-1.63
- No Ice+1.0 Guy						
1.2 Dead+1.0 Wind 300 deg	153.42	-1.31	-0.73	0.00	0.00	-2.22
- No Ice+1.0 Guy						
1.2 Dead+1.0 Wind 330 deg	149.25	-0.72	-1.21	0.00	0.00	-3.40
- No Ice+1.0 Guy						
Dead+Wind 0 deg -	117.65	-0.01	-0.40	0.00	0.00	-3.01
Service+Guy						
Dead+Wind 30 deg -	117.54	0.20	-0.36	0.00	0.00	-2.78
Service+Guy						
Dead+Wind 60 deg -	117.51	0.40	-0.24	0.00	0.00	-3.48
Service+Guy						
Dead+Wind 90 deg -	117.54	0.49	-0.00	0.00	0.00	-4.20
Service+Guy						
Dead+Wind 120 deg -	117.63	0.37	0.22	0.00	0.00	-4.05
Service+Guy						
Dead+Wind 150 deg -	117.51	0.19	0.35	0.00	0.00	-3.70
Service+Guy						
Dead+Wind 180 deg -	117.43	-0.01	0.39	0.00	0.00	-3.86
Service+Guy						
Dead+Wind 210 deg -	117.51	-0.22	0.37	0.00	0.00	-4.09
Service+Guy						
Dead+Wind 240 deg -	117.64	-0.42	0.25	0.00	0.00	-3.39
Service+Guy						
Dead+Wind 270 deg -	117.57	-0.50	0.01	0.00	0.00	-2.67
Service+Guy						
Dead+Wind 300 deg -	117.48	-0.39	-0.21	0.00	0.00	-2.82
Service+Guy						
Dead+Wind 330 deg -	117.52	-0.21	-0.34	0.00	0.00	-3.18
Service+Guy						

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-44.35	0.00	-0.00	44.35	0.00	0.001%
2	0.10	-52.37	-45.40	-0.10	52.37	45.40	0.003%
3	23.91	-51.83	-41.24	-23.91	51.83	41.24	0.002%
4	44.71	-51.29	-25.83	-44.71	51.29	25.83	0.000%
5	52.98	-51.83	-0.10	-52.98	51.83	0.10	0.002%
6	42.04	-52.37	24.17	-42.04	52.37	-24.17	0.003%
7	22.90	-51.83	39.68	-22.89	51.83	-39.68	0.004%
8	-0.10	-51.29	45.05	0.10	51.29	-45.05	0.001%
9	-23.75	-51.83	40.97	23.75	51.83	-40.97	0.002%
10	-44.48	-52.37	25.69	44.48	52.37	-25.69	0.003%
11	-52.67	-51.83	0.10	52.67	51.83	-0.09	0.002%
12	-42.00	-51.29	-24.15	42.00	51.29	24.15	0.003%
13	-22.90	-51.83	-39.68	22.90	51.83	39.68	0.004%
14	0.03	-44.50	-12.15	-0.03	44.50	12.15	0.005%
15	6.40	-44.35	-11.04	-6.40	44.35	11.04	0.004%
16	11.97	-44.21	-6.91	-11.97	44.21	6.91	0.003%
17	14.18	-44.35	-0.03	-14.18	44.35	0.03	0.005%
18	11.25	-44.50	6.47	-11.25	44.50	-6.47	0.006%
19	6.13	-44.35	10.62	-6.13	44.35	-10.62	0.003%
20	-0.03	-44.21	12.06	0.03	44.21	-12.06	0.002%
21	-6.36	-44.35	10.97	6.36	44.35	-10.97	0.003%
22	-11.91	-44.50	6.88	11.90	44.50	-6.88	0.007%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
23	-14.10	-44.35	0.03	14.10	44.35	-0.02	0.006%
24	-11.24	-44.21	-6.46	11.24	44.21	6.46	0.003%
25	-6.13	-44.35	-10.62	6.13	44.35	10.62	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	8	0.00000001	0.00003132
2	Yes	14	0.00000001	0.00006092
3	Yes	15	0.00000001	0.00002629
4	Yes	12	0.00000001	0.00004432
5	Yes	16	0.00000001	0.00002302
6	Yes	15	0.00000001	0.00003589
7	Yes	14	0.00009809	0.00005928
8	Yes	11	0.00000001	0.00006906
9	Yes	15	0.00000001	0.00002551
10	Yes	16	0.00000001	0.00003743
11	Yes	16	0.00000001	0.00002145
12	Yes	11	0.00000001	0.00009991
13	Yes	14	0.00009567	0.00004739
14	Yes	10	0.00000001	0.00006695
15	Yes	10	0.00000001	0.00005304
16	Yes	10	0.00000001	0.00004392
17	Yes	10	0.00000001	0.00008369
18	Yes	10	0.00000001	0.00009163
19	Yes	10	0.00000001	0.00005589
20	Yes	10	0.00000001	0.00003380
21	Yes	10	0.00000001	0.00004749
22	Yes	10	0.00000001	0.00009348
23	Yes	10	0.00000001	0.00007594
24	Yes	10	0.00000001	0.00004439
25	Yes	10	0.00000001	0.00005536

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	300 - 280	1.171	16	0.0932	0.2624
T2	280 - 260	1.507	16	0.0834	0.2706
T3	260 - 240	1.652	16	0.0201	0.3068
T4	240 - 220	1.443	16	0.0603	0.2376
T5	220 - 200	1.233	16	0.0401	0.2435
T6	200 - 180	1.105	16	0.0324	0.3154
T7	180 - 160	0.971	16	0.0251	0.3342
T8	160 - 140	0.910	16	0.0093	0.3066
T9	140 - 120	0.881	17	0.0112	0.3497
T10	120 - 100	0.834	17	0.0055	0.4383
T11	100 - 80	0.869	17	0.0137	0.5913
T12	80 - 60	0.908	17	0.0056	0.7137
T13	60 - 40	0.825	17	0.0327	0.7876
T14	40 - 20	0.646	17	0.0549	0.8736
T15	20 - 6.8125	0.365	17	0.0775	0.8812
T16	6.8125 - 0	0.128	17	0.0869	0.8503

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
300.00	Flash Beacon Lighting	16	1.171	0.0932	0.2624	121989
290.00	Guy	16	1.349	0.0988	0.2605	60994
270.00	DBXLH-9090C-R2M w/ Mount Pipe	16	1.621	0.0385	0.2964	14240
258.00	FFVV-65C-R3-V1_TMO w/ Mount Pipe	16	1.644	0.0218	0.3037	10616
230.00	Guy	16	1.325	0.0557	0.2262	45015
173.19	Guy	16	0.942	0.0190	0.3251	55228
155.00	Side Light	16	0.902	0.0088	0.3056	439770
113.19	Guy	17	0.836	0.0077	0.4864	49198
53.19	Guy	17	0.774	0.0415	0.8340	55651

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	300 - 280	7.461	4	0.2528	0.6730
T2	280 - 260	8.396	4	0.2151	0.7045
T3	260 - 240	8.629	5	0.1736	0.8151
T4	240 - 220	7.602	5	0.3252	0.7415
T5	220 - 200	6.538	5	0.2455	0.7913
T6	200 - 180	5.763	5	0.1999	1.0332
T7	180 - 160	4.978	5	0.1564	1.1533
T8	160 - 140	4.526	5	0.0828	1.1886
T9	140 - 120	4.238	5	0.0760	1.2593
T10	120 - 100	3.920	5	0.0417	1.3913
T11	100 - 80	3.969	5	0.0736	1.5907
T12	80 - 60	4.066	10	0.0382	1.7204
T13	60 - 40	3.720	10	0.1501	1.7386
T14	40 - 20	2.904	10	0.2509	1.7480
T15	20 - 6.8125	1.627	10	0.3477	1.6246
T16	6.8125 - 0	0.569	10	0.3868	1.4817

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
300.00	Flash Beacon Lighting	4	7.461	0.2528	0.6730	31381
290.00	Guy	4	7.967	0.2512	0.6753	15690
270.00	DBXLH-9090C-R2M w/ Mount Pipe	4	8.658	0.1348	0.7702	3674
258.00	FFVV-65C-R3-V1_TMO w/ Mount Pipe	5	8.578	0.1901	0.8152	2766
230.00	Guy	5	7.023	0.3024	0.7351	11641
173.19	Guy	5	4.783	0.1289	1.1658	9107
155.00	Side Light	5	4.454	0.0769	1.2051	24963
113.19	Guy	5	3.897	0.0554	1.4553	11632
53.19	Guy	10	3.492	0.1916	1.7725	11058

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	300	Leg	A325N	0.7500	4	3.64	30.10	0.121	1.05	Bolt Tension
		Torque Arm Top@290	A325N	0.8750	2	7.04	20.08	0.351	1.05	Member Block Shear
		Torque Arm Bottom@290	A325N	0.8750	2	9.71	27.06	0.359	1.05	Bolt Shear
T2	280	Leg	A325N	0.7500	4	6.57	30.10	0.218	1.05	Bolt Tension
T3	260	Leg	A325N	0.7500	4	1.83	30.10	0.061	1.05	Bolt Tension
T4	240	Leg	A325N	0.7500	4	3.59	30.10	0.119	1.05	Bolt Tension
		Torque Arm Top@230	A325N	0.8750	2	8.06	20.08	0.401	1.05	Member Block Shear
		Torque Arm Bottom@230	A325N	0.8750	2	8.51	27.06	0.315	1.05	Bolt Shear
T5	220	Leg	A325N	0.7500	4	3.34	30.10	0.111	1.05	Bolt Tension
T6	200	Leg	A325N	0.7500	4	4.36	30.10	0.145	1.05	Bolt Tension
T7	180	Leg	A325N	0.7500	4	3.98	30.10	0.132	1.05	Bolt Tension
T8	160	Leg	A325N	0.7500	4	3.54	30.10	0.117	1.05	Bolt Tension
T9	140	Leg	A325N	0.7500	4	4.51	30.10	0.150	1.05	Bolt Tension
T10	120	Leg	A325N	0.7500	4	3.95	30.10	0.131	1.05	Bolt Tension
T11	100	Leg	A325N	0.7500	4	5.41	30.10	0.180	1.05	Bolt Tension
T12	80	Leg	A325N	0.7500	4	5.39	30.10	0.179	1.05	Bolt Tension
T13	60	Leg	A325N	0.7500	4	5.77	30.10	0.192	1.05	Bolt Tension
T14	40	Leg	A325N	0.7500	4	5.58	30.10	0.185	1.05	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	290.00 (A)	3/4 [ECP- (734) 24000] EHS	5.83	58.30	14.37	36.73	0.952	2.434
	290.00 (A)	3/4 [ECP- (735) 24000] EHS	5.83	58.30	14.77	36.73	0.952	2.368
	290.00 (B)	3/4 [ECP- (728) 24000] EHS	5.83	58.30	14.34	36.73	0.952	2.439
	290.00 (B)	3/4 [ECP- (729) 24000] EHS	5.83	58.30	15.10	36.73	0.952	2.316
	290.00 (C)	3/4 [ECP- (722) 24000] EHS	5.83	58.30	14.64	36.73	0.952	2.389
	290.00 (C)	3/4 [ECP- (723) 24000] EHS	5.83	58.30	15.10	36.73	0.952	2.316
T4	230.00 (A)	3/4 [ECP- (752) 24000] EHS	5.83	58.30	14.67	36.73	0.952	2.385
	230.00 (A)	3/4 [ECP- (753) 24000] EHS	5.83	58.30	14.68	36.73	0.952	2.383
	230.00 (B)	3/4 [ECP- (746) 24000] EHS	5.83	58.30	14.62	36.73	0.952	2.393
	230.00 (B)	3/4 [ECP- (747) 24000] EHS	5.83	58.30	15.76	36.73	0.952	2.220
	230.00 (C)	3/4 [ECP- (740) 24000] EHS	5.83	58.30	15.52	36.73	0.952	2.254
	230.00 (C)	3/4 [ECP- (741) 24000] EHS	5.83	58.30	15.88	36.73	0.952	2.203
T7	173.19 (A)	3/4 [ECP- (763) 24000] EHS	5.83	58.30	12.57	36.73	0.952	2.782
	173.19 (B)	3/4 [ECP- (762) 24000] EHS	5.83	58.30	13.34	36.73	0.952	2.623
	173.19 (C)	3/4 [ECP- (758) 24000] EHS	5.83	58.30	14.05	36.73	0.952	2.490
T10	113.19 (A)	3/4 [ECP- (769) 24000] EHS	5.83	58.30	12.25	36.73	0.952	2.855

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T13	113.19 (B) (768)	3/4 [ECP- 24000] EHS	5.83	58.30	13.28	36.73	0.952	2.635
	113.19 (C) (764)	3/4 [ECP- 24000] EHS	5.83	58.30	13.93	36.73	0.952	2.511
	53.19 (A) (775)	1/2 [ECP- 23000] EHS	2.69	26.90	5.62	16.95	0.952	2.871
	53.19 (B) (774)	1/2 [ECP- 23000] EHS	2.69	26.90	6.05	16.95	0.952	2.667
	53.19 (C) (770)	1/2 [ECP- 23000] EHS	2.69	26.90	6.37	16.95	0.952	2.533

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	2	20.00	3.19	76.6 K=1.00	3.1416	-38.32	92.03	0.416 ¹
T2	280 - 260	2	20.00	3.19	76.6 K=1.00	3.1416	-61.91	92.03	0.673 ¹
T3	260 - 240	2	20.00	3.19	76.6 K=1.00	3.1416	-58.81	92.03	0.639 ¹
T4	240 - 220	2 1/2	20.00	3.19	61.3 K=1.00	4.9087	-45.93	167.83	0.274 ¹
T5	220 - 200	2 1/4	20.00	3.19	68.1 K=1.00	3.9761	-40.38	127.45	0.317 ¹
T6	200 - 180	2 1/4	20.00	3.19	68.1 K=1.00	3.9761	-49.11	127.45	0.385 ¹
T7	180 - 160	2 1/4	20.00	3.19	68.1 K=1.00	3.9761	-57.79	127.45	0.453 ¹
T8	160 - 140	2 1/4	20.00	3.19	68.1 K=1.00	3.9761	-44.91	127.45	0.352 ¹
T9	140 - 120	2 1/4	20.00	3.19	68.1 K=1.00	3.9761	-50.72	127.45	0.398 ¹
T10	120 - 100	2 1/4	20.00	3.19	68.1 K=1.00	3.9761	-58.87	127.45	0.462 ¹
T11	100 - 80	2 1/4	20.00	3.19	68.1 K=1.00	3.9761	-61.78	127.45	0.485 ¹
T12	80 - 60	2 1/4	20.00	3.19	68.1 K=1.00	3.9761	-65.11	127.45	0.511 ¹
T13	60 - 40	2 1/4	20.00	3.19	68.1 K=1.00	3.9761	-66.55	127.45	0.522 ¹
T14	40 - 20	2 1/2	20.00	3.19	61.3 K=1.00	4.9087	-68.41	167.83	0.408 ¹
T15	20 - 6.8125	2 1/2	13.19	3.19	61.3 K=1.00	4.9087	-63.78	167.86	0.380 ¹
T16	6.8125 - 0	2 1/2	7.03	1.34	25.8 K=1.00	4.9087	-60.17	210.40	0.286 ¹

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1 1/4	4.38	4.14	111.2 K=0.70	1.2272	-8.13	20.73	0.392 ¹
T2	280 - 260	1 1/8	4.38	4.14	123.6 K=0.70	0.9940	-7.85	14.41	0.545 ¹
T3	260 - 240	1 3/8	4.38	4.14	101.1 K=0.70	1.4849	-9.45	28.09	0.336 ¹
T4	240 - 220	1 3/8	4.38	4.08	99.6 K=0.70	1.4849	-10.81	28.53	0.379 ¹
T5	220 - 200	1 1/4	4.38	4.11	110.4 K=0.70	1.2272	-6.70	20.93	0.320 ¹
T6	200 - 180	1 3/8	4.38	4.11	100.4 K=0.70	1.4849	-7.55	28.31	0.267 ¹
T7	180 - 160	1 3/8	4.38	4.11	100.4 K=0.70	1.4849	-7.87	28.31	0.278 ¹
T8	160 - 140	1 1/8	4.38	4.11	122.7 K=0.70	0.9940	-5.39	14.58	0.370 ¹
T9	140 - 120	1 1/4	4.38	4.11	110.4 K=0.70	1.2272	-6.33	20.93	0.303 ¹
T10	120 - 100	1 3/8	4.38	4.11	100.4 K=0.70	1.4849	-7.30	28.31	0.258 ¹
T11	100 - 80	1 1/4	4.38	4.11	110.4 K=0.70	1.2272	-6.97	20.93	0.333 ¹
T12	80 - 60	1 1/8	4.38	4.11	122.7 K=0.70	0.9940	-4.77	14.58	0.327 ¹
T13	60 - 40	1 1/8	4.38	4.11	122.7 K=0.70	0.9940	-5.23	14.58	0.359 ¹
T14	40 - 20	1 1/8	4.38	4.08	121.8 K=0.70	0.9940	-5.37	14.76	0.364 ¹
T15	20 - 6.8125	1 1/8	4.38	4.08	121.7 K=0.70	0.9940	-5.88	14.76	0.398 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1	3.00	2.83	95.2 K=0.70	0.7854	-3.79	15.79	0.240 ¹
T2	280 - 260	7/8	3.00	2.83	108.8 K=0.70	0.6013	-2.83	10.45	0.270 ¹
T3	260 - 240	1	3.00	2.83	95.2 K=0.70	0.7854	-3.95	15.79	0.250 ¹
T4	240 - 220	1 1/4	3.00	2.79	85.3 K=0.80	1.2272	-5.89	27.10	0.217 ¹
T5	220 - 200	7/8	3.00	2.81	108.0 K=0.70	0.6013	-0.81	10.54	0.077 ¹
T6	200 - 180	7/8	3.00	2.81	108.0 K=0.70	0.6013	-0.99	10.54	0.094 ¹
T7	180 - 160	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.12	10.54	0.106 ¹
T8	160 - 140	7/8	3.00	2.81	108.0 K=0.70	0.6013	-0.90	10.54	0.086 ¹
T9	140 - 120	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.02	10.54	0.097 ¹
T10	120 - 100	1	3.00	2.81	94.5 K=0.70	0.7854	-1.12	15.90	0.071 ¹
T11	100 - 80	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.23	10.54	0.116 ¹
T12	80 - 60	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.23	10.54	0.117 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T13	60 - 40	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.31	10.54	0.124 ¹
T14	40 - 20	7/8	3.00	2.79	K=0.70 107.2	0.6013	-1.22	10.64	0.114 ¹
T15	20 - 6.8125	7/8	3.00	2.79	K=0.70 107.2	0.6013	-1.18	10.64	0.111 ¹
T16	6.8125 - 0	L4x4x3/8	2.29	2.09	K=0.70 75.9 K=2.39	2.8600	-1.28	84.32	0.015 ¹

¹ P_u / φP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	3/4	1.50	1.42	83.4 K=0.92	0.4418	-0.00	9.92	0.000 ¹
T2	280 - 260	3/4	1.50	1.42	83.4 K=0.92	0.4418	-0.00	9.92	0.000 ¹
T3	260 - 240	3/4	1.50	1.42	83.4 K=0.92	0.4418	-0.00	9.92	0.000 ¹
T4	240 - 220	3/4	1.50	1.40	83.1 K=0.93	0.4418	-0.00	9.95	0.000 ¹
T5	220 - 200	3/4	1.50	1.41	83.3 K=0.92	0.4418	-0.00	9.94	0.000 ¹
T6	200 - 180	3/4	1.50	1.41	83.3 K=0.92	0.4418	-0.00	9.94	0.000 ¹
T7	180 - 160	3/4	1.50	1.41	83.3 K=0.92	0.4418	-0.00	9.94	0.000 ¹
T8	160 - 140	3/4	1.50	1.41	83.3 K=0.92	0.4418	-0.00	9.94	0.000 ¹
T9	140 - 120	3/4	1.50	1.41	83.3 K=0.92	0.4418	-0.00	9.94	0.000 ¹
T10	120 - 100	3/4	1.50	1.41	83.3 K=0.92	0.4418	-0.00	9.94	0.000 ¹
T11	100 - 80	3/4	1.50	1.41	83.3 K=0.92	0.4418	-0.00	9.94	0.000 ¹
T12	80 - 60	3/4	1.50	1.41	83.3 K=0.92	0.4418	-0.00	9.94	0.000 ¹
T13	60 - 40	3/4	1.50	1.41	83.3 K=0.92	0.4418	-0.00	9.94	0.000 ¹
T14	40 - 20	3/4	1.50	1.40	83.1 K=0.93	0.4418	-0.00	9.95	0.000 ¹
T15	20 - 6.8125	3/4	1.50	1.40	83.1 K=0.93	0.4418	-0.00	9.95	0.000 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1	3.00	2.83	95.2 K=0.70	0.7854	-0.90	15.79	0.057 ¹
T2	280 - 260	7/8	3.00	2.83	108.8 K=0.70	0.6013	-2.00	10.45	0.191 ¹
T3	260 - 240	1	3.00	2.83	95.2	0.7854	-1.24	15.79	0.079 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T4	240 - 220	1 1/4	3.00	2.79	K=0.70 85.3	1.2272	-3.00	27.10	0.111 ¹
T5	220 - 200	7/8	3.00	2.81	K=0.80 108.0	0.6013	-0.81	10.54	0.077 ¹
T6	200 - 180	7/8	3.00	2.81	K=0.70 108.0	0.6013	-0.99	10.54	0.094 ¹
T7	180 - 160	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.09	10.54	0.103 ¹
T8	160 - 140	7/8	3.00	2.81	K=0.70 108.0	0.6013	-0.90	10.54	0.086 ¹
T9	140 - 120	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.02	10.54	0.097 ¹
T10	120 - 100	1	3.00	2.81	K=0.70 94.5	0.7854	-1.11	15.90	0.070 ¹
T11	100 - 80	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.23	10.54	0.116 ¹
T12	80 - 60	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.23	10.54	0.117 ¹
T13	60 - 40	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.31	10.54	0.124 ¹
T14	40 - 20	7/8	3.00	2.79	K=0.70 107.2	0.6013	-1.22	10.64	0.114 ¹
T15	20 - 6.8125	7/8	3.00	2.79	K=0.70 107.2	0.6013	-1.18	10.64	0.111 ¹
T16	6.8125 - 0	L4x4x3/8	2.87	2.66	K=0.70 80.2 K=1.98	2.8600	-1.07	82.11	0.013 ¹

¹ P_u / φP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1	3.00	2.83	95.2 K=0.70	0.7854	-2.14	15.79	0.135 ¹
T2	280 - 260	7/8	3.00	2.83	108.8 K=0.70	0.6013	-1.30	10.45	0.124 ¹
T3	260 - 240	1	3.00	2.83	95.2 K=0.70	0.7854	-2.37	15.79	0.150 ¹
T4	240 - 220	1 1/4	3.00	2.79	85.3 K=0.80	1.2272	-0.81	27.10	0.030 ¹
T5	220 - 200	7/8	3.00	2.81	108.0 K=0.70	0.6013	-0.81	10.54	0.077 ¹
T6	200 - 180	7/8	3.00	2.81	108.0 K=0.70	0.6013	-0.99	10.54	0.094 ¹
T7	180 - 160	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.09	10.54	0.103 ¹
T8	160 - 140	7/8	3.00	2.81	108.0 K=0.70	0.6013	-0.90	10.54	0.086 ¹
T9	140 - 120	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.02	10.54	0.097 ¹
T10	120 - 100	1	3.00	2.81	94.5 K=0.70	0.7854	-1.11	15.90	0.070 ¹
T11	100 - 80	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.23	10.54	0.116 ¹
T12	80 - 60	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.23	10.54	0.117 ¹
T13	60 - 40	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.31	10.54	0.124 ¹
T14	40 - 20	7/8	3.00	2.79	107.2 K=0.70	0.6013	-1.22	10.64	0.114 ¹

¹ $P_u / \phi P_n$ controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280 (726)	L3 1/2x3 1/2x3/8	4.75	4.63	80.9 K=1.00	2.4800	-18.77	70.89	0.265 ¹
T1	300 - 280 (727)	L3 1/2x3 1/2x3/8	4.75	4.63	80.9 K=1.00	2.4800	-19.42	70.89	0.274 ¹
T1	300 - 280 (732)	L3 1/2x3 1/2x3/8	4.75	4.63	80.9 K=1.00	2.4800	-18.96	70.89	0.267 ¹
T1	300 - 280 (733)	L3 1/2x3 1/2x3/8	4.75	4.63	80.9 K=1.00	2.4800	-19.27	70.89	0.272 ¹
T1	300 - 280 (738)	L3 1/2x3 1/2x3/8	4.75	4.63	80.9 K=1.00	2.4800	-19.22	70.89	0.271 ¹
T1	300 - 280 (739)	L3 1/2x3 1/2x3/8	4.75	4.63	80.9 K=1.00	2.4800	-18.97	70.89	0.268 ¹
T4	240 - 220 (744)	L3 1/2x3 1/2x3/8	4.75	4.61	80.4 K=1.00	2.4800	-15.29	71.11	0.215 ¹
T4	240 - 220 (745)	L3 1/2x3 1/2x3/8	4.75	4.61	80.4 K=1.00	2.4800	-17.03	71.11	0.239 ¹
T4	240 - 220 (750)	L3 1/2x3 1/2x3/8	4.75	4.61	80.4 K=1.00	2.4800	-15.85	71.11	0.223 ¹
T4	240 - 220 (751)	L3 1/2x3 1/2x3/8	4.75	4.61	80.4 K=1.00	2.4800	-16.80	71.11	0.236 ¹
T4	240 - 220 (756)	L3 1/2x3 1/2x3/8	4.75	4.61	80.4 K=1.00	2.4800	-16.76	71.11	0.236 ¹
T4	240 - 220 (757)	L3 1/2x3 1/2x3/8	4.75	4.61	80.4 K=1.00	2.4800	-16.10	71.11	0.226 ¹

¹ $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	2	20.00	0.42	10.1	3.1416	13.13	141.37	0.093 ¹
T2	280 - 260	2	20.00	3.19	76.6	3.1416	31.50	141.37	0.223 ¹
T3	260 - 240	2	20.00	0.42	10.1	3.1416	26.27	141.37	0.186 ¹
T4	240 - 220	2 1/2	20.00	3.19	61.3	4.9087	11.06	220.89	0.050 ¹

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1 1/4	4.38	4.14	158.9	1.2272	5.50	39.76	0.138 ¹
T2	280 - 260	1 1/8	4.38	4.14	176.5	0.9940	4.68	32.21	0.145 ¹
T3	260 - 240	1 3/8	4.38	4.14	144.4	1.4849	6.40	48.11	0.133 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T4	240 - 220	1 3/8	4.38	4.08	142.3	1.4849	7.48	48.11	0.156 ¹
T5	220 - 200	1 1/4	4.38	4.11	157.7	1.2272	0.54	39.76	0.014 ¹
T6	200 - 180	1 3/8	4.38	4.11	143.4	1.4849	1.36	48.11	0.028 ¹
T7	180 - 160	1 3/8	4.38	4.11	143.4	1.4849	1.68	48.11	0.035 ¹
T9	140 - 120	1 1/4	4.38	4.11	157.7	1.2272	0.10	39.76	0.003 ¹
T10	120 - 100	1 3/8	4.38	4.11	143.4	1.4849	1.71	48.11	0.036 ¹
T11	100 - 80	1 1/4	4.38	4.11	157.7	1.2272	0.84	39.76	0.021 ¹
T13	60 - 40	1 1/8	4.38	4.11	175.2	0.9940	0.24	32.21	0.007 ¹
T15	20 - 6.8125	1 1/8	4.38	4.08	173.9	0.9940	0.36	32.21	0.011 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1	3.00	2.83	136.0	0.7854	5.31	25.45	0.209 ¹
T2	280 - 260	7/8	3.00	2.83	155.4	0.6013	4.74	19.48	0.244 ¹
T3	260 - 240	1	3.00	2.83	136.0	0.7854	5.90	25.45	0.232 ¹
T4	240 - 220	1 1/4	3.00	2.79	107.2	1.2272	10.44	39.76	0.263 ¹
T5	220 - 200	7/8	3.00	2.81	154.3	0.6013	4.14	19.48	0.213 ¹
T6	200 - 180	7/8	3.00	2.81	154.3	0.6013	4.53	19.48	0.233 ¹
T7	180 - 160	7/8	3.00	2.81	154.3	0.6013	4.94	19.48	0.253 ¹
T8	160 - 140	7/8	3.00	2.81	154.3	0.6013	3.25	19.48	0.167 ¹
T9	140 - 120	7/8	3.00	2.81	154.3	0.6013	3.81	19.48	0.195 ¹
T10	120 - 100	1	3.00	2.81	135.0	0.7854	4.72	25.45	0.186 ¹
T11	100 - 80	7/8	3.00	2.81	154.3	0.6013	4.18	19.48	0.215 ¹
T12	80 - 60	7/8	3.00	2.81	154.3	0.6013	2.94	19.48	0.151 ¹
T13	60 - 40	7/8	3.00	2.81	154.3	0.6013	3.49	19.48	0.179 ¹
T14	40 - 20	7/8	3.00	2.79	153.1	0.6013	3.33	19.48	0.171 ¹
T15	20 - 6.8125	7/8	3.00	2.79	153.1	0.6013	4.19	19.48	0.215 ¹
T16	6.8125 - 0	L4x4x3/8	2.29	2.09	20.3	2.8600	1.07	92.66	0.012 ¹

¹ P_u / φP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	3/4	1.50	1.42	90.7	0.4418	0.00	14.31	0.000 ¹
T2	280 - 260	3/4	1.50	1.42	90.7	0.4418	0.00	14.31	0.000 ¹
T3	260 - 240	3/4	1.50	1.42	90.7	0.4418	0.00	14.31	0.000 ¹
T4	240 - 220	3/4	1.50	1.40	89.3	0.4418	0.00	14.31	0.000 ¹
T5	220 - 200	3/4	1.50	1.41	90.0	0.4418	0.00	14.31	0.000 ¹
T6	200 - 180	3/4	1.50	1.41	90.0	0.4418	0.00	14.31	0.000 ¹
T7	180 - 160	3/4	1.50	1.41	90.0	0.4418	0.00	14.31	0.000 ¹
T8	160 - 140	3/4	1.50	1.41	90.0	0.4418	0.00	14.31	0.000 ¹
T9	140 - 120	3/4	1.50	1.41	90.0	0.4418	0.00	14.31	0.000 ¹
T10	120 - 100	3/4	1.50	1.41	90.0	0.4418	0.00	14.31	0.000 ¹
T11	100 - 80	3/4	1.50	1.41	90.0	0.4418	0.00	14.31	0.000 ¹
T12	80 - 60	3/4	1.50	1.41	90.0	0.4418	0.00	14.31	0.000 ¹
T13	60 - 40	3/4	1.50	1.41	90.0	0.4418	0.00	14.31	0.000 ¹
T14	40 - 20	3/4	1.50	1.40	89.3	0.4418	0.00	14.31	0.000 ¹
T15	20 - 6.8125	3/4	1.50	1.40	89.3	0.4418	0.00	14.31	0.000 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1	3.00	2.83	136.0	0.7854	0.90	25.45	0.035 ¹
T2	280 - 260	7/8	3.00	2.83	155.4	0.6013	2.96	19.48	0.152 ¹
T3	260 - 240	1	3.00	2.83	136.0	0.7854	2.01	25.45	0.079 ¹
T4	240 - 220	1 1/4	3.00	2.79	107.2	1.2272	4.22	39.76	0.106 ¹
T5	220 - 200	7/8	3.00	2.81	154.3	0.6013	2.41	19.48	0.123 ¹
T6	200 - 180	7/8	3.00	2.81	154.3	0.6013	1.88	19.48	0.097 ¹
T7	180 - 160	7/8	3.00	2.81	154.3	0.6013	2.67	19.48	0.137 ¹
T8	160 - 140	7/8	3.00	2.81	154.3	0.6013	2.00	19.48	0.103 ¹
T9	140 - 120	7/8	3.00	2.81	154.3	0.6013	1.58	19.48	0.081 ¹
T10	120 - 100	1	3.00	2.81	135.0	0.7854	2.42	25.45	0.095 ¹
T11	100 - 80	7/8	3.00	2.81	154.3	0.6013	2.41	19.48	0.124 ¹
T12	80 - 60	7/8	3.00	2.81	154.3	0.6013	1.61	19.48	0.082 ¹
T13	60 - 40	7/8	3.00	2.81	154.3	0.6013	2.01	19.48	0.103 ¹
T14	40 - 20	7/8	3.00	2.79	153.1	0.6013	1.70	19.48	0.087 ¹
T15	20 - 6.8125	7/8	3.00	2.79	153.1	0.6013	2.16	19.48	0.111 ¹
T16	6.8125 - 0	L4x4x3/8	2.87	2.66	25.9	2.8600	10.59	92.66	0.114 ¹

¹ P_u / φP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1	3.00	2.83	136.0	0.7854	3.49	25.45	0.137 ¹
T2	280 - 260	7/8	3.00	2.83	155.4	0.6013	1.30	19.48	0.067 ¹
T3	260 - 240	1	3.00	2.83	136.0	0.7854	3.35	25.45	0.132 ¹
T4	240 - 220	1 1/4	3.00	2.79	107.2	1.2272	2.91	39.76	0.073 ¹
T5	220 - 200	7/8	3.00	2.81	154.3	0.6013	1.78	19.48	0.092 ¹
T6	200 - 180	7/8	3.00	2.81	154.3	0.6013	2.62	19.48	0.134 ¹
T7	180 - 160	7/8	3.00	2.81	154.3	0.6013	2.16	19.48	0.111 ¹
T8	160 - 140	7/8	3.00	2.81	154.3	0.6013	1.40	19.48	0.072 ¹
T9	140 - 120	7/8	3.00	2.81	154.3	0.6013	2.13	19.48	0.109 ¹
T10	120 - 100	1	3.00	2.81	135.0	0.7854	2.56	25.45	0.100 ¹
T11	100 - 80	7/8	3.00	2.81	154.3	0.6013	1.72	19.48	0.089 ¹
T12	80 - 60	7/8	3.00	2.81	154.3	0.6013	1.80	19.48	0.092 ¹
T13	60 - 40	7/8	3.00	2.81	154.3	0.6013	1.70	19.48	0.087 ¹
T14	40 - 20	7/8	3.00	2.79	153.1	0.6013	1.99	19.48	0.102 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	180 - 160	2x3/8	3.00	2.81	311.8	0.7500	4.21	24.30	0.173 ¹
T10	120 - 100	2x3/8	3.00	2.81	311.8	0.7500	3.69	24.30	0.152 ¹
T13	60 - 40	2x3/8	3.00	2.81	311.8	0.7500	2.89	24.30	0.119 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T7	180 - 160	2x3/8	0.00	1.01	0.000	0.00	0.19	0.000
T10	120 - 100	2x3/8	0.00	1.01	0.000	0.00	0.19	0.000
T13	60 - 40	2x3/8	0.00	1.01	0.000	0.00	0.19	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T7	180 - 160	2x3/8	0.173	0.000	0.000	0.173 ¹	1.050	
T10	120 - 100	2x3/8	0.152	0.000	0.000	0.152 ¹	1.050	
T13	60 - 40	2x3/8	0.119	0.000	0.000	0.119 ¹	1.050	

¹ $P_u / \phi P_n$ controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	KI/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280 (724)	L3 1/2x3 1/2x3/8	3.51	3.43	38.5	1.5788	12.67	68.68	0.184 ¹
T1	300 - 280 (725)	L3 1/2x3 1/2x3/8	3.51	3.43	38.5	1.5788	13.88	68.68	0.202 ¹
T1	300 - 280 (730)	L3 1/2x3 1/2x3/8	3.51	3.43	38.5	1.5788	13.89	68.68	0.202 ¹
T1	300 - 280 (731)	L3 1/2x3 1/2x3/8	3.51	3.43	38.5	1.5788	12.60	68.68	0.184 ¹
T1	300 - 280 (736)	L3 1/2x3 1/2x3/8	3.51	3.43	38.5	1.5788	12.62	68.68	0.184 ¹
T1	300 - 280 (737)	L3 1/2x3 1/2x3/8	3.51	3.43	38.5	1.5788	14.08	68.68	0.205 ¹
T4	240 - 220 (742)	L3 1/2x3 1/2x3/8	3.51	3.41	38.2	1.5788	14.93	68.68	0.217 ¹
T4	240 - 220 (743)	L3 1/2x3 1/2x3/8	3.51	3.41	38.2	1.5788	14.68	68.68	0.214 ¹
T4	240 - 220 (748)	L3 1/2x3 1/2x3/8	3.51	3.41	38.2	1.5788	15.45	68.68	0.225 ¹
T4	240 - 220 (749)	L3 1/2x3 1/2x3/8	3.51	3.41	38.2	1.5788	14.05	68.68	0.205 ¹
T4	240 - 220 (754)	L3 1/2x3 1/2x3/8	3.51	3.41	38.2	1.5788	14.11	68.68	0.205 ¹
T4	240 - 220 (755)	L3 1/2x3 1/2x3/8	3.51	3.41	38.2	1.5788	16.12	68.68	0.235 ¹

¹ $P_u / \phi P_n$ controls

Section Capacity Table

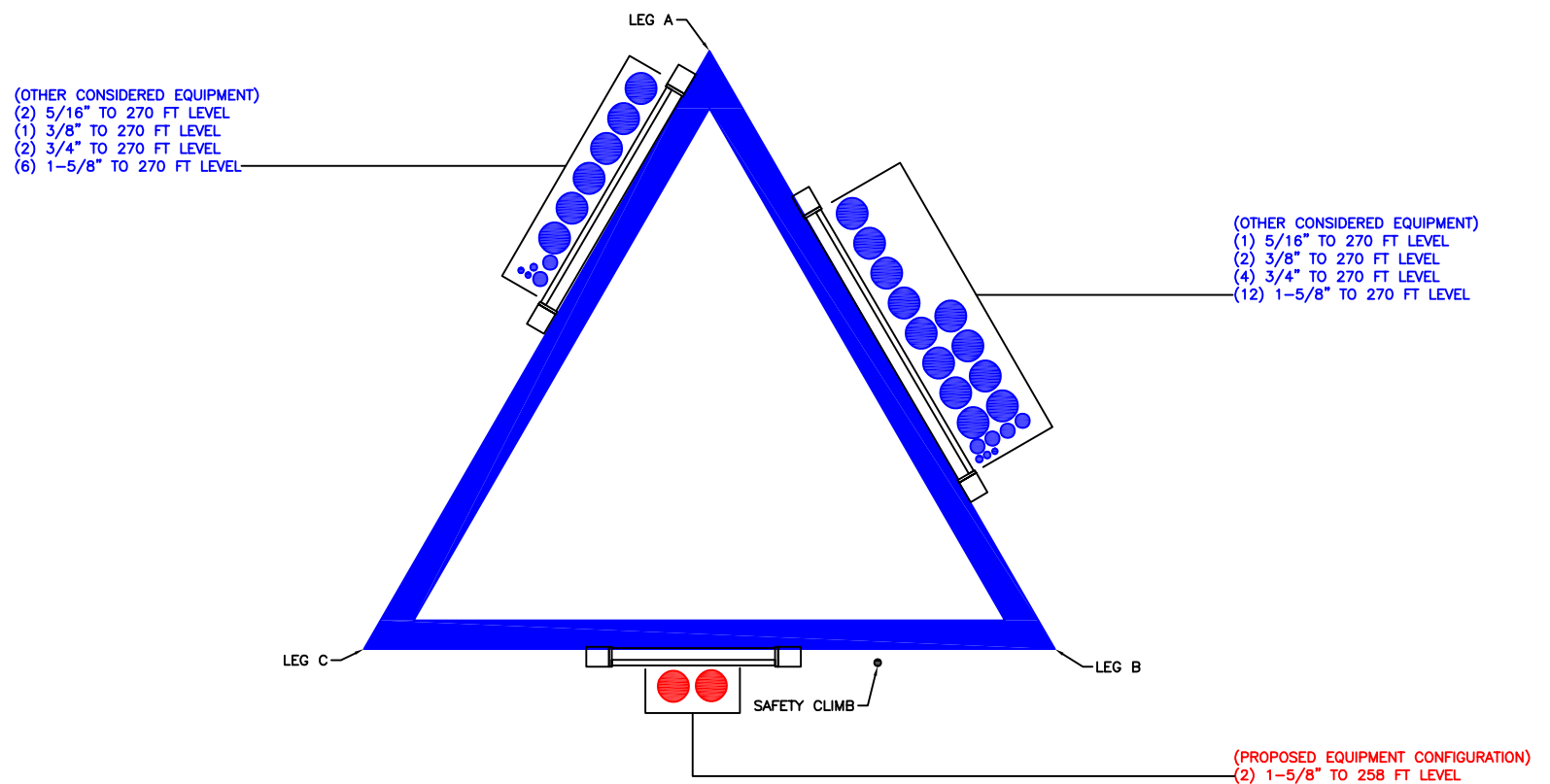
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	300 - 280	Leg	2	1	-38.32	96.63	39.7	Pass
T2	280 - 260	Leg	2	49	-61.91	96.63	64.1	Pass
T3	260 - 240	Leg	2	97	-58.81	96.63	60.9	Pass
T4	240 - 220	Leg	2 1/2	145	-45.93	176.22	26.1	Pass
T5	220 - 200	Leg	2 1/4	194	-40.38	133.83	30.2	Pass
T6	200 - 180	Leg	2 1/4	242	-49.11	133.83	36.7	Pass
T7	180 - 160	Leg	2 1/4	290	-57.79	133.83	43.2	Pass
T8	160 - 140	Leg	2 1/4	338	-44.91	133.83	33.6	Pass
T9	140 - 120	Leg	2 1/4	386	-50.72	133.83	37.9	Pass
T10	120 - 100	Leg	2 1/4	433	-58.87	133.83	44.0	Pass
T11	100 - 80	Leg	2 1/4	481	-61.78	133.83	46.2	Pass
T12	80 - 60	Leg	2 1/4	529	-65.11	133.83	48.7	Pass
T13	60 - 40	Leg	2 1/4	577	-66.55	133.83	49.7	Pass
T14	40 - 20	Leg	2 1/2	625	-68.41	176.22	38.8	Pass
T15	20 - 6.8125	Leg	2 1/2	673	-63.78	176.26	36.2	Pass
T16	6.8125 - 0	Leg	2 1/2	704	-60.17	220.92	27.2	Pass
T1	300 - 280	Diagonal	1 1/4	11	-8.13	21.77	37.3	Pass
T2	280 - 260	Diagonal	1 1/8	94	-7.85	15.13	51.9	Pass
T3	260 - 240	Diagonal	1 3/8	106	-9.45	29.49	32.0	Pass
T4	240 - 220	Diagonal	1 3/8	189	-10.81	29.96	36.1	Pass
T5	220 - 200	Diagonal	1 1/4	238	-6.70	21.98	30.5	Pass
T6	200 - 180	Diagonal	1 3/8	250	-7.55	29.73	25.4	Pass
T7	180 - 160	Diagonal	1 3/8	333	-7.87	29.73	26.5	Pass
T8	160 - 140	Diagonal	1 1/8	382	-5.39	15.31	35.2	Pass
T9	140 - 120	Diagonal	1 1/4	394	-6.33	21.98	28.8	Pass
T10	120 - 100	Diagonal	1 3/8	442	-7.30	29.73	24.5	Pass
T11	100 - 80	Diagonal	1 1/4	525	-6.97	21.98	31.7	Pass
T12	80 - 60	Diagonal	1 1/8	540	-4.77	15.31	31.1	Pass
T13	60 - 40	Diagonal	1 1/8	607	-5.23	15.31	34.2	Pass
T14	40 - 20	Diagonal	1 1/8	636	-5.37	15.49	34.7	Pass
T15	20 - 6.8125	Diagonal	1 1/8	680	-5.88	15.50	37.9	Pass
T1	300 - 280	Horizontal	1	23	-3.79	16.58	22.9	Pass
T2	280 - 260	Horizontal	7/8	91	-2.83	10.97	25.8	Pass
T3	260 - 240	Horizontal	1	110	-3.95	16.58	23.8	Pass
T4	240 - 220	Horizontal	1 1/4	173	10.44	41.75	25.0	Pass
T5	220 - 200	Horizontal	7/8	235	4.14	20.46	20.2	Pass
T6	200 - 180	Horizontal	7/8	254	4.53	20.46	22.2	Pass
T7	180 - 160	Horizontal	7/8	330	4.94	20.46	24.1	Pass
T8	160 - 140	Horizontal	7/8	379	3.25	20.46	15.9	Pass
T9	140 - 120	Horizontal	7/8	398	3.81	20.46	18.6	Pass
T10	120 - 100	Horizontal	1	460	4.72	26.72	17.7	Pass
T11	100 - 80	Horizontal	7/8	522	4.18	20.46	20.5	Pass
T12	80 - 60	Horizontal	7/8	544	2.94	20.46	14.4	Pass
T13	60 - 40	Horizontal	7/8	604	3.49	20.46	17.1	Pass
T14	40 - 20	Horizontal	7/8	640	3.33	20.46	16.3	Pass
T15	20 - 6.8125	Horizontal	7/8	685	4.19	20.46	20.5	Pass
T16	6.8125 - 0	Horizontal	L4x4x3/8	712	-1.07	94.71	29.7	Pass
T1	300 - 280	Secondary Horizontal	3/4	13	-0.00	10.42	0.0	Pass
T2	280 - 260	Secondary Horizontal	3/4	61	-0.00	10.42	0.0	Pass
T3	260 - 240	Secondary Horizontal	3/4	144	-0.00	10.42	0.0	Pass
T4	240 - 220	Secondary Horizontal	3/4	157	-0.00	10.45	0.0	Pass
T5	220 - 200	Secondary Horizontal	3/4	205	-0.00	10.43	0.0	Pass
T6	200 - 180	Secondary Horizontal	3/4	288	-0.00	10.43	0.0	Pass
T7	180 - 160	Secondary Horizontal	3/4	301	0.00	15.03	0.0	Pass
T8	160 - 140	Secondary Horizontal	3/4	384	-0.00	10.43	0.0	Pass
T9	140 - 120	Secondary Horizontal	3/4	432	-0.00	10.43	0.0	Pass
T10	120 - 100	Secondary Horizontal	3/4	445	0.00	15.03	0.0	Pass
T11	100 - 80	Secondary Horizontal	3/4	528	0.00	15.03	0.0	Pass
T12	80 - 60	Secondary Horizontal	3/4	576	0.00	15.03	0.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T13	60 - 40	Horizontal Secondary	3/4	624	-0.00	10.43	0.0	Pass
T14	40 - 20	Horizontal Secondary	3/4	672	-0.00	10.45	0.0	Pass
T15	20 - 6.8125	Horizontal Secondary	3/4	703	-0.00	10.45	0.0	Pass
T1	300 - 280	Top Girt	1	4	-0.90	16.58	5.4	Pass
T2	280 - 260	Top Girt	7/8	54	-2.00	10.97	18.2	Pass
T3	260 - 240	Top Girt	1	100	2.01	26.72	7.5	Pass
T4	240 - 220	Top Girt	1 1/4	150	-3.00	28.46	10.5	Pass
T5	220 - 200	Top Girt	7/8	198	2.41	20.46	11.8	Pass
T6	200 - 180	Top Girt	7/8	244	1.88	20.46	9.2	Pass
T7	180 - 160	Top Girt	7/8	292	2.67	20.46	13.1	Pass
T8	160 - 140	Top Girt	7/8	342	2.00	20.46	9.8	Pass
T9	140 - 120	Top Girt	7/8	389	-1.02	11.07	9.2	Pass
T10	120 - 100	Top Girt	1	438	2.42	26.72	9.0	Pass
T11	100 - 80	Top Girt	7/8	484	2.41	20.46	11.8	Pass
T12	80 - 60	Top Girt	7/8	532	-1.23	11.07	11.1	Pass
T13	60 - 40	Top Girt	7/8	580	-1.31	11.07	11.8	Pass
T14	40 - 20	Top Girt	7/8	630	-1.22	11.17	10.9	Pass
T15	20 - 6.8125	Top Girt	7/8	678	2.16	20.46	10.6	Pass
T16	6.8125 - 0	Top Girt	L4x4x3/8	709	10.59	97.30	10.9	Pass
T1	300 - 280	Bottom Girt	1	8	3.49	26.72	13.1	Pass
T2	280 - 260	Bottom Girt	7/8	57	-1.30	10.97	11.8	Pass
T3	260 - 240	Bottom Girt	1	103	-2.37	16.58	14.3	Pass
T4	240 - 220	Bottom Girt	1 1/4	152	2.91	41.75	7.0	Pass
T5	220 - 200	Bottom Girt	7/8	199	1.78	20.46	8.7	Pass
T6	200 - 180	Bottom Girt	7/8	247	2.62	20.46	12.8	Pass
T7	180 - 160	Bottom Girt	7/8	296	2.16	20.46	10.6	Pass
T8	160 - 140	Bottom Girt	7/8	343	-0.90	11.07	8.1	Pass
T9	140 - 120	Bottom Girt	7/8	391	2.13	20.46	10.4	Pass
T10	120 - 100	Bottom Girt	1	439	2.56	26.72	9.6	Pass
T11	100 - 80	Bottom Girt	7/8	489	-1.23	11.07	11.1	Pass
T12	80 - 60	Bottom Girt	7/8	535	-1.23	11.07	11.1	Pass
T13	60 - 40	Bottom Girt	7/8	585	-1.31	11.07	11.8	Pass
T14	40 - 20	Bottom Girt	7/8	633	-1.22	11.17	10.9	Pass
T1	300 - 280	Guy A@290	3/4 [ECP-24000]	735	14.77	36.73	40.2	Pass
T4	240 - 220	Guy A@230	3/4 [ECP-24000]	753	14.68	36.73	40.0	Pass
T7	180 - 160	Guy A@173.193	3/4 [ECP-24000]	763	12.57	36.73	34.2	Pass
T10	120 - 100	Guy A@113.193	3/4 [ECP-24000]	769	12.25	36.73	33.4	Pass
T13	60 - 40	Guy A@53.1927	1/2 [ECP-23000]	775	5.62	16.95	33.2	Pass
T1	300 - 280	Guy B@290	3/4 [ECP-24000]	729	15.10	36.73	41.1	Pass
T4	240 - 220	Guy B@230	3/4 [ECP-24000]	747	15.76	36.73	42.9	Pass
T7	180 - 160	Guy B@173.193	3/4 [ECP-24000]	762	13.34	36.73	36.3	Pass
T10	120 - 100	Guy B@113.193	3/4 [ECP-24000]	768	13.28	36.73	36.1	Pass
T13	60 - 40	Guy B@53.1927	1/2 [ECP-23000]	774	6.05	16.95	35.7	Pass
T1	300 - 280	Guy C@290	3/4 [ECP-24000]	723	15.10	36.73	41.1	Pass
T4	240 - 220	Guy C@230	3/4 [ECP-24000]	741	15.88	36.73	43.2	Pass
T7	180 - 160	Guy C@173.193	3/4 [ECP-24000]	758	14.05	36.73	38.2	Pass
T10	120 - 100	Guy C@113.193	3/4 [ECP-24000]	764	13.93	36.73	37.9	Pass
T13	60 - 40	Guy C@53.1927	1/2 [ECP-23000]	770	6.37	16.95	37.6	Pass
T7	180 - 160	Top Guy Pull-Off@173.193	2x3/8	760	4.21	25.51	16.5	Pass
T10	120 - 100	Top Guy Pull-Off@113.193	2x3/8	766	3.69	25.51	14.5	Pass
T13	60 - 40	Top Guy Pull-Off@53.1927	2x3/8	773	2.89	25.51	11.3	Pass
T1	300 - 280	Torque Arm Top@290	L3 1/2x3 1/2x3/8	737	14.08	72.11	19.5	Pass
T4	240 - 220	Torque Arm Top@230	L3 1/2x3 1/2x3/8	755	16.12	72.11	33.4 (b) 22.3	Pass
T1	300 - 280	Torque Arm Bottom@290	L3 1/2x3 1/2x3/8	727	-19.42	74.43	38.2 (b) 26.1	Pass
T4	240 - 220	Torque Arm Bottom@230	L3 1/2x3 1/2x3/8	745	-17.03	74.67	34.2 (b) 22.8	Pass
							30.0 (b) Summary	
							Leg (T2)	Pass
							Diagonal (T2)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						Horizontal (T16)	29.7	Pass
						Secondary Horizontal (T10)	0.0	Pass
						Top Girt (T2)	18.2	Pass
						Bottom Girt (T3)	14.3	Pass
						Guy A (T1)	40.2	Pass
						Guy B (T4)	42.9	Pass
						Guy C (T4)	43.2	Pass
						Top Guy Pull-Off (T7)	16.5	Pass
						Torque Arm Top (T4)	38.2	Pass
						Torque Arm Bottom (T1)	34.2	Pass
						Bolt	38.2	Pass
						Checks		
						RATING =	64.1	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Pier and Pad Foundation



BU #: 846221
 Site Name: SE Lake City
 App. Number: 683697 Rev. 0

TIA-222 Revision: H
 Tower Type: Guyed

Top & Bot. Pad Rein. Different?: ☒
 Block Foundation?: ☐
 Rectangular Pad?: ☐

Superstructure Analysis Reactions		
Compression, P_{comp} :	154.45	kips
Base Shear, V_{u_comp} :	1.62	kips
Moment, M_u :	0	ft-kips
Tower Height, H :	300	ft
BP Dist. Above Fdn, bp_{dist} :	1.5	in
Bolt Circle / Bearing Plate Width, BC :		in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	3.5	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	9	
Pier Rebar Quantity, mc :	10	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	4	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	3	ft
Pad Width, W_1 :	12	ft
Pad Thickness, T :	1.5	ft
Pad Rebar Size (Top dir.2), Sp_{top2} :	0	
Pad Rebar Quantity (Top dir. 2), mp_{top2} :	0	
Pad Rebar Size (Bottom dir. 2), Sp_2 :	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	13	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δc :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	110	pcf
Ultimate Gross Bearing, Q_{ult} :	4.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	32	degrees
SPT Blow Count, N_{blows} :	3	
Base Friction, μ :		
Neglected Depth, N :	1.75	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	10	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	46.99	1.62	3.3%	Pass
Bearing Pressure (ksf)	2.40	1.57	62.2%	Pass
Overturning (kip*ft)	436.55	5.87	1.3%	Pass
Pier Flexure (Comp.) (kip*ft)	876.03	3.24	0.4%	Pass
Pier Compression (kip)	5847.66	158.86	2.6%	Pass
Pad Flexure (kip*ft)	716.39	119.42	15.9%	Pass
Pad Shear - 1-way (kips)	157.44	41.51	25.1%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.044	25.4%	Pass
Flexural 2-way (Comp) (kip*ft)	464.97	1.94	0.4%	Pass

*Rating per TIA-222-H Section 15.5

Structural Rating*:	25.4%
Soil Rating*:	62.2%

<--Toggle between Gross and Net

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.



BU#:	846221
Site Name:	SE Lake City
Order Number:	683697 Rev. 0
Location:	Guy A @ 225 ft (Elev 0 ft)

TIA-222 Revision:	H
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Design Reactions		
Shear, S:	64.88	kips
Uplift, Ua:	56.15	kips
Resultant Force, Rf:	85.80	kips
Tower Height, H:	300.00	ft
Guy Anchor Radius, R:	225.00	ft
Resultant Angle to Horizontal, θ:	40.9	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, Da:	12	ft
Anchor Width, Wa:	5	ft
Anchor Thickness, Ta:	4	ft
Anchor Length, La:	20	ft
Concrete Volume, Vc:	14.8	yd ³
Toe Width, toe:	0	ft
Guyed Anchor Top Rebar Size, Sat:	9	
No. of Bars in Top of Block:	8	
Guyed Anchor Front Rebar Size, Saf:	9	
No. of Bars in Front of Block:	8	
Stirrup Size:	4	
Anchor Shaft Diameter, ds:	2.25	in
Anchor Shaft Quantity, n:	1	
Anchor Shaft Area Override:		in ²
Shear Lag Factor, u:	1	

Material Properties		
Rebar Grade, Fy:	60	ksi
Concrete Strength, F'c:	3	ksi
Wt. Avg. Concrete Density, δx:	0.150	kcf
Clear Cover, cc:	3	in
Anchor Shaft Grade, Fy':	36	ksi
Anchor Shaft Ultimate Strength, Fu':	58	ksi

Design Checks				
	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	295.13	64.88	20.9%	Pass
Uplift Capacity (kips):	313.76	56.15	17.0%	Pass
Lateral Flexural Capacity (ft*kips):	1943.11	162.20	7.9%	Pass
Uplift Flexural Capacity (ft*kips):	1525.23	140.38	8.8%	Pass
Anchor Shaft (kips):	114.51	85.80	71.4%	Pass

*Rating per TIA-222-H Section 15.5

Anchor Shaft Rating:	71.4%
Structural Rating:	8.8%
Soil Rating:	20.9%

Neglect Depth, Neg:	0.4167	ft
Groundwater Level, gw:	N/A	ft

Soil Properties:		No. of Soil Layers:				
Layer	φ, deg	cu, ksf	δ, pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)
1	0	0.000	110	0.42		
2	32	0.000	110	12.00		16

*key: φ = Internal Angle of Friction
cu = Cohesion / Undrained Shear Strength
δ = Buoyant Soil Unit Weight
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.



BU#:	846221
Site Name:	SE Lake City
Order Number:	683697 Rev. 0
Location:	Guy B @ 225 ft (Elev 0 ft)

TIA-222 Revision:	H
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Design Reactions		
Shear, S:	67.55	kips
Uplift, Ua:	58.07	kips
Resultant Force, Rf:	89.08	kips
Tower Height, H:	300.00	ft
Guy Anchor Radius, R:	225.00	ft
Resultant Angle to Horizontal, θ:	40.7	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, Da:	12	ft
Anchor Width, Wa:	5	ft
Anchor Thickness, Ta:	4	ft
Anchor Length, La:	20	ft
Concrete Volume, Vc:	14.8	yd ³
Toe Width, toe:	0	ft
Guyed Anchor Top Rebar Size, Sat:	9	
No. of Bars in Top of Block:	8	
Guyed Anchor Front Rebar Size, Saf:	9	
No. of Bars in Front of Block:	8	
Stirrup Size:	4	
Anchor Shaft Diameter, ds:	2.25	in
Anchor Shaft Quantity, n:	1	
Anchor Shaft Area Override:		in ²
Shear Lag Factor, u:	1	

Material Properties		
Rebar Grade, Fy:	60	ksi
Concrete Strength, F'c:	3	ksi
Wt. Avg. Concrete Density, δx:	0.119	kcf
Clear Cover, cc:	3	in
Anchor Shaft Grade, Fy':	36	ksi
Anchor Shaft Ultimate Strength, Fu':	58	ksi

Design Checks				
	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	289.70	67.55	22.2%	Pass
Uplift Capacity (kips):	298.88	58.07	18.5%	Pass
Lateral Flexural Capacity (ft*kips):	1943.11	168.88	8.3%	Pass
Uplift Flexural Capacity (ft*kips):	1525.23	145.18	9.1%	Pass
Anchor Shaft (kips):	114.51	89.08	74.1%	Pass

*Rating per TIA-222-H Section 15.5

Anchor Shaft Rating:	74.1%
Structural Rating:	9.1%
Soil Rating:	22.2%

Neglect Depth, Neg:	0.4167	ft
Groundwater Level, gw:	10	ft

Soil Properties:		No. of Soil Layers:				
Layer	φ, deg	cu, ksf	δ, pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)
1	0	0.000	110	0.42		
2	32	0.000	110	10.00		23
3	32	0.000	65	12.00		23

*key: φ = Internal Angle of Friction
cu = Cohesion / Undrained Shear Strength
δ = Buoyant Soil Unit Weight
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.



BU#:	846221
Site Name:	SE Lake City
Order Number:	683697 Rev. 0
Location:	Guy C @ 225 ft (Elev 0 ft)

TIA-222 Revision:	H
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Design Reactions		
Shear, S:	70.08	kips
Uplift, Ua:	59.92	kips
Resultant Force, Rf:	92.21	kips
Tower Height, H:	300.00	ft
Guy Anchor Radius, R:	225.00	ft
Resultant Angle to Horizontal, θ:	40.5	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, Da:	12	ft
Anchor Width, Wa:	5	ft
Anchor Thickness, Ta:	4	ft
Anchor Length, La:	20	ft
Concrete Volume, Vc:	14.8	yd ³
Toe Width, toe:	0	ft
Guyed Anchor Top Rebar Size, Sat:	9	
No. of Bars in Top of Block:	8	
Guyed Anchor Front Rebar Size, Saf:	9	
No. of Bars in Front of Block:	8	
Stirrup Size:	4	
Anchor Shaft Diameter, ds:	2.25	in
Anchor Shaft Quantity, n:	1	
Anchor Shaft Area Override:		in ²
Shear Lag Factor, u:	1	

Material Properties		
Rebar Grade, Fy:	60	ksi
Concrete Strength, F'c:	3	ksi
Wt. Avg. Concrete Density, δx:	0.150	kcf
Clear Cover, cc:	3	in
Anchor Shaft Grade, Fy':	36	ksi
Anchor Shaft Ultimate Strength, Fu':	58	ksi

Design Checks				
	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	295.17	70.08	22.6%	Pass
Uplift Capacity (kips):	313.72	59.92	18.2%	Pass
Lateral Flexural Capacity (ft*kips):	1943.11	175.21	8.6%	Pass
Uplift Flexural Capacity (ft*kips):	1525.23	149.80	9.4%	Pass
Anchor Shaft (kips):	114.51	92.21	76.7%	Pass

*Rating per TIA-222-H Section 15.5

Anchor Shaft Rating:	76.7%
Structural Rating:	9.4%
Soil Rating:	22.6%

Neglect Depth, Neg:	0.4167	ft
Groundwater Level, gw:	N/A	ft

Soil Properties:		No. of Soil Layers:		2		
Layer	φ, deg	cu, ksf	δ, pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)
1	0	0.000	110	0.42		
2	32	0.000	110	12.00		32

*key: φ = Internal Angle of Friction
cu = Cohesion / Undrained Shear Strength
δ = Buoyant Soil Unit Weight
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

ASCE Hazards Report

Address:

No Address at This Location

Standard:

ASCE/SEI 7-22

Risk Category: II**Soil Class:**

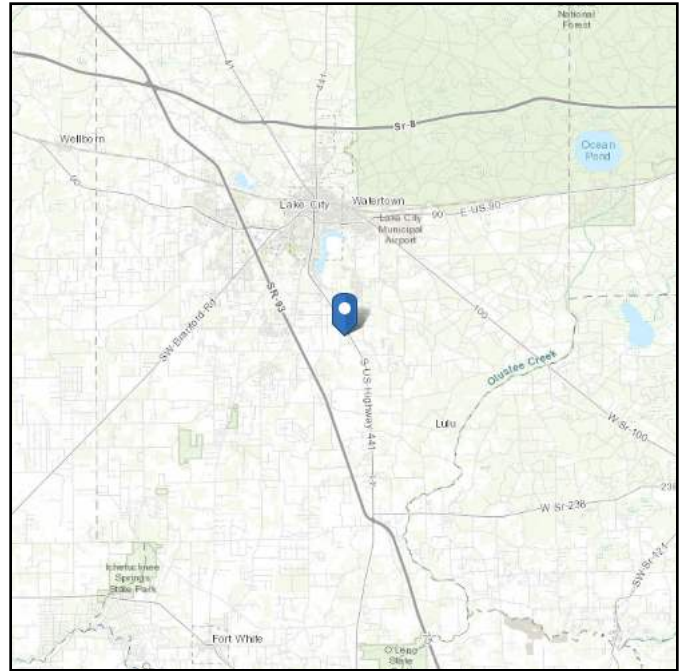
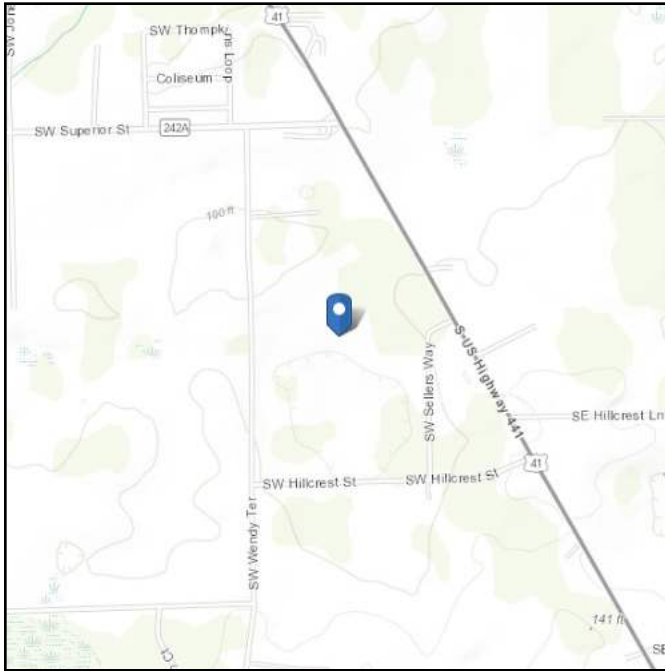
D - Stiff Soil

Latitude:

30.112933

Longitude: -82.618103**Elevation:**

87.00605105191008 ft
(NAVD 88)



Wind

Results:

Wind Speed	119 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph
300-year MRI	110 Vmph
700-year MRI	119 Vmph
1,700-year MRI	129 Vmph
3,000-year MRI	134 Vmph
10,000-year MRI	144 Vmph
100,000-year MRI	154 Vmph
1,000,000-year MRI	167 Vmph

Data Source:

ASCE/SEI 7-22, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed:

Thu Dec 12 2024



Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-22 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years). Values for 10-year MRI, 25-year MRI, 50-year MRI and 100-year MRI are Service Level wind speeds, all other wind speeds are Ultimate wind speeds.

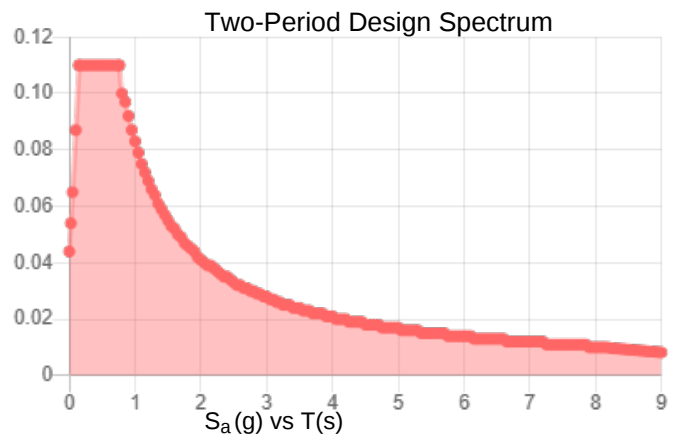
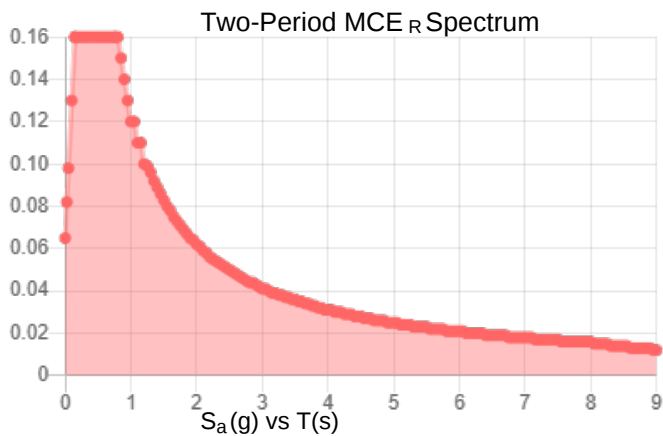
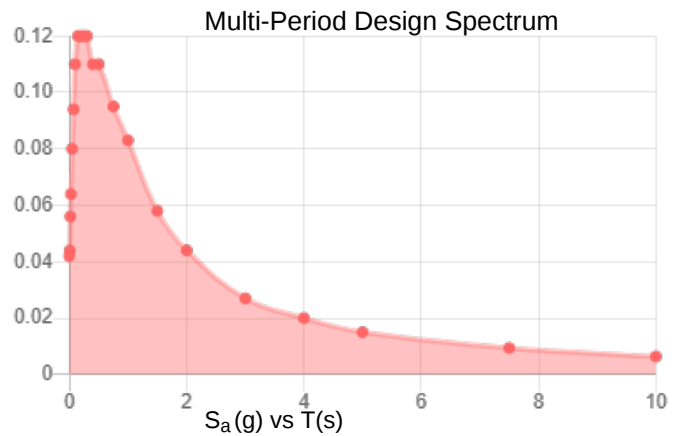
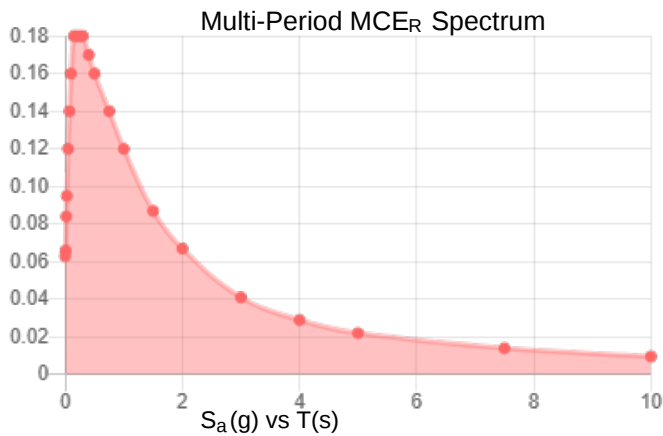
Site is in a hurricane-prone region as defined in ASCE/SEI 7-22 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

PGA _M :	0.059	T _L :	8
S _{MS} :	0.16	S _S :	0.13
S _{M1} :	0.12	S ₁ :	0.058
S _{DS} :	0.11	V _{S30} :	260
S _{D1} :	0.083		

Seismic Design Category: B



MCE_R Vertical Response Spectrum
Vertical ground motion data has not yet been made available by USGS.

Design Vertical Response Spectrum
Vertical ground motion data has not yet been made available by USGS.



Data Accessed: Thu Dec 12 2024

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-22 and ASCE/SEI 7-22 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-22 Ch. 21 are available from USGS.

Results:

Ice Thickness:	N/A
Concurrent Temperature:	N/A
3-s Gust Speed	N/A

Data Source: Standard ASCE/SEI 7-22, Figs. 10-2 through 10-8

Date Accessed: Thu Dec 12 2024

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

Values provided are equivalent radial ice thicknesses due to freezing rain for 250, 500, 1,000, and 1,400-year mean recurrence intervals along with concurrent 3-s gust speeds and concurrent air temperatures. The shading indicates special icing regions, with elevations above 2,100 ft (640 m) in the east, 6,000 ft (1829 m) in the west, and 1,600 ft (488 m) in Alaska, with sparse weather station data for determining design ice loads. In these regions, as well as in regions with complex terrain causing unusual icing conditions and regions where snow or in-cloud icing results in larger loads, the mapped values should be adjusted based on a combination of local historical records and experience, reanalysis data, and numerical weather prediction systems.

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