STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc

March 5, 2005

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-012-050214** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 130 Vernon Road, Bolton, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on March 3, 2005, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated February 11, 2005, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: The Honorable Robert R. Morra, First Selectman, Town of Bolton
Bob Grillo, Zoning Enforcement Officer, Town of Bolton
Mountaintop Enterprises, Inc.
Christopher B. Fisher, Esq., Cuddy & Feder LLP
Thomas F. Flynn III, Nextel Communications Inc.
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
Stephen J. Humes, Esq., McCarter & English LLP

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February 22, 2005

The Honorable Robert R. Morra
First Selectman
Town of Bolton
222 Bolton Center Road
Bolton, CT 06043

RE: **EM-VER-012-050214** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 130 Vernon Road, Bolton, Connecticut.

Dear Mr. Morra:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for March 3, 2005 at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the council by March 2, 2005.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/cm

Enclosure: Notice of Intent

c: Bob Grillo, Zoning Enforcement Officer, Town of Bolton

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CSC
CONNECTICUT SITING COUNCIL

ROBINSON & COLE LLP

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

EM-VER-012-050214

ɔruary 11, 2005

Via Federal Express

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification- Antenna Modification**
130 Vernon Road
Bolton, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunication facility on a 280-foot tower owned by Mountaintop Enterprises, Inc. at 130 Vernon Road, Bolton, Connecticut. Cellco's facility consists of eight (8) panel antennas at the 119-foot level and a microwave dish antenna at the 108-foot level on the tower. Equipment associated with Cellco's antennas is located in a shelter on the ground near the base of the tower.

The Connecticut Siting Council ("the Council") approved Cellco's shared use of this facility on April 7, 1993. Cellco now intends to remove two (2) cellular antennas and install four (4) PCS antennas, for a total of ten (10) panel antennas and replace the existing microwave antenna. All replacement antennas will be installed at the same heights as the existing antennas. In addition, Cellco intends to install a new microwave antenna at the 151-foot level on the 280-foot tower. Attachment 1 contains the specification sheets for each of the new antennas to be installed.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Bolton First Selectman, Robert R. Morra.

The planned modifications to the Bolton facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the overall height of the existing 280-foot tower. Following the proposed modifications, Cellco's panel antennas will be mounted at the 119-foot level on the tower and its microwave antennas will be located at the 108 and 151-foot levels.

2. The proposed modifications will not require an extension of the site boundaries.

3. The proposed modifications will not increase the noise levels at the facility by six decibels or more.

4. The operation of the Cellco antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. The combined worst-case power density calculations for Cellco's panel and microwave antennas would be 9.88% of the FCC standard. (See Attachment 2).

Also included as Attachment 3 is a Structural Analysis Summary, prepared by URS Corporation stating that the tower can accommodate the proposed modifications.

For the foregoing reasons, Cellco respectfully submits that the proposed antenna modification at the Bolton facility tower constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Attachments
cc: Robert R. Morra, First Selectman
Sandy M. Carter

PCS

DECIBEL
Base Station Antennas

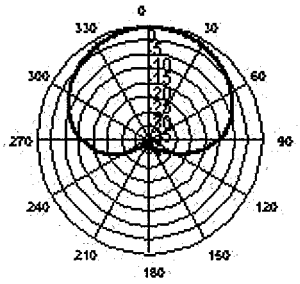
948F85T2E-M

16.1 dBi, Directed Dipole Antenna
1850-1990 MHz

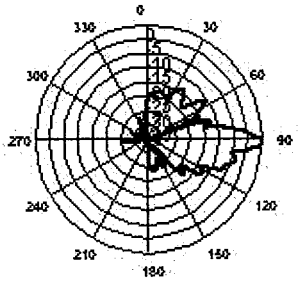
1850-1990 MHz
MaxFill™
dB Director®

85°

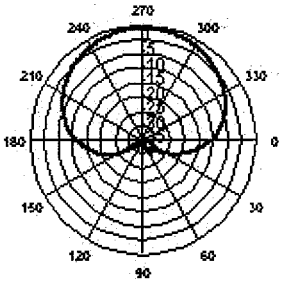
- Exceptional azimuth roll-off reducing soft hand-offs and improving capacity
- Excellent upper side lobe suppression
- Deep null filling below the horizon assures improved signal intensity
- Low profile appearance and low wind loading profile for easier zoning approvals



Azimuth 1850 MHz (Tilt=2)



Vertical 1850 MHz (Tilt=2)



Horizontal 1850 MHz (Tilt=2)

ELECTRICAL		MECHANICAL	
Frequency (MHz):	1850-1990	**Weight:**	8.5 lbs (3.9 kg)
Polarization:	Vertical	**Dimensions (LxWxD):**	48 X 3.5 X 7 in (1219 X 89 X 178 mm)
Gain (dBd/dBi):	14/16.1	**Max. Wind Area:**	1.18 ft² (0.11 m²)
Azimuth BW:	85°	**Max. Wind Load (@ 100mph):**	65 lbf (289 N)
Elevation BW:	8°	**Max. Wind Speed:**	125 mph (201 km/h)
Beam Tilt:	2°	**Radiator Material:**	Low Loss Circuit Board
USLS* (dB):	>18	**Reflector Material:**	Aluminum
Null Fill* (dB):	15	**Radome Material:**	ABS, UV Resistant
Front-to-Back Ratio* (dB):	40	**Mounting Hardware Material:**	Galvanized Steel
VSWR:	<1.33:1	**Connector Type:**	7-16 DIN - Female (Bottom)
IM Suppression - Two 20 Watt Carriers:	-150 dBc	**Color:**	Light Gray
Impedance:	50 Ohms	**Standard Mounting Hardware:**	DB390 Pipe Mount Kit, included
Max Input Power:	250 Watts	**Downtilt Mounting Hardware:**	DB5098, optional
Lightning Protection:	DC Ground	**Opt. Mounting Hardware:**	DB5094-AZ Azimuth Wall Mount
Opt Electrical Tilt:	0°,4°,6°		

Andrew Corporation
8635 Stemmons Freeway
Dallas, Texas U.S.A 75247-3701
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Date: 4/29/2004
* - Indicates Typical Values

PCS

DECIBEL
Base Station Antennas

950G65VTZE-M

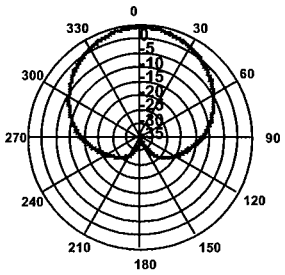
18.1 dBi, Directed Dipole Antenna
1850-1990 MHz

1850-1990 MHz

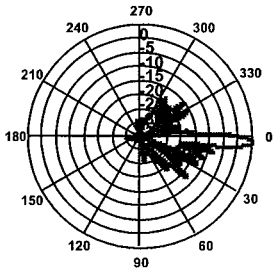
VARI-TILT®
ZoneMaster™

- Field adjustable electrical downtilt, featuring linear phase shifter, no wheels or gears
- Exceptional elevation and azimuth pattern shaping
- Strong Front to Back and Front to Side ratio reduces soft hand-offs

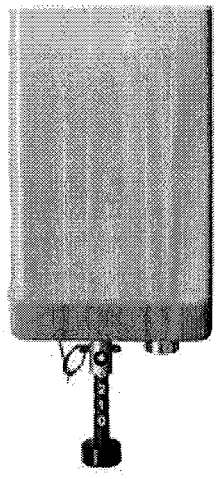
65°

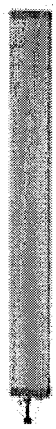


Azimuth 1950 MHz (Tilt=3)



Vertical 1950 MHz (Tilt=3)





ELECTRICAL		MECHANICAL	
Frequency (MHz):	1850-1990	**Weight:**	10 lbs (4.5 kg)
Polarization:	Vertical	**Dimensions (LxWxD):**	60 X 6.5 X 5 in (1524 X 165 X 127 mm)
Gain (dBd/dBi):	16/18.1	**Max. Wind Area:**	1.51 ft² (0.14 m²)
Azimuth BW:	65°	**Max. Wind Load (@ 100mph):**	85 lbf (378 N)
Elevation BW:	6.5°	**Max. Wind Speed:**	125 mph (201 km/h)
Beam Tilt:	0-7°	**Radiator Material:**	Low Loss Circuit Board
USLS* (dB):	>17	**Reflector Material:**	Aluminum
Null Fill* (dB):	20	**Radome Material:**	ABS, UV Resistant
Front-to-Back Ratio* (dB):	40	**Mounting Hardware Material:**	Galvanized Steel
VSWR:	<1.4:1	**Connector Type:**	7-16 DIN - Female (Bottom)
IM Suppression - Two 20 Watt Carriers:	-145 dBc	**Color:**	Light Gray
Impedance:	50 Ohms	**Standard Mounting Hardware:**	DB390 Pipe Mount Kit, included
Max Input Power:	250 Watts	**Downtilt Mounting Hardware:**	DB5098, optional
Lightning Protection:	DC Ground	**Opt. Mounting Hardware:**	DB5094-AZ Azimuth Wall Mount

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Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Warranty: 5 years
Date: 4/8/2004
* - Indicates Typical Values

Refer to page 88 for Elliptical Waveguide ordering information

MICRO REPLACEMENT

10.5 - 11.7 GHz *

Antenna Inputs. All antenna VSWR values are specified with CPR and PDR flanges. Other optional flanges may result in equal or slightly higher VSWR. Contact Andrew for details.
Pressurization. Feeds are pressurizable to 10 lb/in² (70 kPa). **ValuLine® Antennas.** See page 127.

Type Number	Diameter ft (m)	RPE Number(s)	Regulatory Compliance U.S. FCC 101	74	78	ETSI Class	ETSI Gain	Gain, dBi Low	Mid-Band	Top	Beamwidth Degrees	Cross Pol. Disc., dB	F/B Ratio dB	VSWR max. (R.L., dB)
UHX		**Ultra High Performance Antennas – Dual Polarized** **Antenna Inputs:** CPR90G and PDR100												
UHX4-107	4 (1.2)	2098 2097	A	–	–	3	2	40.0	40.4	40.8	1.6	33	70	1.08 (28.3)
UHX6-107	6 (1.8)	2141 2142	A	–	–	3	2	43.6	44.0	44.4	1.1	33	80	1.06 (30.7)
UHX8-107	8 (2.4)	2124 2125	A	–	–	3	2	46.0	46.5	46.8	0.8	33	80	1.06 (30.7)
UHX10-107	10 (3.0)	2127 2126	A	–	–	3	2	47.6	48.0	48.3	0.7	33	82	1.06 (30.7)
UHX12-107	12 (3.7)	2128 2129	A	–	–	3	2	49.4	49.8	50.2	0.5	33	80	1.06 (30.7)
HSX		**High Performance Antennas** - Super High Cross Polarization Discrimination – Dual Polarized **Antenna Inputs:** CPR90G and PDR100												
HSX4-107	4 (1.2)	2314 2312	A	–	–	2	2	39.8	40.2	40.6	1.6	40	64	1.10 (26.4)
HSX6-107	6 (1.8)	2316 2318	A	–	–	3	2	43.5	43.9	44.3	1.1	40	72	1.08 (28.3)
HSX8-107	8 (2.4)	2320 2322	A	–	–	2	2	46.0	46.5	46.8	0.8	40	75	1.06 (30.7)
HSX10-107	10 (3.0)	2340 2338	A	–	–	2	2	47.8	48.2	48.6	0.7	40	75	1.06 (30.7)
HSX12-107	12 (3.7)	2362 2364	A	–	–	3	2	49.2	49.6	50.3	0.5	40	80	1.06 (30.7)
HPX **HP**		**High Performance Antennas – Dual Polarized** **Antenna Inputs:** CPR90G and PDR100												
HPX4-107	4 (1.2)	2460	B	–	–	2	2	40.0	40.3	40.6	1.6	30	62	1.10 (26.4)
HPX6-107	6 (1.8)	3224	A	–	–	2	2	43.6	44.0	44.4	1.0	30	70	1.08 (28.3)
HPX8-107	8 (2.4)	3175	A	–	–	2	2	46.0	46.4	46.8	0.8	30	70	1.06 (30.7)
HPX10-107	10 (3.0)	3173	A	–	–	2	2	47.9	48.3	48.6	0.7	30	70	1.06 (30.7)
HPX12-107	12 (3.7)	3190	A	–	–	2	2	49.4	49.8	50.2	0.5	30	72	1.06 (30.7)
		High Performance Antennas – Single Polarized **Antenna Inputs:** CPR90G and PDR100												
HP4-107	4 (1.2)	3429	A	–	–	2	2	40.0	40.4	40.8	1.6	30	61	1.08 (28.3)
HP6-107	6 (1.8)	3222	A	–	–	3	2	43.6	44.0	44.4	1.0	30	70	1.06 (30.7)
HP8-107	8 (2.4)	3174	A	–	–	3	2	46.0	46.4	46.8	0.8	30	71	1.06 (30.7)
HP10-107	10 (3.0)	3250	A	–	–	2	2	47.9	48.3	48.6	0.7	30	70	1.06 (30.7)
HP12-107	12 (3.7)	3188	A	–	–	2	2	49.4	49.8	50.2	0.5	30	70	1.06 (30.7)
HDX		**High Performance, Dual Beam Antennas** – Dual Polarized Angle Diversity **Antenna Input:** CPR90G												
HDX8-107	8 (2.4)	3791 3793 3787 3789	A	–	–	2	2	47.6	47.9	48.1	0.8	26	78	1.10 (26.4)
HDX10-107	10 (3.0)	4352 4353 4354 4355	A	–	–	2	2	47.6	47.9	48.1	0.8	22	78	1.10 (26.4)
PAR		**Standard Antennas** – Single Polarized **Antenna Inputs:** CPR90G and PDR100												
PAR6-107**	6 (1.8)	3743	A	–	–	1	2	43.2	43.6	44.0	1.1	30	60	1.06 (30.7)
PAR8-107**	8 (2.4)	3745	A	–	–	1	2	45.8	46.2	46.6	0.8	30	63	1.06 (30.7)
PXL **PL**		**Standard Antennas** – Dual Polarized Low VSWR **Antenna Inputs:** CPR90G and PDR100												
PXL6-107	6 (1.8)	3183	B	–	–	–	–	43.6	44.0	44.4	1.0	30	49	1.08 (28.3)
PXL8-107	8 (2.4)	3185	B	–	–	–	–	46.0	46.4	46.8	0.8	30	50	1.06 (30.7)
PXL10-107	10 (3.0)	3187	B	–	–	–	–	47.9	48.3	48.6	0.7	30	52	1.06 (30.7)
PXL12-107	12 (3.7)	3199	B	–	–	–	–	49.4	49.8	50.2	0.5	30	53	1.06 (30.7)
		Standard Antennas – Single Polarized Low VSWR **Antenna Inputs:** CPR90G and PDR100												
PL4-107	4 (1.2)	3214	B	–	–	–	–	40.1	40.5	40.9	1.6	30	46	1.08 (28.3)
PL6-107	6 (1.8)	3101	B	–	–	1	2	43.6	44.0	44.4	1.0	30	51	1.06 (30.7)
PL8-107	8 (2.4)	3249	B	–	–	1	2	46.0	46.4	46.8	0.8	30	53	1.06 (30.7)
PL10-107	10 (3.0)	3200	B	–	–	–	–	47.8	48.2	48.5	0.7	30	54	1.06 (30.7)
PL12-107	12 (3.7)	3116	B	–	–	1	2	49.4	49.8	50.2	0.5	30	60	1.06 (30.7)

Reference ETSI Document EN300833 for 3 to 60 GHz

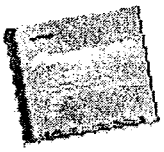
* Multiband antennas are available for this frequency band. See pages 93-94. ** Uses focal plane reflector and feed system

Forces Produced by Microwave Antennas

Wind Forces

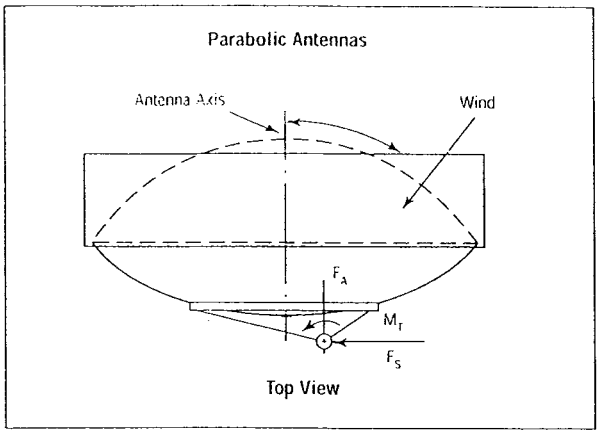
The axial, side and twisting moment forces tabulated below and on page 112 are maximum values exerted on a supporting structure. They are the result of wind from the most critical direction for each parameter. The individual maximums may not occur simultaneously. All forces are referenced to the antenna mounting pipe. The components are:

- *Axial Force,* F_A
- *Side Force,* F_S
- *Twisting Moment,* M_T



Andrew software, included on the Powertools CD-ROM and downloadable from www.andrew.com, calculates the forces produced by winds from any angle.

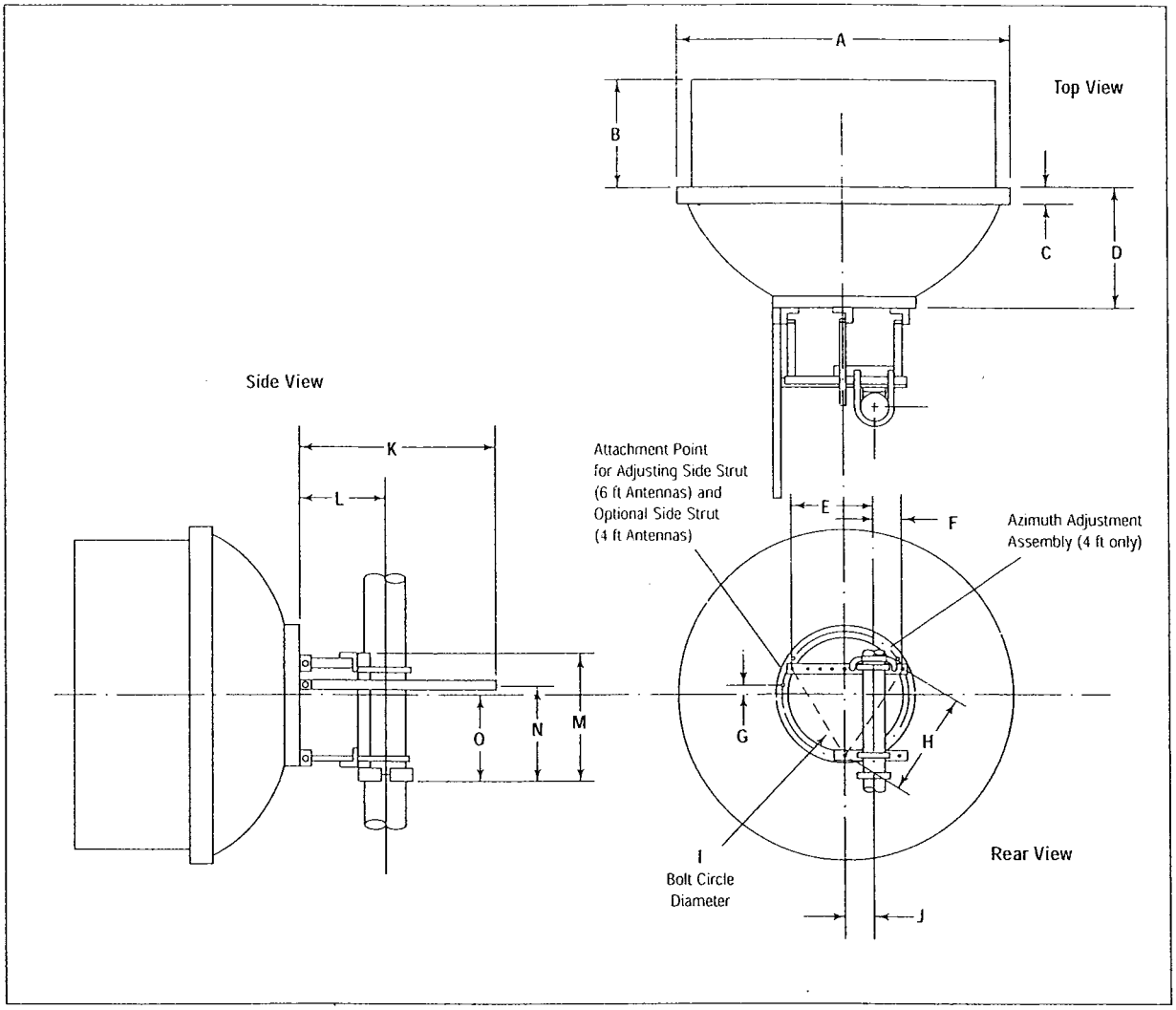
See page 44 for more information about Powertools.



Wind Forces at 125 mph (200 km/h)

Antenna Type	Antenna Dia. ft (m)	F_A Max. lb	F_A Max. (N)	F_S Max. lb	F_S Max. (N)	M_T Max. lb-ft	M_T Max. (N•m)	α For M_T Max
Shielded Antenna	4 (1.2)	634	2821	314	1398	-632	-826	-110
With Planar Radome	6 (1.8)	1427	6348	707	3144	-1681	-2209	-110
(Except "other shielded"	8 (2.4)	2537	11284	1257	5590	-3615	-4901	-110
shown below)	10 (3.0)	3964	17632	1964	8734	-6365	-8630	-110
	12 (3.7)	5708	25390	2827	12577	-10423	-14132	-110
	15 (4.6)	8919	39672	4418	19652	22000	29828	110
Other Shielded, With Planar Radome								
UHX10-59	10 (3.0)	4000	17790	1910	8500	-6880	-9330	-105
UMX10-459	10 (3.0)	4000	17790	1970	8760	-10100	-13700	-105
HDX10-107	10 (3.0)	4040	17970	2065	9190	-7260	-9850	-105
UHX12-59	12 (3.7)	5800	25800	3020	13430	-13610	-18450	-105
UMX12-459	12 (3.7)	5760	25620	2830	12590	13400	18170	105
UMX12-465	12 (3.7)	5910	26290	3210	14280	-15590	-21140	-105
Focal Plane and PAR Series	4 (1.2)	918	4083	279	1240	-705	-937	-125
Antenna without Radome	6 (1.8)	2065	9187	625	2790	-1936	-2635	-125
	8 (2.4)	3672	16333	1115	4960	-4247	-5758	-125
	10 (3.0)	5737	25520	1742	7749	-7608	-10314	-125
	12 (3.7)	8261	36749	2509	11159	-12575	-17050	-125
Focal Plane and PAR Series	4 (1.2)	434	1930	267	1188	540	774	90
Antennas with Radome*	6 (1.8)	976	4343	685	2673	1597	2309	100
	8 (2.4)	1736	7720	1068	4751	3714	5036	99
	10 (3.0)	2712	12064	1669	7424	6883	9333	99
Standard Antenna	4 (1.2)	864	3843	236	1049	-647	-858	-130
without Radome	6 (1.8)	1944	8647	531	2360	-1597	-2425	-130
	8 (2.4)	3456	15372	943	4196	-3945	-5349	-125
	10 (3.0)	5400	24019	1474	6556	-7084	-9605	-125
	12 (3.7)	7775	34587	2122	9441	-11728	-15900	-125
	15 (4.6)	12149	54042	3316	14751	24294	32938	-125
Standard Antenna	2 (0.6)	109	483	67	297	94	128	-10
with Radome	4 (1.2)	434	1930	267	1188	540	774	90
	6 (1.8)	976	4343	685	2673	1597	2309	100
	8 (2.4)	1736	7720	1068	4751	3714	5036	99
	10 ((3.0)	2712	12064	1669	7424	6883	9333	99
	12 (3.7)	3905	17372	2403	10691	11581	15702	99
GRIDPAK® Antenna	4 (1.3)	325	1450	190	840	351	475	60
Without Ice KP Series	6 (2.0)	820	3650	430	1910	1342	1824	60
	8 (2.4)	1180	5250	600	2670	2200	2990	60
	10 (3.0)	1825	8120	1020	4540	3869	5259	60
	13 (4.0)	3135	13940	1750	7780	8022	10903	60

*PAR series use deep reflectors on 6 ft - 8 ft only.

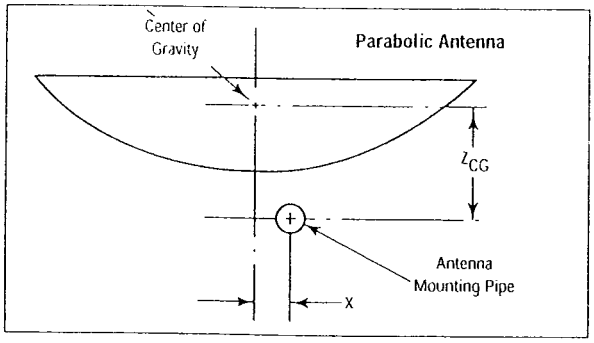


Dimensions in Inches (mm)

Antenna Size, ft (m)	A	B	C	D	E	F	G	H
4 (1.2)	52.4 (1330)	23.1 (585)	3.5 (90)	7.75 (195)	19.6 (500)	6.9 (175)	2.25 (55)	26.5 (675)
6 (1.8)	76.5 (1945)	35.25 (895)	3.75 (95)	13.25 (335)	19.6 (500)	6.9 (175)	2.25 (55)	26.5 (675)

	I	J	K	L	M	N	O
4 (1.2)	30.6 (780)	6.4 (160)	–	11.62 (295)	29 (735)	21.5 (545)	19.25 (490)
6 (1.8)	30.6 (780)	6.4 (160)	84.75 (2155)	11.62 (295)	29 (735)	21.5 (545)	19.25 (490)

Antenna Weight and Center of Gravity



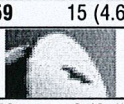
For parabolic antennas, the center of gravity is referenced to the centerline of the antenna mounting pipe as illustrated. Dimension X, the transverse offset, can be found on pages 100 to 110. Dimension Z_{CG} and antenna weights with and without ice are tabulated below.

Antenna Weight and Center of Gravity, Parabolic Antenna Including Mount and Side Struts

Antenna Type	Antenna Dia. ft (m)	Without Ice		With 1/2" (12 mm) Radial Ice	
		Weight, lb (kg)	Z_{CG}, in (mm)	Weight, lb (kg)	Z_{CG}, in (mm)
Shielded Antenna	1 (0.3)	22.9 (10.4)	3.9 (98)	30.6 (13.9)	5.1 (130)
One-Piece Reflector	2 (0.6)	41 (18.5)	9.6 (244)	77 (35)	10.7 (272)
with Planar Radome	2.5 (0.8)	78 (35.5)	6.9 (175)	96 (43.5)	8.5 (215)
(except "Other Shielded"	4 (1.2)	170 (77)	11.1 (282)	280 (127)	14.6 (371)
shown below)	6 (1.8)	281 (127)	20.0 (508)	501 (227)	22.8 (579)
	8 (2.4)	447 (203)	26.5 (673)	974 (430)	28.7 (729)
	10 (3.0)	541 (245)	30.2 (767)	1234 (560)	32.2 (818)
	12 (3.7)	850 (386)	31.2 (792)	1874 (850)	35.8 (909)
Shielded Antenna	8 (2.4)	460 (209)	27.0 (686)	989 (449)	28.8 (732)
Two-Piece Reflector	10 (3.0)	560 (254)	30.7 (780)	1254 (569)	32.3 (820)
with Planar Radome	12 (3.7)	860 (390)	31.8 (808)	1885 (855)	36.0 (914)
	15 (4.6)	1780 (807)	51.4 (1306)	2777 (1260)	54.0 (1372)
Other Shielded, with Planar Radome					
VHP1	1 (0.3)	22.9 (10.4)	3.9 (98)	30.6 (13.9)	5.1 (130)
VHP2	2 (0.6)	68 (31)	6.9 (175)	86 (39)	8.5 (215)
VHP4	4 (1.2)	140 (64)	12.5 (317)	282 (128)	16.7 (424)
VHP6	6 (1.8)	380 (173)	20.0 (508)	620 (282)	33.3 (848)
HDX8S-59	8 (2.4)	470 (213)	25.8 (655)	1010 (458)	28.2 (716)
UMX10-459	10 (3.0)	705 (320)	46.0 (1168)	1310 (594)	51.0 (1295)
HDX10-107	10 (3.0)	555 (252)	30.7 (780)	1275 (578)	32.7 (831)
HDX10S-59	10 (3.0)	560 (254)	29.6 (752)	1270 (576)	32.0 (813)
UMX12-459	12 (3.7)	895 (406)	44.0 (1118)	1660 (753)	49.0 (1245)
UMX12-465	12 (3.7)	960 (435)	29.9 (759)	2025 (919)	31.0 (787)
UHX12-59	12 (3.7)	890 (404)	33.3 (846)	1815 (823)	39.3 (998)
HDX12S-59	12 (3.7)	890 (404)	30.3 (770)	1940 (880)	35.1 (892)
Standard Antenna	2 (0.6)	14 (7)	6.5 (165)	58 (26)	7.9 (201)
One-Piece Reflector	4 (1.2)	104 (47)	7.0 (178)	175 (79)	10.9 (277)
without Radome	6 (1.8)	143 (61)	10.0 (254)	294 (133)	13.5 (343)
	8 (2.4)	251 (114)	13.5 (343)	536 (243)	16.8 (427)
	10 (3.0)	317 (144)	18.0 (457)	784 (356)	21.7 (551)
	12 (3.7)	540 (245)	19.0 (483)	1158 (525)	22.3 (566)
Other Standard, One-Piece Reflector without Radome					
VP2	2 (0.6)	49 (22.3)	3.5 (88)	54.4 (24.3)	4.3 (110)
VP4	4 (1.2)	90 (41)	2.7 (38)	194 (88)	6.2 (157)
VP6	6 (1.8)	205 (93.2)	10 (254)	363 (165)	13.5 (343)
Standard Antenna	2 (0.6)	17 (8)	8.7 (221)	81 (37)	9.9 (251)
One-Piece Reflector	4 (1.2)	119 (54)	10.0 (254)	189 (86)	14.6 (371)
with Radome	6 (1.8)	162 (73)	13.7 (348)	321 (146)	19.6 (498)
	8 (2.4)	304 (138)	19.8 (503)	621 (282)	25.0 (635)
	10 (3.0)	402 (182)	25.8 (655)	916 (415)	31.7 (805)
	12 (3.7)	654 (297)	26.9 (683)	1356 (615)	32.8 (833)
Standard Antenna	8 (2.4)	264 (120)	14.0 (356)	550 (249)	17.3 (439)
Two-Piece Reflector	10 (3.0)	336 (152)	18.5 (470)	804 (365)	22.2 (564)
without Radome	12 (3.7)	600 (272)	19.6 (498)	1219 (553)	22.9 (582)
	15 (4.6)	1240 (562)	32.3 (820)	2269 (1029)	36.4 (925)
GRIDPAK® Antenna	4 (1.3)	51 (23)	10.0 (254)	–	–
	6 (2)	198 (90)	14.5 (368)	–	–
	8 (2.4)	282 (128)	16.0 (406)	–	–
	10 (3)	418 (190)	21.5 (546)	–	–
	13 (4)	517 (235)	25.5 (648)	–	–

PROPOSED MICRO

5.925 - 6.425 GHz*, 5.725 - 5.850 GHz

Type Number	Diameter ft (m)	RPE Number(s)	Regulatory Compliance U.S. FCC 101	U.S. FCC 74	U.S. FCC 78	ETSI Class	ETSI Gain	Gain, dBi Low	Gain, dBi Mid-Band	Gain, dBi Top	Beamwidth Degrees	Cross Pol. Disc., dB	F/B Ratio dB	VSWR max. (R.L., dB)
HP 	**High Performance Antennas** - Hypalon Radome Included – Single Polarized **Antenna Inputs:** CPR137G and PDR70													
HP6-59	6 (1.8)	3302J	A	–	–	2	2	38.4	38.9	39.4	1.8	30	62	1.06 (30.7)
HP8-59	8 (2.4)	2670F	A	–	–	2	2	41.1	41.5	41.9	1.4	30	66	1.06 (30.7)
HP10-59	10 (3.0)	2672G	A	–	–	2	2	42.9	43.3	43.6	1.1	30	69	1.06 (30.7)
HP12-59	12 (3.7)	2673F	A	–	–	2	2	44.7	45.0	45.2	0.9	30	71	1.06 (30.7)
HP15-59	15 (4.6)	2675D	A	–	–	2	2	46.1	46.4	46.8	0.8	30	71	1.06 (30.7)
HDX 	**High Performance**, Dual Beam Antennas Dual Polarized - TEGLAR Long Life Radome Included – Dual Polarized **Antenna Inputs:** CPR137G and PDR70													
HDX8-59	8 (2.4)	1750 1751 1752 1753	A	–	–	3	2	41.2	41.5	41.8	1.4	26	73	1.06 (30.7)
HDX10-59	10 (3.0)	1758 1759 1760 1761	A	–	–	3	2	42.9	43.2	43.4	1.1	26	74	1.06 (30.7)
HDX12-59	12 (3.7)	1766 1767 1768 1769	A	–	–	3	2	44.6	45.0	45.4	1.0	26	75	1.06 (30.7)
PARX **PAR** 	**Standard Antennas** - Similar to PL()-59 Series, Except Meet Category A – Dual Polarized **Antenna Inputs:** CPR137G and PDR70													
PARX6-59**														
5.925-6.425 GHz	6 (1.8)	4377	A	–	–	1	2	37.8	37.9	38.2	1.9	30	60	1.08 (28.3)
5.725-5.850 GHz		4331	–	–	–	1	2	37.5	37.6	37.7	2.0	30	58	1.25 (19.2)
PARX8-59**														
5.925-6.425 GHz	8 (2.4)	4378	A	–	–	1	2	40.4	40.7	40.9	1.4	30	60	1.08 (28.3)
5.725-5.850 GHz		4332	–	–	–	1	2	40.1	40.2	40.3	1.5	30	59	1.25 (19.2)
PARX10-59	10 (3.0)	4379	A	–	–	1	2	42.7	43.1	43.3	1.1	35	60	1.06 (30.7)
PARX12-59**	12 (3.7)	4380	A	–	–	1	2	43.3	44.7	45.1	0.9	34	60	1.06 (30.7)
	Standard Antennas - Single Polarized **Antenna Inputs:** CPR137G, PDR70, and UG-343B/U													
PAR6-59														
5.925-6.425 GHz	6 (1.8)	2472	A	–	–	1	2	38.0	38.2	38.4	1.9	30	55	1.06 (30.7)
5.725-5.850 GHz		4327	–	–	–	1	2	37.7	37.8	37.9	2.0	30	55	1.25 (19.2)
PAR8-59**														
5.925-6.425 GHz	8 (2.4)	2517	A	–	–	1	2	40.4	40.8	41.0	1.4	30	58	1.06 (30.7)
5.725-5.850 GHz		4328	–	–	–	1	2	40.1	40.2	40.3	1.5	30	55	1.25 (19.2)
PAR10-59	10 (3.0)	1649	A	–	–	1	2	43.0	43.2	43.4	1.1	30	62	1.06 (30.7)
PAR12-59	12 (3.7)	2366	A	–	–	1	2	44.2	44.6	44.9	0.9	30	63	1.06 (30.7)
PXL **PL** 	**Standard Antennas** – Dual Polarized **Antenna Inputs:** CPR137G, PDR70, and UG-343B/U													
PXL6-59	6 (1.8)	2632	–	–	–	1	2	38.4	38.7	39.1	1.8	30	46	1.07 (29.4)
PXL8-59	8 (2.4)	2616	B	–	–	1	2	40.9	41.3	41.6	1.4	30	48	1.06 (30.7)
PXL10-59	10 (3.0)	2618	B	–	–	–	–	42.7	43.1	43.5	1.1	30	49	1.06 (30.7)
PXL12-59	12 (3.7)	2620	B	–	–	1	2	44.4	44.8	45.2	0.9	30	53	1.06 (30.7)
PXL15-59	15 (4.6)	2642	B	–	–	–	–	46.1	46.4	46.8	0.8	30	54	1.06 (30.7)
	Standard Antennas – Single Polarized **Antenna Inputs:** CPR137G, PDR70, and UG-343B/U													
PL4-59	4 (1.2)	2602E	–	–	–	–	–	35.0	35.4	35.7	2.7	30	41	1.08 (28.3)
PL6-59	6 (1.8)	2604E	B	–	–	1	2	38.4	38.9	39.4	1.8	30	46	1.06 (30.7)
PL8-59	8 (2.4)	2610F	B	–	–	1	2	41.1	41.5	41.9	1.4	30	48	1.06 (30.7)
PL10-59	10 (3.0)	2608E	B	–	–	1	2	42.9	43.3	43.6	1.1	30	51	1.06 (30.7)
PL12-59	12 (3.7)	2609F	B	–	–	1	2	44.7	45.0	45.2	0.9	30	52	1.06 (30.7)
PL15-59	15 (4.6)	2611F	B	–	–	1	2	46.1	46.4	46.8	0.8	30	53	1.06 (30.7)

Revised 5/01, 12/01 & 1/03

4 and 6 ft Standard and Focal Plane Antennas

Dimensions in Inches (mm)

Antenna Size, ft (m)	A	B	C	D	E	F	G
Standard Antennas							
4 (1.2)	52.4 (1330)	18.5 (470)	7.75 (195)	26.5 (675)	21.5 (545)	7.75 (195)	2.25 (60)
6 (1.8)	76.3 (1940)	27.75 (690)	13.2 (335)	26.5 (675)	21.5 (545)	7.75 (195)	2.25 (60)
Focal Plane Antennas							
4 (1.2)	50.75 (1290)	23.3 (590)	9.5 (245)	26.5 (675)	21.5 (545)	7.75 (195)	2.25 (60)
6 (1.8)	76 (1930)	13.46 (340)	17.5 (445)	26.5 (675)	21.5 (545)	7.75 (195)	2.25 (60)

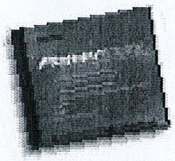
	H	I	J	K	L	M
Standard Antennas						
4 (1.2)	26.5 (675)	5 (137)	30.6 (780)	11.6 (295)	30.75 (780)	19 (480)
6 (1.8)	26.5 (675)	5 (137)	30.6 (780)	11.6 (295)	30.75 (780)	19 (480)
Focal Plane Antennas						
4 (1.2)	26.5 (675)	5 (137)	30.6 (780)	11.6 (295)	30.75 (780)	19 (480)
6 (1.8)	26.5 (675)	5 (137)	30.6 (780)	11.6 (295)	30.75 (780)	19 (480)

Forces Produced by Microwave Antennas

Wind Forces

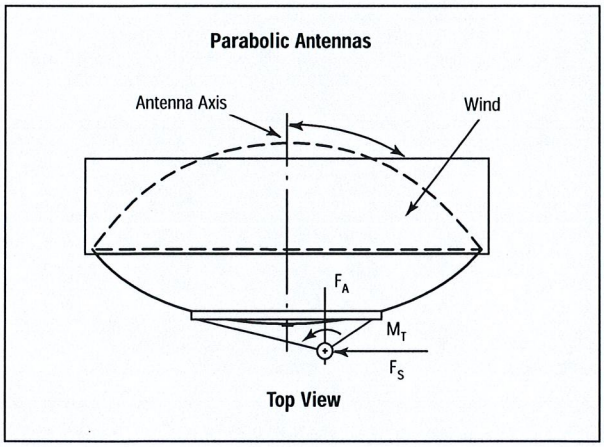
The axial, side and twisting moment forces tabulated below and on page 112 are maximum values exerted on a supporting structure. They are the result of wind from the most critical direction for each parameter. The individual maximums may not occur simultaneously. All forces are referenced to the antenna mounting pipe. The components are:

- *Axial Force, F_A*
- *Side Force, F_S*
- *Twisting Moment, M_T*



Andrew software, included on the Powertools CD-ROM and downloadable from www.andrew.com, calculates the forces produced by winds from any angle.

See page 44 for more information about Powertools.

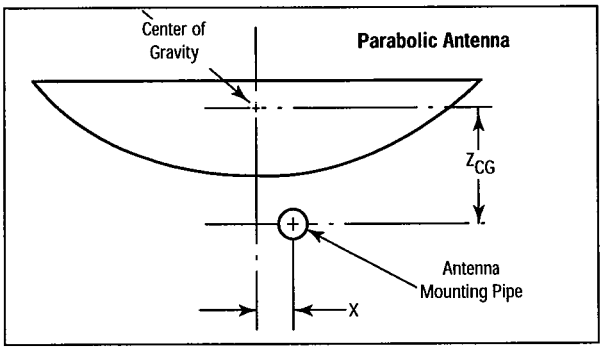


Wind Forces at 125 mph (200 km/h)

Antenna Type	Antenna Dia. ft (m)	F_A Max. lb	F_A Max. (N)	F_S Max. lb	F_S Max. (N)	M_T Max. lb-ft	M_T Max. (N•m)	α For M_T Max
Shielded Antenna	4 (1.2)	634	2821	314	1398	-632	-826	-110
With Planar Radome	6 (1.8)	1427	6348	707	3144	-1681	-2209	-110
(Except "other shielded"	8 (2.4)	2537	11284	1257	5590	-3615	-4901	-110
shown below)	10 (3.0)	3964	17632	1964	8734	-6365	-8630	-110
	12 (3.7)	5708	25390	2827	12577	-10423	-14132	-110
	15 (4.6)	8919	39672	4418	19652	22000	29828	110
Other Shielded, With Planar Radome								
UHX10-59	10 (3.0)	4000	17790	1910	8500	-6880	-9330	-105
UMX10-459	10 (3.0)	4000	17790	1970	8760	-10100	-13700	-105
HDX10-107	10 (3.0)	4040	17970	2065	9190	-7260	-9850	-105
UHX12-59	12 (3.7)	5800	25800	3020	13430	-13610	-18450	-105
UMX12-459	12 (3.7)	5760	25620	2830	12590	13400	18170	105
UMX12-465	12 (3.7)	5910	26290	3210	14280	-15590	-21140	-105
Focal Plane and PAR Series	4 (1.2)	918	4083	279	1240	-705	-937	-125
Antenna without Radome	6 (1.8)	2065	9187	625	2790	-1936	-2635	-125
	8 (2.4)	3672	16333	1115	4960	-4247	-5758	-125
	10 (3.0)	5737	25520	1742	7749	-7608	-10314	-125
	12 (3.7)	8261	36749	2509	11159	-12575	-17050	-125
Focal Plane and PAR Series	4 (1.2)	434	1930	267	1188	540	774	90
Antennas with Radome*	6 (1.8)	976	4343	685	2673	1597	2309	100
	8 (2.4)	1736	7720	1068	4751	3714	5036	99
	10 (3.0)	2712	12064	1669	7424	6883	9333	99
Standard Antenna	4 (1.2)	864	3843	236	1049	-647	-858	-130
without Radome	6 (1.8)	1944	8647	531	2360	-1597	-2425	-130
	8 (2.4)	3456	15372	943	4196	-3945	-5349	-125
	10 (3.0)	5400	24019	1474	6556	-7084	-9605	-125
	12 (3.7)	7775	34587	2122	9441	-11728	-15900	-125
	15 (4.6)	12149	54042	3316	14751	24294	32938	-125
Standard Antenna	2 (0.6)	109	483	67	297	94	128	-10
with Radome	4 (1.2)	434	1930	267	1188	540	774	90
	6 (1.8)	976	4343	685	2673	1597	2309	100
	8 (2.4)	1736	7720	1068	4751	3714	5036	99
	10 ((3.0)	2712	12064	1669	7424	6883	9333	99
	12 (3.7)	3905	17372	2403	10691	11581	15702	99
GRIDPAK® Antenna	4 (1.3)	325	1450	190	840	351	475	60
Without Ice KP Series	6 (2.0)	820	3650	430	1910	1342	1824	60
	8 (2.4)	1180	5250	600	2670	2200	2990	60
	10 (3.0)	1825	8120	1020	4540	3869	5259	60
	13 (4.0)	3135	13940	1750	7780	8022	10903	60

*PAR series use deep reflectors on 6 ft - 8 ft only.

Antenna Weight and Center of Gravity



For parabolic antennas, the center of gravity is referenced to the centerline of the antenna mounting pipe as illustrated. Dimension X, the transverse offset, can be found on pages 100 to 110. Dimension Z_{CG} and antenna weights with and without ice are tabulated below.

Antenna Weight and Center of Gravity, Parabolic Antenna Including Mount and Side Struts

Antenna Type	Antenna Dia. ft (m)	Without Ice		With 1/2" (12 mm) Radial Ice	
		Weight, lb (kg)	Z_{CG}, in (mm)	Weight, lb (kg)	Z_{CG}, in (mm)
Shielded Antenna	1 (0.3)	22.9 (10.4)	3.9 (98)	30.6 (13.9)	5.1 (130)
One-Piece Reflector	2 (0.6)	41 (18.5)	9.6 (244)	77 (35)	10.7 (272)
with Planar Radome	2.5 (0.8)	78 (35.5)	6.9 (175)	96 (43.5)	8.5 (215)
(except "Other Shielded"	4 (1.2)	170 (77)	11.1 (282)	280 (127)	14.6 (371)
shown below)	6 (1.8)	281 (127)	20.0 (508)	501 (227)	22.8 (579)
	8 (2.4)	447 (203)	26.5 (673)	974 (430)	28.7 (729)
	10 (3.0)	541 (245)	30.2 (767)	1234 (560)	32.2 (818)
	12 (3.7)	850 (386)	31.2 (792)	1874 (850)	35.8 (909)
Shielded Antenna	8 (2.4)	460 (209)	27.0 (686)	989 (449)	28.8 (732)
Two-Piece Reflector	10 (3.0)	560 (254)	30.7 (780)	1254 (569)	32.3 (820)
with Planar Radome	12 (3.7)	860 (390)	31.8 (808)	1885 (855)	36.0 (914)
	15 (4.6)	1780 (807)	51.4 (1306)	2777 (1260)	54.0 (1372)
Other Shielded, with Planar Radome					
VHP1	1 (0.3)	22.9 (10.4)	3.9 (98)	30.6 (13.9)	5.1 (130)
VHP2	2 (0.6)	68 (31)	6.9 (175)	86 (39)	8.5 (215)
VHP4	4 (1.2)	140 (64)	12.5 (317)	282 (128)	16.7 (424)
VHP6	6 (1.8)	380 (173)	20.0 (508)	620 (282)	33.3 (848)
HDX8S-59	8 (2.4)	470 (213)	25.8 (655)	1010 (458)	28.2 (716)
UMX10-459	10 (3.0)	705 (320)	46.0 (1168)	1310 (594)	51.0 (1295)
HDX10-107	10 (3.0)	555 (252)	30.7 (780)	1275 (578)	32.7 (831)
HDX10S-59	10 (3.0)	560 (254)	29.6 (752)	1270 (576)	32.0 (813)
UMX12-459	12 (3.7)	895 (406)	44.0 (1118)	1660 (753)	49.0 (1245)
UMX12-465	12 (3.7)	960 (435)	29.9 (759)	2025 (919)	31.0 (787)
UHX12-59	12 (3.7)	890 (404)	33.3 (846)	1815 (823)	39.3 (998)
HDX12S-59	12 (3.7)	890 (404)	30.3 (770)	1940 (880)	35.1 (892)
Standard Antenna	2 (0.6)	14 (7)	6.5 (165)	58 (26)	7.9 (201)
One-Piece Reflector	4 (1.2)	104 (47)	7.0 (178)	175 (79)	10.9 (277)
without Radome	6 (1.8)	143 (61)	10.0 (254)	294 (133)	13.5 (343)
	8 (2.4)	251 (114)	13.5 (343)	536 (243)	16.8 (427)
	10 (3.0)	317 (144)	18.0 (457)	784 (356)	21.7 (551)
	12 (3.7)	540 (245)	19.0 (483)	1158 (525)	22.3 (566)
Other Standard, One-Piece Reflector without Radome					
VP2	2 (0.6)	49 (22.3)	3.5 (88)	54.4 (24.3)	4.3 (110)
VP4	4 (1.2)	90 (41)	2.7 (38)	194 (88)	6.2 (157)
VP6	6 (1.8)	205 (93.2)	10 (254)	363 (165)	13.5 (343)
Standard Antenna	2 (0.6)	17 (8)	8.7 (221)	81 (37)	9.9 (251)
One-Piece Reflector	4 (1.2)	119 (54)	10.0 (254)	189 (86)	14.6 (371)
with Radome	6 (1.8)	162 (73)	13.7 (348)	321 (146)	19.6 (498)
	8 (2.4)	304 (138)	19.8 (503)	621 (282)	25.0 (635)
	10 (3.0)	402 (182)	25.8 (655)	916 (415)	31.7 (805)
	12 (3.7)	654 (297)	26.9 (683)	1356 (615)	32.8 (833)
Standard Antenna	8 (2.4)	264 (120)	14.0 (356)	550 (249)	17.3 (439)
Two-Piece Reflector	10 (3.0)	336 (152)	18.5 (470)	804 (365)	22.2 (564)
without Radome	12 (3.7)	600 (272)	19.6 (498)	1219 (553)	22.9 (582)
	15 (4.6)	1240 (562)	32.3 (820)	2269 (1029)	36.4 (925)
GRIDPAK® Antenna	4 (1.3)	51 (23)	10.0 (254)	–	–
	6 (2)	198 (90)	14.5 (368)	–	–
	8 (2.4)	282 (128)	16.0 (406)	–	–
	10 (3)	418 (190)	21.5 (546)	–	–
	13 (4)	517 (235)	25.5 (648)	–	–

General Power Density

Site Name: Bolton Notch , CT
Tower Height: 100/120 ft rad center

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
Verizon	869	9	200	1800	119	0.0457	0.5793	7.89%
Verizon	1900	3	200	600	119	0.0152	1	1.52%
Verizon MW	11,325	1	100	100	108	0.0031	1	0.31%
Verizon MW	11,325	1	100	100	151	0.0016	1	0.16%
Total Percentage of Maximum Permissible Exposure								9.88%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.

DETAILED STRUCTURAL ANALYSIS AND EVALUATION OF EXISTING 280' GUYED TOWER FOR NEW ANTENNA ARRANGEMENT

130 VERNON ROAD
BOLTON, CT

prepared for

verizonwireless

VERIZON WIRELESS
99 EAST RIVER DRIVE
EAST HARTFORD, CT 06108

prepared by

URS

URS CORPORATION AES
795 BROOK STREET, BUILDING 5
ROCKY HILL, CT 06067
TEL 860-529-8882

VZ1-127 / 36930618
"TASK 4" – NEW DISH AT 151'

January 27, 2005

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 280' guyed tower structure located at 130 Vernon Road in Bolton, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 85 mph and 85 mph concurrent with ½" ice with reduction. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined on the Introduction of this report. The proposed Verizon Wireless antenna addition is as follows:

ANTENNA MODIFICATION	CARRIER	CENTERLINE ELEVATION
Add (1) Andrew PL6-59D dish	Verizon Wireless	@150'

The results of the analysis indicate that the tower structure is in compliance with the proposed loading conditions. The tower is considered structurally adequate under the TIA/EIA-222-F wind load classification specified above and the existing and proposed antenna loadings. No further analysis was conducted on the tower foundation since the forces calculated were below the previous analysis reactions.

This analysis was based on:

1. The tower structure's capacity not including any assessment of the condition of the tower.
2. The tower report prepared by Goodkind and O'Dea / LeBlanc Communications Inc. dated February 4, 1998.
3. The antenna inventory prepared by AeroSolutions, LLC dated April 30, 2003.

This report is only valid per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the assumptions of the antenna and mount configurations. Notify the engineer in writing immediately if any of the information in this report is found to be other than specified.

Should you have any questions, please contact us.

Sincerely,
URS Corporation AES

Richard A. Sambor, P.E.
Manager Facilities Design

RAS/jri

cc: Douglas Roberts – URS
CF/Book

2. INTRODUCTION

A structural analysis of the existing 280' guyed tower located at 130 Vernon Road in Bolton, Connecticut was performed by URS Corporation AES (URS) for Verizon Wireless. The purpose of this analysis was to investigate the structural integrity of the tower, guy wires and foundation with its existing and proposed antenna loads.

The structure was manufactured by LeBlanc Communications, Inc. The tower geometry and member sizes used in this report were taken from a tower report prepared by Goodkind and O'Dea / LeBlanc Communications Inc. dated February 4, 1998. Member sizes were confirmed by various other previous structural analyses and inventories obtained by URS.

The existing structure supports several communication antennas. The tower inventory used in this report was prepared by AeroSolutions, LLC dated April 30, 2003. The inventory was supplied by the tower owner, Mountaintop Services, Inc., and is available in the Drawings and Data section of this report.

In addition to this inventory, it is assumed that a proposed Verizon Wireless antenna replacement at the 108' level (replace (1) Mark Antennas P-21A48GF dish with (1) Andrew HP6-107 dish) is approved and completed. Since the replacement dish is larger than the current one listed in the AeroSolutions inventory, this assumption is conservative. Verizon Wireless antenna additions at the 119' level (add (4) Decibel DB948F85T2EM antennas) are also assumed to be approved and completed. Since this antenna addition does not involve removing any existing antennas, this assumption is also conservative.

Modifications to the existing antenna configuration are summarized below:

ANTENNA MODIFICATION	CARRIER	CENTERLINE ELEVATION
Add (1) Andrew PL6-59D dish	Verizon Wireless	@150'

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was done in accordance with TIA/EIA-222-F, Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, and the American Institute of Steel Construction (AISC) Manual of Steel Construction, Allowable Stress Design (ASD).

The tower analysis was conducted using ERI Tower 3.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA.

Load Condition 1 = 85 mph Wind Load (without ice) + Tower Dead Load
Load Condition 2 = 85 mph Wind Load (with ice) (reduced) + Ice Load + Tower Dead Load
(equal to 74 mph Wind Load (with ice) + Ice Load + Tower Dead Load)

Please note that wind pressure is a function of velocity squared. Under Load Condition 2, a 25 percent reduction in wind pressure is allowed by code to account for the unlikelihood of the full wind pressure and ice load occurring at the same time. The same results may be achieved by utilizing a lower wind pressure without taking the 25 percent reduction, as shown above.

The TIA/EIA standard permits a one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For the purposes of this analysis, in computing the load capacity the allowable stresses of the tower members were increased by one-third.

4. FINDINGS AND EVALUATION

The combined axial and bending stresses on the tower structure were evaluated to compare with the allowable stresses in accordance with AISC. The analysis indicates that the tower legs, diagonal members, horizontal members and guy wires have sufficient capacity to carry the loads applied. No further analysis was conducted on the tower foundation since the reactions calculated were below the reactions from the previously referenced analysis by Goodkind and O'Dea / LeBlanc Communications Inc.

The tower reactions are as follows:

Previous Analysis Reactions	
Horizontal force at anchor block (kips)	84
Uplift force at anchor block (kips)	70
Resultant force at anchor block (kips)	109
Shear at tower base (kips)	3.5
Compression at tower base (kips)	189

Proposed Reactions	
Horizontal force at anchor block (kips)	77
Uplift force at anchor block (kips)	62
Resultant force at anchor block (kips)	99
Shear at tower base (kips)	2.5
Compression at tower base (kips)	171

For detailed proposed tower reactions see drawing no. E-1, the ERI Tower input/output summary, in the Drawings and Details section of this report.

5. CONCLUSIONS

The results of the analysis indicate that the structure is in compliance with the loading conditions and the materials and member sizes for the tower. The tower is considered structurally adequate under the TIA/EIA-222-F wind load classification specified above and all the existing and proposed antenna loading. The user of this report shall field verify the assumption of the antenna and mount configuration. Notify the engineer in writing immediately if any of the assumptions in this report are found to be other than specified.

Limitations/Assumptions:

This report is based on the following:

1. Tower inventory as listed in this report.
2. Tower is properly installed and maintained.
3. All members are as specified in the original design documents and are in good condition.
4. All required members are in place.
5. All bolts are in place and are properly tightened.
6. Tower is in plumb condition.
7. All member protective coatings are in good condition.
8. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9. Foundations were properly constructed to support original design loads as specified in the original design documents.

URS is not responsible for any modifications completed prior to or hereafter in which URS is not or was not directly involved. Modifications include but are not limited to:

A. Adding antennas and/or mounts
B. Removing/replacing antennas and/or mounts
C. Adding coaxial cables

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Ongoing and Periodic Inspection and Maintenance by the Owner:

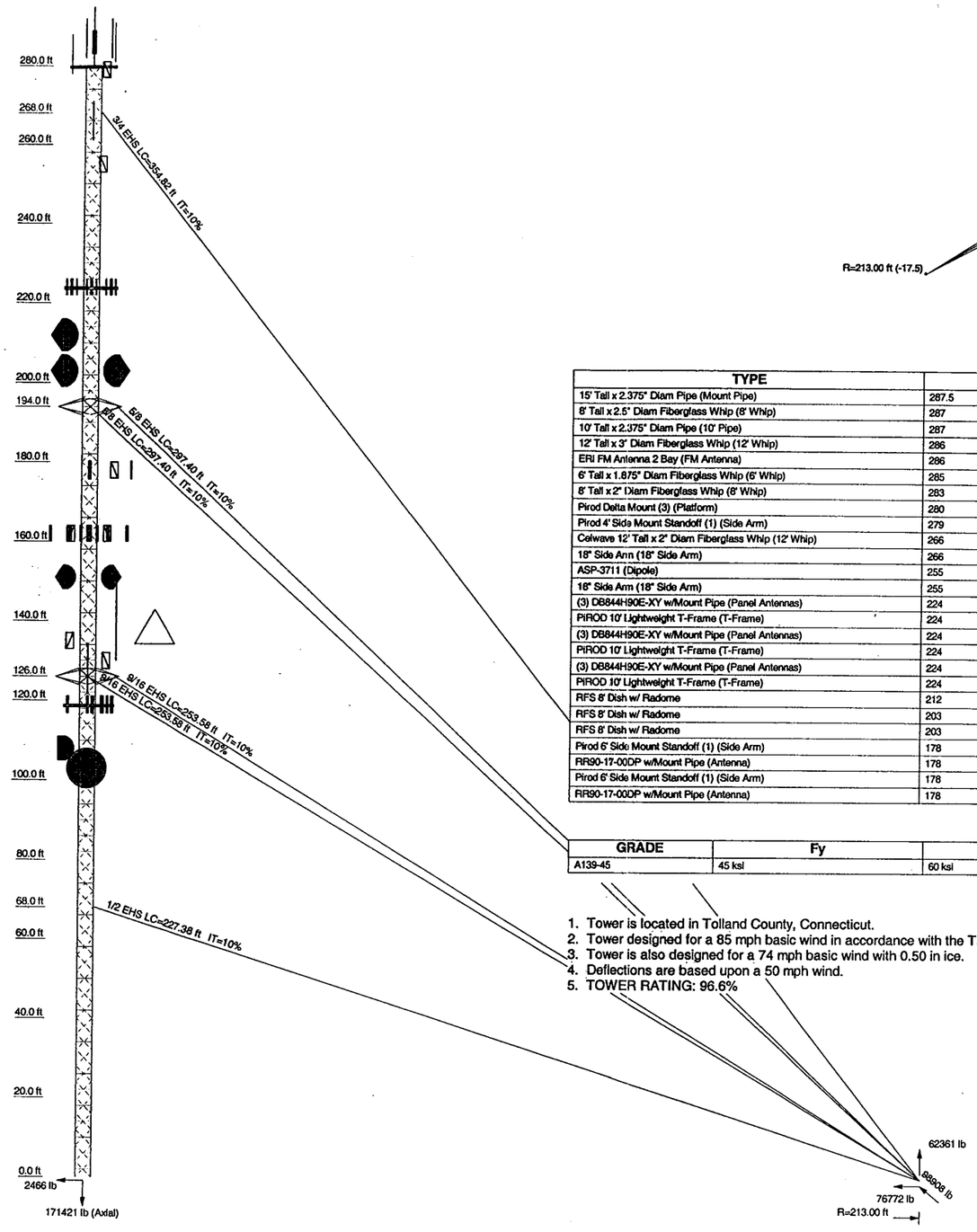
1. After the Contractor has successfully completed the installation and the work has been accepted, the tower owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

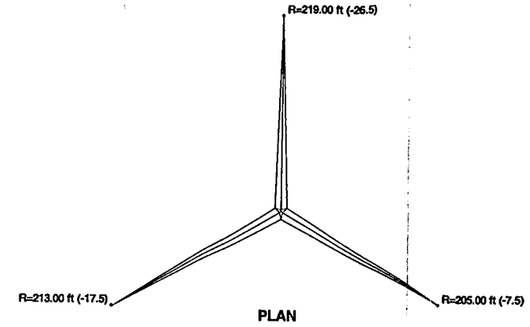
2. The owner shall refer to TIA/EIA-222-F for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system is performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F, it is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.

6. DRAWINGS AND DATA

ERI TOWER INPUT/OUTPUT SUMMARY

Section	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Legs	SR 2														1212.8
Leg Grade	A139-45														1153.8
Diagonals	SR 7/8		L3 1/2x3x1/4 + SR 7/8												1153.8
Diagonal Grade	A36														2065.5
Top Girts	N.A.		L3x3x1/4												3173.0
Sec. Horizontals	L2 1/2x2x3/16														1153.8
Top Guy Pull-Offs	N.A.		L4x4x3/8		N.A.										1153.8
Bot Guy Pull-Offs	N.A.		L4x4x3/8		N.A.										1153.8
Face Width (ft)	4														1153.8
# Panels @ (ft)	70 @ 4														1153.8
Weight (lb)	22073.9														3173.0





PLAN

APPURTENANCES

TYPE	ELEVATION	TYPE	ELEVATION
15' Tall x 2.375" Diam Pipe (Mount Pipe)	287.5	(2) DUO1417-8686 w/Mount Pipe (Panel Antennas)	162
8' Tall x 2.5" Diam Fiberglass Whip (8' Whip)	287	DUO1417-8686 w/Mount Pipe (Panel Antennas)	162
10' Tall x 2.375" Diam Pipe (10' Pipe)	287	Pirod 6' Side Mount Standoff (1) (6' Side Arm)	162
12' Tall x 3" Diam Fiberglass Whip (12' Whip)	286	(2) DUO1417-8686 w/Mount Pipe (Panel Antennas)	162
ERI FM Antenna 2 Bay (FM Antenna)	286	DUO1417-8686 w/Mount Pipe (Panel Antennas)	162
6' Tall x 1.875" Diam Fiberglass Whip (6' Whip)	285	Pirod 6' Side Mount Standoff (1) (6' Side Arm)	162
8' Tall x 2" Diam Fiberglass Whip (8' Whip)	283	(2) DUO1417-8686 w/Mount Pipe (Panel Antennas)	162
Pirod Delta Mount (3) (Platform)	280	DUO1417-8686 w/Mount Pipe (Panel Antennas)	162
Pirod 4' Side Mount Standoff (1) (Side Arm)	279	Pirod 6' Side Mount Standoff (1) (6' Side Arm)	162
Celwave 12' Tall x 2" Diam Fiberglass Whip (12' Whip)	266	RFS 6' Dish w/ Radome	151
18" Side Arm (18" Side Arm)	266	RFS 6' Dish w/ Radome	151
ASP-3711 (Dipole)	255	PL6-59D	151
18" Side Arm (18" Side Arm)	255	Celwave 20' Tall x 2" Diam Fiberglass Whip (20' Whip)	140
(3) DB844H90E-XY w/Mount Pipe (Panel Antennas)	224	ASP-3711 (Dipole)	135
PiROD 10' Lightweight T-Frame (T-Frame)	224	Pirod 6' Side Mount Standoff (1) (6' Side Arm)	135
(3) DB844H90E-XY w/Mount Pipe (Panel Antennas)	224	Pirod 6' Side Mount Standoff (1) (6' Side Arm)	130
PiROD 10' Lightweight T-Frame (T-Frame)	224	DB809T3-Y (Antenna)	128
(3) DB844H90E-XY w/Mount Pipe (Panel Antennas)	224	18" Side Arm (18" Side Arm)	128
PiROD 10' Lightweight T-Frame (T-Frame)	224	(3) 7120.16.33.00 w/Mount Pipe (Panel Antennas)	119
RFS 8' Dish w/ Radome	212	(3) 7125.16.33.00 w/Mount Pipe (Panel Antennas)	119
RFS 8' Dish w/ Radome	203	(2) DB948F85T2E-M w/Mount Pipe (Panel Antennas)	119
RFS 8' Dish w/ Radome	203	PiROD 12' T-Frame (T-Frame)	119
Pirod 6' Side Mount Standoff (1) (Side Arm)	178	(2) DB948F85T2E-M w/Mount Pipe (Panel Antennas)	119
RR90-17-00DP w/Mount Pipe (Antenna)	178	PiROD 12' T-Frame (T-Frame)	119
Pirod 6' Side Mount Standoff (1) (Side Arm)	178	HP6-107	106
RR90-17-00DP w/Mount Pipe (Antenna)	178	RFS 10' Dish w/o Radome	103

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A139-45	45 ksi	60 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 96.6%

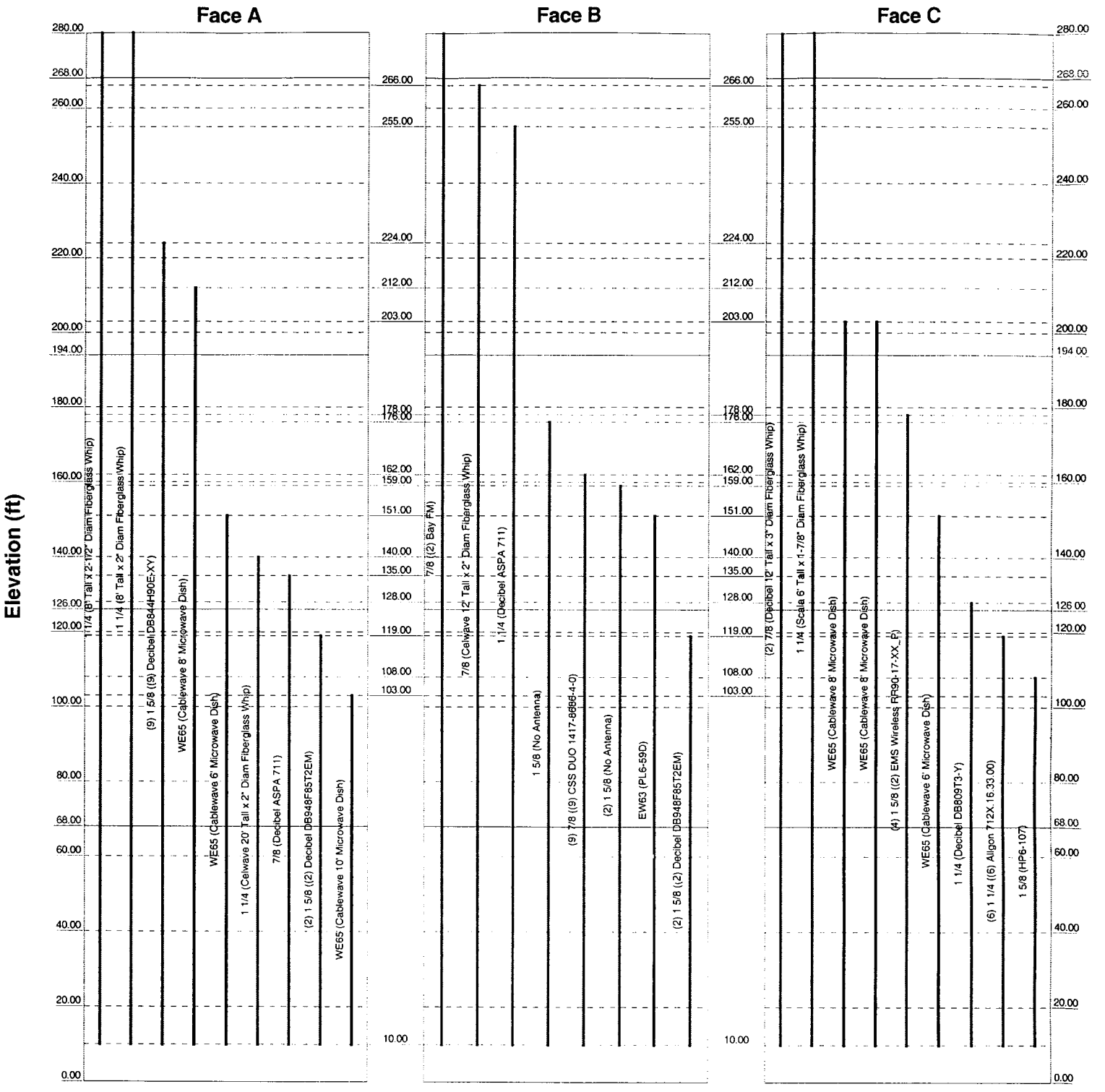
URS Corp. AES
795 Brook St
Rocky Hill, CT
Phone: (860) 529-8882
FAX: (860) 529-5566

Job: 280' Guyed Tower			
Project: 130 Vernon Road, Bolton, CT			
Client:	Drawn by: Jon Ives	App'd:	
Code: TIA/EIA-222-F	Date: 01/27/05	Scale: NTS	
Path: P:\Telecom\F12\Task 4\ERI\Bolton Guyed Tower.eri		Dwg No. E-1	

ERI TOWER FEEDLINE DISTRIBUTION CHART

Feedline Distribution Chart
0' - 280'

Round Flat App In Face App Out Face Truss Leg



URS Corp. AES 795 Brook St Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-5566	Job: ***280' Guyed Tower***		
	Project: ***130 Vernon Road, Bolton, CT***		
	Client:	Drawn by: Jon Ives	App'd:
	Code: TIA/EIA-222-F	Date: 01/27/05	Scale: NTS
	Path: P:\Telecom\F12\Task 4\ERI\Bolton Guyed Tower eri		Dwg No. E-7

ERI TOWER DETAILED OUTPUT

ERITower	Job	Page
	280' Guyed Tower	1 of 56
URS Corp. AES 795 Brook St Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-5566	Project 130 Vernon Road, Bolton, CT	Date 09:47:44 01/27/05
	Client	Designed by Jon Ives

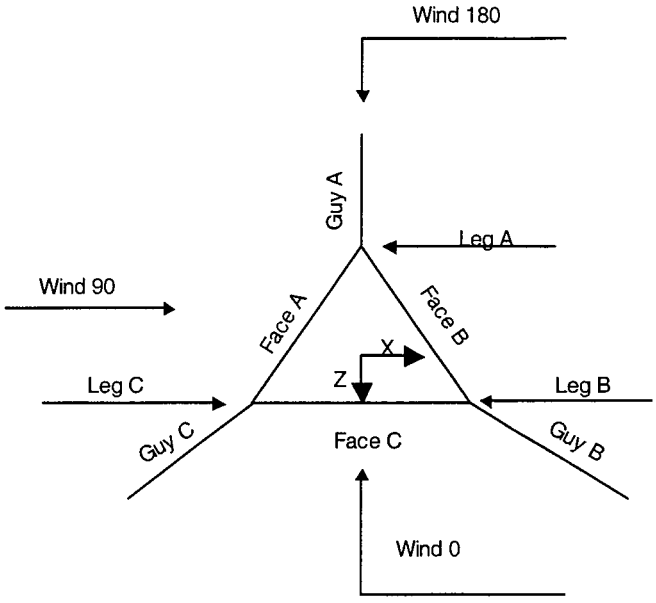
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 280.00 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 4.00 ft at the top and 4.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

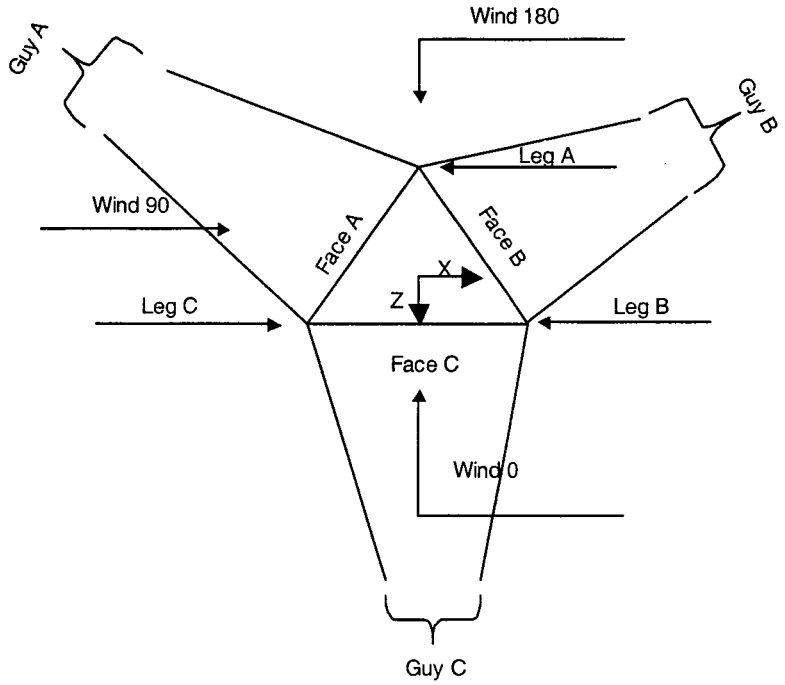
Tower is located in Tolland County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	√ All Leg Panels Have Same Allowable
Escalate Ice	Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Poles
√ Leg Bolts Are At Top Of Section	√ SR Members Have Cut Ends	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
Add IBC .6D+W Combination		



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1-T3	280.00-220.00			4.00	3	20.00
T4-T5	220.00-180.00			4.00	2	20.00
T6-T7	180.00-140.00			4.00	2	20.00
T8-T9	140.00-100.00			4.00	2	20.00
T10-T13	100.00-20.00			4.00	4	20.00
T14	20.00-0.00			4.00	1	20.00

Tower Section Geometry *(cont'd)*

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-T3	280.00-220.00	4.00	CX Brace	No	Yes	0.0000	0.0000
T4-T5	220.00-180.00	4.00	CX Brace	No	Yes	0.0000	0.0000
T6-T7	180.00-140.00	4.00	CX Brace	No	Yes	0.0000	0.0000
T8-T9	140.00-100.00	4.00	CX Brace	No	Yes	0.0000	0.0000
T10-T13	100.00-20.00	4.00	CX Brace	No	Yes	0.0000	0.0000
T14	20.00-0.00	4.00	CX Brace	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1-T3 280.00-220.00	Solid Round	2	A139-45 (45 ksi)	Solid Round	7/8	A36 (36 ksi)
T4-T5 220.00-180.00	Solid Round	2	A139-45 (45 ksi)	Single Angle	L3 1/2x3x1/4 + SR 7/8	A36 (36 ksi)
T6-T7 180.00-140.00	Solid Round	2	A139-45 (45 ksi)	Solid Round	7/8	A36 (36 ksi)
T8-T9 140.00-100.00	Solid Round	2	A139-45 (45 ksi)	Single Angle	L3 1/2x3x1/4 + SR 7/8	A36 (36 ksi)
T10-T13 100.00-20.00	Solid Round	2	A139-45 (45 ksi)	Solid Round	7/8	A36 (36 ksi)
T14 20.00-0.00	Solid Round	2	A139-45 (45 ksi)	Solid Round	7/8	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-T3 280.00-220.00	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T4-T5 220.00-180.00	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T6-T7 180.00-140.00	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T8-T9 140.00-100.00	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T10-T13 100.00-20.00	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T14 20.00-0.00	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1-T3 280.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4-T5 220.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6-T7 180.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8-T9 140.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T10-T13 100.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T14 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1-T3	No	No	1	0.5	1	1	1	1	1	1
280.00-220.00				0.5	1	1	1	1	1	1
T4-T5	No	No	1	0.5	1	1	1	1	1	1
220.00-180.00				0.5	1	1	1	1	1	1
T6-T7	No	No	1	0.5	1	1	1	1	1	1
180.00-140.00				0.5	1	1	1	1	1	1
T8-T9	No	No	1	0.5	1	1	1	1	1	1
140.00-100.00				0.5	1	1	1	1	1	1
T10-T13	No	No	1	0.5	1	1	1	1	1	1
100.00-20.00				0.5	1	1	1	1	1	1
T14 20.00-0.00	No	No	1	0.5	1	1	1	1	1	1
				0.5	1	1	1	1	1	1

[1]*Note: 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-T3 280.00-220.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4-T5 220.00-180.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6-T7 180.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

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
T8-T9 140.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10-T13 100.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
268	EHS	A	3/4	5830.00	10%	19000	1.155	365.31	219.00	0.0000	-26.50	100%
		B	3/4	5830.00	10%	19000	1.155	341.73	205.00	0.0000	-7.50	100%
		C	3/4	5830.00	10%	19000	1.155	354.52	213.00	0.0000	-17.50	100%
194	EHS	A	5/8	4240.00	10%	21000	0.813	307.77	219.00	0.0000	-26.50	100%
		B	5/8	4240.00	10%	21000	0.813	284.44	205.00	0.0000	-7.50	100%
		C	5/8	4240.00	10%	21000	0.813	297.16	213.00	0.0000	-17.50	100%
126	EHS	A	9/16	3500.00	10%	21000	0.671	263.44	219.00	0.0000	-26.50	100%
		B	9/16	3500.00	10%	21000	0.671	241.17	205.00	0.0000	-7.50	100%
		C	9/16	3500.00	10%	21000	0.671	253.38	213.00	0.0000	-17.50	100%
68	EHS	A	1/2	2690.00	10%	21000	0.517	236.21	219.00	0.0000	-26.50	100%
		B	1/2	2690.00	10%	21000	0.517	216.12	205.00	0.0000	-7.50	100%
		C	1/2	2690.00	10%	21000	0.517	227.20	213.00	0.0000	-17.50	100%

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
268	Corner						
194	Torque Arm	14.00	15.0000	Wing	A36 (36 ksi)	Single Angle	L4x4x3/8
126	Torque Arm	14.00	15.0000	Wing	A36 (36 ksi)	Single Angle	L4x4x3/8
68	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

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
268.00	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Solid Round	
194.00	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Single Angle	L4x4x3/8
126.00	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Single Angle	L4x4x3/8
68.00	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Solid Round	

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
268	421.94	394.70	409.47		12.86 6.2 sec/pulse	11.27 5.8 sec/pulse	12.12 6.0 sec/pulse	
194	250.22	231.25	241.59		8.90 5.2 sec/pulse	7.62 4.8 sec/pulse	8.31 5.0 sec/pulse	
126	176.77	161.82	170.02		6.56 4.4 sec/pulse	5.51 4.1 sec/pulse	6.08 4.3 sec/pulse	
68	122.12	111.74	117.46		5.32 4.0 sec/pulse	4.46 3.6 sec/pulse	4.92 3.8 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
268	No	No			1	1	1	1
194	Yes	Yes	1	1	1	1	1	1
126	Yes	Yes	1	1	1	1	1	1
68	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
268	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
194	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
126	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
68	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	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
268	A	120.75	27	20	0.5000
	B	130.25	27	21	0.5000
	C	125.25	27	20	0.5000
194	A	83.75	24	18	0.5000
	B	93.25	25	19	0.5000
	C	88.25	24	18	0.5000
126	A	49.75	21	16	0.5000
	B	59.25	22	16	0.5000
	C	54.25	21	16	0.5000
68	A	20.75	18	14	0.5000
	B	30.25	18	14	0.5000
	C	25.25	18	14	0.5000

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top / Bottom lb	F_x lb	F_y lb	F_z lb	M_x lb-ft	M_y lb-ft	M_z lb-ft
268	A	53.6547	6169.83 5830.00	0.00	5043.30	-3554.13	-11647.01	0.00	0.00
	B	53.6574	6147.90 5830.00	3072.33	5021.06	1773.81	5797.83	0.00	-10042.13
	C	53.5738	6159.44 5830.00	-3081.29	5027.88	1778.98	5805.70	-0.00	10055.77
			Sum:	**-8.96**	15092.25	**-1.34**	**-43.49**	-0.00	**13.64**
194	A	45.7139	4419.11 4240.00	-98.36	3224.24	-3020.45	-13030.60	21540.68	-22569.66
	A	45.7139	4419.11 4240.00	98.36	3224.24	-3020.45	-13030.60	-21540.68	22569.66
	B	45.0597	4404.10 4240.42	2694.84	3174.89	1433.17	25662.32	21782.13	0.00
	B	45.0597	4404.10 4240.42	2588.59	3174.89	1617.21	-12831.16	-21782.13	-22224.22
	C	45.3303	4411.80 4240.00	-2580.55	3197.02	1607.42	-12920.60	21681.08	22379.14
	C	45.3303	4411.80 4240.00	-2682.34	3197.02	1431.11	25841.20	-21681.08	0.00
			Sum:	**20.54**	19192.29	**48.01**	**-309.44**	-0.00	**154.91**
126	A	35.3391	3602.24 3500.00	-94.26	2142.26	-2894.47	-8657.84	20642.24	-14995.81
	A	35.3391	3602.24 3500.00	94.26	2142.26	-2894.47	-8657.84	-20642.24	14995.81
	B	33.5807	3589.50 3500.00	2606.75	2041.43	1386.33	16500.71	21070.13	0.00
	B	33.5807	3589.50 3500.00	2503.97	2041.43	1564.35	-8250.36	-21070.13	-14290.04
	C	34.4639	3596.21 3500.00	-2482.40	2092.70	1546.28	-8457.56	20856.45	14648.92
	C	34.4639	3596.21	-2580.32	2092.70	1376.68	16915.12	-20856.45	0.00

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom lb	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		lb	lb	lb	lb-ft	lb-ft	lb-ft
			3500.00						
			Sum:	**48.01**	12552.79	**84.69**	**-607.76**	0.00	**358.89**
68	A	23.5623	2738.81	0.00	1146.06	-2487.50	-2646.70	0.00	0.00
			2690.00						
	B	20.4298	2729.00	2198.45	1001.58	1269.28	1156.53	0.00	-2003.17
			2690.00						
	C	22.0877	2734.17	-2175.87	1078.47	1256.24	1245.31	-0.00	2156.95
			2690.00						
			Sum:	**22.58**	3226.11	**38.02**	**-244.86**	0.00	**153.78**

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom lb	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		lb	lb	lb	lb-ft	lb-ft	lb-ft
268	A	53.6547	8566.65	0.00	7022.50	-4906.32	-16217.77	0.00	0.00
			8002.18						
	B	53.6574	8514.75	4231.79	6973.05	2443.23	8051.79	0.00	-13946.10
			7986.69						
	C	53.5738	8543.00	-4249.59	6993.15	2453.50	8075.00	-0.00	13986.31
			7995.78						
			Sum:	**-17.80**	20988.71	**-9.59**	**-90.99**	-0.00	**40.20**
194	A	45.7139	6335.65	-140.15	4647.51	-4303.65	-18782.69	30691.96	-32532.58
			6005.15						
	A	45.7139	6335.65	140.15	4647.51	-4303.65	-18782.69	-30691.96	32532.58
			6005.15						
	B	45.0597	6290.11	3826.78	4558.43	2035.16	36845.39	30931.47	0.00
			5988.09						
	B	45.0597	6290.11	3675.89	4558.43	2296.50	-18422.69	-30931.47	-31909.04
			5988.09						
	C	45.3303	6314.92	-3671.67	4600.68	2287.07	-18593.44	30848.41	32204.78
			5997.91						
	C	45.3303	6314.92	-3816.50	4600.68	2036.22	37186.88	-30848.41	0.00
			5997.91						
			Sum:	**14.50**	27613.26	**47.66**	**-549.25**	-0.00	**295.74**
126	A	35.3391	5220.83	-135.87	3135.12	-4172.48	-12670.42	29756.52	-21945.81
			5019.71						
	A	35.3391	5220.83	135.87	3135.12	-4172.48	-12670.42	-29756.52	21945.81
			5019.71						
	B	33.5807	5175.46	3740.46	2972.75	1989.26	24028.42	30233.74	0.00
			4999.40						
	B	33.5807	5175.46	3592.97	2972.75	2244.70	-12014.21	-30233.74	-20809.22
			4999.40						
	C	34.4639	5200.47	-3571.47	3056.20	2224.66	-12351.47	30006.54	21393.37
			5011.22						
	C	34.4639	5200.47	-3712.35	3056.20	1980.65	24702.94	-30006.54	0.00
			5011.22						
			Sum:	**49.61**	18328.11	**94.30**	**-975.17**	0.00	**584.15**
68	A	23.5623	4053.47	0.00	1732.02	-3664.80	-3999.92	0.00	0.00
			3946.99						
	B	20.4298	4008.85	3217.42	1506.14	1857.58	1739.14	0.00	-3012.28
			3923.78						

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	lb-ft	lb-ft	lb-ft
	C	22.0877	4033.63 3937.29	-3196.63	1626.51	1845.58	1878.14	-0.00	3253.03
			Sum:	**20.79**	4864.67	**38.35**	**-382.64**	0.00	**240.75**

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	lb-ft	lb-ft	lb-ft
268	A	53.6547	6169.83 5830.00	0.00	5043.30	-3554.13	-11647.01	0.00	0.00
	B	53.6574	6147.90 5830.00	3072.33	5021.06	1773.81	5797.83	0.00	-10042.13
	C	53.5738	6159.44 5830.00	-3081.29	5027.88	1778.98	5805.70	-0.00	10055.77
			Sum:	**-8.96**	15092.25	**-1.34**	**-43.49**	-0.00	**13.64**
194	A	45.7139	4419.11 4240.00	-98.36	3224.24	-3020.45	-13030.60	21540.68	-22569.66
	A	45.7139	4419.11 4240.00	98.36	3224.24	-3020.45	-13030.60	-21540.68	22569.66
	B	45.0597	4404.10 4240.42	2694.84	3174.89	1433.17	25662.32	21782.13	0.00
	B	45.0597	4404.10 4240.42	2588.59	3174.89	1617.21	-12831.16	-21782.13	-22224.22
	C	45.3303	4411.80 4240.00	-2580.55	3197.02	1607.42	-12920.60	21681.08	22379.14
	C	45.3303	4411.80 4240.00	-2682.34	3197.02	1431.11	25841.20	-21681.08	0.00
			Sum:	**20.54**	19192.29	**48.01**	**-309.44**	-0.00	**154.91**
126	A	35.3391	3602.24 3500.00	-94.26	2142.26	-2894.47	-8657.84	20642.24	-14995.81
	A	35.3391	3602.24 3500.00	94.26	2142.26	-2894.47	-8657.84	-20642.24	14995.81
	B	33.5807	3589.50 3500.00	2606.75	2041.43	1386.33	16500.71	21070.13	0.00
	B	33.5807	3589.50 3500.00	2503.97	2041.43	1564.35	-8250.36	-21070.13	-14290.04
	C	34.4639	3596.21 3500.00	-2482.40	2092.70	1546.28	-8457.56	20856.45	14648.92
	C	34.4639	3596.21 3500.00	-2580.32	2092.70	1376.68	16915.12	-20856.45	0.00
			Sum:	**48.01**	12552.79	**84.69**	**-607.76**	0.00	**358.89**
68	A	23.5623	2738.81 2690.00	0.00	1146.06	-2487.50	-2646.70	0.00	0.00
	B	20.4298	2729.00 2690.00	2198.45	1001.58	1269.28	1156.53	0.00	-2003.17
	C	22.0877	2734.17 2690.00	-2175.87	1078.47	1256.24	1245.31	-0.00	2156.95
			Sum:	**22.58**	3226.11	**38.02**	**-244.86**	0.00	**153.78**

Guy-Tensioning Information

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension lb	0 F Intercept ft	20 F Initial Tension lb	20 F Intercept ft	40 F Initial Tension lb	40 F Intercept ft	60 F Initial Tension lb	60 F Intercept ft	80 F Initial Tension lb	80 F Intercept ft	100 F Initial Tension lb	100 F Intercept ft	120 F Initial Tension lb	120 F Intercept ft
268	A	216.69	294.50	8102	9.32	7325	10.29	6565	11.45	5830	12.86	5130	14.56	4479	16.60	3890	19.02
	B	202.69	275.50	8127	8.14	7343	9.00	6575	10.02	5830	11.27	5117	12.80	4450	14.65	3844	16.88
	C	210.69	285.50	8113	8.77	7333	9.69	6569	10.79	5830	12.12	5125	13.74	4466	15.70	3870	18.02
194	A	215.07	220.50	6007	6.32	5402	7.02	4811	7.86	4240	8.90	3698	10.18	3198	11.73	2753	13.57
	B	201.08	201.50	6028	5.39	5418	5.98	4820	6.71	4240	7.62	3688	8.73	3175	10.11	2717	11.77
	C	209.08	211.50	6016	5.89	5409	6.54	4815	7.33	4240	8.31	3694	9.51	3188	10.98	2737	12.74
126	A	215.07	152.50	4954	4.65	4456	5.17	3969	5.80	3500	6.56	3055	7.50	2645	8.65	2279	10.01
	B	201.08	133.50	4970	3.89	4468	4.33	3976	4.86	3500	5.51	3047	6.32	2626	7.32	2250	8.52
	C	209.08	143.50	4961	4.30	4461	4.78	3972	5.36	3500	6.08	3052	6.96	2637	8.03	2267	9.32
68	A	216.69	94.50	3806	3.77	3423	4.19	3050	4.70	2690	5.32	2350	6.08	2036	7.01	1758	8.11
	B	202.69	75.50	3819	3.15	3433	3.50	3055	3.93	2690	4.46	2343	5.12	2021	5.92	1735	6.89
	C	210.69	85.50	3812	3.48	3428	3.87	3052	4.34	2690	4.92	2347	5.64	2030	6.51	1748	7.55

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
7/8 ((2) Bay FM)	B	Yes	Ar (CfAe)	280.00 - 10.00	1	1	1.1100	1.1100		0.54
1 1/4 (8' Tall x 2-1/2" Diam Fiberglass Whip)	A	Yes	Ar (CfAe)	280.00 - 10.00	1	1	1.5500	1.5500		0.66
1 1/4 (8' Tall x 2" Diam Fiberglass Whip)	A	Yes	Ar (CfAe)	280.00 - 10.00	1	1	1.5500	1.5500		0.66
7/8 (Decibel 12' Tall x 3" Diam Fiberglass Whip)	C	Yes	Ar (CfAe)	280.00 - 10.00	2	2	1.1100	1.1100		0.54
1 1/4 (Scala 6' Tall x 1-7/8" Diam Fiberglass Whip)	C	Yes	Ar (CfAe)	280.00 - 10.00	1	1	1.5500	1.5500		0.66
7/8 (Celwave 12' Tall x 2" Diam Fiberglass Whip)	B	Yes	Ar (CfAe)	266.00 - 10.00	1	1	1.1100	1.1100		0.54
1 1/4 (Decibel ASPA 711)	B	Yes	Ar (CfAe)	255.00 - 10.00	1	1	1.5500	1.5500		0.66
1 5/8 ((9) Decibel DB844H90E-XY)	A	Yes	Ar (CfAe)	224.00 - 10.00	9	9	1.9800	1.9800		1.04
WE65 (Cablewave 8' Microwave Dish)	A	Yes	Af (CfAe)	212.00 - 10.00	1	1	1.5836	1.5836	5.1284	0.53
WE65 (Cablewave 8' Microwave Dish)	C	Yes	Af (CfAe)	203.00 - 10.00	1	1	1.5836	1.5836	5.1284	0.53
WE65 (Cablewave 8' Microwave Dish)	C	Yes	Af (CfAe)	203.00 - 10.00	1	1	1.5836	1.5836	5.1284	0.53
1 5/8 ((2) EMS Wireless RR90-17-XX_P)	C	Yes	Ar (CfAe)	178.00 - 10.00	4	4	1.9800	1.9800		1.04
1 5/8	B	Yes	Ar (CfAe)	176.00 - 10.00	1	1	1.9800	1.9800		1.04

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(No Antenna)										
7/8 ((9) CSS DUO 1417-8686-4-0)	B	Yes	Ar (CfAe)	162.00 - 10.00	9	9	1.1100	1.1100		0.54
1 5/8 (No Antenna)	B	Yes	Ar (CfAe)	159.00 - 10.00	2	2	1.9800	1.9800		1.04
WE65 (Cablewave 6' Microwave Dish)	A	Yes	Af (CfAe)	151.00 - 10.00	1	1	1.5836	1.5836	5.1284	0.53
WE65 (Cablewave 6' Microwave Dish)	C	Yes	Af (CfAe)	151.00 - 10.00	1	1	1.5836	1.5836	5.1284	0.53
EW63 (PL6-59D)	B	Yes	Af (CfAe)	151.00 - 10.00	1	1	1.5742	1.5742	5.0668	0.51
1 1/4 (Celwave 20' Tall x 2" Diam Fiberglass Whip)	A	Yes	Ar (CfAe)	140.00 - 10.00	1	1	1.5500	1.5500		0.66
7/8 (Decibel ASPA 711)	A	Yes	Ar (CfAe)	135.00 - 10.00	1	1	1.1100	1.1100		0.54
1 1/4 (Decibel DB809T3-Y)	C	Yes	Ar (CfAe)	128.00 - 10.00	1	1	1.5500	1.5500		0.66
1 1/4 ((6) Allgon 712X.16.33.00)	C	Yes	Ar (CfAe)	119.00 - 10.00	6	6	1.5500	1.5500		0.66
1 5/8 ((2) Decibel DB948F85T2EM)	A	Yes	Ar (CfAe)	119.00 - 10.00	2	2	1.9800	1.9800		1.04
1 5/8 ((2) Decibel DB948F85T2EM)	B	Yes	Ar (CfAe)	119.00 - 10.00	2	2	1.9800	1.9800		1.04
1 5/8 (HP6-107)	C	Yes	Ar (CfAe)	108.00 - 10.00	1	1	1.9800	1.9800		1.04
WE65 (Cablewave 10' Microwave Dish)	A	Yes	Af (CfAe)	103.00 - 10.00	1	1	1.5836	1.5836	5.1284	0.53

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	280.00-260.00	A	5.167	0.000	0.000	0.000	26.40
		B	2.405	0.000	0.000	0.000	14.04
		C	6.283	0.000	0.000	0.000	34.80
T2	260.00-240.00	A	5.167	0.000	0.000	0.000	26.40
		B	5.638	0.000	0.000	0.000	31.50
		C	6.283	0.000	0.000	0.000	34.80
T3	240.00-220.00	A	11.107	0.000	0.000	0.000	63.84
		B	6.283	0.000	0.000	0.000	34.80
		C	6.283	0.000	0.000	0.000	34.80
T4	220.00-200.00	A	34.867	1.584	0.000	0.000	219.96
		B	6.283	0.000	0.000	0.000	34.80
		C	6.283	0.792	0.000	0.000	37.98
T5	200.00-180.00	A	34.867	2.639	0.000	0.000	224.20
		B	6.283	0.000	0.000	0.000	34.80
		C	6.283	5.279	0.000	0.000	56.00
T6	180.00-160.00	A	34.867	2.639	0.000	0.000	224.20
		B	10.588	0.000	0.000	0.000	61.16

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C	18.163	5.279	0.000	0.000	130.88
T7	160.00-140.00	A	34.867	4.091	0.000	0.000	230.03
		B	32.503	1.443	0.000	0.000	197.93
		C	19.483	6.730	0.000	0.000	145.03
T8	140.00-120.00	A	38.837	5.279	0.000	0.000	256.10
		B	32.833	2.624	0.000	0.000	204.60
		C	20.517	7.918	0.000	0.000	155.08
T9	120.00-100.00	A	45.570	5.674	0.000	0.000	299.91
		B	39.103	2.624	0.000	0.000	244.12
		C	38.112	7.918	0.000	0.000	246.56
T10	100.00-80.00	A	45.900	7.918	0.000	0.000	311.00
		B	39.433	2.624	0.000	0.000	246.20
		C	40.867	7.918	0.000	0.000	263.00
T11	80.00-60.00	A	45.900	7.918	0.000	0.000	311.00
		B	39.433	2.624	0.000	0.000	246.20
		C	40.867	7.918	0.000	0.000	263.00
T12	60.00-40.00	A	45.900	7.918	0.000	0.000	311.00
		B	39.433	2.624	0.000	0.000	246.20
		C	40.867	7.918	0.000	0.000	263.00
T13	40.00-20.00	A	45.900	7.918	0.000	0.000	311.00
		B	39.433	2.624	0.000	0.000	246.20
		C	40.867	7.918	0.000	0.000	263.00
T14	20.00-0.00	A	22.950	3.959	0.000	0.000	155.50
		B	19.717	1.312	0.000	0.000	123.10
		C	20.433	3.959	0.000	0.000	131.50

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	280.00-260.00	A	0.500	8.500	0.000	0.000	0.000	76.49
		B		4.572	0.000	0.000	0.000	39.61
		C		11.283	0.000	0.000	0.000	99.19
T2	260.00-240.00	A	0.500	8.500	0.000	0.000	0.000	76.49
		B		10.221	0.000	0.000	0.000	89.62
		C		11.283	0.000	0.000	0.000	99.19
T3	240.00-220.00	A	0.500	17.440	0.000	0.000	0.000	168.47
		B		11.283	0.000	0.000	0.000	99.19
		C		11.283	0.000	0.000	0.000	99.19
T4	220.00-200.00	A	0.500	53.200	2.250	0.000	0.000	559.12
		B		11.283	0.000	0.000	0.000	99.19
		C		11.283	1.125	0.000	0.000	110.56
T5	200.00-180.00	A	0.500	53.200	3.750	0.000	0.000	574.29
		B		11.283	0.000	0.000	0.000	99.19
		C		11.283	7.501	0.000	0.000	174.99
T6	180.00-160.00	A	0.500	53.200	3.750	0.000	0.000	574.29
		B		18.422	0.000	0.000	0.000	167.49
		C		29.163	7.501	0.000	0.000	358.95
T7	160.00-140.00	A	0.500	53.200	5.813	0.000	0.000	595.13
		B		57.337	2.054	0.000	0.000	542.10
		C		31.150	9.564	0.000	0.000	400.24
T8	140.00-120.00	A	0.500	60.087	7.501	0.000	0.000	673.29
		B		57.833	3.735	0.000	0.000	563.98
		C		32.850	11.251	0.000	0.000	432.59
T9	120.00-100.00	A	0.500	70.403	8.063	0.000	0.000	783.68
		B		67.270	3.735	0.000	0.000	661.06
		C		61.612	11.251	0.000	0.000	693.98

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T10	100.00-80.00	A	0.500	70.900	11.251	0.000	0.000	821.01
		B		67.767	3.735	0.000	0.000	666.17
		C		65.867	11.251	0.000	0.000	736.11
T11	80.00-60.00	A	0.500	70.900	11.251	0.000	0.000	821.01
		B		67.767	3.735	0.000	0.000	666.17
		C		65.867	11.251	0.000	0.000	736.11
T12	60.00-40.00	A	0.500	70.900	11.251	0.000	0.000	821.01
		B		67.767	3.735	0.000	0.000	666.17
		C		65.867	11.251	0.000	0.000	736.11
T13	40.00-20.00	A	0.500	70.900	11.251	0.000	0.000	821.01
		B		67.767	3.735	0.000	0.000	666.17
		C		65.867	11.251	0.000	0.000	736.11
T14	20.00-0.00	A	0.500	35.450	5.626	0.000	0.000	410.50
		B		33.883	1.867	0.000	0.000	333.09
		C		32.933	5.626	0.000	0.000	368.06

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	280.00-260.00	A	0.266	0.939	0.334	0.691
		B	0.124	0.505	0.155	0.371
		C	0.324	1.247	0.406	0.917
T2	260.00-240.00	A	0.266	0.939	0.269	0.561
		B	0.291	1.129	0.294	0.674
		C	0.324	1.247	0.327	0.744
T3	240.00-220.00	A	0.573	1.927	0.578	1.151
		B	0.324	1.247	0.327	0.744
		C	0.324	1.247	0.327	0.744
T4	220.00-200.00	A	0.000	0.000	9.416	17.376
		B	0.000	0.000	1.623	3.515
		C	0.000	0.000	1.828	3.917
T5	200.00-180.00	A	0.000	0.000	10.939	20.149
		B	0.000	0.000	1.833	3.954
		C	0.000	0.000	3.372	6.971
T6	180.00-160.00	A	1.934	6.354	1.953	3.794
		B	0.546	2.035	0.551	1.215
		C	1.209	4.174	1.221	2.492
T7	160.00-140.00	A	2.009	6.615	2.029	3.950
		B	1.750	6.596	1.768	3.938
		C	1.352	4.655	1.365	2.779
T8	140.00-120.00	A	0.000	0.000	12.867	24.071
		B	0.000	0.000	10.341	21.767
		C	0.000	0.000	8.293	16.036
T9	120.00-100.00	A	0.000	0.000	13.238	24.814
		B	0.000	0.000	10.779	22.291
		C	0.000	0.000	11.890	23.216
T10	100.00-80.00	A	2.775	9.261	2.803	5.530
		B	2.168	7.961	2.190	4.754
		C	2.515	8.705	2.541	5.198
T11	80.00-60.00	A	2.775	9.261	2.803	5.530
		B	2.168	7.961	2.190	4.754
		C	2.515	8.705	2.541	5.198
T12	60.00-40.00	A	2.775	9.261	2.803	5.530
		B	2.168	7.961	2.190	4.754
		C	2.515	8.705	2.541	5.198

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T13	40.00-20.00	A	2.775	9.261	2.803	5.530
		B	2.168	7.961	2.190	4.754
		C	2.515	8.705	2.541	5.198
T14	20.00-0.00	A	1.387	4.630	1.402	2.765
		B	1.084	3.981	1.095	2.377
		C	1.258	4.352	1.270	2.599

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft / ft / ft	°	ft		ft^2	ft^2	lb
ERI FM Antenna 2 Bay	C	From Face	2.00	0.0000	286.00	No Ice	12.13	12.13	250.00
(FM Antenna)			0.00			1/2" Ice	12.62	12.62	305.00
			0.00						
15' Tall x 2.375" Diam Pipe	C	From Face	2.00	0.0000	287.50	No Ice	3.56	3.56	135.60
(Mount Pipe)			0.00			1/2" Ice	5.09	5.09	162.23
			0.00						
8' Tall x 2.5" Diam Fiberglass	B	From Leg	3.00	0.0000	287.00	No Ice	2.19	2.19	15.79
Whip			0.00			1/2" Ice	3.11	3.11	33.80
(8' Whip)			0.00						
Pirod 4' Side Mount Standoff	B	From Leg	1.50	0.0000	279.00	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
(Side Arm)			0.00						
8' Tall x 2" Diam Fiberglass	C	From Leg	4.00	0.0000	283.00	No Ice	1.79	1.79	13.79
Whip			0.00			1/2" Ice	2.70	2.70	29.28
(8' Whip)			0.00						
12' Tall x 3" Diam Fiberglass	B	From Leg	4.00	0.0000	286.00	No Ice	3.79	3.79	30.79
Whip			0.00			1/2" Ice	5.11	5.11	59.89
(12' Whip)			0.00						
6' Tall x 1.875" Diam	A	From Leg	4.00	0.0000	285.00	No Ice	1.32	1.32	10.79
Fiberglass Whip			0.00			1/2" Ice	2.03	2.03	22.74
(6' Whip)			0.00						
10' Tall x 2.375" Diam Pipe	C	From Leg	0.00	0.0000	287.00	No Ice	2.38	2.38	90.40
(10' Pipe)			0.00			1/2" Ice	3.40	3.40	108.25
			0.00						
Pirod Delta Mount (3)	A	None		0.0000	280.00	No Ice	32.94	32.94	740.00
(Platform)						1/2" Ice	47.60	47.60	1000.00
Celwave 12' Tall x 2" Diam	A	From Leg	1.50	0.0000	266.00	No Ice	2.59	2.59	21.79
Fiberglass Whip			0.00			1/2" Ice	3.90	3.90	43.38
(12' Whip)			0.00						
18" Side Arm	A	From Leg	0.75	0.0000	266.00	No Ice	0.50	0.50	10.00
(18" Side Arm)			0.00			1/2" Ice	1.10	1.10	16.00
			0.00						
ASP-3711	B	From Leg	1.50	0.0000	255.00	No Ice	1.30	1.30	13.00
(Dipole)			0.00			1/2" Ice	2.34	2.34	16.90
			0.00						
18" Side Arm	B	From Leg	0.75	0.0000	255.00	No Ice	0.50	0.50	10.00
(18" Side Arm)			0.00			1/2" Ice	1.10	1.10	16.00
			0.00						
(3) DB844H90E-XY	A	From Leg	2.00	0.0000	224.00	No Ice	3.58	5.40	35.55
w/Mount Pipe			0.00			1/2" Ice	4.20	6.49	76.59
(Panel Antennas)			0.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
PiROD 10' Lightweight T-Frame	A	From Leg	2.00 0.00	0.0000	224.00	No Ice 1/2" Ice	9.30 14.50	9.30 14.50	251.00 344.00
(T-Frame)			0.00						
(3) DB844H90E-XY w/Mount Pipe	B	From Leg	2.00 0.00	0.0000	224.00	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	35.55 76.59
(Panel Antennas)			0.00						
PiROD 10' Lightweight T-Frame	B	From Leg	2.00 0.00	0.0000	224.00	No Ice 1/2" Ice	9.30 14.50	9.30 14.50	251.00 344.00
(T-Frame)			0.00						
(3) DB844H90E-XY w/Mount Pipe	C	From Leg	2.00 0.00	0.0000	224.00	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	35.55 76.59
(Panel Antennas)			0.00						
PiROD 10' Lightweight T-Frame	C	From Leg	2.00 0.00	0.0000	224.00	No Ice 1/2" Ice	9.30 14.50	9.30 14.50	251.00 344.00
(T-Frame)			0.00						
RR90-17-00DP w/Mount Pipe	A	From Leg	10.00 0.00	0.0000	178.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	43.55 81.64
(Antenna)			0.00						
Pirod 6' Side Mount Standoff (1)	A	From Leg	5.00 0.00	0.0000	178.00	No Ice 1/2" Ice	4.97 6.12	4.97 6.12	70.00 130.00
(Side Arm)			0.00						
RR90-17-00DP w/Mount Pipe	B	From Leg	10.00 0.00	0.0000	178.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	43.55 81.64
(Antenna)			0.00						
Pirod 6' Side Mount Standoff (1)	B	From Leg	5.00 0.00	0.0000	178.00	No Ice 1/2" Ice	4.97 6.12	4.97 6.12	70.00 130.00
(Side Arm)			0.00						
(2) DUO1417-8686 w/Mount Pipe	A	From Leg	6.00 0.00	0.0000	162.00	No Ice 1/2" Ice	7.25 7.96	5.86 6.96	45.85 103.71
(Panel Antennas)			0.00						
DUO1417-8686 w/Mount Pipe	A	From Leg	0.00 0.00	0.0000	162.00	No Ice 1/2" Ice	7.25 7.96	5.86 6.96	45.85 103.71
(Panel Antennas)			0.00						
Pirod 6' Side Mount Standoff (1)	A	From Leg	3.00 0.00	0.0000	162.00	No Ice 1/2" Ice	4.97 6.12	4.97 6.12	70.00 130.00
(6' Side Arm)			0.00						
(2) DUO1417-8686 w/Mount Pipe	B	From Leg	6.00 0.00	0.0000	162.00	No Ice 1/2" Ice	7.25 7.96	5.86 6.96	45.85 103.71
(Panel Antennas)			0.00						
DUO1417-8686 w/Mount Pipe	B	From Leg	0.00 0.00	0.0000	162.00	No Ice 1/2" Ice	7.25 7.96	5.86 6.96	45.85 103.71
(Panel Antennas)			0.00						
Pirod 6' Side Mount Standoff (1)	B	From Leg	3.00 0.00	0.0000	162.00	No Ice 1/2" Ice	4.97 6.12	4.97 6.12	70.00 130.00
(6' Side Arm)			0.00						
(2) DUO1417-8686 w/Mount Pipe	C	From Leg	6.00 0.00	0.0000	162.00	No Ice 1/2" Ice	7.25 7.96	5.86 6.96	45.85 103.71
(Panel Antennas)			0.00						
DUO1417-8686 w/Mount Pipe	C	From Leg	0.00 0.00	0.0000	162.00	No Ice 1/2" Ice	7.25 7.96	5.86 6.96	45.85 103.71
(Panel Antennas)			0.00						
Pirod 6' Side Mount Standoff (1)	C	From Leg	3.00 0.00	0.0000	162.00	No Ice 1/2" Ice	4.97 6.12	4.97 6.12	70.00 130.00
(6' Side Arm)			0.00						
Celwave 20' Tall x 2" Diam Fiberglass Whip	B	From Leg	6.00 0.00	0.0000	140.00	No Ice 1/2" Ice	4.19 6.30	4.19 6.30	30.79 64.60
(20' Whip)			0.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Pirod 6' Side Mount Standoff	B	From Leg	3.00	0.0000	130.00	No Ice	4.97	4.97	70.00
(1)			0.00			1/2" Ice	6.12	6.12	130.00
(6' Side Arm)			0.00						
ASP-3711	C	From Leg	6.00	0.0000	135.00	No Ice	1.30	1.30	13.00
(Dipole)			0.00			1/2" Ice	2.34	2.34	16.90
			0.00						
Pirod 6' Side Mount Standoff	C	From Leg	3.00	0.0000	135.00	No Ice	4.97	4.97	70.00
(1)			0.00			1/2" Ice	6.12	6.12	130.00
(6' Side Arm)			0.00						
DB809T3-Y	A	From Leg	1.50	0.0000	128.00	No Ice	2.53	2.53	25.00
(Antenna)			0.00			1/2" Ice	3.83	3.83	44.57
			0.00						
18" Side Arm	A	From Leg	0.75	0.0000	128.00	No Ice	0.50	0.50	10.00
(18" Side Arm)			0.00			1/2" Ice	1.10	1.10	16.00
			0.00						
(3) 7120.16.33.00 w/Mount	A	From Leg	2.00	0.0000	119.00	No Ice	3.91	6.62	40.95
Pipe			0.00			1/2" Ice	4.53	7.75	87.99
(Panel Antennas)			0.00						
(2) DB948F85T2E-M	A	From Leg	2.00	0.0000	119.00	No Ice	2.62	4.92	34.05
w/Mount Pipe			0.00			1/2" Ice	3.23	6.01	68.79
(Panel Antennas)			0.00						
PiROD 12' T-Frame	A	From Leg	2.00	0.0000	119.00	No Ice	12.20	12.20	360.00
(T-Frame)			0.00			1/2" Ice	17.60	17.60	490.00
			0.00						
(3) 7125.16.33.00 w/Mount	B	From Leg	2.00	0.0000	119.00	No Ice	9.38	7.43	44.45
Pipe			0.00			1/2" Ice	10.11	8.57	117.52
(Panel Antennas)			0.00						
(2) DB948F85T2E-M	B	From Leg	2.00	0.0000	119.00	No Ice	2.62	4.92	34.05
w/Mount Pipe			0.00			1/2" Ice	3.23	6.01	68.79
(Panel Antennas)			0.00						
PiROD 12' T-Frame	B	From Leg	2.00	0.0000	119.00	No Ice	12.20	12.20	360.00
(T-Frame)			0.00			1/2" Ice	17.60	17.60	490.00
			0.00						

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
RFS 8' Dish w/	C	Paraboloid	From	1.50	0.0000		212.00	8.00	No Ice	50.27	380.00
Radome		w/Radome	Leg	0.00					1/2" Ice	51.32	643.44
				0.00							
RFS 8' Dish w/	B	Paraboloid	From	1.50	60.0000		203.00	8.00	No Ice	50.27	380.00
Radome		w/Radome	Leg	0.00					1/2" Ice	51.32	643.44
				0.00							
RFS 8' Dish w/	C	Paraboloid	From	1.50	60.0000		203.00	8.00	No Ice	50.27	380.00
Radome		w/Radome	Leg	0.00					1/2" Ice	51.32	643.44
				0.00							
RFS 6' Dish w/	B	Paraboloid	From	1.50	60.0000		151.00	6.00	No Ice	28.27	235.00

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
Radome		w/Radome	Leg	0.00 0.00					1/2" Ice	29.07	384.23
RFS 6' Dish w/ Radome	C	Paraboloid w/Radome	From Leg	1.50 0.00 0.00	0.0000		151.00	6.00	No Ice 1/2" Ice	28.27 29.07	235.00 384.23
PL6-59D	C	Paraboloid w/o Radome	From Leg	1.50 0.00 0.00	0.0000		151.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
HP6-107	C	Paraboloid w/Shroud (HP)	From Leg	1.50 0.00 0.00	0.0000		108.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
RFS 10' Dish w/o Radome	A	Paraboloid w/o Radome	From Leg	1.50 0.00 0.00	0.0000		103.00	10.00	No Ice 1/2" Ice	78.54 79.85	590.00 999.90

Tower Pressures - No Ice

$G_H = 1.092$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg % %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1 280.00-260.00	270.00	1.823	34	83.333	A	4.618	15.520	6.667	33.11	0.000	0.000
					B	4.796	12.901		37.67		
					C	4.546	16.579		31.56		
T2 260.00-240.00	250.00	1.783	33	83.333	A	3.724	15.520	6.667	34.64	0.000	0.000
					B	3.699	15.966		33.90		
					C	3.666	16.579		32.93		
T3 240.00-220.00	230.00	1.741	32	83.333	A	3.415	21.154	6.667	27.14	0.000	0.000
					B	3.666	16.579		32.93		
					C	3.666	16.579		32.93		
T4 220.00-200.00	210.00	1.697	31	83.333	A	11.972	41.533	6.667	12.46	0.000	0.000
					B	18.182	12.950		21.41		
					C	18.769	12.950		21.02		
T5 200.00-180.00	190.00	1.649	30	83.333	A	14.061	41.533	6.667	11.99	0.000	0.000
					B	20.528	12.950		19.91		
					C	24.267	12.950		17.91		
T6 180.00-160.00	170.00	1.597	30	83.333	A	4.679	43.552	6.667	13.82	0.000	0.000
					B	3.442	20.662		27.66		
					C	8.051	27.574		18.71		
T7 160.00-140.00	150.00	1.541	29	83.333	A	6.055	43.478	6.667	13.46	0.000	0.000
					B	3.668	41.373		14.80		
					C	9.358	28.751		17.49		
T8 140.00-120.00	130.00	1.48	27	83.333	A	14.772	45.504	6.667	11.06	0.000	0.000
					B	14.643	39.500		12.31		
					C	21.985	27.183		13.56		
T9 120.00-100.00	110.00	1.411	26	83.333	A	12.242	52.237	6.667	10.34	0.000	0.000
					B	11.649	45.770		11.61		
					C	15.832	44.778		11.00		
T10 100.00-80.00	90.00	1.332	25	83.333	A	9.108	53.745	6.667	10.61	0.000	0.000
					B	4.426	47.884		12.74		
					C	9.370	48.971		11.43		
T11 80.00-60.00	70.00	1.24	23	83.333	A	9.108	53.745	6.667	10.61	0.000	0.000
					B	4.426	47.884		12.74		

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	9.370	48.971		11.43		
T12 60.00-40.00	50.00	1.126	21	83.333	A	9.108	53.745	6.667	10.61	0.000	0.000
					B	4.426	47.884		12.74		
					C	9.370	48.971		11.43		
T13 40.00-20.00	30.00	1	18	83.333	A	9.108	53.745	6.667	10.61	0.000	0.000
					B	4.426	47.884		12.74		
					C	9.370	48.971		11.43		
T14 20.00-0.00	10.00	1	18	83.333	A	6.550	32.182	6.667	17.21	0.000	0.000
					B	4.210	29.252		19.92		
					C	6.682	29.795		18.28		

Tower Pressure - With Ice

$G_H = 1.092$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 280.00-260.00	270.00	1.823	25	0.5000	85.000	A	5.539	26.031	10.000	31.68	0.000	0.000
						B	5.858	22.537		35.22		
						C	5.312	28.507		29.57		
T2 260.00-240.00	250.00	1.783	25	0.5000	85.000	A	4.497	26.031	10.000	32.76	0.000	0.000
						B	4.384	27.562		31.30		
						C	4.313	28.507		30.47		
T3 240.00-220.00	230.00	1.741	24	0.5000	85.000	A	3.907	33.984	10.000	26.39	0.000	0.000
						B	4.313	28.507		30.47		
						C	4.313	28.507		30.47		
T4 220.00-200.00	210.00	1.697	24	0.5000	85.000	A	8.755	63.200	10.000	13.90	0.000	0.000
						B	20.367	21.283		24.01		
						C	21.089	21.283		23.60		
T5 200.00-180.00	190.00	1.649	23	0.5000	85.000	A	10.464	63.200	10.000	13.58	0.000	0.000
						B	22.909	21.283		22.63		
						C	27.393	21.283		20.54		
T6 180.00-160.00	170.00	1.597	22	0.5000	85.000	A	5.014	65.317	10.000	14.22	0.000	0.000
						B	3.843	34.857		25.84		
						C	10.067	43.460		18.68		
T7 160.00-140.00	150.00	1.541	21	0.5000	85.000	A	6.921	65.055	10.000	13.89	0.000	0.000
						B	3.174	69.212		13.81		
						C	11.842	44.966		17.60		
T8 140.00-120.00	130.00	1.48	21	0.5000	85.000	A	10.292	70.088	10.000	12.44	0.000	0.000
						B	8.830	67.833		13.04		
						C	22.078	42.850		15.40		
T9 120.00-100.00	110.00	1.411	20	0.5000	85.000	A	7.131	80.403	10.000	11.42	0.000	0.000
						B	5.325	77.270		12.11		
						C	11.917	71.612		11.97		
T10 100.00-80.00	90.00	1.332	18	0.5000	85.000	A	10.779	80.110	10.000	11.00	0.000	0.000
						B	4.039	78.276		12.15		
						C	11.111	75.633		11.53		
T11 80.00-60.00	70.00	1.24	17	0.5000	85.000	A	10.779	80.110	10.000	11.00	0.000	0.000
						B	4.039	78.276		12.15		
						C	11.111	75.633		11.53		
T12 60.00-40.00	50.00	1.126	16	0.5000	85.000	A	10.779	80.110	10.000	11.00	0.000	0.000
						B	4.039	78.276		12.15		
						C	11.111	75.633		11.53		
T13 40.00-20.00	30.00	1	14	0.5000	85.000	A	10.779	80.110	10.000	11.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						B	4.039	78.276		12.15		
						C	11.111	75.633		11.53		
T14 20.00-0.00	10.00	1	14	0.5000	85.000	A	7.919	49.290	10.000	17.48	0.000	0.000
						B	4.548	48.373		18.90		
						C	8.085	47.052		18.14		

Tower Pressure - Service

$G_H = 1.092$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 280.00-260.00	270.00	1.823	12	83.333	A	4.618	15.520	6.667	33.11	0.000	0.000
					B	4.796	12.901		37.67		
					C	4.546	16.579		31.56		
T2 260.00-240.00	250.00	1.783	11	83.333	A	3.724	15.520	6.667	34.64	0.000	0.000
					B	3.699	15.966		33.90		
					C	3.666	16.579		32.93		
T3 240.00-220.00	230.00	1.741	11	83.333	A	3.415	21.154	6.667	27.14	0.000	0.000
					B	3.666	16.579		32.93		
					C	3.666	16.579		32.93		
T4 220.00-200.00	210.00	1.697	11	83.333	A	11.972	41.533	6.667	12.46	0.000	0.000
					B	18.182	12.950		21.41		
					C	18.769	12.950		21.02		
T5 200.00-180.00	190.00	1.649	11	83.333	A	14.061	41.533	6.667	11.99	0.000	0.000
					B	20.528	12.950		19.91		
					C	24.267	12.950		17.91		
T6 180.00-160.00	170.00	1.597	10	83.333	A	4.679	43.552	6.667	13.82	0.000	0.000
					B	3.442	20.662		27.66		
					C	8.051	27.574		18.71		
T7 160.00-140.00	150.00	1.541	10	83.333	A	6.055	43.478	6.667	13.46	0.000	0.000
					B	3.668	41.373		14.80		
					C	9.358	28.751		17.49		
T8 140.00-120.00	130.00	1.48	9	83.333	A	14.772	45.504	6.667	11.06	0.000	0.000
					B	14.643	39.500		12.31		
					C	21.985	27.183		13.56		
T9 120.00-100.00	110.00	1.411	9	83.333	A	12.242	52.237	6.667	10.34	0.000	0.000
					B	11.649	45.770		11.61		
					C	15.832	44.778		11.00		
T10 100.00-80.00	90.00	1.332	9	83.333	A	9.108	53.745	6.667	10.61	0.000	0.000
					B	4.426	47.884		12.74		
					C	9.370	48.971		11.43		
T11 80.00-60.00	70.00	1.24	8	83.333	A	9.108	53.745	6.667	10.61	0.000	0.000
					B	4.426	47.884		12.74		
					C	9.370	48.971		11.43		
T12 60.00-40.00	50.00	1.126	7	83.333	A	9.108	53.745	6.667	10.61	0.000	0.000
					B	4.426	47.884		12.74		
					C	9.370	48.971		11.43		
T13 40.00-20.00	30.00	1	6	83.333	A	9.108	53.745	6.667	10.61	0.000	0.000
					B	4.426	47.884		12.74		
					C	9.370	48.971		11.43		
T14 20.00-0.00	10.00	1	6	83.333	A	6.550	32.182	6.667	17.21	0.000	0.000
					B	4.210	29.252		19.92		

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	6.682	29.795		18.28		

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 280.00-260.00	75.24	1212.62	A	0.242	2.463	0.6	1	1	13.926	1299.43	64.97	C
			B	0.212	2.555	0.593	1	1	12.446			
			C	0.253	2.427	0.603	1	1	14.539			
T2 260.00-240.00	92.70	1153.82	A	0.231	2.496	0.597	1	1	12.992	1205.97	60.30	C
			B	0.236	2.48	0.598	1	1	13.254			
			C	0.243	2.459	0.6	1	1	13.615			
T3 240.00-220.00	133.44	1153.82	A	0.295	2.31	0.614	1	1	16.410	1333.33	66.67	A
			B	0.243	2.459	0.6	1	1	13.615			
			C	0.243	2.459	0.6	1	1	13.615			
T4 220.00-200.00	292.74	2065.47	A	0.642	1.784	0.78	1	1	44.379	2713.38	135.67	A
			B	0.374	2.119	0.641	1	1	26.485			
			C	0.381	2.104	0.644	1	1	27.107			
T5 200.00-180.00	315.00	2299.03 TA 873.93	A	0.667	1.778	0.797	1	1	47.162	2792.48	139.62	A
			B	0.402	2.061	0.652	1	1	28.975			
			C	0.447	1.979	0.672	1	1	32.966			
T6 180.00-160.00	416.24	1153.82	A	0.579	1.819	0.741	1	1	36.944	2167.92	108.40	A
			B	0.289	2.325	0.613	1	1	16.101			
			C	0.427	2.012	0.663	1	1	26.338			
T7 160.00-140.00	572.99	1153.82	A	0.594	1.808	0.75	1	1	38.671	2176.16	108.81	A
			B	0.54	1.853	0.719	1	1	33.414			
			C	0.457	1.962	0.677	1	1	28.813			
T8 140.00-120.00	615.78	2299.03 TA 873.93	A	0.723	1.779	0.837	1	1	52.851	2810.22	140.51	A
			B	0.65	1.782	0.785	1	1	45.661			
			C	0.59	1.811	0.748	1	1	42.306			
T9 120.00-100.00	790.59	2065.47	A	0.774	1.799	0.875	1	1	57.966	2970.99	148.55	A
			B	0.689	1.776	0.812	1	1	48.821			
			C	0.727	1.78	0.84	1	1	53.437			
T10 100.00-80.00	820.20	1153.82	A	0.754	1.789	0.86	1	1	55.335	2663.74	133.19	A
			B	0.628	1.789	0.771	1	1	41.343			
			C	0.7	1.776	0.82	1	1	49.525			
T11 80.00-60.00	820.20	1153.82	A	0.754	1.789	0.86	1	1	55.335	2479.18	123.96	A
			B	0.628	1.789	0.771	1	1	41.343			
			C	0.7	1.776	0.82	1	1	49.525			
T12 60.00-40.00	820.20	1153.82	A	0.754	1.789	0.86	1	1	55.335	2251.94	112.60	A
			B	0.628	1.789	0.771	1	1	41.343			
			C	0.7	1.776	0.82	1	1	49.525			
T13 40.00-20.00	820.20	1153.82	A	0.754	1.789	0.86	1	1	55.335	1999.85	99.99	A
			B	0.628	1.789	0.771	1	1	41.343			
			C	0.7	1.776	0.82	1	1	49.525			
T14 20.00-0.00	410.10	1153.82	A	0.465	1.95	0.68	1	1	28.440	1120.18	56.01	A
			B	0.402	2.061	0.652	1	1	23.289			
			C	0.438	1.994	0.668	1	1	26.576			
Sum Weight:	6995.62	22073.89								29984.78		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 280.00-260.00	75.24	1212.62	A	0.242	2.463	0.6	0.825	1	13.118	1228.34	61.42	C
			B	0.212	2.555	0.593	0.825	1	11.607			
			C	0.253	2.427	0.603	0.825	1	13.743			
T2 260.00-240.00	92.70	1153.82	A	0.231	2.496	0.597	0.825	1	12.341	1149.15	57.46	C
			B	0.236	2.48	0.598	0.825	1	12.606			
			C	0.243	2.459	0.6	0.825	1	12.973			
T3 240.00-220.00	133.44	1153.82	A	0.295	2.31	0.614	0.825	1	15.812	1284.78	64.24	A
			B	0.243	2.459	0.6	0.825	1	12.973			
			C	0.243	2.459	0.6	0.825	1	12.973			
T4 220.00-200.00	292.74	2065.47	A	0.642	1.784	0.78	0.825	1	42.284	2585.28	129.26	A
			B	0.374	2.119	0.641	0.825	1	23.303			
			C	0.381	2.104	0.644	0.825	1	23.823			
T5 200.00-180.00	315.00	2299.03 TA 873.93	A	0.667	1.778	0.797	0.825	1	44.701	2646.78	132.34	A
			B	0.402	2.061	0.652	0.825	1	25.383			
			C	0.447	1.979	0.672	0.825	1	28.719			
T6 180.00-160.00	416.24	1153.82	A	0.579	1.819	0.741	0.825	1	36.126	2119.87	105.99	A
			B	0.289	2.325	0.613	0.825	1	15.498			
			C	0.427	2.012	0.663	0.825	1	24.929			
T7 160.00-140.00	572.99	1153.82	A	0.594	1.808	0.75	0.825	1	37.611	2116.53	105.83	A
			B	0.54	1.853	0.719	0.825	1	32.772			
			C	0.457	1.962	0.677	0.825	1	27.175			
T8 140.00-120.00	615.78	2299.03 TA 873.93	A	0.723	1.779	0.837	0.825	1	50.266	2672.76	133.64	A
			B	0.65	1.782	0.785	0.825	1	43.099			
			C	0.59	1.811	0.748	0.825	1	38.458			
T9 120.00-100.00	790.59	2065.47	A	0.774	1.799	0.875	0.825	1	55.823	2861.19	143.06	A
			B	0.689	1.776	0.812	0.825	1	46.782			
			C	0.727	1.78	0.84	0.825	1	50.666			
T10 100.00-80.00	820.20	1153.82	A	0.754	1.789	0.86	0.825	1	53.741	2587.01	129.35	A
			B	0.628	1.789	0.771	0.825	1	40.569			
			C	0.7	1.776	0.82	0.825	1	47.885			
T11 80.00-60.00	820.20	1153.82	A	0.754	1.789	0.86	0.825	1	53.741	2407.77	120.39	A
			B	0.628	1.789	0.771	0.825	1	40.569			
			C	0.7	1.776	0.82	0.825	1	47.885			
T12 60.00-40.00	820.20	1153.82	A	0.754	1.789	0.86	0.825	1	53.741	2187.08	109.35	A
			B	0.628	1.789	0.771	0.825	1	40.569			
			C	0.7	1.776	0.82	0.825	1	47.885			
T13 40.00-20.00	820.20	1153.82	A	0.754	1.789	0.86	0.825	1	53.741	1942.25	97.11	A
			B	0.628	1.789	0.771	0.825	1	40.569			
			C	0.7	1.776	0.82	0.825	1	47.885			
T14 20.00-0.00	410.10	1153.82	A	0.465	1.95	0.68	0.825	1	27.294	1075.03	53.75	A
			B	0.402	2.061	0.652	0.825	1	22.552			
			C	0.438	1.994	0.668	0.825	1	25.407			
Sum Weight:	6995.62	22073.89								28863.82		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 280.00-260.00	75.24	1212.62	A	0.242	2.463	0.6	0.8	1	13.003	1218.18	60.91	C
			B	0.212	2.555	0.593	0.8	1	11.487			
			C	0.253	2.427	0.603	0.8	1	13.630			
T2 260.00-240.00	92.70	1153.82	A	0.231	2.496	0.597	0.8	1	12.248	1141.03	57.05	C
			B	0.236	2.48	0.598	0.8	1	12.514			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.243	2.459	0.6	0.8	1	12.882			
T3 240.00-220.00	133.44	1153.82	A	0.295	2.31	0.614	0.8	1	15.727	1277.84	63.89	A
			B	0.243	2.459	0.6	0.8	1	12.882			
			C	0.243	2.459	0.6	0.8	1	12.882			
T4 220.00-200.00	292.74	2065.47	A	0.642	1.784	0.78	0.8	1	41.984	2566.98	128.35	A
			B	0.374	2.119	0.641	0.8	1	22.849			
			C	0.381	2.104	0.644	0.8	1	23.353			
T5 200.00-180.00	315.00	2299.03 TA 873.93	A	0.667	1.778	0.797	0.8	1	44.350	2625.97	131.30	A
			B	0.402	2.061	0.652	0.8	1	24.870			
			C	0.447	1.979	0.672	0.8	1	28.112			
T6 180.00-160.00	416.24	1153.82	A	0.579	1.819	0.741	0.8	1	36.009	2113.01	105.65	A
			B	0.289	2.325	0.613	0.8	1	15.412			
			C	0.427	2.012	0.663	0.8	1	24.728			
T7 160.00-140.00	572.99	1153.82	A	0.594	1.808	0.75	0.8	1	37.460	2108.02	105.40	A
			B	0.54	1.853	0.719	0.8	1	32.681			
			C	0.457	1.962	0.677	0.8	1	26.941			
T8 140.00-120.00	615.78	2299.03 TA 873.93	A	0.723	1.779	0.837	0.8	1	49.897	2653.13	132.66	A
			B	0.65	1.782	0.785	0.8	1	42.733			
			C	0.59	1.811	0.748	0.8	1	37.909			
T9 120.00-100.00	790.59	2065.47	A	0.774	1.799	0.875	0.8	1	55.517	2845.50	142.27	A
			B	0.689	1.776	0.812	0.8	1	46.491			
			C	0.727	1.78	0.84	0.8	1	50.270			
T10 100.00-80.00	820.20	1153.82	A	0.754	1.789	0.86	0.8	1	53.513	2576.05	128.80	A
			B	0.628	1.789	0.771	0.8	1	40.458			
			C	0.7	1.776	0.82	0.8	1	47.651			
T11 80.00-60.00	820.20	1153.82	A	0.754	1.789	0.86	0.8	1	53.513	2397.57	119.88	A
			B	0.628	1.789	0.771	0.8	1	40.458			
			C	0.7	1.776	0.82	0.8	1	47.651			
T12 60.00-40.00	820.20	1153.82	A	0.754	1.789	0.86	0.8	1	53.513	2177.81	108.89	A
			B	0.628	1.789	0.771	0.8	1	40.458			
			C	0.7	1.776	0.82	0.8	1	47.651			
T13 40.00-20.00	820.20	1153.82	A	0.754	1.789	0.86	0.8	1	53.513	1934.02	96.70	A
			B	0.628	1.789	0.771	0.8	1	40.458			
			C	0.7	1.776	0.82	0.8	1	47.651			
T14 20.00-0.00	410.10	1153.82	A	0.465	1.95	0.68	0.8	1	27.130	1068.58	53.43	A
			B	0.402	2.061	0.652	0.8	1	22.447			
			C	0.438	1.994	0.668	0.8	1	25.240			
Sum Weight:	6995.62	22073.89								28703.68		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 280.00-260.00	75.24	1212.62	A	0.242	2.463	0.6	0.85	1	13.234	1238.49	61.92	C
			B	0.212	2.555	0.593	0.85	1	11.727			
			C	0.253	2.427	0.603	0.85	1	13.857			
T2 260.00-240.00	92.70	1153.82	A	0.231	2.496	0.597	0.85	1	12.434	1157.27	57.86	C
			B	0.236	2.48	0.598	0.85	1	12.699			
			C	0.243	2.459	0.6	0.85	1	13.065			
T3 240.00-220.00	133.44	1153.82	A	0.295	2.31	0.614	0.85	1	15.898	1291.71	64.59	A
			B	0.243	2.459	0.6	0.85	1	13.065			
			C	0.243	2.459	0.6	0.85	1	13.065			
T4 220.00-200.00	292.74	2065.47	A	0.642	1.784	0.78	0.85	1	42.583	2603.58	130.18	A
			B	0.374	2.119	0.641	0.85	1	23.758			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.381	2.104	0.644	0.85	1	24.292			
T5 200.00-180.00	315.00	2299.03 TA 873.93	A	0.667	1.778	0.797	0.85	1	45.053	2667.60	133.38	A
			B	0.402	2.061	0.652	0.85	1	25.896			
			C	0.447	1.979	0.672	0.85	1	29.326			
T6 180.00-160.00	416.24	1153.82	A	0.579	1.819	0.741	0.85	1	36.243	2126.74	106.34	A
			B	0.289	2.325	0.613	0.85	1	15.584			
			C	0.427	2.012	0.663	0.85	1	25.130			
T7 160.00-140.00	572.99	1153.82	A	0.594	1.808	0.75	0.85	1	37.763	2125.05	106.25	A
			B	0.54	1.853	0.719	0.85	1	32.864			
			C	0.457	1.962	0.677	0.85	1	27.409			
T8 140.00-120.00	615.78	2299.03 TA 873.93	A	0.723	1.779	0.837	0.85	1	50.635	2692.40	134.62	A
			B	0.65	1.782	0.785	0.85	1	43.465			
			C	0.59	1.811	0.748	0.85	1	39.008			
T9 120.00-100.00	790.59	2065.47	A	0.774	1.799	0.875	0.85	1	56.129	2876.87	143.84	A
			B	0.689	1.776	0.812	0.85	1	47.073			
			C	0.727	1.78	0.84	0.85	1	51.062			
T10 100.00-80.00	820.20	1153.82	A	0.754	1.789	0.86	0.85	1	53.969	2597.97	129.90	A
			B	0.628	1.789	0.771	0.85	1	40.679			
			C	0.7	1.776	0.82	0.85	1	48.119			
T11 80.00-60.00	820.20	1153.82	A	0.754	1.789	0.86	0.85	1	53.969	2417.97	120.90	A
			B	0.628	1.789	0.771	0.85	1	40.679			
			C	0.7	1.776	0.82	0.85	1	48.119			
T12 60.00-40.00	820.20	1153.82	A	0.754	1.789	0.86	0.85	1	53.969	2196.34	109.82	A
			B	0.628	1.789	0.771	0.85	1	40.679			
			C	0.7	1.776	0.82	0.85	1	48.119			
T13 40.00-20.00	820.20	1153.82	A	0.754	1.789	0.86	0.85	1	53.969	1950.48	97.52	A
			B	0.628	1.789	0.771	0.85	1	40.679			
			C	0.7	1.776	0.82	0.85	1	48.119			
T14 20.00-0.00	410.10	1153.82	A	0.465	1.95	0.68	0.85	1	27.457	1081.48	54.07	A
			B	0.402	2.061	0.652	0.85	1	22.657			
			C	0.438	1.994	0.668	0.85	1	25.574			
Sum Weight:	6995.62	22073.89								29023.95		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 280.00-260.00	215.29	1607.29	A	0.371	2.123	0.64	1	1	22.208	1363.09	68.15	C
			B	0.334	2.209	0.627	1	1	19.987			
			C	0.398	2.068	0.651	1	1	23.863			
T2 260.00-240.00	265.30	1515.90	A	0.359	2.151	0.636	1	1	21.048	1284.83	64.24	C
			B	0.376	2.114	0.642	1	1	22.079			
			C	0.386	2.092	0.646	1	1	22.730			
T3 240.00-220.00	366.84	1515.90	A	0.446	1.98	0.671	1	1	26.722	1396.21	69.81	A
			B	0.386	2.092	0.646	1	1	22.730			
			C	0.386	2.092	0.646	1	1	22.730			
T4 220.00-200.00	768.87	2778.77	A	0.847	1.858	0.935	1	1	67.877	3241.46	162.07	A
			B	0.49	1.913	0.692	1	1	35.104			
			C	0.499	1.902	0.697	1	1	35.918			
T5 200.00-180.00	848.46	3096.17 TA 1187.59	A	0.867	1.88	0.953	1	1	70.696	3320.83	166.04	A
			B	0.52	1.875	0.708	1	1	37.975			
			C	0.573	1.823	0.737	1	1	43.084			
T6 180.00-160.00	1100.72	1515.90	A	0.827	1.839	0.919	1	1	65.052	2894.70	144.74	A
			B	0.455	1.965	0.676	1	1	27.396			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.63	1.789	0.772	1	1	43.628			
T7 160.00-140.00	1537.47	1515.90	A	0.847	1.858	0.936	1	1	67.792	2968.00	148.40	B
			B	0.852	1.863	0.94	1	1	68.223			
			C	0.668	1.778	0.798	1	1	47.716			
T8 140.00-120.00	1669.86	3096.17	A	0.946	1.996	1	1	1	80.380	3595.82	179.79	A
		TA	B	0.902	1.927	0.985	1	1	75.637			
		1187.59	C	0.764	1.794	0.868	1	1	59.253			
T9 120.00-100.00	2138.72	2778.77	A	1	2.1	1	1	1	87.534	3632.72*	181.64	C
			B	0.972	2.043	1	1	1	82.595			
			C	0.983	2.065	1	1	1	83.529			
T10 100.00-80.00	2223.29	1515.90	A	1	2.1	1	1	1	90.889	3430.30*	171.51	C
			B	0.968	2.037	1	1	1	82.315			
			C	1	2.1	1	1	1	86.744			
T11 80.00-60.00	2223.29	1515.90	A	1	2.1	1	1	1	90.889	3192.62*	159.63	C
			B	0.968	2.037	1	1	1	82.315			
			C	1	2.1	1	1	1	86.744			
T12 60.00-40.00	2223.29	1515.90	A	1	2.1	1	1	1	90.889	2899.99*	145.00	C
			B	0.968	2.037	1	1	1	82.315			
			C	1	2.1	1	1	1	86.744			
T13 40.00-20.00	2223.29	1515.90	A	1	2.1	1	1	1	90.889	2575.36*	128.77	C
			B	0.968	2.037	1	1	1	82.315			
			C	1	2.1	1	1	1	86.744			
T14 20.00-0.00	1111.65	1515.90	A	0.673	1.777	0.801	1	1	47.401	1275.94	63.80	A
			B	0.623	1.792	0.768	1	1	41.684			
			C	0.649	1.782	0.785	1	1	45.001			
Sum Weight:	18916.34	29375.48			*2A_g limit					37071.87		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 280.00-260.00	215.29	1607.29	A	0.371	2.123	0.64	0.825	1	21.239	1309.99	65.50	C
			B	0.334	2.209	0.627	0.825	1	18.961			
			C	0.398	2.068	0.651	0.825	1	22.933			
T2 260.00-240.00	265.30	1515.90	A	0.359	2.151	0.636	0.825	1	20.261	1242.16	62.11	C
			B	0.376	2.114	0.642	0.825	1	21.312			
			C	0.386	2.092	0.646	0.825	1	21.975			
T3 240.00-220.00	366.84	1515.90	A	0.446	1.98	0.671	0.825	1	26.038	1360.48	68.02	A
			B	0.386	2.092	0.646	0.825	1	21.975			
			C	0.386	2.092	0.646	0.825	1	21.975			
T4 220.00-200.00	768.87	2778.77	A	0.847	1.858	0.935	0.825	1	66.345	3168.29	158.41	A
			B	0.49	1.913	0.692	0.825	1	31.540			
			C	0.499	1.902	0.697	0.825	1	32.228			
T5 200.00-180.00	848.46	3096.17	A	0.867	1.88	0.953	0.825	1	68.865	3234.82	161.74	A
		TA	B	0.52	1.875	0.708	0.825	1	33.966			
		1187.59	C	0.573	1.823	0.737	0.825	1	38.290			
T6 180.00-160.00	1100.72	1515.90	A	0.827	1.839	0.919	0.825	1	64.174	2855.66	142.78	A
			B	0.455	1.965	0.676	0.825	1	26.723			
			C	0.63	1.789	0.772	0.825	1	41.867			
T7 160.00-140.00	1537.47	1515.90	A	0.847	1.858	0.936	0.825	1	66.581	2943.83	147.19	B
			B	0.852	1.863	0.94	0.825	1	67.667			
			C	0.668	1.778	0.798	0.825	1	45.643			
T8 140.00-	1669.86	3096.17	A	0.946	1.996	1	0.825	1	78.579	3515.24	175.76	A

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
120.00		TA	B	0.902	1.927	0.985	0.825	1	74.092			
		1187.59	C	0.764	1.794	0.868	0.825	1	55.390			
T9 120.00-100.00	2138.72	2778.77	A	1	2.1	1	0.825	1	86.286	3632.72*	181.64	A
			B	0.972	2.043	1	0.825	1	81.663			
			C	0.983	2.065	1	0.825	1	81.443			
T10 100.00-80.00	2223.29	1515.90	A	1	2.1	1	0.825	1	89.003	3430.30*	171.51	C
			B	0.968	2.037	1	0.825	1	81.608			
			C	1	2.1	1	0.825	1	84.800			
T11 80.00-60.00	2223.29	1515.90	A	1	2.1	1	0.825	1	89.003	3192.62*	159.63	C
			B	0.968	2.037	1	0.825	1	81.608			
			C	1	2.1	1	0.825	1	84.800			
T12 60.00-40.00	2223.29	1515.90	A	1	2.1	1	0.825	1	89.003	2899.99*	145.00	C
			B	0.968	2.037	1	0.825	1	81.608			
			C	1	2.1	1	0.825	1	84.800			
T13 40.00-20.00	2223.29	1515.90	A	1	2.1	1	0.825	1	89.003	2575.36*	128.77	C
			B	0.968	2.037	1	0.825	1	81.608			
			C	1	2.1	1	0.825	1	84.800			
T14 20.00-0.00	1111.65	1515.90	A	0.673	1.777	0.801	0.825	1	46.016	1238.64	61.93	A
			B	0.623	1.792	0.768	0.825	1	40.888			
			C	0.649	1.782	0.785	0.825	1	43.586			
Sum Weight:	18916.34	29375.48			*2A_g limit					36600.09		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 280.00-260.00	215.29	1607.29	A	0.371	2.123	0.64	0.8	1	21.100	1302.40	65.12	C
			B	0.334	2.209	0.627	0.8	1	18.815			
			C	0.398	2.068	0.651	0.8	1	22.801			
T2 260.00-240.00	265.30	1515.90	A	0.359	2.151	0.636	0.8	1	20.148	1236.06	61.80	C
			B	0.376	2.114	0.642	0.8	1	21.203			
			C	0.386	2.092	0.646	0.8	1	21.868			
T3 240.00-220.00	366.84	1515.90	A	0.446	1.98	0.671	0.8	1	25.941	1355.38	67.77	A
			B	0.386	2.092	0.646	0.8	1	21.868			
			C	0.386	2.092	0.646	0.8	1	21.868			
T4 220.00-200.00	768.87	2778.77	A	0.847	1.858	0.935	0.8	1	66.126	3157.84	157.89	A
			B	0.49	1.913	0.692	0.8	1	31.031			
			C	0.499	1.902	0.697	0.8	1	31.700			
T5 200.00-180.00	848.46	3096.17	A	0.867	1.88	0.953	0.8	1	68.603	3222.53	161.13	A
		TA	B	0.52	1.875	0.708	0.8	1	33.393			
		1187.59	C	0.573	1.823	0.737	0.8	1	37.605			
T6 180.00-160.00	1100.72	1515.90	A	0.827	1.839	0.919	0.8	1	64.049	2850.08	142.50	A
			B	0.455	1.965	0.676	0.8	1	26.627			
			C	0.63	1.789	0.772	0.8	1	41.615			
T7 160.00-140.00	1537.47	1515.90	A	0.847	1.858	0.936	0.8	1	66.408	2940.38	147.02	B
			B	0.852	1.863	0.94	0.8	1	67.588			
			C	0.668	1.778	0.798	0.8	1	45.347			
T8 140.00-120.00	1669.86	3096.17	A	0.946	1.996	1	0.8	1	78.321	3503.73	175.19	A
		TA	B	0.902	1.927	0.985	0.8	1	73.871			
		1187.59	C	0.764	1.794	0.868	0.8	1	54.838			
T9 120.00-100.00	2138.72	2778.77	A	1	2.1	1	0.8	1	86.108	3632.72*	181.64	A
			B	0.972	2.043	1	0.8	1	81.530			
			C	0.983	2.065	1	0.8	1	81.145			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T10 100.00-80.00	2223.29	1515.90	A	1	2.1	1	0.8	1	88.733	3430.30*	171.51	C
			B	0.968	2.037	1	0.8	1	81.507			
			C	1	2.1	1	0.8	1	84.522			
T11 80.00-60.00	2223.29	1515.90	A	1	2.1	1	0.8	1	88.733	3192.62*	159.63	C
			B	0.968	2.037	1	0.8	1	81.507			
			C	1	2.1	1	0.8	1	84.522			
T12 60.00-40.00	2223.29	1515.90	A	1	2.1	1	0.8	1	88.733	2899.99*	145.00	C
			B	0.968	2.037	1	0.8	1	81.507			
			C	1	2.1	1	0.8	1	84.522			
T13 40.00-20.00	2223.29	1515.90	A	1	2.1	1	0.8	1	88.733	2575.36*	128.77	C
			B	0.968	2.037	1	0.8	1	81.507			
			C	1	2.1	1	0.8	1	84.522			
T14 20.00-0.00	1111.65	1515.90	A	0.673	1.777	0.801	0.8	1	45.818	1233.31	61.67	A
			B	0.623	1.792	0.768	0.8	1	40.775			
			C	0.649	1.782	0.785	0.8	1	43.384			
Sum Weight:	18916.34	29375.48			*$2A_g$ limit					36532.70		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 280.00-260.00	215.29	1607.29	A	0.371	2.123	0.64	0.85	1	21.377	1317.58	65.88	C
			B	0.334	2.209	0.627	0.85	1	19.108			
			C	0.398	2.068	0.651	0.85	1	23.066			
T2 260.00-240.00	265.30	1515.90	A	0.359	2.151	0.636	0.85	1	20.373	1248.25	62.41	C
			B	0.376	2.114	0.642	0.85	1	21.422			
			C	0.386	2.092	0.646	0.85	1	22.083			
T3 240.00-220.00	366.84	1515.90	A	0.446	1.98	0.671	0.85	1	26.136	1365.58	68.28	A
			B	0.386	2.092	0.646	0.85	1	22.083			
			C	0.386	2.092	0.646	0.85	1	22.083			
T4 220.00-200.00	768.87	2778.77	A	0.847	1.858	0.935	0.85	1	66.564	3178.74	158.94	A
			B	0.49	1.913	0.692	0.85	1	32.049			
			C	0.499	1.902	0.697	0.85	1	32.755			
T5 200.00-180.00	848.46	3096.17 TA 1187.59	A	0.867	1.88	0.953	0.85	1	69.126	3247.11	162.36	A
			B	0.52	1.875	0.708	0.85	1	34.538			
			C	0.573	1.823	0.737	0.85	1	38.975			
T6 180.00-160.00	1100.72	1515.90	A	0.827	1.839	0.919	0.85	1	64.299	2861.23	143.06	A
			B	0.455	1.965	0.676	0.85	1	26.820			
			C	0.63	1.789	0.772	0.85	1	42.118			
T7 160.00-140.00	1537.47	1515.90	A	0.847	1.858	0.936	0.85	1	66.754	2947.28	147.36	B
			B	0.852	1.863	0.94	0.85	1	67.747			
			C	0.668	1.778	0.798	0.85	1	45.939			
T8 140.00-120.00	1669.86	3096.17 TA 1187.59	A	0.946	1.996	1	0.85	1	78.836	3526.75	176.34	A
			B	0.902	1.927	0.985	0.85	1	74.313			
			C	0.764	1.794	0.868	0.85	1	55.941			
T9 120.00-100.00	2138.72	2778.77	A	1	2.1	1	0.85	1	86.464	3632.72*	181.64	A
			B	0.972	2.043	1	0.85	1	81.797			
			C	0.983	2.065	1	0.85	1	81.741			
T10 100.00-80.00	2223.29	1515.90	A	1	2.1	1	0.85	1	89.272	3430.30*	171.51	C
			B	0.968	2.037	1	0.85	1	81.709			
			C	1	2.1	1	0.85	1	85.077			
T11 80.00-60.00	2223.29	1515.90	A	1	2.1	1	0.85	1	89.272	3192.62*	159.63	C
			B	0.968	2.037	1	0.85	1	81.709			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
			C	1	2.1	1	0.85	1	85.077			
T12 60.00-40.00	2223.29	1515.90	A	1	2.1	1	0.85	1	89.272	2899.99*	145.00	C
			B	0.968	2.037	1	0.85	1	81.709			
			C	1	2.1	1	0.85	1	85.077			
T13 40.00-20.00	2223.29	1515.90	A	1	2.1	1	0.85	1	89.272	2575.36*	128.77	C
			B	0.968	2.037	1	0.85	1	81.709			
			C	1	2.1	1	0.85	1	85.077			
T14 20.00-0.00	1111.65	1515.90	A	0.673	1.777	0.801	0.85	1	46.214	1243.97	62.20	A
			B	0.623	1.792	0.768	0.85	1	41.002			
			C	0.649	1.782	0.785	0.85	1	43.788			
Sum Weight:	18916.34	29375.48			*$2A_g$ limit					36667.49		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1 280.00-260.00	75.24	1212.62	A	0.242	2.463	0.6	1	1	13.926	449.63	22.48	C
			B	0.212	2.555	0.593	1	1	12.446			
			C	0.253	2.427	0.603	1	1	14.539			
T2 260.00-240.00	92.70	1153.82	A	0.231	2.496	0.597	1	1	12.992	417.29	20.86	C
			B	0.236	2.48	0.598	1	1	13.254			
			C	0.243	2.459	0.6	1	1	13.615			
T3 240.00-220.00	133.44	1153.82	A	0.295	2.31	0.614	1	1	16.410	461.36	23.07	A
			B	0.243	2.459	0.6	1	1	13.615			
			C	0.243	2.459	0.6	1	1	13.615			
T4 220.00-200.00	292.74	2065.47	A	0.642	1.784	0.78	1	1	44.379	938.89	46.94	A
			B	0.374	2.119	0.641	1	1	26.485			
			C	0.381	2.104	0.644	1	1	27.107			
T5 200.00-180.00	315.00	2299.03 TA 873.93	A	0.667	1.778	0.797	1	1	47.162	966.26	48.31	A
			B	0.402	2.061	0.652	1	1	28.975			
			C	0.447	1.979	0.672	1	1	32.966			
T6 180.00-160.00	416.24	1153.82	A	0.579	1.819	0.741	1	1	36.944	750.15	37.51	A
			B	0.289	2.325	0.613	1	1	16.101			
			C	0.427	2.012	0.663	1	1	26.338			
T7 160.00-140.00	572.99	1153.82	A	0.594	1.808	0.75	1	1	38.671	753.00	37.65	A
			B	0.54	1.853	0.719	1	1	33.414			
			C	0.457	1.962	0.677	1	1	28.813			
T8 140.00-120.00	615.78	2299.03 TA 873.93	A	0.723	1.779	0.837	1	1	52.851	972.40	48.62	A
			B	0.65	1.782	0.785	1	1	45.661			
			C	0.59	1.811	0.748	1	1	42.306			
T9 120.00-100.00	790.59	2065.47	A	0.774	1.799	0.875	1	1	57.966	1028.02	51.40	A
			B	0.689	1.776	0.812	1	1	48.821			
			C	0.727	1.78	0.84	1	1	53.437			
T10 100.00-80.00	820.20	1153.82	A	0.754	1.789	0.86	1	1	55.335	921.71	46.09	A
			B	0.628	1.789	0.771	1	1	41.343			
			C	0.7	1.776	0.82	1	1	49.525			
T11 80.00-60.00	820.20	1153.82	A	0.754	1.789	0.86	1	1	55.335	857.85	42.89	A
			B	0.628	1.789	0.771	1	1	41.343			
			C	0.7	1.776	0.82	1	1	49.525			
T12 60.00-40.00	820.20	1153.82	A	0.754	1.789	0.86	1	1	55.335	779.22	38.96	A
			B	0.628	1.789	0.771	1	1	41.343			
			C	0.7	1.776	0.82	1	1	49.525			
T13 40.00-	820.20	1153.82	A	0.754	1.789	0.86	1	1	55.335	691.99	34.60	A

ERITower

URS Corp. AES
795 Brook St
Rocky Hill, CT
Phone: (860) 529-8882
FAX: (860) 529-5566

Job	Page
280' Guyed Tower	29 of 56
Project 130 Vernon Road, Bolton, CT	**Date** 09:47:44 01/27/05
Client	**Designed by** Jon Ives

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
20.00			B	0.628	1.789	0.771	1	1	41.343			
			C	0.7	1.776	0.82	1	1	49.525			
T14 20.00-0.00	410.10	1153.82	A	0.465	1.95	0.68	1	1	28.440	387.61	19.38	A
			B	0.402	2.061	0.652	1	1	23.289			
			C	0.438	1.994	0.668	1	1	26.576			
Sum Weight:	6995.62	22073.89								10375.36		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 280.00-260.00	75.24	1212.62	A	0.242	2.463	0.6	0.825	1	13.118	425.03	21.25	C
			B	0.212	2.555	0.593	0.825	1	11.607			
			C	0.253	2.427	0.603	0.825	1	13.743			
T2 260.00-240.00	92.70	1153.82	A	0.231	2.496	0.597	0.825	1	12.341	397.63	19.88	C
			B	0.236	2.48	0.598	0.825	1	12.606			
			C	0.243	2.459	0.6	0.825	1	12.973			
T3 240.00-220.00	133.44	1153.82	A	0.295	2.31	0.614	0.825	1	15.812	444.56	22.23	A
			B	0.243	2.459	0.6	0.825	1	12.973			
			C	0.243	2.459	0.6	0.825	1	12.973			
T4 220.00-200.00	292.74	2065.47	A	0.642	1.784	0.78	0.825	1	42.284	894.56	44.73	A
			B	0.374	2.119	0.641	0.825	1	23.303			
			C	0.381	2.104	0.644	0.825	1	23.823			
T5 200.00-180.00	315.00	2299.03 TA 873.93	A	0.667	1.778	0.797	0.825	1	44.701	915.84	45.79	A
			B	0.402	2.061	0.652	0.825	1	25.383			
			C	0.447	1.979	0.672	0.825	1	28.719			
T6 180.00-160.00	416.24	1153.82	A	0.579	1.819	0.741	0.825	1	36.126	733.52	36.68	A
			B	0.289	2.325	0.613	0.825	1	15.498			
			C	0.427	2.012	0.663	0.825	1	24.929			
T7 160.00-140.00	572.99	1153.82	A	0.594	1.808	0.75	0.825	1	37.611	732.36	36.62	A
			B	0.54	1.853	0.719	0.825	1	32.772			
			C	0.457	1.962	0.677	0.825	1	27.175			
T8 140.00-120.00	615.78	2299.03 TA 873.93	A	0.723	1.779	0.837	0.825	1	50.266	924.83	46.24	A
			B	0.65	1.782	0.785	0.825	1	43.099			
			C	0.59	1.811	0.748	0.825	1	38.458			
T9 120.00-100.00	790.59	2065.47	A	0.774	1.799	0.875	0.825	1	55.823	990.03	49.50	A
			B	0.689	1.776	0.812	0.825	1	46.782			
			C	0.727	1.78	0.84	0.825	1	50.666			
T10 100.00-80.00	820.20	1153.82	A	0.754	1.789	0.86	0.825	1	53.741	895.16	44.76	A
			B	0.628	1.789	0.771	0.825	1	40.569			
			C	0.7	1.776	0.82	0.825	1	47.885			
T11 80.00-60.00	820.20	1153.82	A	0.754	1.789	0.86	0.825	1	53.741	833.14	41.66	A
			B	0.628	1.789	0.771	0.825	1	40.569			
			C	0.7	1.776	0.82	0.825	1	47.885			
T12 60.00-40.00	820.20	1153.82	A	0.754	1.789	0.86	0.825	1	53.741	756.77	37.84	A
			B	0.628	1.789	0.771	0.825	1	40.569			
			C	0.7	1.776	0.82	0.825	1	47.885			
T13 40.00-20.00	820.20	1153.82	A	0.754	1.789	0.86	0.825	1	53.741	672.06	33.60	A
			B	0.628	1.789	0.771	0.825	1	40.569			
			C	0.7	1.776	0.82	0.825	1	47.885			
T14 20.00-0.00	410.10	1153.82	A	0.465	1.95	0.68	0.825	1	27.294	371.98	18.60	A
			B	0.402	2.061	0.652	0.825	1	22.552			
			C	0.438	1.994	0.668	0.825	1	25.407			

Section Elevation	Add Weight	Self Weight	Face	e	C_F	R_R	D_F	D_R	A_E	F	w	Ctrl. Face
ft	lb	lb							ft^2	lb	plf	
Sum Weight:	6995.62	22073.89								9987.48		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	Face	e	C_F	R_R	D_F	D_R	A_E	F	w	Ctrl. Face
ft	lb	lb							ft^2	lb	plf	
T1 280.00-260.00	75.24	1212.62	A	0.242	2.463	0.6	0.8	1	13.003	421.52	21.08	C
			B	0.212	2.555	0.593	0.8	1	11.487			
			C	0.253	2.427	0.603	0.8	1	13.630			
T2 260.00-240.00	92.70	1153.82	A	0.231	2.496	0.597	0.8	1	12.248	394.82	19.74	C
			B	0.236	2.48	0.598	0.8	1	12.514			
			C	0.243	2.459	0.6	0.8	1	12.882			
T3 240.00-220.00	133.44	1153.82	A	0.295	2.31	0.614	0.8	1	15.727	442.16	22.11	A
			B	0.243	2.459	0.6	0.8	1	12.882			
			C	0.243	2.459	0.6	0.8	1	12.882			
T4 220.00-200.00	292.74	2065.47	A	0.642	1.784	0.78	0.8	1	41.984	888.23	44.41	A
			B	0.374	2.119	0.641	0.8	1	22.849			
			C	0.381	2.104	0.644	0.8	1	23.353			
T5 200.00-180.00	315.00	2299.03	A	0.667	1.778	0.797	0.8	1	44.350	908.64	45.43	A
		TA 873.93	B	0.402	2.061	0.652	0.8	1	24.870			
			C	0.447	1.979	0.672	0.8	1	28.112			
T6 180.00-160.00	416.24	1153.82	A	0.579	1.819	0.741	0.8	1	36.009	731.15	36.56	A
			B	0.289	2.325	0.613	0.8	1	15.412			
			C	0.427	2.012	0.663	0.8	1	24.728			
T7 160.00-140.00	572.99	1153.82	A	0.594	1.808	0.75	0.8	1	37.460	729.42	36.47	A
			B	0.54	1.853	0.719	0.8	1	32.681			
			C	0.457	1.962	0.677	0.8	1	26.941			
T8 140.00-120.00	615.78	2299.03	A	0.723	1.779	0.837	0.8	1	49.897	918.04	45.90	A
		TA 873.93	B	0.65	1.782	0.785	0.8	1	42.733			
			C	0.59	1.811	0.748	0.8	1	37.909			
T9 120.00-100.00	790.59	2065.47	A	0.774	1.799	0.875	0.8	1	55.517	984.60	49.23	A
			B	0.689	1.776	0.812	0.8	1	46.491			
			C	0.727	1.78	0.84	0.8	1	50.270			
T10 100.00-80.00	820.20	1153.82	A	0.754	1.789	0.86	0.8	1	53.513	891.37	44.57	A
			B	0.628	1.789	0.771	0.8	1	40.458			
			C	0.7	1.776	0.82	0.8	1	47.651			
T11 80.00-60.00	820.20	1153.82	A	0.754	1.789	0.86	0.8	1	53.513	829.61	41.48	A
			B	0.628	1.789	0.771	0.8	1	40.458			
			C	0.7	1.776	0.82	0.8	1	47.651			
T12 60.00-40.00	820.20	1153.82	A	0.754	1.789	0.86	0.8	1	53.513	753.57	37.68	A
			B	0.628	1.789	0.771	0.8	1	40.458			
			C	0.7	1.776	0.82	0.8	1	47.651			
T13 40.00-20.00	820.20	1153.82	A	0.754	1.789	0.86	0.8	1	53.513	669.21	33.46	A
			B	0.628	1.789	0.771	0.8	1	40.458			
			C	0.7	1.776	0.82	0.8	1	47.651			
T14 20.00-0.00	410.10	1153.82	A	0.465	1.95	0.68	0.8	1	27.130	369.75	18.49	A
			B	0.402	2.061	0.652	0.8	1	22.447			
			C	0.438	1.994	0.668	0.8	1	25.240			
Sum Weight:	6995.62	22073.89								9932.07		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 280.00-260.00	75.24	1212.62	A	0.242	2.463	0.6	0.85	1	13.234	428.54	21.43	C
			B	0.212	2.555	0.593	0.85	1	11.727			
			C	0.253	2.427	0.603	0.85	1	13.857			
T2 260.00-240.00	92.70	1153.82	A	0.231	2.496	0.597	0.85	1	12.434	400.44	20.02	C
			B	0.236	2.48	0.598	0.85	1	12.699			
			C	0.243	2.459	0.6	0.85	1	13.065			
T3 240.00-220.00	133.44	1153.82	A	0.295	2.31	0.614	0.85	1	15.898	446.96	22.35	A
			B	0.243	2.459	0.6	0.85	1	13.065			
			C	0.243	2.459	0.6	0.85	1	13.065			
T4 220.00-200.00	292.74	2065.47	A	0.642	1.784	0.78	0.85	1	42.583	900.89	45.04	A
			B	0.374	2.119	0.641	0.85	1	23.758			
			C	0.381	2.104	0.644	0.85	1	24.292			
T5 200.00-180.00	315.00	2299.03	A	0.667	1.778	0.797	0.85	1	45.053	923.04	46.15	A
		TA 873.93	B	0.402	2.061	0.652	0.85	1	25.896			
			C	0.447	1.979	0.672	0.85	1	29.326			
T6 180.00-160.00	416.24	1153.82	A	0.579	1.819	0.741	0.85	1	36.243	735.90	36.79	A
			B	0.289	2.325	0.613	0.85	1	15.584			
			C	0.427	2.012	0.663	0.85	1	25.130			
T7 160.00-140.00	572.99	1153.82	A	0.594	1.808	0.75	0.85	1	37.763	735.31	36.77	A
			B	0.54	1.853	0.719	0.85	1	32.864			
			C	0.457	1.962	0.677	0.85	1	27.409			
T8 140.00-120.00	615.78	2299.03	A	0.723	1.779	0.837	0.85	1	50.635	931.63	46.58	A
		TA 873.93	B	0.65	1.782	0.785	0.85	1	43.465			
			C	0.59	1.811	0.748	0.85	1	39.008			
T9 120.00-100.00	790.59	2065.47	A	0.774	1.799	0.875	0.85	1	56.129	995.46	49.77	A
			B	0.689	1.776	0.812	0.85	1	47.073			
			C	0.727	1.78	0.84	0.85	1	51.062			
T10 100.00-80.00	820.20	1153.82	A	0.754	1.789	0.86	0.85	1	53.969	898.95	44.95	A
			B	0.628	1.789	0.771	0.85	1	40.679			
			C	0.7	1.776	0.82	0.85	1	48.119			
T11 80.00-60.00	820.20	1153.82	A	0.754	1.789	0.86	0.85	1	53.969	836.67	41.83	A
			B	0.628	1.789	0.771	0.85	1	40.679			
			C	0.7	1.776	0.82	0.85	1	48.119			
T12 60.00-40.00	820.20	1153.82	A	0.754	1.789	0.86	0.85	1	53.969	759.98	38.00	A
			B	0.628	1.789	0.771	0.85	1	40.679			
			C	0.7	1.776	0.82	0.85	1	48.119			
T13 40.00-20.00	820.20	1153.82	A	0.754	1.789	0.86	0.85	1	53.969	674.91	33.75	A
			B	0.628	1.789	0.771	0.85	1	40.679			
			C	0.7	1.776	0.82	0.85	1	48.119			
T14 20.00-0.00	410.10	1153.82	A	0.465	1.95	0.68	0.85	1	27.457	374.21	18.71	A
			B	0.402	2.061	0.652	0.85	1	22.657			
			C	0.438	1.994	0.668	0.85	1	25.574			
Sum Weight:	6995.62	22073.89								10042.89		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques lb-ft
Leg Weight	8979.72			
Bracing Weight	13094.17			
Total Member Self-Weight	22073.89			

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques lb-ft
Guy Weight	4040.74			
Total Weight	40242.09			
Wind 0 deg - No Ice		1973.19	-51225.50	7169.01
Wind 30 deg - No Ice		26670.26	-43604.51	7250.93
Wind 45 deg - No Ice		36436.56	-35434.07	7312.34
Wind 60 deg - No Ice		43611.24	-25513.62	6920.15
Wind 90 deg - No Ice		49853.79	-1390.39	7581.64
Wind 120 deg - No Ice		43875.05	26130.02	5768.20
Wind 135 deg - No Ice		34455.75	35720.18	4961.50
Wind 150 deg - No Ice		23695.41	43756.33	2452.64
Wind 180 deg - No Ice		-157.62	49948.94	-4136.45
Wind 210 deg - No Ice		-23693.20	44130.44	-6825.63
Wind 225 deg - No Ice		-33381.03	36773.61	-6177.92
Wind 240 deg - No Ice		-42411.43	27563.44	-5355.43
Wind 270 deg - No Ice		-48043.35	-78.63	-4458.66
Wind 300 deg - No Ice		-41655.62	-24202.54	-736.07
Wind 315 deg - No Ice		-34423.82	-34189.98	1893.87
Wind 330 deg - No Ice		-24303.92	-42507.36	4624.63
Member Ice	7301.59			
Guy Ice	3432.01			
Total Weight Ice	67691.76			
Wind 0 deg - Ice		1545.36	-55652.50	7338.95
Wind 30 deg - Ice		28846.41	-47917.57	7109.04
Wind 45 deg - Ice		39836.50	-39043.56	6839.79
Wind 60 deg - Ice		48049.39	-27996.49	6136.63
Wind 90 deg - Ice		54970.50	-1096.12	5700.23
Wind 120 deg - Ice		47843.80	28183.29	3401.24
Wind 135 deg - Ice		38282.24	39209.55	2416.98
Wind 150 deg - Ice		26517.60	47996.50	223.09
Wind 180 deg - Ice		-148.53	55109.22	-5011.26
Wind 210 deg - Ice		-26563.83	48311.65	-6761.96
Wind 225 deg - Ice		-37494.07	40058.63	-5949.47
Wind 240 deg - Ice		-46745.45	29333.59	-4926.43
Wind 270 deg - Ice		-53579.87	-33.47	-3309.41
Wind 300 deg - Ice		-46520.04	-26942.01	444.77
Wind 315 deg - Ice		-38252.18	-38048.70	2823.20
Wind 330 deg - Ice		-26981.00	-47046.97	5186.76
Total Weight	40242.09			
Wind 0 deg - Service		682.76	-17725.09	2480.63
Wind 30 deg - Service		9228.46	-15088.07	2508.97
Wind 45 deg - Service		12607.81	-12260.93	2530.22
Wind 60 deg - Service		15090.39	-8828.24	2394.52
Wind 90 deg - Service		17250.45	-481.11	2623.40
Wind 120 deg - Service		15181.68	9041.53	1995.92
Wind 135 deg - Service		11922.40	12359.93	1716.78
Wind 150 deg - Service		8199.10	15140.60	848.67
Wind 180 deg - Service		-54.54	17283.37	-1431.30
Wind 210 deg - Service		-8198.34	15270.05	-2361.81
Wind 225 deg - Service		-11550.53	12724.43	-2137.69
Wind 240 deg - Service		-14675.24	9537.52	-1853.09
Wind 270 deg - Service		-16624.00	-27.21	-1542.79
Wind 300 deg - Service		-14413.71	-8374.58	-254.70
Wind 315 deg - Service		-11911.36	-11830.44	655.32
Wind 330 deg - Service		-8409.66	-14708.43	1600.22

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice+Guy
3	Dead+Wind 30 deg - No Ice+Guy
4	Dead+Wind 45 deg - No Ice+Guy
5	Dead+Wind 60 deg - No Ice+Guy
6	Dead+Wind 90 deg - No Ice+Guy
7	Dead+Wind 120 deg - No Ice+Guy
8	Dead+Wind 135 deg - No Ice+Guy
9	Dead+Wind 150 deg - No Ice+Guy
10	Dead+Wind 180 deg - No Ice+Guy
11	Dead+Wind 210 deg - No Ice+Guy
12	Dead+Wind 225 deg - No Ice+Guy
13	Dead+Wind 240 deg - No Ice+Guy
14	Dead+Wind 270 deg - No Ice+Guy
15	Dead+Wind 300 deg - No Ice+Guy
16	Dead+Wind 315 deg - No Ice+Guy
17	Dead+Wind 330 deg - No Ice+Guy
18	Dead+Ice+Temp+Guy
19	Dead+Wind 0 deg+Ice+Temp+Guy
20	Dead+Wind 30 deg+Ice+Temp+Guy
21	Dead+Wind 45 deg+Ice+Temp+Guy
22	Dead+Wind 60 deg+Ice+Temp+Guy
23	Dead+Wind 90 deg+Ice+Temp+Guy
24	Dead+Wind 120 deg+Ice+Temp+Guy
25	Dead+Wind 135 deg+Ice+Temp+Guy
26	Dead+Wind 150 deg+Ice+Temp+Guy
27	Dead+Wind 180 deg+Ice+Temp+Guy
28	Dead+Wind 210 deg+Ice+Temp+Guy
29	Dead+Wind 225 deg+Ice+Temp+Guy
30	Dead+Wind 240 deg+Ice+Temp+Guy
31	Dead+Wind 270 deg+Ice+Temp+Guy
32	Dead+Wind 300 deg+Ice+Temp+Guy
33	Dead+Wind 315 deg+Ice+Temp+Guy
34	Dead+Wind 330 deg+Ice+Temp+Guy
35	Dead+Wind 0 deg - Service+Guy
36	Dead+Wind 30 deg - Service+Guy
37	Dead+Wind 45 deg - Service+Guy
38	Dead+Wind 60 deg - Service+Guy
39	Dead+Wind 90 deg - Service+Guy
40	Dead+Wind 120 deg - Service+Guy
41	Dead+Wind 135 deg - Service+Guy
42	Dead+Wind 150 deg - Service+Guy
43	Dead+Wind 180 deg - Service+Guy
44	Dead+Wind 210 deg - Service+Guy
45	Dead+Wind 225 deg - Service+Guy
46	Dead+Wind 240 deg - Service+Guy
47	Dead+Wind 270 deg - Service+Guy
48	Dead+Wind 300 deg - Service+Guy
49	Dead+Wind 315 deg - Service+Guy
50	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T1	280 - 260	Leg	Max Tension	27	10601.01	-16.50	-250.78
			Max. Compression	24	-14559.29	-292.18	-188.48
			Max. Mx	34	-11525.48	825.78	352.87
			Max. My	27	-9984.45	-0.52	-895.37
			Max. Vy	23	-1059.48	0.00	-0.00
			Max. Vx	20	966.87	0.00	-0.00
		Diagonal	Max Tension	21	5613.54	0.00	0.00
			Max. Compression	22	-4993.37	0.00	0.00
			Max. Mx	25	1823.65	8.18	0.00
			Max. My	21	2559.42	0.00	-0.05
			Max. Vy	25	-5.79	0.00	0.00
			Max. Vx	21	0.03	0.00	0.00
		Secondary Horizontal	Max Tension	19	310.28	0.00	0.00
			Max. Compression	24	-266.95	0.00	0.00
			Max. Mx	18	3.53	-9.77	0.00
			Max. My	20	74.97	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-2130.92	0.00	0.00
			Max. Mx	18	-1171.23	-15.23	0.00
			Max. My	20	-1688.67	0.00	0.00
			Max. Vy	18	15.23	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Guy A	Bottom Tension	27	19296.74		
			Top Tension	27	19857.13		
			Top Cable Vert	27	16346.62		
			Top Cable Norm	27	11273.58		
			Top Cable Tan	27	0.48		
			Bot Cable Vert	27	-15106.45		
			Bot Cable Norm	27	12006.63		
			Bot Cable Tan	27	0.48		
		Guy B	Bottom Tension	32	19563.28		
			Top Tension	32	20087.32		
			Top Cable Vert	32	16511.69		
			Top Cable Norm	32	11439.61		
			Top Cable Tan	32	1.46		
			Bot Cable Vert	32	-15340.54		
			Bot Cable Norm	32	12140.41		
			Bot Cable Tan	32	1.46		
		Guy C	Bottom Tension	22	19509.37		
			Top Tension	22	20052.52		
			Top Cable Vert	22	16477.86		
			Top Cable Norm	22	11427.32		
			Top Cable Tan	22	1.87		
			Bot Cable Vert	22	-15268.93		
			Bot Cable Norm	22	12143.94		
			Bot Cable Tan	22	1.87		
T2	260 - 240	Leg	Max Tension	2	4240.67	0.76	-129.00
			Max. Compression	22	-23063.04	19.68	-11.62
			Max. Mx	19	-14475.04	472.25	108.86
			Max. My	27	-14754.16	4.22	-481.53
			Max. Vy	34	308.28	465.35	170.59
			Max. Vx	27	-326.88	4.22	-481.53
		Diagonal	Max Tension	21	2683.85	0.00	0.00
			Max. Compression	21	-2353.07	0.00	0.00
			Max. Mx	25	1395.82	8.18	0.00
			Max. My	21	1773.21	0.00	-0.04
			Max. Vy	25	-5.78	0.00	0.00
			Max. Vx	21	0.03	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Secondary Horizontal	Max Tension	19	189.86	0.00	0.00
			Max. Compression	4	-17.33	0.00	0.00
			Max. Mx	18	63.21	-9.77	0.00
			Max. My	20	61.68	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T3	240 - 220	Leg	Max Tension	7	8840.91	48.29	23.00
			Max. Compression	22	-26103.38	-78.82	48.26
			Max. Mx	20	-21954.23	-171.74	69.57
			Max. My	27	-23365.12	2.00	-179.68
			Max. Vy	23	-874.53	-43.75	95.86
			Max. Vx	27	-912.27	2.03	-90.29
		Diagonal	Max Tension	22	1423.43	0.00	0.00
			Max. Compression	30	-1981.76	0.00	0.00
			Max. Mx	32	1240.47	8.19	0.00
			Max. My	21	-1351.27	0.00	-0.04
			Max. Vy	32	-5.79	0.00	0.00
			Max. Vx	21	0.02	0.00	0.00
		Secondary Horizontal	Max Tension	19	203.61	0.00	0.00
			Max. Compression	5	-84.01	0.00	0.00
			Max. Mx	18	50.17	-9.77	0.00
			Max. My	21	156.12	0.00	-0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	21	0.00	0.00	0.00
T4	220 - 200	Leg	Max Tension	7	4275.17	13.96	6.25
			Max. Compression	30	-29176.34	-76.16	78.17
			Max. Mx	6	-3690.47	543.64	-144.61
			Max. My	3	-13918.16	165.39	-598.24
			Max. Vy	6	-952.17	-405.82	-144.61
			Max. Vx	3	1011.46	-186.31	410.88
		Diagonal	Max Tension	6	5640.41	0.00	0.00
			Max. Compression	6	-5362.43	0.00	0.00
			Max. Mx	32	2806.98	-29.30	0.00
			Max. My	21	-787.52	0.00	0.13
			Max. Vy	32	-20.72	0.00	0.00
			Max. Vx	21	0.09	0.00	0.00
		Secondary Horizontal	Max Tension	27	167.37	0.00	0.00
			Max. Compression	4	-7.39	0.00	0.00
			Max. Mx	18	67.52	-9.77	0.00
			Max. My	21	76.22	0.00	-0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	21	0.00	0.00	0.00
T5	200 - 180	Leg	Max Tension	27	11971.09	-1.08	-125.99
			Max. Compression	30	-39501.53	34.05	-18.60
			Max. Mx	14	-14451.02	-327.79	26.27
			Max. My	2	-5656.74	17.15	-336.97
			Max. Vy	6	-287.20	-237.91	-45.19
			Max. Vx	2	268.27	26.81	206.17
		Diagonal	Max Tension	6	6037.47	0.00	0.00
			Max. Compression	20	-9906.51	0.00	0.00
			Max. Mx	32	2177.00	-29.28	0.00
			Max. My	21	-2211.87	0.00	0.11
			Max. Vy	32	20.70	0.00	0.00
			Max. Vx	21	0.08	0.00	0.00
		Secondary Horizontal	Max Tension	27	237.69	0.00	0.00
			Max. Compression	30	-79.39	0.00	0.00
			Max. Mx	18	124.83	-9.77	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	21	-21.92	0.00	-0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	21	0.00	0.00	0.00
		Guy A	Bottom Tension	27	17195.89		
			Top Tension	27	17523.90		
			Top Cable Vert	27	12796.53		
			Top Cable Norm	27	11972.30		
			Top Cable Tan	27	8.21		
			Bot Cable Vert	27	-11981.15		
			Bot Cable Norm	27	12334.93		
			Bot Cable Tan	27	14.83		
		Guy B	Bottom Tension	32	17279.56		
			Top Tension	32	17579.27		
			Top Cable Vert	32	12678.96		
			Top Cable Norm	32	12176.81		
			Top Cable Tan	32	7.38		
			Bot Cable Vert	32	-11918.89		
			Bot Cable Norm	32	12510.91		
			Bot Cable Tan	32	15.85		
		Guy C	Bottom Tension	22	17812.38		
			Top Tension	22	18126.89		
			Top Cable Vert	22	13133.47		
			Top Cable Norm	22	12493.85		
			Top Cable Tan	22	6.15		
			Bot Cable Vert	22	-12343.26		
			Bot Cable Norm	22	12842.30		
			Bot Cable Tan	22	16.93		
		Top Guy Pull-Off	Max Tension	22	21041.55	0.00	0.00
			Max. Compression	30	-6592.84	0.00	0.00
			Max. Mx	18	4549.41	-26.45	0.00
			Max. My	21	-2718.75	0.00	-0.00
			Max. Vy	18	26.45	0.00	0.00
			Max. Vx	21	0.00	0.00	0.00
		Bottom Guy Pull-Off	Max Tension	32	3732.72	0.00	0.00
			Max. Compression	30	-3692.98	0.00	0.00
			Max. Mx	18	449.67	-26.45	0.00
			Max. My	21	-1998.84	0.00	-0.00
			Max. Vy	18	26.45	0.00	0.00
			Max. Vx	21	0.00	0.00	0.00
		Torque Arm Top	Max Tension	20	23617.70	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	32	22423.35	-89.23	0.00
			Max. My	21	10269.39	0.00	-0.10
			Max. Vy	32	47.69	0.00	0.00
			Max. Vx	21	0.06	0.00	0.00
		Torque Arm Bottom	Max Tension	7	1247.33	0.00	0.00
			Max. Compression	21	-23210.06	0.00	0.00
			Max. Mx	32	-5491.52	-89.26	0.00
			Max. My	21	-1685.89	0.00	0.09
			Max. Vy	32	47.71	0.00	0.00
			Max. Vx	21	-0.05	0.00	0.00
T6	180 - 160	Leg	Max Tension	2	310.20	-4.35	149.90
			Max. Compression	20	-49942.79	-354.00	273.49
			Max. Mx	6	-43530.15	799.41	-151.71
			Max. My	10	-37394.13	7.04	819.63
			Max. Vy	6	617.08	-424.84	141.13
			Max. Vx	27	-658.12	1.82	-491.47
		Diagonal	Max Tension	25	2143.86	0.00	0.00
			Max. Compression	25	-2171.06	0.00	0.00
			Max. Mx	33	-54.48	8.19	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	21	-851.31	0.00	-0.03
			Max. Vy	33	-5.79	0.00	0.00
			Max. Vx	21	0.02	0.00	0.00
		Secondary Horizontal	Max Tension	24	385.10	0.00	0.00
			Max. Compression	7	-19.87	0.00	0.00
			Max. Mx	18	133.32	-9.77	0.00
			Max. My	21	148.43	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	21	-0.00	0.00	0.00
T7	160 - 140	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	20	-48739.88	-111.30	6.90
			Max. Mx	4	-38233.75	494.21	-184.45
			Max. My	3	-25808.76	119.71	-485.22
			Max. Vy	6	-939.46	-452.86	135.99
			Max. Vx	3	696.70	-95.13	209.40
		Diagonal	Max Tension	6	3656.93	0.00	0.00
			Max. Compression	6	-3788.36	0.00	0.00
			Max. Mx	23	3561.92	8.20	0.00
			Max. My	21	-1545.96	0.00	-0.04
			Max. Vy	23	-5.80	0.00	0.00
			Max. Vx	21	0.03	0.00	0.00
		Secondary Horizontal	Max Tension	19	329.30	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	144.41	-9.77	0.00
			Max. My	21	187.83	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	21	-0.00	0.00	0.00
T8	140 - 120	Leg	Max Tension	15	4060.91	153.77	112.99
			Max. Compression	19	-53017.37	-86.16	305.14
			Max. Mx	21	-33482.17	-508.20	232.46
			Max. My	19	-41580.79	203.76	556.57
			Max. Vy	23	-409.99	-264.93	-89.38
			Max. Vx	2	369.89	-25.25	319.93
		Diagonal	Max Tension	34	4903.05	0.00	0.00
			Max. Compression	30	-13062.61	0.00	0.00
			Max. Mx	23	3815.43	-29.33	0.00
			Max. My	21	-1967.85	0.00	0.12
			Max. Vy	23	-20.74	0.00	0.00
			Max. Vx	21	0.08	0.00	0.00
		Secondary Horizontal	Max Tension	32	342.25	0.00	0.00
			Max. Compression	19	-50.25	0.00	0.00
			Max. Mx	18	162.02	-9.77	0.00
			Max. My	20	178.76	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Guy A	Bottom Tension	27	16514.98		
			Top Tension	27	16714.79		
			Top Cable Vert	27	9844.89		
			Top Cable Norm	27	13507.85		
			Top Cable Tan	27	1.85		
			Bot Cable Vert	27	-9305.72		
			Bot Cable Norm	27	13643.60		
			Bot Cable Tan	27	11.36		
		Guy B	Bottom Tension	33	16160.79		
			Top Tension	33	16335.57		
			Top Cable Vert	33	9201.69		
			Top Cable Norm	33	13497.38		
			Top Cable Tan	33	18.53		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Bot Cable Vert	33	-8706.45		
			Bot Cable Norm	33	13614.84		
			Bot Cable Tan	33	70.14		
		Guy C	Bottom Tension	21	16581.31		
			Top Tension	21	16769.09		
			Top Cable Vert	21	9664.14		
			Top Cable Norm	21	13704.23		
			Top Cable Tan	21	29.02		
			Bot Cable Vert	21	-9140.05		
			Bot Cable Norm	21	13834.39		
			Bot Cable Tan	21	94.62		
		Top Guy Pull-Off	Max Tension	22	23155.19	0.00	0.00
			Max. Compression	19	-5323.51	0.00	0.00
			Max. Mx	18	5643.10	-26.45	0.00
			Max. My	20	7705.18	0.00	0.00
			Max. Vy	18	26.45	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Bottom Guy Pull-Off	Max Tension	32	11058.64	0.00	0.00
			Max. Compression	2	-2509.13	0.00	0.00
			Max. Mx	18	3043.73	-26.45	0.00
			Max. My	20	3713.14	0.00	0.00
			Max. Vy	18	26.45	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Torque Arm Top	Max Tension	21	20561.44	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	20	20427.18	-89.26	0.00
			Max. My	20	19883.16	0.00	-0.07
			Max. Vy	20	47.71	0.00	0.00
			Max. Vx	20	0.04	0.00	0.00
		Torque Arm Bottom	Max Tension	34	4888.93	0.00	0.00
			Max. Compression	20	-20544.37	0.00	0.00
			Max. Mx	23	-10403.31	-89.28	0.00
			Max. My	27	1768.67	0.00	-0.06
			Max. Vy	23	47.72	0.00	0.00
			Max. Vx	27	0.03	0.00	0.00
T9	120 - 100	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	29	-80808.88	-120.40	-608.59
			Max. Mx	7	-48035.30	768.10	411.93
			Max. My	29	-80784.52	63.49	840.14
			Max. Vy	7	-1175.31	-404.99	-417.17
			Max. Vx	13	-1360.86	81.31	-690.79
		Diagonal	Max Tension	20	5085.09	0.00	0.00
			Max. Compression	20	-4915.43	0.00	0.00
			Max. Mx	20	-336.54	-29.34	0.00
			Max. My	19	1683.75	0.00	0.12
			Max. Vy	20	20.75	0.00	0.00
			Max. Vx	19	-0.08	0.00	0.00
		Secondary Horizontal	Max Tension	24	516.22	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	215.27	-9.77	0.00
			Max. My	31	238.95	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	31	-0.00	0.00	0.00
T10	100 - 80	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	28	-82121.07	-153.63	-625.54
			Max. Mx	19	-64422.87	-849.21	137.06
			Max. My	30	-78402.12	-325.00	-838.59
			Max. Vy	19	636.87	-849.21	137.07
			Max. Vx	29	688.57	-277.29	-834.49

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Diagonal	Max Tension	30	2338.45	0.00	0.00
			Max. Compression	29	-3089.22	0.00	0.00
			Max. Mx	25	-636.69	8.23	0.00
			Max. My	28	-1434.50	0.00	0.05
			Max. Vy	25	-5.82	0.00	0.00
			Max. Vx	28	-0.04	0.00	0.00
		Secondary Horizontal	Max Tension	24	601.02	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	174.86	-9.77	0.00
			Max. My	28	196.07	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
T11	80 - 60	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-77467.12	364.18	-1105.25
			Max. Mx	19	-69897.37	-1657.43	305.75
			Max. My	29	-71829.13	-483.85	-1642.82
			Max. Vy	19	-1081.36	1655.74	301.37
			Max. Vx	29	1112.00	-483.85	-1642.82
		Diagonal	Max Tension	28	4469.48	0.00	0.00
			Max. Compression	28	-4100.13	0.00	0.00
			Max. Mx	29	-3183.48	8.25	0.00
			Max. My	24	-3084.77	0.00	0.07
			Max. Vy	29	-5.83	0.00	0.00
			Max. Vx	24	-0.05	0.00	0.00
		Secondary Horizontal	Max Tension	24	706.32	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	183.90	-9.77	0.00
			Max. My	28	203.12	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
		Guy A	Bottom Tension	27	12885.54		
			Top Tension	27	12991.54		
			Top Cable Vert	27	5326.57		
			Top Cable Norm	27	11849.38		
			Top Cable Tan	27	2.08		
			Bot Cable Vert	27	-4981.54		
			Bot Cable Norm	27	11883.66		
			Bot Cable Tan	27	2.08		
		Guy B	Bottom Tension	33	12326.04		
			Top Tension	33	12410.66		
			Top Cable Vert	33	4457.14		
			Top Cable Norm	33	11582.67		
			Top Cable Tan	33	9.43		
			Bot Cable Vert	33	-4147.43		
			Bot Cable Norm	33	11607.24		
			Bot Cable Tan	33	44.60		
		Guy C	Bottom Tension	21	12574.35		
			Top Tension	21	12670.16		
			Top Cable Vert	21	4896.68		
			Top Cable Norm	21	11685.69		
			Top Cable Tan	21	10.52		
			Bot Cable Vert	21	-4562.95		
			Bot Cable Norm	21	11717.14		
			Bot Cable Tan	21	49.08		
T12	60 - 40	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	28	-86652.26	31.34	-70.38
			Max. Mx	19	-73139.20	1221.48	186.95
			Max. My	24	-78196.26	467.60	-1183.88
			Max. Vy	19	-835.83	450.13	-207.53

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	29	-864.21	-391.77	-1175.57
		Diagonal	Max Tension	32	2716.80	0.00	0.00
			Max. Compression	20	-2481.59	0.00	0.00
			Max. Mx	29	555.43	8.28	0.00
			Max. My	24	815.55	0.00	0.09
			Max. Vy	29	-5.85	0.00	0.00
			Max. Vx	24	-0.07	0.00	0.00
		Secondary Horizontal	Max Tension	24	618.29	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	245.69	-9.77	0.00
			Max. My	28	285.43	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
T13	40 - 20	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	27	-85180.67	0.04	-180.27
			Max. Mx	19	-73226.82	687.92	140.20
			Max. My	25	-82662.11	197.55	-685.63
			Max. Vy	19	541.36	-394.72	-176.74
			Max. Vx	25	-582.21	197.55	-685.63
		Diagonal	Max Tension	29	1388.58	0.00	0.00
			Max. Compression	29	-2082.73	0.00	0.00
			Max. Mx	29	1337.18	8.31	0.00
			Max. My	24	-793.10	0.00	0.12
			Max. Vy	29	-5.87	0.00	0.00
			Max. Vx	24	-0.08	0.00	0.00
		Secondary Horizontal	Max Tension	24	559.07	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	236.32	-9.77	0.00
			Max. My	28	287.78	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
T14	20 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	28	-74838.09	-11.99	-202.45
			Max. Mx	19	-68200.36	520.86	168.48
			Max. My	25	-73333.49	99.58	-549.54
			Max. Vy	19	433.55	-346.17	-165.99
			Max. Vx	25	-480.32	99.58	-549.54
		Diagonal	Max Tension	29	2228.00	0.00	0.00
			Max. Compression	25	-2881.47	0.00	0.00
			Max. Mx	29	2018.36	8.32	0.00
			Max. My	24	-458.86	0.00	0.13
			Max. Vy	29	-5.88	0.00	0.00
			Max. Vx	24	-0.09	0.00	0.00
		Secondary Horizontal	Max Tension	24	470.21	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	297.41	-9.77	0.00
			Max. My	28	391.81	0.00	0.00
			Max. Vy	18	9.77	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
		Base Beam	Max Tension	24	3013.95	-131499.61	88.48
			Max. Compression	27	-2253.91	365.50	-0.39
			Max. Mx	24	-57136.89	-131563.94	-1729.63
			Max. My	28	-55410.24	-127610.11	1922.18
			Max. Vy	24	-57136.89	-131563.94	-1729.63
			Max. Vx	28	832.51	-127610.11	1922.18

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy C @ 213 ft Elev -17.5 ft Azimuth 240 deg	Max. Vert	13	-1558.33	-1108.08	639.33
	Max. H_x	13	-1558.33	-1108.08	639.33
	Max. H_z	21	-62360.72	-66173.23	38929.27
	Min. Vert	21	-62360.72	-66173.23	38929.27
	Min. H_x	22	-62308.34	-66280.35	38273.73
	Min. H_z	13	-1558.33	-1108.08	639.33
Guy B @ 205 ft Elev -7.5 ft Azimuth 120 deg	Max. Vert	7	-1445.44	1041.29	601.19
	Max. H_x	32	-60338.40	65291.22	37708.70
	Max. H_z	33	-60135.15	64875.29	38172.27
	Min. Vert	32	-60338.40	65291.22	37708.70
	Min. H_x	7	-1445.44	1041.29	601.19
	Min. H_z	7	-1445.44	1041.29	601.19
Guy A @ 219 ft Elev -26.5 ft Azimuth 0 deg	Max. Vert	2	-1613.50	-0.18	-1298.02
	Max. H_x	31	-33158.22	2875.45	-39124.96
	Max. H_z	2	-1613.50	-0.18	-1298.02
	Min. Vert	27	-62417.09	-0.28	-75510.98
	Min. H_x	23	-32683.39	-2880.15	-38390.26
	Min. H_z	27	-62417.09	-0.28	-75510.98
Mast	Max. Vert	24	171420.72	-1821.10	-1083.33
	Max. H_x	31	164922.47	2325.64	102.84
	Max. H_z	19	170165.09	80.03	2119.80
	Max. M_x	1	0.00	-0.24	-13.21
	Max. M_z	1	0.00	-0.24	-13.21
	Max. Torsion	1	0.00	-0.24	-13.21
	Min. Vert	1	86142.20	-0.24	-13.21
	Min. H_x	23	166094.86	-2212.96	70.67
	Min. H_z	27	159554.49	-19.27	-2446.06
	Min. M_x	1	0.00	-0.24	-13.21
	Min. M_z	1	0.00	-0.24	-13.21
	Min. Torsion	1	0.00	-0.24	-13.21

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	86142.20	0.24	13.21	0.00	0.00	0.00
Dead+Wind 0 deg - No Ice+Guy	129878.58	-83.93	-1851.15	0.00	0.00	0.00
Dead+Wind 30 deg - No Ice+Guy	123480.25	958.55	-1566.34	0.00	0.00	0.00
Dead+Wind 45 deg - No Ice+Guy	116750.71	1411.50	-1328.07	0.00	0.00	0.00
Dead+Wind 60 deg - No Ice+Guy	111968.54	1740.58	-985.24	0.00	0.00	0.00
Dead+Wind 90 deg - No Ice+Guy	122271.94	1875.53	-29.88	0.00	0.00	0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 120 deg - No Ice+Guy	130997.87	1590.62	981.68	0.00	0.00	0.00
Dead+Wind 135 deg - No Ice+Guy	127288.82	1250.49	1378.29	0.00	0.00	0.00
Dead+Wind 150 deg - No Ice+Guy	122216.72	917.28	1749.05	0.00	0.00	0.00
Dead+Wind 180 deg - No Ice+Guy	111253.11	-18.27	2129.63	0.00	0.00	0.00
Dead+Wind 210 deg - No Ice+Guy	122185.48	-939.18	1737.29	0.00	0.00	0.00
Dead+Wind 225 deg - No Ice+Guy	125996.06	-1341.55	1357.54	0.00	0.00	0.00
Dead+Wind 240 deg - No Ice+Guy	129156.94	-1711.02	950.90	0.00	0.00	0.00
Dead+Wind 270 deg - No Ice+Guy	120387.75	-1999.33	-52.11	0.00	0.00	0.00
Dead+Wind 300 deg - No Ice+Guy	110961.44	-1835.81	-1029.84	0.00	0.00	0.00
Dead+Wind 315 deg - No Ice+Guy	115050.76	-1497.22	-1399.03	0.00	0.00	0.00
Dead+Wind 330 deg - No Ice+Guy	121611.30	-1056.27	-1651.78	0.00	0.00	0.00
Dead+Ice+Temp+Guy	123820.67	1.75	22.66	0.00	0.00	0.00
Dead+Wind 0 deg+Ice+Temp+Guy	170165.09	-80.03	-2119.80	0.00	0.00	0.00
Dead+Wind 30 deg+Ice+Temp+Guy	167178.95	1164.21	-1792.69	0.00	0.00	0.00
Dead+Wind 45 deg+Ice+Temp+Guy	163049.97	1691.99	-1514.37	0.00	0.00	0.00
Dead+Wind 60 deg+Ice+Temp+Guy	160275.25	2072.31	-1126.63	0.00	0.00	0.00
Dead+Wind 90 deg+Ice+Temp+Guy	166094.86	2212.96	-70.67	0.00	0.00	0.00
Dead+Wind 120 deg+Ice+Temp+Guy	171420.72	1821.10	1083.33	0.00	0.00	0.00
Dead+Wind 135 deg+Ice+Temp+Guy	169454.02	1457.13	1592.59	0.00	0.00	0.00
Dead+Wind 150 deg+Ice+Temp+Guy	166082.00	1026.69	2015.78	0.00	0.00	0.00
Dead+Wind 180 deg+Ice+Temp+Guy	159554.49	19.27	2446.06	0.00	0.00	0.00
Dead+Wind 210 deg+Ice+Temp+Guy	166280.59	-1026.91	1994.60	0.00	0.00	0.00
Dead+Wind 225 deg+Ice+Temp+Guy	168520.48	-1533.18	1568.40	0.00	0.00	0.00
Dead+Wind 240 deg+Ice+Temp+Guy	169917.83	-1932.98	1052.48	0.00	0.00	0.00
Dead+Wind 270 deg+Ice+Temp+Guy	164922.47	-2325.64	-102.84	0.00	0.00	0.00
Dead+Wind 300 deg+Ice+Temp+Guy	159772.69	-2151.58	-1205.55	0.00	0.00	0.00
Dead+Wind 315 deg+Ice+Temp+Guy	161948.85	-1775.25	-1604.87	0.00	0.00	0.00
Dead+Wind 330 deg+Ice+Temp+Guy	165788.73	-1262.06	-1888.15	0.00	0.00	0.00
Dead+Wind 0 deg - Service+Guy	88608.12	-22.87	-862.49	0.00	0.00	0.00
Dead+Wind 30 deg - Service+Guy	88341.30	375.98	-703.07	0.00	0.00	0.00
Dead+Wind 45 deg - Service+Guy	88305.52	542.39	-556.33	0.00	0.00	0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 60 deg - Service+Guy	88262.01	673.26	-377.64	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	87939.08	810.21	45.14	0.00	0.00	0.00
Dead+Wind 120 deg - Service+Guy	88081.79	755.48	483.21	0.00	0.00	0.00
Dead+Wind 135 deg - Service+Guy	87827.04	597.15	622.31	0.00	0.00	0.00
Dead+Wind 150 deg - Service+Guy	87741.34	429.45	738.61	0.00	0.00	0.00
Dead+Wind 180 deg - Service+Guy	87906.22	-2.61	826.70	0.00	0.00	0.00
Dead+Wind 210 deg - Service+Guy	87942.48	-434.87	733.00	0.00	0.00	0.00
Dead+Wind 225 deg - Service+Guy	88041.58	-615.31	609.52	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	88322.82	-775.82	466.64	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	88233.36	-829.64	33.72	0.00	0.00	0.00
Dead+Wind 300 deg - Service+Guy	88513.08	-693.93	-388.71	0.00	0.00	0.00
Dead+Wind 315 deg - Service+Guy	88490.58	-563.38	-567.92	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	88426.49	-401.14	-713.97	0.00	0.00	0.00

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-40241.67	0.00	1.12	40241.68	2.22	0.006%
2	1962.75	-40507.10	-56418.88	-1962.68	40507.06	56417.15	0.002%
3	29264.38	-40216.29	-48085.89	-29264.81	40216.22	48082.98	0.004%
4	40123.97	-40009.53	-39087.96	-40124.86	40009.48	39085.29	0.004%
5	48128.42	-39931.68	-28104.89	-48133.22	39931.66	28096.50	0.014%
6	55070.85	-40273.05	-1379.52	-55068.97	40272.99	1381.15	0.004%
7	48411.37	-40606.30	28744.39	-48408.18	40606.18	-28742.56	0.005%
8	38166.24	-40518.27	39396.24	-38163.44	40518.18	-39394.92	0.005%
9	26312.62	-40298.43	48255.96	-26310.17	40298.36	-48255.09	0.004%
10	-147.19	-39976.24	55142.32	139.91	39976.22	-55142.22	0.011%
11	-26287.32	-40267.04	48611.82	26285.56	40267.00	-48611.17	0.003%
12	-37068.43	-40473.80	40427.50	37066.40	40473.74	-40426.48	0.003%
13	-46928.61	-40551.65	30154.71	46926.35	40551.57	-30153.33	0.004%
14	-53260.41	-40210.29	-89.51	53259.24	40210.25	90.58	0.002%
15	-46191.94	-39877.04	-26816.91	46193.10	39877.05	26815.91	0.002%
16	-38134.32	-39965.06	-37866.04	38135.01	39965.02	37863.92	0.003%
17	-26921.14	-40184.91	-47006.98	26921.60	40184.85	47004.41	0.004%
18	0.00	-67690.99	0.00	-0.72	67690.99	0.68	0.001%
19	1524.86	-68221.36	-65672.19	-1524.78	68221.30	65669.60	0.003%
20	33850.68	-67640.25	-56561.69	-33851.25	67640.24	56559.99	0.002%
21	46952.12	-67227.22	-46090.86	-46954.06	67227.14	46086.46	0.005%
22	56765.47	-67071.48	-32995.95	-56774.06	67071.47	32981.43	0.018%
23	65035.43	-67753.49	-1074.52	-65034.10	67753.45	1076.08	0.002%
24	56597.93	-68419.39	33228.39	-56595.52	68419.31	-33226.99	0.003%
25	45443.70	-68243.34	46300.47	-45441.38	68243.28	-46299.63	0.003%
26	31567.53	-67804.22	56676.48	-31562.38	67804.08	-56675.41	0.006%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
27	-128.03	-67160.62	65128.90	114.60	67160.61	-65128.94	0.014%
28	-31568.11	-67741.72	56955.77	31564.77	67741.65	-56955.12	0.004%
29	-44609.70	-68154.76	47105.93	44605.89	68154.63	-47104.52	0.004%
30	-55461.52	-68310.50	34333.04	55457.57	68310.34	-34330.76	0.005%
31	-63644.80	-67628.49	-55.08	63643.05	67628.44	57.18	0.003%
32	-55274.16	-66962.58	-31987.11	55274.77	66962.65	31987.93	0.001%
33	-45413.65	-67138.63	-45139.61	45415.07	67138.58	45136.30	0.004%
34	-32030.93	-67577.75	-55726.94	32031.51	67577.75	55725.47	0.002%
35	679.15	-40333.51	-19522.10	-679.20	40333.48	19519.92	0.005%
36	10126.08	-40232.89	-16638.72	-10126.80	40232.86	16636.11	0.006%
37	13883.73	-40161.35	-13525.25	-13884.87	40161.33	13521.99	0.008%
38	16653.43	-40134.41	-9724.87	-16652.76	40134.40	9722.56	0.005%
39	19055.66	-40252.53	-477.34	-19054.08	40252.51	479.07	0.005%
40	16751.34	-40367.84	9946.15	-16748.62	40367.79	-9944.78	0.007%
41	13206.31	-40337.38	13631.92	-13204.56	40337.36	-13631.33	0.004%
42	9104.71	-40261.31	16697.56	-9102.08	40261.29	-16697.06	0.006%
43	-50.93	-40149.82	19080.39	50.21	40149.83	-19079.86	0.002%
44	-9095.96	-40250.45	16820.70	9093.11	40250.43	-16820.09	0.007%
45	-12826.45	-40321.99	13988.75	12824.82	40321.97	-13988.23	0.004%
46	-16238.27	-40348.93	10434.15	16235.92	40348.89	-10433.05	0.006%
47	-18429.21	-40230.81	-30.97	18427.77	40230.79	32.45	0.005%
48	-15983.37	-40115.50	-9279.21	15982.24	40115.49	9278.31	0.003%
49	-13195.26	-40145.96	-13102.44	13196.23	40145.95	13099.83	0.006%
50	-9315.27	-40222.03	-16265.39	9315.86	40222.01	16263.26	0.005%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	10	0.00000001	0.00006152
2	Yes	21	0.00006213	0.00006306
3	Yes	20	0.00009132	0.00008157
4	Yes	20	0.00007518	0.00005050
5	Yes	16	0.00006999	0.00007337
6	Yes	21	0.00007942	0.00006591
7	Yes	21	0.00008958	0.00008632
8	Yes	21	0.00008253	0.00007647
9	Yes	21	0.00007181	0.00006016
10	Yes	17	0.00000001	0.00006597
11	Yes	21	0.00005498	0.00004760
12	Yes	21	0.00006526	0.00006094
13	Yes	21	0.00007237	0.00006948
14	Yes	21	0.00006069	0.00004917
15	Yes	15	0.00006212	0.00003076
16	Yes	20	0.00006926	0.00004360
17	Yes	20	0.00009094	0.00007697
18	Yes	8	0.00000001	0.00006451
19	Yes	21	0.00007960	0.00006239
20	Yes	21	0.00006415	0.00004511
21	Yes	20	0.00008777	0.00004277
22	Yes	15	0.00007938	0.00006985
23	Yes	22	0.00005788	0.00003576
24	Yes	22	0.00006490	0.00004866
25	Yes	22	0.00005915	0.00004254
26	Yes	21	0.00009227	0.00005553
27	Yes	16	0.00005016	0.00007041

28	Yes	21	0.00007170	0.00004660
29	Yes	21	0.00008377	0.00005997
30	Yes	21	0.00009345	0.00006858
31	Yes	21	0.00008032	0.00004824
32	Yes	14	0.00008849	0.00004958
33	Yes	20	0.00008455	0.00003976
34	Yes	21	0.00006527	0.00004346
35	Yes	14	0.00000001	0.00004836
36	Yes	13	0.00000001	0.00005272
37	Yes	12	0.00000001	0.00006015
38	Yes	10	0.00000001	0.00009865
39	Yes	13	0.00000001	0.00004697
40	Yes	14	0.00000001	0.00007120
41	Yes	14	0.00000001	0.00004494
42	Yes	13	0.00000001	0.00005666
43	Yes	11	0.00000001	0.00005949
44	Yes	13	0.00000001	0.00006259
45	Yes	14	0.00000001	0.00004094
46	Yes	14	0.00000001	0.00006138
47	Yes	13	0.00000001	0.00004285
48	Yes	10	0.00000001	0.00007548
49	Yes	12	0.00000001	0.00004774
50	Yes	13	0.00000001	0.00004309

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
T1	280 - 260	3.216	43	0.0540	0.1226
T2	260 - 240	3.251	43	0.0595	0.1029
T3	240 - 220	3.337	38	0.0443	0.0860
T4	220 - 200	3.329	38	0.0304	0.0690
T5	200 - 180	3.244	37	0.0315	0.0592
T6	180 - 160	3.225	37	0.0350	0.0520
T7	160 - 140	3.246	35	0.0395	0.0409
T8	140 - 120	3.137	35	0.0616	0.0300
T9	120 - 100	3.048	46	0.0348	0.0325
T10	100 - 80	3.014	46	0.0545	0.0366
T11	80 - 60	2.745	46	0.0915	0.0352
T12	60 - 40	2.303	46	0.1206	0.0345
T13	40 - 20	1.711	46	0.1644	0.0345
T14	20 - 0	0.925	46	0.2062	0.0345

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	°	°	*ft*
287.50	15' Tall x 2.375" Diam Pipe	43	3.216	0.0540	0.1226	480452
287.00	8' Tall x 2.5" Diam Fiberglass Whip	43	3.216	0.0540	0.1226	480452
286.00	ERI FM Antenna 2 Bay	43	3.216	0.0540	0.1226	480452
285.00	6' Tall x 1.875" Diam Fiberglass Whip	43	3.216	0.0540	0.1226	480452
283.00	8' Tall x 2" Diam Fiberglass Whip	43	3.216	0.0540	0.1226	480452
280.00	Pirod Delta Mount (3)	43	3.216	0.0540	0.1226	480452

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
279.00	Pirod 4' Side Mount Standoff (1)	43	3.217	0.0545	0.1216	480452
268.00	Guy	43	3.234	0.0590	0.1104	200189
266.00	Celwave 12' Tall x 2" Diam Fiberglass Whip	43	3.238	0.0595	0.1084	171591
255.00	ASP-3711	38	3.271	0.0577	0.0985	264979
224.00	(3) DB844H90E-XY w/Mount Pipe	38	3.341	0.0257	0.0720	33211
212.00	RFS 8' Dish w/ Radome	37	3.294	0.0353	0.0644	145540
203.00	RFS 8' Dish w/ Radome	37	3.254	0.0336	0.0605	33138
194.00	Guy	37	3.232	0.0255	0.0566	36701
178.00	RR90-17-00DP w/Mount Pipe	36	3.226	0.0345	0.0513	70561
162.00	(2) DUO1417-8686 w/Mount Pipe	35	3.248	0.0363	0.0427	20318
151.00	RFS 6' Dish w/ Radome	35	3.210	0.0554	0.0331	42326
140.00	Celwave 20' Tall x 2" Diam Fiberglass Whip	35	3.137	0.0616	0.0300	39126
135.00	ASP-3711	35	3.106	0.0565	0.0304	38925
130.00	Pirod 6' Side Mount Standoff (1)	35	3.080	0.0483	0.0309	44992
128.00	DB809T3-Y	35	3.070	0.0449	0.0311	47284
126.00	Guy	35	3.061	0.0416	0.0312	49179
119.00	(3) 7120.16.33.00 w/Mount Pipe	46	3.048	0.0343	0.0328	72266
108.00	HP6-107	46	3.047	0.0410	0.0355	26258
103.00	RFS 10' Dish w/o Radome	46	3.031	0.0491	0.0363	17721
68.00	Guy	46	2.496	0.1089	0.0346	35005

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	280 - 260	17.113	24	0.1172	0.4161
T2	260 - 240	17.602	24	0.1392	0.3559
T3	240 - 220	18.071	24	0.1062	0.3013
T4	220 - 200	18.239	24	0.1728	0.2455
T5	200 - 180	18.149	24	0.1594	0.2259
T6	180 - 160	18.281	24	0.1023	0.2067
T7	160 - 140	18.229	24	0.1789	0.1632
T8	140 - 120	17.637	24	0.2599	0.1117
T9	120 - 100	17.067	24	0.2046	0.1147
T10	100 - 80	16.384	24	0.3230	0.1110
T11	80 - 60	14.815	24	0.5033	0.1109
T12	60 - 40	12.418	24	0.6685	0.1124
T13	40 - 20	9.140	24	0.8984	0.1124
T14	20 - 0	4.903	24	1.1017	0.1123

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
287.50	15' Tall x 2.375" Diam Pipe	24	17.113	0.1172	0.4161	202921
287.00	8' Tall x 2.5" Diam Fiberglass Whip	24	17.113	0.1172	0.4161	202921
286.00	ERI FM Antenna 2 Bay	24	17.113	0.1172	0.4161	202921
285.00	6' Tall x 1.875" Diam Fiberglass	24	17.113	0.1172	0.4161	202921

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	Whip					
283.00	8' Tall x 2" Diam Fiberglass Whip	24	17.113	0.1172	0.4161	202921
280.00	Pirod Delta Mount (3)	24	17.113	0.1172	0.4161	202921
279.00	Pirod 4' Side Mount Standoff (1)	24	17.137	0.1190	0.4130	202921
268.00	Guy	24	17.403	0.1358	0.3791	84551
266.00	Celwave 12' Tall x 2" Diam Fiberglass Whip	24	17.452	0.1376	0.3732	72472
255.00	ASP-3711	24	17.730	0.1350	0.3423	76888
224.00	(3) DB844H90E-XY w/Mount Pipe	24	18.237	0.1632	0.2544	10046
212.00	RFS 8' Dish w/ Radome	24	18.203	0.1797	0.2341	28985
203.00	RFS 8' Dish w/ Radome	24	18.154	0.1677	0.2276	10789
194.00	Guy	24	18.169	0.1378	0.2220	12451
178.00	RR90-17-00DP w/Mount Pipe	24	18.295	0.1034	0.2035	17526
162.00	(2) DUO1417-8686 w/Mount Pipe	24	18.261	0.1654	0.1684	6217
151.00	RFS 6' Dish w/ Radome	24	18.002	0.2329	0.1357	11994
140.00	Celwave 20' Tall x 2" Diam Fiberglass Whip	24	17.637	0.2599	0.1117	11428
135.00	ASP-3711	24	17.480	0.2501	0.1107	10992
130.00	Pirod 6' Side Mount Standoff (1)	24	17.334	0.2321	0.1128	11903
128.00	DB809T3-Y	24	17.278	0.2244	0.1135	12311
126.00	Guy	24	17.224	0.2173	0.1140	12749
119.00	(3) 7120.16.33.00 w/Mount Pipe	24	17.041	0.2044	0.1147	18157
108.00	HP6-107	24	16.728	0.2563	0.1129	6885
103.00	RFS 10' Dish w/o Radome	24	16.531	0.2964	0.1117	4764
68.00	Guy	24	13.474	0.5995	0.1125	5851

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
T1	268.00 (A) (678)	3/4 EHS	5830.00	58299.92	19857.10	29150.00	2.000	2.936 ✓
	268.00 (B) (677)	3/4 EHS	5830.00	58299.92	20087.30	29150.00	2.000	2.902 ✓
	268.00 (C) (676)	3/4 EHS	5830.00	58299.92	20052.50	29150.00	2.000	2.907 ✓
T5	194.00 (A) (697)	5/8 EHS	4240.00	42399.99	17523.90	21200.00	2.000	2.420 ✓
	194.00 (A) (698)	5/8 EHS	4240.00	42399.99	17396.70	21200.00	2.000	2.437 ✓
	194.00 (B) (691)	5/8 EHS	4240.00	42399.99	17579.30	21200.00	2.000	2.412 ✓
	194.00 (B) (692)	5/8 EHS	4240.00	42399.99	17514.50	21200.00	2.000	2.421 ✓
	194.00 (C) (679)	5/8 EHS	4240.00	42399.99	17856.20	21200.00	2.000	2.375 ✓
	194.00 (C) (680)	5/8 EHS	4240.00	42399.99	18126.90	21200.00	2.000	2.339 ✓
T8	126.00 (A) (721)	9/16 EHS	3500.00	35000.04	16714.80	17500.00	2.000	2.094 ✓
	126.00 (A) (722)	9/16 EHS	3500.00	35000.04	16574.10	17500.00	2.000	2.112 ✓
	126.00 (B) (715)	9/16 EHS	3500.00	35000.04	15950.80	17500.00	2.000	2.194 ✓
	126.00 (B) (716)	9/16 EHS	3500.00	35000.04	16335.60	17500.00	2.000	2.143 ✓

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
	(716) 126.00 (C) (703)	9/16 EHS	3500.00	35000.04	16757.20	17500.00	2.000	2.089 ✓
	(703) 126.00 (C) (704)	9/16 EHS	3500.00	35000.04	16769.10	17500.00	2.000	2.087 ✓
T11	68.00 (A) (729)	1/2 EHS	2690.00	26900.04	12991.50	13450.00	2.000	2.071 ✓
	68.00 (B) (728)	1/2 EHS	2690.00	26900.04	12410.70	13450.00	2.000	2.167 ✓
	68.00 (C) (727)	1/2 EHS	2690.00	26900.04	12670.20	13450.00	2.000	2.123 ✓

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	280 - 260	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-14559.30	70773.60	0.206 ✓
T2	260 - 240	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-23063.00	70773.60	0.326 ✓
T3	240 - 220	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-26103.40	70773.60	0.369 ✓
T4	220 - 200	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-29176.30	70773.60	0.412 ✓
T5	200 - 180	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-39501.50	70773.60	0.558 ✓
T6	180 - 160	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-49942.80	70773.60	0.706 ✓
T7	160 - 140	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-48739.90	70773.60	0.689 ✓
T8	140 - 120	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-52997.60	70773.60	0.749 ✓
T9	120 - 100	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-80808.90	70773.60	1.142 ✓
T10	100 - 80	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-82121.10	70773.60	1.160 ✓
T11	80 - 60	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-77467.10	70773.60	1.095 ✓
T12	60 - 40	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-86652.30	70773.60	1.224 ✓
T13	40 - 20	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-85180.70	70773.60	1.204 ✓
T14	20 - 0	2	20.00	2.00	48.0 K=1.00	1.00	22.528	3.1416	-74838.10	70773.60	1.057 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	280 - 260	7/8	5.66	5.42	148.7 K=0.50	6.754	0.6013	-4993.37	4061.32	1.229 ✓
T2	260 - 240	7/8	5.66	5.42	148.7 K=0.50	6.754	0.6013	-2353.07	4061.32	0.579 ✓
T3	240 - 220	7/8	5.66	5.42	148.7 K=0.50	6.754	0.6013	-1981.76	4061.32	0.488 ✓
T4	220 - 200	L3 1/2x3x1/4 + SR 7/8	5.66	5.42	51.8 K=0.50	18.191	2.1800	-5362.43	39657.00	0.135 ✓
T5	200 - 180	L3 1/2x3x1/4 + SR 7/8	5.66	5.42	51.8 K=0.50	18.191	2.1800	-9906.51	39657.00	0.250 ✓
T6	180 - 160	7/8	5.66	5.42	148.7 K=0.50	6.754	0.6013	-2171.06	4061.32	0.535 ✓
T7	160 - 140	7/8	5.66	5.42	148.7 K=0.50	6.754	0.6013	-3788.36	4061.32	0.933 ✓
T8	140 - 120	L3 1/2x3x1/4 + SR 7/8	5.66	5.42	51.8 K=0.50	18.191	2.1800	-13062.60	39657.00	0.329 ✓
T9	120 - 100	L3 1/2x3x1/4 + SR 7/8	5.66	5.42	51.8 K=0.50	18.191	2.1800	-4915.43	39657.00	0.124 ✓
T10	100 - 80	7/8	5.66	5.42	148.7 K=0.50	6.754	0.6013	-3089.22	4061.32	0.761 ✓
T11	80 - 60	7/8	5.66	5.42	148.7 K=0.50	6.754	0.6013	-4100.13	4061.32	1.010 ✓
T12	60 - 40	7/8	5.66	5.42	148.7 K=0.50	6.754	0.6013	-2481.59	4061.32	0.611 ✓
T13	40 - 20	7/8	5.66	5.42	148.7 K=0.50	6.754	0.6013	-2082.73	4061.32	0.513 ✓
T14	20 - 0	7/8	5.66	5.42	148.7 K=0.50	6.754	0.6013	-2881.47	4061.32	0.709 ✓

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	280 - 260	L2 1/2x2x3/16	4.00	3.83	107.7 K=1.00	11.976	0.8090	-266.95	9688.31	0.028 ✓
T2	260 - 240	L2 1/2x2x3/16	4.00	3.83	107.7 K=1.00	11.976	0.8090	-17.33	9688.31	0.002 ✓
T3	240 - 220	L2 1/2x2x3/16	4.00	3.83	107.7 K=1.00	11.976	0.8090	-84.01	9688.31	0.009 ✓
T4	220 - 200	L2 1/2x2x3/16	4.00	3.83	107.7 K=1.00	11.976	0.8090	-7.39	9688.31	0.001 ✓
T5	200 - 180	L2 1/2x2x3/16	4.00	3.83	107.7 K=1.00	11.976	0.8090	-79.39	9688.31	0.008 ✓
T6	180 - 160	L2 1/2x2x3/16	4.00	3.83	107.7	11.976	0.8090	-19.87	9688.31	0.002

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
					K=1.00					✓
T8	140 - 120	L2 1/2x2x3/16	4.00	3.83	107.7 K=1.00	11.976	0.8090	-50.25	9688.31	0.005 ✓

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	280 - 260	L3x3x1/4	4.00	3.83	77.7 K=1.00	15.609	1.4400	-2130.92	22476.90	0.095 ✓

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	200 - 180	L4x4x3/8	4.00	3.83	78.7 K=2.10	15.499	2.8600	-6592.84	44328.40	0.149 ✓
T8	140 - 120	L4x4x3/8	4.00	3.83	78.7 K=2.10	15.499	2.8600	-5323.51	44328.40	0.120 ✓

Bottom Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	200 - 180	L4x4x3/8	4.00	3.83	78.7 K=2.10	15.499	2.8600	-3692.98	44328.40	0.083 ✓
T8	140 - 120	L4x4x3/8	4.00	3.83	78.7 K=2.10	15.499	2.8600	-2509.13	44328.40	0.057 ✓

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	200 - 180 (686)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-23210.10	30898.50	0.751 ✓
T5	200 - 180 (687)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-22262.60	30898.50	0.721 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	200 - 180 (695)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-22211.70	30898.50	0.719 ✓
T5	200 - 180 (696)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-22987.90	30898.50	0.744 ✓
T5	200 - 180 (701)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-22814.20	30898.50	0.738 ✓
T5	200 - 180 (702)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-22583.60	30898.50	0.731 ✓
T8	140 - 120 (710)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-20544.40	30898.50	0.665 ✓
T8	140 - 120 (711)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-20428.30	30898.50	0.661 ✓
T8	140 - 120 (719)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-18893.00	30898.50	0.611 ✓
T8	140 - 120 (720)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-19680.70	30898.50	0.637 ✓
T8	140 - 120 (725)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-19941.00	30898.50	0.645 ✓
T8	140 - 120 (726)	L4x4x3/8	7.48	7.40	116.3 K=1.03	10.804	2.8600	-20531.70	30898.50	0.664 ✓

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	280 - 260	2	20.00	2.00	48.0	27.000	3.1416	10601.00	84823.00	0.125 ✓
T2	260 - 240	2	20.00	2.00	48.0	27.000	3.1416	4240.67	84823.00	0.050 ✓
T3	240 - 220	2	20.00	2.00	48.0	27.000	3.1416	8840.91	84823.00	0.104 ✓
T4	220 - 200	2	20.00	2.00	48.0	27.000	3.1416	4275.17	84823.00	0.050 ✓
T5	200 - 180	2	20.00	2.00	48.0	27.000	3.1416	11971.10	84823.00	0.141 ✓
T6	180 - 160	2	20.00	2.00	48.0	27.000	3.1416	310.20	84823.00	0.004 ✓
T8	140 - 120	2	20.00	2.00	48.0	27.000	3.1416	4067.45	84823.00	0.048 ✓

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	280 - 260	7/8	5.66	5.42	297.4	21.600	0.6013	5613.54	12988.50	0.432 ✓
T2	260 - 240	7/8	5.66	5.42	297.4	21.600	0.6013	2683.85	12988.50	0.207 ✓
T3	240 - 220	7/8	5.66	5.42	297.4	21.600	0.6013	1423.43	12988.50	0.110 ✓
T4	220 - 200	L3 1/2x3x1/4 + SR 7/8	5.66	5.42	71.6	21.600	2.1800	5640.41	47088.00	0.120 ✓
T5	200 - 180	L3 1/2x3x1/4 + SR 7/8	5.66	5.42	71.6	21.600	2.1800	6037.47	47088.00	0.128 ✓
T6	180 - 160	7/8	5.66	5.42	297.4	21.600	0.6013	2143.86	12988.50	0.165 ✓
T7	160 - 140	7/8	5.66	5.42	297.4	21.600	0.6013	3656.93	12988.50	0.282 ✓
T8	140 - 120	L3 1/2x3x1/4 + SR 7/8	5.66	5.42	71.6	21.600	2.1800	4903.05	47088.00	0.104 ✓
T9	120 - 100	L3 1/2x3x1/4 + SR 7/8	5.66	5.42	71.6	21.600	2.1800	5085.09	47088.00	0.108 ✓
T10	100 - 80	7/8	5.66	5.42	297.4	21.600	0.6013	2338.45	12988.50	0.180 ✓
T11	80 - 60	7/8	5.66	5.42	297.4	21.600	0.6013	4469.48	12988.50	0.344 ✓
T12	60 - 40	7/8	5.66	5.42	297.4	21.600	0.6013	2716.80	12988.50	0.209 ✓
T13	40 - 20	7/8	5.66	5.42	297.4	21.600	0.6013	1388.58	12988.50	0.107 ✓
T14	20 - 0	7/8	5.66	5.42	297.4	21.600	0.6013	2228.00	12988.50	0.172 ✓

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	280 - 260	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	310.28	17474.40	0.018 ✓
T2	260 - 240	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	189.86	17474.40	0.011 ✓
T3	240 - 220	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	203.62	17474.40	0.012 ✓
T4	220 - 200	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	167.37	17474.40	0.010 ✓
T5	200 - 180	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	237.69	17474.40	0.014 ✓
T6	180 - 160	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	385.10	17474.40	0.022 ✓
T7	160 - 140	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	329.30	17474.40	0.019 ✓
T8	140 - 120	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	342.25	17474.40	0.020 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T9	120 - 100	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	516.22	17474.40	0.030 ✔
T10	100 - 80	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	601.02	17474.40	0.034 ✔
T11	80 - 60	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	706.32	17474.40	0.040 ✔
T12	60 - 40	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	618.29	17474.40	0.035 ✔
T13	40 - 20	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	559.07	17474.40	0.032 ✔
T14	20 - 0	L2 1/2x2x3/16	4.00	3.83	76.7	21.600	0.8090	470.21	17474.40	0.027 ✔

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	200 - 180	L4x4x3/8	4.00	3.83	37.4	21.600	2.8600	21041.60	61776.00	0.341 ✔
T8	140 - 120	L4x4x3/8	4.00	3.83	37.4	21.600	2.8600	23155.20	61776.00	0.375 ✔

Bottom Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	200 - 180	L4x4x3/8	4.00	3.83	37.4	21.600	2.8600	3732.72	61776.00	0.060 ✔
T8	140 - 120	L4x4x3/8	4.00	3.83	37.4	21.600	2.8600	11058.60	61776.00	0.179 ✔

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	200 - 180 (681)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	22952.50	61776.00	0.372 ✔
T5	200 - 180 (682)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	22466.20	61776.00	0.364 ✔
T5	200 - 180 (693)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	23617.70	61776.00	0.382 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	200 - 180 (694)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	22945.20	61776.00	0.371 ✓
T5	200 - 180 (699)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	22752.20	61776.00	0.368 ✓
T5	200 - 180 (700)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	22157.90	61776.00	0.359 ✓
T8	140 - 120 (705)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	19990.70	61776.00	0.324 ✓
T8	140 - 120 (706)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	19952.30	61776.00	0.323 ✓
T8	140 - 120 (717)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	20561.40	61776.00	0.333 ✓
T8	140 - 120 (718)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	19624.60	61776.00	0.318 ✓
T8	140 - 120 (723)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	20201.40	61776.00	0.327 ✓
T8	140 - 120 (724)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	19402.50	61776.00	0.314 ✓

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	200 - 180 (686)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	978.45	61776.00	0.016 ✓
T5	200 - 180 (687)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	913.11	61776.00	0.015 ✓
T5	200 - 180 (695)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	675.43	61776.00	0.011 ✓
T5	200 - 180 (696)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	868.23	61776.00	0.014 ✓
T5	200 - 180 (701)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	1247.33	61776.00	0.020 ✓
T5	200 - 180 (702)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	1052.19	61776.00	0.017 ✓
T8	140 - 120 (710)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	4715.32	61776.00	0.076 ✓
T8	140 - 120 (711)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	4697.46	61776.00	0.076 ✓
T8	140 - 120 (719)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	4294.06	61776.00	0.070 ✓
T8	140 - 120 (720)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	4350.23	61776.00	0.070 ✓
T8	140 - 120 (725)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	4885.23	61776.00	0.079 ✓
T8	140 - 120 (726)	L4x4x3/8	7.48	7.40	72.2	21.600	2.8600	4888.93	61776.00	0.079 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	280 - 260	Leg	2	2	-14559.30	94341.21	15.4	Pass
T2	260 - 240	Leg	2	52	-23063.00	94341.21	24.4	Pass
T3	240 - 220	Leg	2	100	-26103.40	94341.21	27.7	Pass
T4	220 - 200	Leg	2	148	-29176.30	94341.21	30.9	Pass
T5	200 - 180	Leg	2	196	-39501.50	94341.21	41.9	Pass
T6	180 - 160	Leg	2	244	-49942.80	94341.21	52.9	Pass
T7	160 - 140	Leg	2	292	-48739.90	94341.21	51.7	Pass
T8	140 - 120	Leg	2	342	-52997.60	94341.21	56.2	Pass
T9	120 - 100	Leg	2	390	-80808.90	94341.21	85.7	Pass
T10	100 - 80	Leg	2	438	-82121.10	94341.21	87.0	Pass
T11	80 - 60	Leg	2	486	-77467.10	94341.21	82.1	Pass
T12	60 - 40	Leg	2	534	-86652.30	94341.21	91.8	Pass
T13	40 - 20	Leg	2	582	-85180.70	94341.21	90.3	Pass
T14	20 - 0	Leg	2	630	-74838.10	94341.21	79.3	Pass
T1	280 - 260	Diagonal	7/8	35	-4993.37	5413.74	92.2	Pass
T2	260 - 240	Diagonal	7/8	87	-2353.07	5413.74	43.5	Pass
T3	240 - 220	Diagonal	7/8	103	-1981.76	5413.74	36.6	Pass
T4	220 - 200	Diagonal	L3 1/2x3x1/4 + SR 7/8	152	-5362.43	52862.78	10.1	Pass
T5	200 - 180	Diagonal	L3 1/2x3x1/4 + SR 7/8	231	-9906.51	52862.78	18.7	Pass
T6	180 - 160	Diagonal	7/8	286	-2171.06	5413.74	40.1	Pass
T7	160 - 140	Diagonal	7/8	305	-3788.36	5413.74	70.0	Pass
T8	140 - 120	Diagonal	L3 1/2x3x1/4 + SR 7/8	356	-13062.60	52862.78	24.7	Pass
T9	120 - 100	Diagonal	L3 1/2x3x1/4 + SR 7/8	423	-4915.43	52862.78	9.3	Pass
T10	100 - 80	Diagonal	7/8	441	-3089.22	5413.74	57.1	Pass
T11	80 - 60	Diagonal	7/8	516	-4100.13	5413.74	75.7	Pass
T12	60 - 40	Diagonal	7/8	562	-2481.59	5413.74	45.8	Pass
T13	40 - 20	Diagonal	7/8	588	-2082.73	5413.74	38.5	Pass
T14	20 - 0	Diagonal	7/8	633	-2881.47	5413.74	53.2	Pass
T1	280 - 260	Secondary Horizontal	L2 1/2x2x3/16	42	-266.95	12914.52	2.1	Pass
T2	260 - 240	Secondary Horizontal	L2 1/2x2x3/16	97	189.86	23293.37	0.8	Pass
T3	240 - 220	Secondary Horizontal	L2 1/2x2x3/16	118	203.62	23293.37	0.9	Pass
T4	220 - 200	Secondary Horizontal	L2 1/2x2x3/16	157	167.37	23293.37	0.7	Pass
T5	200 - 180	Secondary Horizontal	L2 1/2x2x3/16	241	237.69	23293.37	1.0	Pass
T6	180 - 160	Secondary Horizontal	L2 1/2x2x3/16	255	385.10	23293.37	1.7	Pass
T7	160 - 140	Secondary Horizontal	L2 1/2x2x3/16	319	329.30	23293.37	1.4	Pass
T8	140 - 120	Secondary Horizontal	L2 1/2x2x3/16	369	342.25	23293.37	1.5	Pass
T9	120 - 100	Secondary Horizontal	L2 1/2x2x3/16	399	516.22	23293.37	2.2	Pass
T10	100 - 80	Secondary Horizontal	L2 1/2x2x3/16	456	601.02	23293.37	2.6	Pass
T11	80 - 60	Secondary Horizontal	L2 1/2x2x3/16	513	706.32	23293.37	3.0	Pass
T12	60 - 40	Secondary Horizontal	L2 1/2x2x3/16	579	618.29	23293.37	2.7	Pass
T13	40 - 20	Secondary Horizontal	L2 1/2x2x3/16	618	559.07	23293.37	2.4	Pass
T14	20 - 0	Secondary Horizontal	L2 1/2x2x3/16	675	470.21	23293.37	2.0	Pass
T1	280 - 260	Top Girt	L3x3x1/4	4	-2130.92	29961.71	7.1	Pass
T1	280 - 260	Guy A@268	3/4	678	19857.10	29150.00	68.1	Pass
T5	200 - 180	Guy A@194	5/8	697	17523.90	21200.00	82.7	Pass
T8	140 - 120	Guy A@126	9/16	721	16714.80	17500.00	95.5	Pass
T11	80 - 60	Guy A@68	1/2	729	12991.50	13450.00	96.6	Pass
T1	280 - 260	Guy B@268	3/4	677	20087.30	29150.00	68.9	Pass
T5	200 - 180	Guy B@194	5/8	691	17579.30	21200.00	82.9	Pass
T8	140 - 120	Guy B@126	9/16	716	16335.60	17500.00	93.3	Pass
T11	80 - 60	Guy B@68	1/2	728	12410.70	13450.00	92.3	Pass
T1	280 - 260	Guy C@268	3/4	676	20052.50	29150.00	68.8	Pass
T5	200 - 180	Guy C@194	5/8	680	18126.90	21200.00	85.5	Pass
T8	140 - 120	Guy C@126	9/16	704	16769.10	17500.00	95.8	Pass
T11	80 - 60	Guy C@68	1/2	727	12670.20	13450.00	94.2	Pass
T5	200 - 180	Top Guy Pull-Off@194	L4x4x3/8	684	21041.60	82347.40	25.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T8	140 - 120	Top Guy Pull-Off@126	L4x4x3/8	708	23155.20	82347.40	28.1	Pass
T5	200 - 180	Bottom Guy Pull-Off@194	L4x4x3/8	689	-3692.98	59089.75	6.2	Pass
T8	140 - 120	Bottom Guy Pull-Off@126	L4x4x3/8	714	11058.60	82347.40	13.4	Pass
T5	200 - 180	Torque Arm Top@194	L4x4x3/8	693	23617.70	82347.40	28.7	Pass
T8	140 - 120	Torque Arm Top@126	L4x4x3/8	717	20561.40	82347.40	25.0	Pass
T5	200 - 180	Torque Arm Bottom@194	L4x4x3/8	686	-23210.10	41187.70	56.4	Pass
T8	140 - 120	Torque Arm Bottom@126	L4x4x3/8	710	-20544.40	41187.70	49.9	Pass
							Summary	
						Leg (T12)	91.8	Pass
						Diagonal (T1)	92.2	Pass
						Secondary Horizontal (T11)	3.0	Pass
						Top Girt (T1)	7.1	Pass
						Guy A (T11)	96.6	Pass
						Guy B (T8)	93.3	Pass
						Guy C (T8)	95.8	Pass
						Top Guy Pull-Off (T8)	28.1	Pass
						Bottom Guy Pull-Off (T8)	13.4	Pass
						Torque Arm Top (T5)	28.7	Pass
						Torque Arm Bottom (T5)	56.4	Pass
						RATING =	**96.6**	**Pass**

TOWER INVENTORY BY AEROSOLUTIONS, LLC

AeroSolutions LLC

Tower Upgrades and Maintenance

Structural Inspection Report

Site Name:	Bolton, CT
Description:	280' Guyed Tower
Manufacturer:	LeBlanc
Location:	Bolton, Connecticut
County:	Tolland
Date:	April 30, 2003
Prepared for:	Dewberry
Inspected by:	Angie Shyrigh Jim Shyrigh
Report by:	Angie Shyrigh

250 East Broad Street • Suite 1500 • Columbus, Ohio 43125
Telephone: (614) 448-4298 • Fax: (614) 448-4105 • Web: www.aerosolutionsllc.com

Loading

Load #	Attachment Location	Level	Antenna Description	Feedline	Feedline Location	Mount
1	NE Leg	103'	Cablewave 10' Microwave Dish	(1) 1-15/16" x 1-3/16"	Outer N Face	4' Dish Mount
2	NW Leg	108'	Mark Antennas P-21A48GF	(1) 1-5/8"	Outer SW Face	5' Dish Mount
3	NE Leg	119'	Allgon 7120.16.33.00	(1) 1-1/4"	Outer SW Face	See Mounts
4	NE Leg	119'	Allgon 7120.16.33.00	(1) 1-1/4"	Outer SW Face	See Mounts
5	NE Leg	119'	Allgon 7120.16.33.00	(1) 1-1/4"	Outer SW Face	See Mounts
6	S Leg	119'	Allgon 7125.16.33.00	(1) 1-1/4"	Outer SW Face	See Mounts
7	S Leg	119'	Allgon 7125.16.33.00	(1) 1-1/4"	Outer SW Face	See Mounts
8	S Leg	119'	Allgon 7125.16.33.00	(1) 1-1/4"	Outer SW Face	See Mounts
9	NW Leg	123'	18" Yagi	None	None	To Leg
10	NE Leg	128'	Decibel DB809T3-Y	(1) 1-1/4"	Outer SW Face	See Mounts
11	NW Leg	135'	Decibel ASPA 711	(1) 7/8"	Outer N Face	See Mounts
12	S Leg	140'	Celwave 20' Tall x 2" Diam Fiberglass Whip	(1) 1-1/4"	Outer N Face	See Mounts
13	NW Leg	151'	Cablewave 8' Microwave Dish	(1) 1-15/16" x 1-3/16"	Outer N Face	6' Dish Mount
14	S Leg	151'	Cablewave 8' Microwave Dish	(1) 1-15/16" x 1-3/16"	Outer SW Face	6' Dish Mount
15	N/A	159'	No Antenna	(2) 1-5/8"	Outer SE Face	None
16	NE Leg	162'	CSS DUO1417-8686-4-0	(1) 7/8"	Outer SE Face	To Leg
17	NE Leg	162'	CSS DUO1417-8686-4-0	(1) 7/8"	Outer SE Face	See Mounts
18	NE Leg	162'	CSS DUO1417-8686-4-0	(1) 7/8"	Outer SE Face	See Mounts
19	S Leg	162'	CSS DUO1417-8686-4-0	(1) 7/8"	Outer SE Face	To Leg
20	S Leg	162'	CSS DUO1417-8686-4-0	(1) 7/8"	Outer SE Face	See Mounts
21	S Leg	162'	CSS DUO1417-8686-4-0	(1) 7/8"	Outer SE Face	See Mounts
22	NW Leg	162'	CSS DUO1417-8686-4-0	(1) 7/8"	Outer SE Face	To Leg
23	NW Leg	162'	CSS DUO1417-8686-4-0	(1) 7/8"	Outer SE Face	See Mounts
24	NW Leg	162'	CSS DUO1417-8686-4-0	(1) 7/8"	Outer SE Face	See Mounts
25	N/A	176'	No Antenna	(1) 1-5/8"	Outer SE Face	None
26	NE Leg	178'	EMS Wireless RR90-17-XX_P	(2) 1-5/8"	Outer SW Face	See Mounts
27	S Leg	178'	EMS Wireless RR90-17-XX_P	(2) 1-5/8"	Outer SW Face	See Mounts
28	NW Leg	178'	Cablewave 8' Microwave Dish	Shared w/ #27		See Mounts
29	NW Leg	203'	Cablewave 8' Microwave Dish	(1) 1-15/16" x 1-3/16"	Outer SW Face	5' Dish Mount
30	S Leg	203'	Cablewave 8' Microwave Dish	(1) 1-15/16" x 1-3/16"	Outer SW Face	5' Dish Mount
31	NW Leg	212'	Decibel DB44H90E-XY	(1) 1-15/16" x 1-3/16"	Outer N Face	5' Dish Mount
32	NE Leg	224'	Decibel DB44H90E-XY	(1) 1-5/8"	Outer N Face	See Mounts
33	NE Leg	224'	Decibel DB44H90E-XY	(1) 1-5/8"	Outer N Face	See Mounts
34	NE Leg	224'	Decibel DB44H90E-XY	(1) 1-5/8"	Outer N Face	See Mounts
35	S Leg	224'	Decibel DB44H90E-XY	(1) 1-5/8"	Outer N Face	See Mounts
36	S Leg	224'	Decibel DB44H90E-XY	(1) 1-5/8"	Outer N Face	See Mounts
37	S Leg	224'	Decibel DB44H90E-XY	(1) 1-5/8"	Outer N Face	See Mounts

38	NW Leg	224'	Decibel DB44H90E-XY	(1) 1-5/8"	Outer N Face	See Mounts
39	NW Leg	224'	Decibel DB44H90E-XY	(1) 1-5/8"	Outer N Face	See Mounts
40	NW Leg	224'	Decibel DB44H90E-XY	(1) 1-5/8"	Outer N Face	See Mounts
41	S Leg	255'	Decibel ASPA 711	(1) 1-1/4"	Outer SE Face	See Drawing #48B1067-E21
42	NE Leg	266'	Celwave 12' Tall x 2" Diam Fiberglass Whip	7/8"	Outer SE Face	See Drawing #48B1067-E21
43	NE Corner of Mount	285'	Scala 6' Tall x 1-7/8" Diam Fiberglass Whip	(1) 1-1/4"	Outer SW Face	See Drawing #48B1067-E21
44	S Corner of Mount	286'	Decibel 12' Tall x 3" Diam Fiberglass Whip	(2) 7/8"	Outer SW Face	See Drawing #48B1067-E21
45	NW Corner of Mount	283'	8' Tall x 2" Diam Fiberglass Whip	(1) 1-1/4"	Outer N Face	See Drawing #48B1067-E21
46	S Leg	287'	8' Tall x 2-1/2" Diam Fiberglass Whip	(1) 1-1/4"	Outer N Face	See Drawing #48B1067-E21
47	SW Face of Mount	286'	(2) Bay FM	(1) 7/8"	Outer SE Face	2-3/8" OD x 15' Tall Pipe

* There is a 2-3/8" x 10' tall pipe clamped to the top of the northwest leg.