

# 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](mailto:siting.council@po.state.ct.us)

[www.ct.gov/csc](http://www.ct.gov/csc)

April 20, 2005

Steven Levine  
Real Estate Consultant  
New Cingular Wireless, PCS, LLC  
500 Enterprise Drive  
Rocky Hill, CT 06067

RE: **EM-CING-125-050329** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 7 Surdan Mountain Road, Sharon, Connecticut.

Dear Mr. Levine:

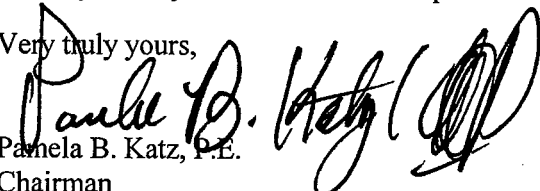
At a public meeting held on April 19, 2005, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated March 29, 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.

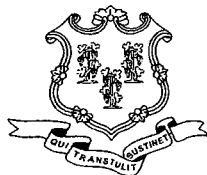
Thank you for your attention and cooperation.

Very truly yours,

  
Pamela B. Katz, P.E.  
Chairman

PBK/cm

c: The Honorable P. Robert Moeller, First Selectman, Town of Sharon  
Elizabeth H. Casey, Zoning Enforcement Officer, Town of Sharon  
Litchfield County Dispatch  
Brian Benito, Bureau of Police Support, Telecommunications  
Christopher B. Fisher, Cuddy & Feder LLP  
Michelle G. Briggs, New Cingular Wireless, PCS, LLC



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E-Mail: [siting.council@po.state.ct.us](mailto:siting.council@po.state.ct.us)

[www.ct.gov/csc](http://www.ct.gov/csc)

March 31, 2005

The Honorable P. Robert Moeller  
First Selectman  
Town of Sharon  
63 Main Street  
Sharon, CT 06069-0224

RE: **EM-CING-125-050329** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 7 Surdan Mountain Road, Sharon, Connecticut.

Dear Mr. Moeller:

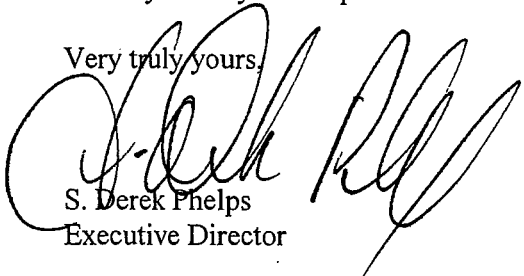
The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for April 19, 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 April 18, 2005.

Thank you for your cooperation and consideration.

Very truly yours,

  
S. Derek Phelps  
Executive Director

SDP/cm

Enclosure: Notice of Intent

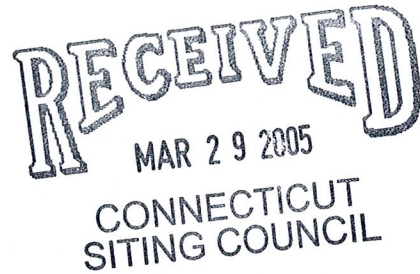
c: Elizabeth H. Casey, Zoning Enforcement Officer, Town of Sharon



EM-CING-125-050329

New Cingular Wireless PCS, LLC  
500 Enterprise Drive Rocky Hill,  
Connecticut 06067-3900  
Phone: (860) 513-7636  
Fax: (860) 513-7190

March 29, 2005



Ms. Pam Katz, Chairman, and  
Members of the Council  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051

**Notice of Exempt Modification – Existing LCD Telecommunications Tower Facility at 7 Surdan Mountain Road, Sharon, Connecticut**

Dear Chairman Katz and Members of the Council:

New Cingular Wireless PCS, LLC (“Cingular”) intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower off Surdan Mountain Road in Sharon, Connecticut. Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to the 1<sup>st</sup> Selectman of Sharon.

**Existing Facility**

Cingular operates under licenses issued by the Federal Communications Commission (“FCC”) to provide cellular and PCS mobile telephone service in Litchfield County, which includes the area to be served by Cingular’s proposed installation.

The Sharon facility is located at 7 Surdan Mountain Road, which lies approximately 2.5 miles north of CT Route 4 and 1 mile west of US Highway 7. Tower coordinates (NAD 83) are N 41° 51’ 43” and W 73° 23’ 58”.

The facility is owned and operated by Litchfield County Dispatch (“LCD”), with offices at 452 Bantam Road, Litchfield, CT 06759, under a license and easement agreement with landowner Adele Prindle.

The Sharon facility was initially approved by local authorities and has been subsequently modified

pursuant to Siting Council acknowledgment of AT&T Wireless' exempt modification<sup>1</sup>.

### **Proposed Modifications**

Attached to this Notice are a site location map, a site plan, the tower profile, and a structural analysis report that shows the tower is structurally capable of supporting the proposed Cingular telecommunications equipment.

The Surdan Mountain Road facility consists of an approximately 195-foot self-supporting lattice tower within a roughly 70' x 140' compound surrounded by an 8 foot-high chain link fence. A number of entities operate wireless communications equipment at the facility, including LCD itself, the CT State Police, CL&P, and Alltel.

As shown on the attached drawings and as further described below, Cingular proposes to install up to six 75"-high Kathrein AP14/17-panel antennas, or their functional equivalents, and up to 12 amplifiers at a centerline height of approximately 173 feet above ground level. Cingular also proposes to place a 12' x 20' prefabricated concrete equipment building in the existing compound at the base of the tower.

### **Statutory Considerations**

The changes to the Sharon tower facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2) because they will not result in any substantial adverse environmental effect.

1. The height of the overall structure will be unaffected.
2. The proposed changes will not affect the property boundaries. All new construction will take place on property licensed to LCD and within the existing fence.
3. The proposed additions will not increase the noise level at the existing facility by six decibels or more.
4. Operation of the additional antennas will not increase the total radio frequency electromagnetic radiation power density, measured at the tower base, to or above the standard adopted by the State of Connecticut and the FCC. The "worst-case" exposure calculation in accordance with FCC OET Bulletin No. 65 (1997) for a point of interest at the base of the tower in relation to the operation of the currently proposed antenna array is as follows:

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<sup>1</sup> Pursuant to FCC and DOJ orders requiring the divestiture of AT&T Wireless' cellular network in Litchfield County as a condition of the Cingular/AT&T Wireless merger, please be advised that AT&T's facility at the site is being conveyed to Alltel and the new Cingular will have no interest therein.

Owner / Operator *	Centerline Height (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density <sup>†</sup> (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
CT State Police	201.5	866 - 868	Receive Only				0.00
CT State Police	201.5	866 - 868	Receive Only				0.00
LCD	199	457 - 470	1	500	0.0045	0.3047	1.49
LCD	195	33.5 - 33.9	1	300	0.0030	0.2000	1.52
CT State Police	188.5	866 - 868	5	1000	0.0525	0.5773	9.10
CT State Police	188.5	866 - 868	5	1000	0.0525	0.5773	9.10
CL&P	185	138 - 174	1	1000	0.0116	0.2000	5.80
LCD	185	138 - 174	1	419	0.0050	0.2000	2.49
LCD	176	138 - 174	1	250	0.0029	0.2000	1.45
Pagenet	174	929	2	630	0.0150	0.6193	2.42
Cingular	173	880 - 894	6	296	0.0213	0.5867	3.64
Cingular	173	1930 - 1935	3	427	0.0154	1.0000	1.54
Verizon Paging	171	929.4 - 929.9	1	1000	0.0123	0.6196	1.98
LCD	165	138 - 174	1	419	0.0055	0.2000	2.77
Alltel	160	824 - 891	6	150	0.0126	0.5493	2.30
Verizon Paging	130	152.5	1	1000	0.0213	0.2000	10.64
Verizon Paging	120	152.5	Receive Only				0.00
CL&P	120	40 - 48	1	100	0.0025	0.2000	1.25
CL&P	110	40 - 48	1	100	0.0030	0.2000	1.49
Ham	88	144 - 148	1	250	0.0116	0.2000	5.80
Town of Sharon	80	45.76	1	100	0.0056	0.2000	2.81
Ham	70	442.2 - 447.2	1	100	0.0073	0.2948	2.49
<b>Total</b>							<b>70.07%</b>

\* Power density parameters for other entities are from LCD and Cingular's attached structural analysis.

† Please note that the standard power density equation provided by the Council in its memo of January 22, 2001 incorporates a ground reflection factor of 2.56 (i.e., the square of 1.6) as described in FCC OET Bulletin No. 65.

As the table demonstrates, the cumulative "worst-case" exposure would be approximately 70 % of the ANSI/IEEE standard, as calculated for mixed frequency sites. Total power density levels resulting from Cingular's use of the tower facility would thus be within applicable standards.

For the foregoing reasons, Cingular respectfully submits that proposed changes at the Sharon site constitute an exempt modification under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call Tim Burks at (860) 513-7218 or Christopher Fisher, Esq. at (914) 761-1300 with questions concerning this notice. Thank you for your consideration in this matter.

Respectfully yours,

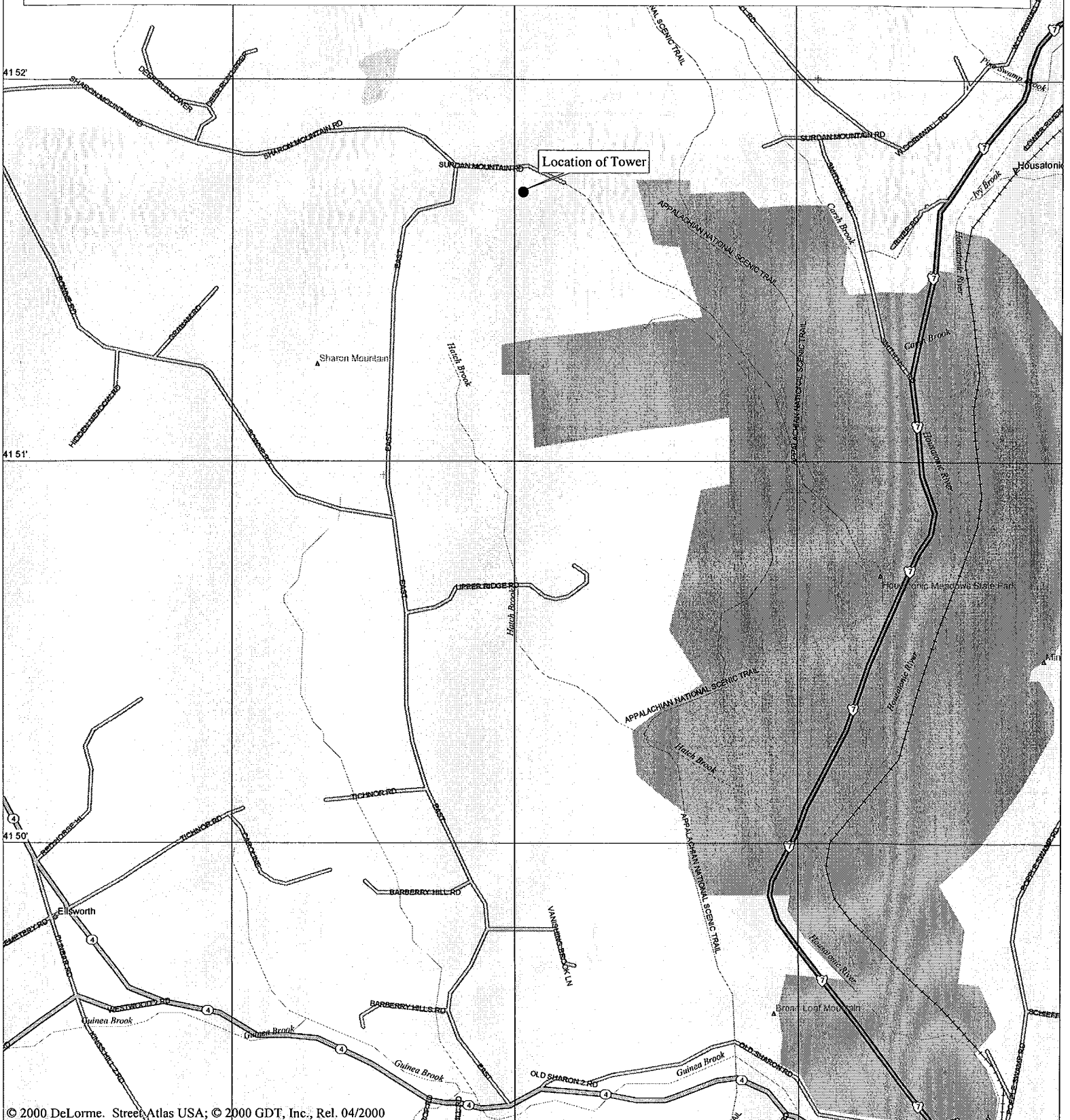


Steven Levine  
Real Estate Consultant

Enclosures

cc: Honorable P. Robert Moeller, 1<sup>st</sup> Selectman, Town of Sharon  
Michele G. Briggs, Manager of Real Estate  
Christopher B. Fisher, Esq.





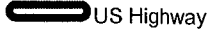
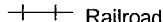
# Sharon - Surdan Mountain Road

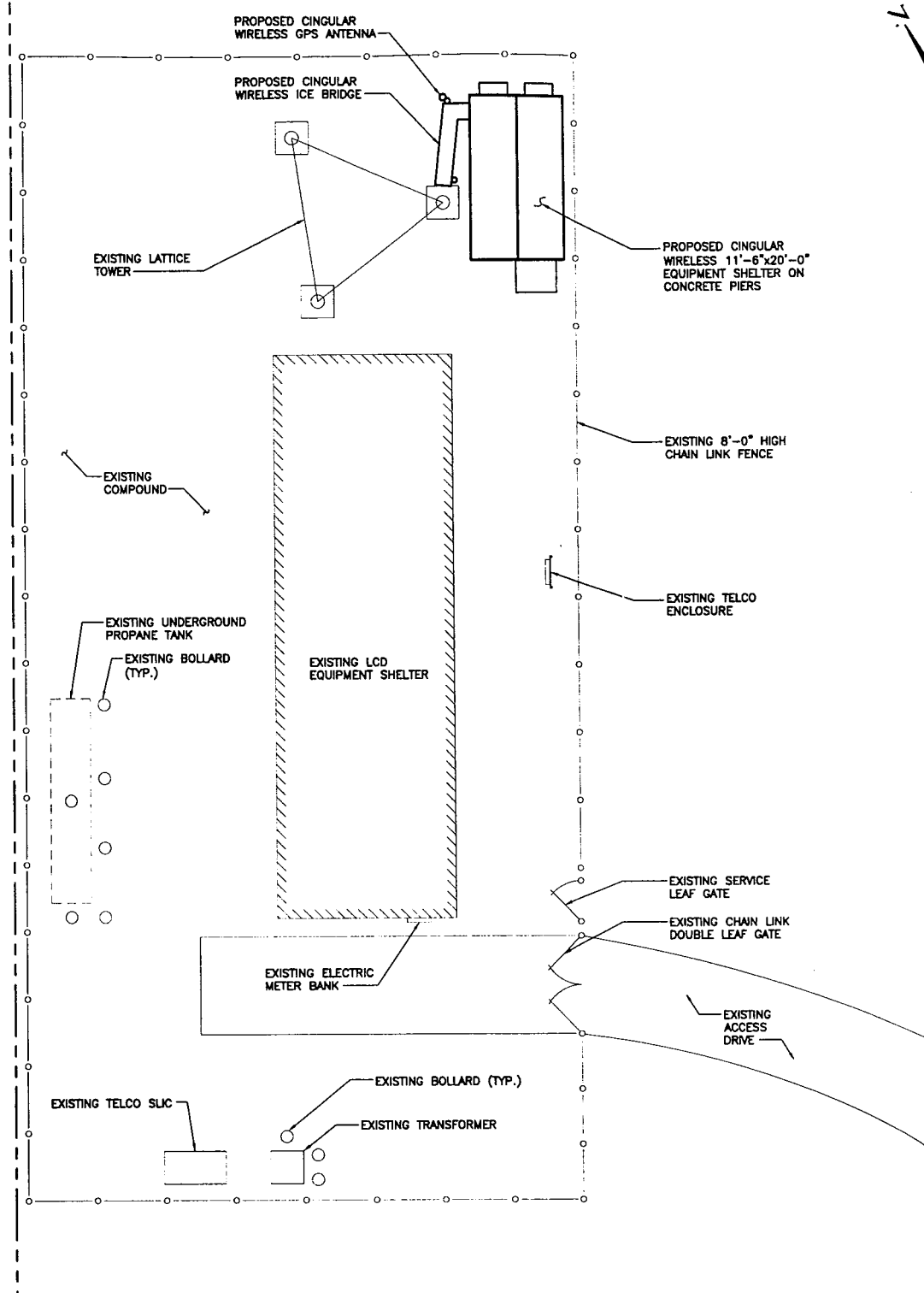


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Mag 15.00  
 Mon Mar 28 15:08 2005

Scale 1:25,000 (at center)  
 2000 Feet  
 500 Meters

-  Local Road
-  Major Connector
-  State Route
-  Trail
-  US Highway
-  Railroad



1 COMPOUND PLAN  
L-1 SCALE: 1" = 20'-0"



PROJECT NO.  
36917882  
Designed by:  
Drawn by: DBP  
Checked by:  
Approved by:

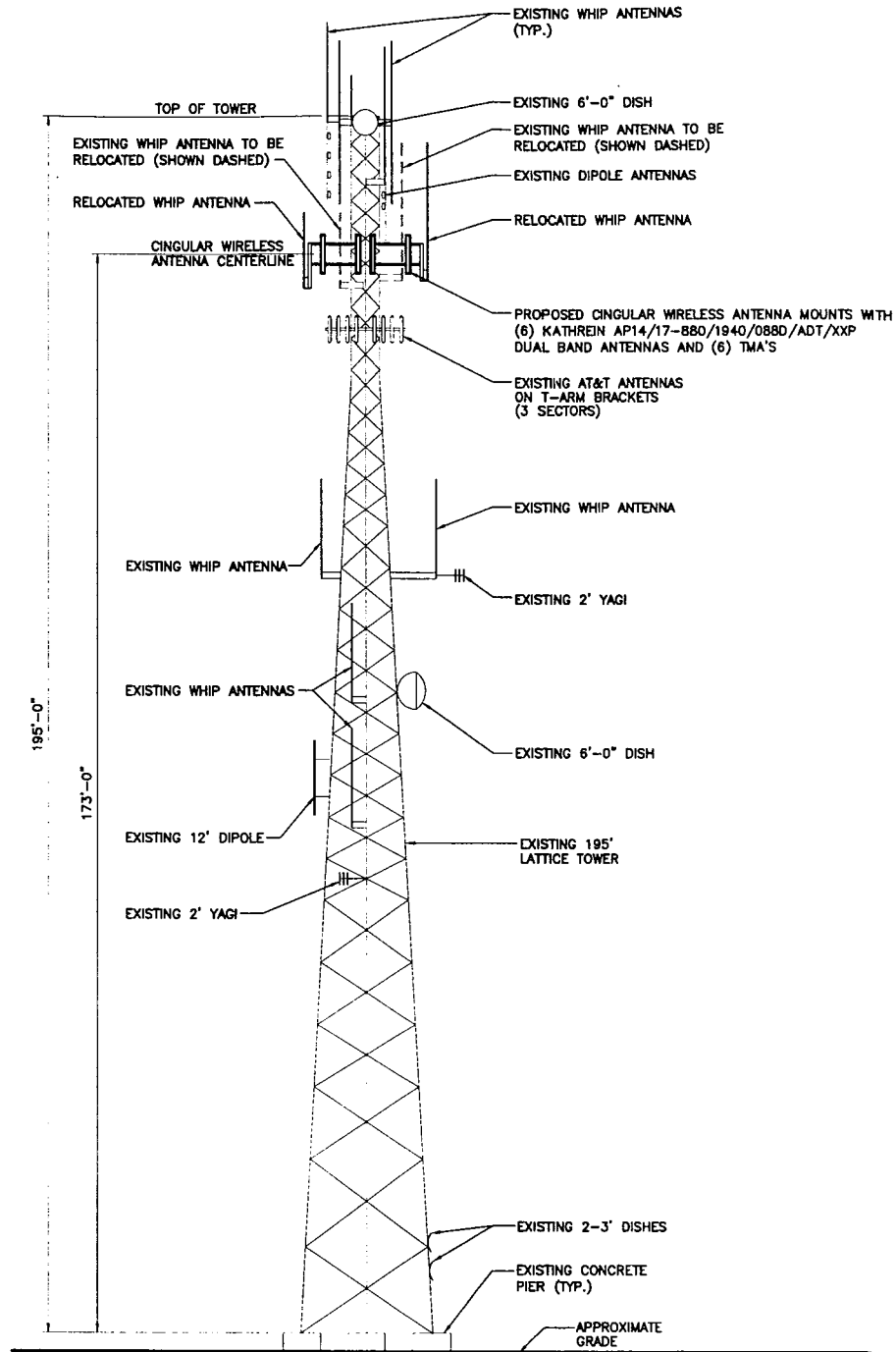
**URS CORPORATION AES**  
795 BROOK STREET, BLDG 5  
ROCKY HILL, CONNECTICUT  
1-(860)-529-8882

**cingular**  
WIRELESS  
WIRELESS COMMUNICATIONS FACILITY  
SITE ADDRESS: LITCHFIELD COUNTY DISPATCH  
7 SURDAN MOUNTAIN ROAD - CELL SITE #1235  
SHARON, CONNECTICUT

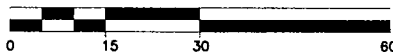
REV.	DATE:	DESCRIPTION

Scale: AS NOTED Date: 03-24-05  
Job No. CW1-041 File No. L-1

Dwg. No.  
**L-1**  
Dwg. 1 of 2



1 TOWER ELEVATION  
L-2 SCALE: 1" = 30'-0"



PROJECT NO.  
36917882  
Designed by:  
Drawn by: DBP  
Checked by:  
Approved by:

**URS CORPORATION AES**  
795 BROOK STREET, BLDG 5  
ROCKY HILL, CONNECTICUT  
1-(860)-529-8882

**cingular** WIRELESS  
WIRELESS COMMUNICATIONS FACILITY  
SITE ADDRESS: LITCHFIELD COUNTY DISPATCH  
7 SURDAN MOUNTAIN ROAD - CELL SITE #1235  
SHARON, CONNECTICUT

REV.	DATE	DESCRIPTION

Scale: AS NOTED Date: 03-24-05  
Job No. CW1-041 File No. L-2

Dwg. No.  
**L-2**  
Dwg. 2 of 2



RECEIVED  
FEB 22 2005  
LCD

February 21, 2005

Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

and

Other Federal, State and Local Permitting Authorities

Re: Letter of Authorization

Location: 7 Surdan Mountain Road  
Sharon, CT 06069

To Whom It May Concern:

Litchfield County Dispatch hereby authorizes New Cingular Wireless PCS, LLC to seek and obtain all necessary federal, state and local permits and approvals for construction, operation and maintenance of a wireless communications installation at the Litchfield County Dispatch telecommunications tower facility at the above address.

All expenses associated with permitting of Cingular's proposed wireless communications facility at the above location shall be the sole responsibility of Cingular Wireless.

Signature of Authority:

Alan T. Gawel  
(Authorized Representative)

Print Name:

ALAN T. GAWEL

Title:

Executive Director

Date:

Feb. 22 2005

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# DETAILED STRUCTURAL ANALYSIS AND EVALUATION OF 195' SELF SUPPORTING LATTICE TOWER FOR NEW ANTENNA ARRANGEMENT

Off Surdan Mountain Road  
Sharon, Connecticut

---

*prepared for*



Cingular Wireless  
500 Enterprise Drive, Suite 3A  
Rocky Hill, CT 06067

*prepared by*



URS CORPORATION  
500 ENTERPRISE DR, SUITE 3B  
ROCKY HILL, CT 06067  
TEL. 860-529-8882

36917888.00000  
CW1-041

March 24, 2005

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the 195' lattice tower located off Surdan Mountain Road in Sharon, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 90 mph and 90 mph concurrent with ½" ice without reduction. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined in the Introduction of this report. The proposed Cingular addition is listed below:

(6) AP14/17-880/1940/088D/ADT/XXP Cingular @ 173' elevation  
antennas and (6) LGP2140X TMA on (proposed)  
sector mounts with (12) 1 5/8" coax cables

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 specified above and the existing and proposed antenna loadings.**

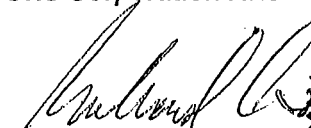
This analysis is based on:

- 1) The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- 2) Tower geometry, member sizes and foundation taken from Tower and Foundation report prepared by Pirod, Inc. Engineering File A-115074 signed and stamped October 14, 1998.
- 3) Soils report prepared by Dr. Clarence Welti, P.E., P.C. dated March 3, 1998
- 4) Antenna inventory as specified in section 2 and 6 of this report.
- 5) Coax cable orientation as specified in section 6 of this report.

This report is only valid as 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 assumption of the antenna and mount configuration. Notify the engineer in writing immediately if any of the information in this report is found to be other than specified.

If you should have any questions, please call.

Sincerely,  
URS Corporation AES

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



RAS/jek

cc: Douglas Roberts – URS  
CF/Book

## 2. INTRODUCTION

The subject tower is located off Surdan Mountain Road in Sharon, Connecticut. The structure is a self-supporting three-legged 195' steel tapered lattice tower manufactured by Pirod Incorporated.

The tower is constructed of truss legs, diagonal angle braces and horizontal angle braces. The tower members are all bolted together. The width of the tower face is 4'-6" at the top and 20'-0" at the base. The tower geometry and structure member sizes were taken from Pirod, Inc. Project File A-115074 approved October 14, 1998..

The existing structure supports several communication antennas. The inventory is summarized below:

Antenna Type	Carrier	Mount	Centerline Elevation	Cable
(1) PD-1142	LCD (existing)	Side arm mount	203'	(1) 1 5/8" coax cable
(2) PD-1110	CSP (existing)	Side arm mounts	201.5'	(2) 1 5/8" coax cables
(1) PD-201	LCD (existing)	Side arm mount	199'	(1) 1 5/8" coax cable
(1) PD-220	LCD (existing)	Side arm mount	195'	(1) 1 5/8" coax cable
(1) PA6-65AC	CSP (existing)	Leg Mount	195'	(1) 1 5/8" coax cable
(2) PD-1110	CSP (existing)	Side arm mounts	188.5'	(2) 1 5/8" coax cables
(1) ANT150D6-9	NEU (existing)	Side arm mount	185'	(1) 1 5/8" coax cable
(1) DB-222	LCD (existing)	Side arm mount	185'	(1) 1 5/8" coax cable
(1) PD-220	LCD (existing)	Side arm mount	176'	(1) 1 5/8" coax cable
(1) BCD-87077	Pagnet (existing)	Side arm mount	174'	(1) 1 5/8" coax cable
(6) AP14/17-880/1940/088D/ADT/XXP (2 per sector)	Cingular (proposed)	(3) T-Frame mounts	173'	(12) 1 5/8" coax cables
(6) Ultrasite MHA (2 per sector)	Cingular (proposed)	(3) T-Frame mounts	173'	---
(1) DB-809KT4E-YP	Verizon (existing)	Side arm mount	171'	(1) 1 5/8" coax cable
(9) ALP 9212	AT&T Wireless (existing)	(3) T-Frame mounts	160'	(9) 7/8" coax cables
(1) PD-220	Verizon (existing)	Side arm mount	130'	(1) 1 5/8" coax cable
(1) PD-1142	NEU (existing)	Side arm mount	120'	(1) 1 5/8" coax cable
(1) DB-230	Verizon (existing)	Side arm mount	120'	(1) 1 5/8" coax cable
(1) PD-1142	NEU (existing)	Side arm mount	110'	(1) 1 5/8" coax cable

Antenna Type	Carrier	Mount	Centerline Elevation	Cable
(1) PA6-65AC	CSP (existing)	Leg mount	100'	(1) 1 5/8" coax cable
(1) ARX-270N	HAM (existing)	Side arm mounts	88.25'	(1) 1 5/8" coax cable
(1) PD-320	Sharon (existing)	Side arm mount	80'	(1) 1 5/8" coax cable
(1) DB-432	HAM (existing)	Leg mount	70'	(1) 1 5/8" coax cable
(1) 1.2M Dish	Verizon (existing)	Leg Mount	12'	(1) 7/8" coax cable
(1) 1.2M Dish	Pagnet (existing)	Leg Mount	9'	(1) 7/8" coax cable
(1) 1.2M Dish	Pagnet (existing)	Leg Mount	6'	(1) 7/8" coax cable

This structural analysis of the communications tower was performed by URS Corporation, AES for Cingular. The purpose of this analysis was to investigate the structural integrity of the existing tower with its existing and proposed antenna loads.

### 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 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 = 90 mph Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For 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 stress in accordance with AISC. **The analysis indicates that the tower legs, diagonal members, and horizontal members have sufficient capacity to carry the existing and proposed loads.** No further analysis was conducted on the anchor bolts and foundation since the forces calculated were below the original design.

### 5. CONCLUSIONS

The results of the analysis indicate the tower structure is in compliance with the proposed loading conditions. **The tower structure is considered structurally adequate with the TIA/EIA-222-F wind load classification specified above and the existing and proposed antenna loading.**

### **Limitations/Assumptions:**

This report is based on the following:

- A. Tower is properly installed and maintained.
- B. All members and their geometry are as specified in the original Project File and are in good condition.
- C. All required members are in place.
- D. All bolts are in place and are properly tightened.
- E. Tower is in plumb condition.
- F. All member protective coatings are in good condition.
- G. All tower members were properly designed, detailed, fabricated, installed, and have been properly maintained since erection.

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:

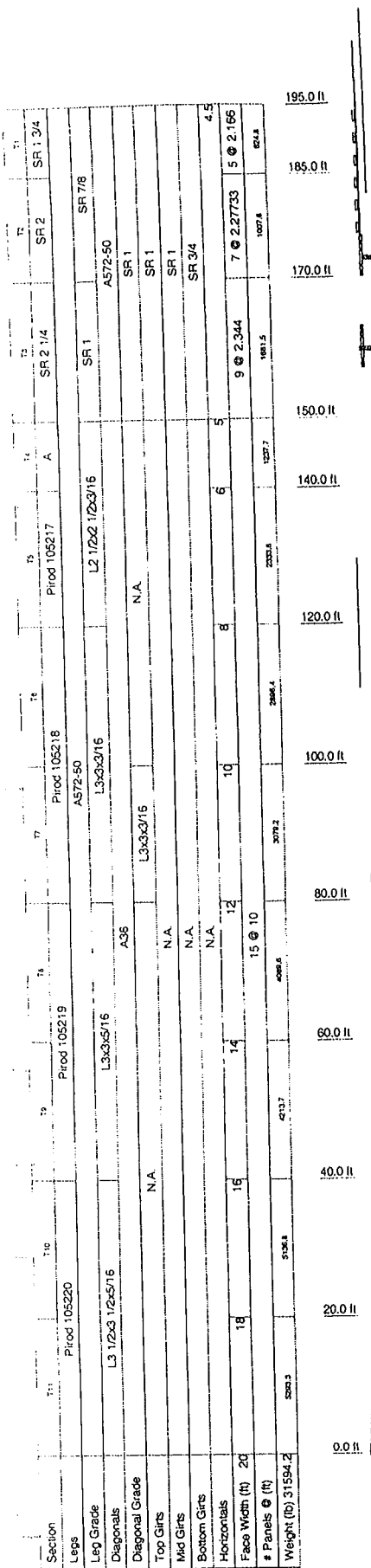
- A. Adding antennas
- B. Removing/replacing antennas
- C. Adding coaxial cables

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:**

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

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 be performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F section 14.1, Note 1: It is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.



**APPURTENANCES**

TYPE	ELEVATION	TYPE	ELEVATION
PD1142-30 (LCD)	203	DB809KT4E-YP (VER)	171
PD1110 (CSP)	201.5	Pirol 12 T-Frame Sector Mount (1) (ATI)	160
PD1110 (CSP)	201.5	Pirol 12 T-Frame Sector Mount (1) (ATI)	160
PD201-1 (LCD)	199	(3) ALP 9212 (ATI)	160
Pirol 6' Side Mount Standoff (1)	195	(3) ALP 9212 (ATI)	160
Pirol 6' Side Mount Standoff (1)	195	Pirol 12 T-Frame Sector Mount (1) (ATI)	160
Pirol 6' Side Mount Standoff (1)	195	(3) ALP 9212 (ATI)	160
PD220-1 (LCD)	195	Pirol 12 T-Frame Sector Mount (1) (ATI)	160
PA6-65AC (CSP)	195	(3) ALP 9212 (ATI)	160
PD1110 (CSP)	188.5	PD220-1 (VER)	130
PD1110 (CSP)	188.5	Pirol 6' Side Mount Standoff (1)	120
ANT150D6-9 (NEU)	185	Pirol 6' Side Mount Standoff (1)	120
Pirol 6' Side Mount Standoff (1)	185	DB230-2C (VER)	120
DB222 (LCD)	185	PD1142-1 (NEU)	120
PD220-3B (LCD)	176	PD1142-1 (NEU)	110
BCD-87077 (PAGNET)	174	PA6-65AC (CSP)	100
(2) AP14/17-880/1940/088D/ADT/XXP (Cingular)	173	Pirol 6' Side Mount Standoff (1)	100
(2) AP14/17-880/1940/088D/ADT/XXP (Cingular)	173	2' Dia 16.5' Omni (HAM)	88.25
(2) UltraSite MHA (Cingular)	173	Pirol 6' Side Mount Standoff (1)	80
(2) UltraSite MHA (Cingular)	173	12' Dipole (SHARON)	80
(2) UltraSite MHA (Cingular)	173	DB432-A (HAM)	70
Valmont 15' L-o-profile Lattice (Cingular)	173	1.2M (VER)	12
(2) AP14/17-880/1940/088D/ADT/XXP (Cingular)	173	1.2M (PAG)	9
		1.2M (PAG)	6

**SYMBOL LIST**

MARK	SIZE	MARK	SIZE
A	Pirol 105245		

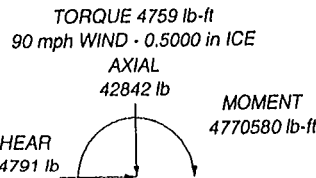
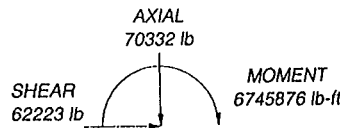
**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

**TOWER DESIGN NOTES**

1. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 90 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 90 mph wind.
4. TOWER RATING: 96.9%

MAX PIER FORCES:  
 DOWN: 412917 lb  
 UPLIFT: -362341 lb  
 SHEAR: 43187 lb



TORQUE 1255 lb-ft  
 REACTIONS - 90 mph WIND

**URS Corp. AES**  
 500 Enterprise Dr, Suite 3B  
 Rocky Hill, CT 06067  
 Phone: (860) 529-8882  
 FAX: (860) 529-5566

Job: 195' Lattice Tower  
 Project: Sharon, CT  
 Client: Cingular  
 Code: TIA/EIA-222-F  
 Path: P:\17\poccom\F0DER\FILES\SHARON4 on

Drawn by: Jed Kiernan  
 Date: 03/24/05



New Cingular Wireless PCS, LLC  
500 Enterprise Drive  
Rocky Hill, Connecticut 06067-3900  
Phone: (860) 513-7636  
Fax: (860) 513-7190

March 29, 2005

Honorable P. Robert Moeller  
1<sup>st</sup> Selectman, Town of Sharon  
Town Hall, 63 Main Street  
Sharon, Connecticut 06069

**Re: Notice of Exempt Modification – Existing Litchfield County Dispatch  
Telecommunications Tower Facility at 7 Surdan Mountain Road, Sharon, Connecticut**

Dear Mr. Moeller:

New Cingular Wireless PCS, LLC (“Cingular”) intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 7 Surdan Mountain Road in Sharon, Connecticut.

The facility is owned and operated by Litchfield County Dispatch under a license and easement agreement with landowner Adele Prindle.

A Notice of Exempt Modification has been filed with the Connecticut Siting Council as required by Regulations of Connecticut State Agencies (“R.C.S.A.”) Section 16-50j-73. Please accept this letter as notification to the Town of Sharon under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The attached letter fully sets forth the Cingular proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council’s procedures, please contact the undersigned or Mr. Derek Phelps, Executive Director of the Connecticut Siting Council, at (860) 827-2935.

Sincerely,

Steven Levine  
Real Estate Consultant

Enclosure



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# DETAILED STRUCTURAL ANALYSIS AND EVALUATION OF 195' SELF SUPPORTING LATTICE TOWER FOR NEW ANTENNA ARRANGEMENT

Off Surdan Mountain Road  
Sharon, Connecticut

---

*prepared for*



Cingular Wireless  
500 Enterprise Drive, Suite 3A  
Rocky Hill, CT 06067

**RECEIVED**  
MAR 29 2005  
CONNECTICUT  
SITING COUNCIL

*prepared by*

The logo for URS Corporation, consisting of the letters 'URS' in a large, bold, black, sans-serif font.

URS CORPORATION  
500 ENTERPRISE DR, SUITE 3B  
ROCKY HILL, CT 06067  
TEL. 860-529-8882

36917888.00000  
CW1-041

March 24, 2005

## **TABLE OF CONTENTS**

- 1. EXECUTIVE SUMMARY**
- 2. INTRODUCTION**
- 3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS**
- 4. FINDINGS AND EVALUATION**
- 5. CONCLUSIONS**
- 6. DRAWINGS AND DATA**
  - **ERI TOWER INPUT / OUTPUT SUMMARY**
  - **ERI TOWER FEEDLINE DISTRIBUTION CHART**
  - **ERI TOWER DEFLECTION, TILT, AND TWIST**
  - **ERI TOWER DETAILED OUTPUT**

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the 195' lattice tower located off Surdan Mountain Road in Sharon, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 90 mph and 90 mph concurrent with 1/2" ice without reduction. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined in the Introduction of this report. The proposed Cingular addition is listed below:

(6) AP14/17-880/1940/088D/ADT/XXP Cingular @ 173' elevation  
antennas and (6) LGP2140X TMA on (proposed)  
sector mounts with (12) 1 5/8" coax cables

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 specified above and the existing and proposed antenna loadings.**


This analysis is based on:

- 1) The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- 2) Tower geometry, member sizes and foundation taken from Tower and Foundation report prepared by Pirod, Inc. Engineering File A-115074 signed and stamped October 14, 1998.
- 3) Soils report prepared by Dr. Clarence Welti, P.E., P.C. dated March 3, 1998
- 4) Antenna inventory as specified in section 2 and 6 of this report.
- 5) Coax cable orientation as specified in section 6 of this report.

This report is only valid as 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 assumption of the antenna and mount configuration. Notify the engineer in writing immediately if any of the information in this report is found to be other than specified.

If you should have any questions, please call.

Sincerely,  
**URS Corporation AES**

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



RAS/jek

cc: Douglas Roberts – URS  
CF/Book

## 2. INTRODUCTION

The subject tower is located off Surdan Mountain Road in Sharon, Connecticut. The structure is a self-supporting three-legged 195' steel tapered lattice tower manufactured by Pirod Incorporated.

The tower is constructed of truss legs, diagonal angle braces and horizontal angle braces. The tower members are all bolted together. The width of the tower face is 4'-6" at the top and 20'-0" at the base. The tower geometry and structure member sizes were taken from Pirod, Inc. Project File A-115074 approved October 14, 1998..

The existing structure supports several communication antennas. The inventory is summarized below:

<i>Antenna Type</i>	<i>Carrier</i>	<i>Mount</i>	<i>Centerline Elevation</i>	<i>Cable</i>
(1) PD-1142	LCD (existing)	Side arm mount	203'	(1) 1 5/8" coax cable
(2) PD-1110	CSP (existing)	Side arm mounts	201.5'	(2) 1 5/8" coax cables
(1) PD-201	LCD (existing)	Side arm mount	199'	(1) 1 5/8" coax cable
(1) PD-220	LCD (existing)	Side arm mount	195'	(1) 1 5/8" coax cable
(1) PA6-65AC	CSP (existing)	Leg Mount	195'	(1) 1 5/8" coax cable
(2) PD-1110	CSP (existing)	Side arm mounts	188.5'	(2) 1 5/8" coax cables
(1) ANT150D6-9	NEU (existing)	Side arm mount	185'	(1) 1 5/8" coax cable
(1) DB-222	LCD (existing)	Side arm mount	185'	(1) 1 5/8" coax cable
(1) PD-220	LCD (existing)	Side arm mount	176'	(1) 1 5/8" coax cable
(1) BCD-87077	Pagnet (existing)	Side arm mount	174'	(1) 1 5/8" coax cable
<b>(6) AP14/17-880/1940/088D/ADT/XXP (2 per sector)</b>	<b>Cingular (proposed)</b>	<b>(3) T-Frame mounts</b>	<b>173'</b>	<b>(12) 1 5/8" coax cables</b>
<b>(6) Ultrasite MHA (2 per sector)</b>	<b>Cingular (proposed)</b>	<b>(3) T-Frame mounts</b>	<b>173'</b>	<b>---</b>
(1) DB-809KT4E-YP	Verizon (existing)	Side arm mount	171'	(1) 1 5/8" coax cable
(9) ALP 9212	AT&T Wireless (existing)	(3) T-Frame mounts	160'	(9) 7/8" coax cables
(1) PD-220	Verizon (existing)	Side arm mount	130'	(1) 1 5/8" coax cable
(1) PD-1142	NEU (existing)	Side arm mount	120'	(1) 1 5/8" coax cable
(1) DB-230	Verizon (existing)	Side arm mount	120'	(1) 1 5/8" coax cable
(1) PD-1142	NEU (existing)	Side arm mount	110'	(1) 1 5/8" coax cable

Antenna Type	Carrier	Mount	Centerline Elevation	Cable
(1) PA6-65AC	CSP (existing)	Leg mount	100'	(1) 1 5/8" coax cable
(1) ARX-270N	HAM (existing)	Side arm mounts	88.25'	(1) 1 5/8" coax cable
(1) PD-320	Sharon (existing)	Side arm mount	80'	(1) 1 5/8" coax cable
(1) DB-432	HAM (existing)	Leg mount	70'	(1) 1 5/8" coax cable
(1) 1.2M Dish	Verizon (existing)	Leg Mount	12'	(1) 7/8" coax cable
(1) 1.2M Dish	Pagnet (existing)	Leg Mount	9'	(1) 7/8" coax cable
(1) 1.2M Dish	Pagnet (existing)	Leg Mount	6'	(1) 7/8" coax cable

This structural analysis of the communications tower was performed by URS Corporation, AES for Cingular. The purpose of this analysis was to investigate the structural integrity of the existing tower with its existing and proposed antenna loads.

### 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 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 = 90 mph Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For 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 stress in accordance with AISC. **The analysis indicates that the tower legs, diagonal members, and horizontal members have sufficient capacity to carry the existing and proposed loads.** No further analysis was conducted on the anchor bolts and foundation since the forces calculated were below the original design.

### 5. CONCLUSIONS

The results of the analysis indicate the tower structure is in compliance with the proposed loading conditions. **The tower structure is considered structurally adequate with the TIA/EIA-222-F wind load classification specified above and the existing and proposed antenna loading.**

**Limitations/Assumptions:**

This report is based on the following:

- A. Tower is properly installed and maintained.
- B. All members and their geometry are as specified in the original Project File and are in good condition.
- C. All required members are in place.
- D. All bolts are in place and are properly tightened.
- E. Tower is in plumb condition.
- F. All member protective coatings are in good condition.
- G. All tower members were properly designed, detailed, fabricated, installed, and have been properly maintained since erection.

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
- B. Removing/replacing antennas
- 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:**

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

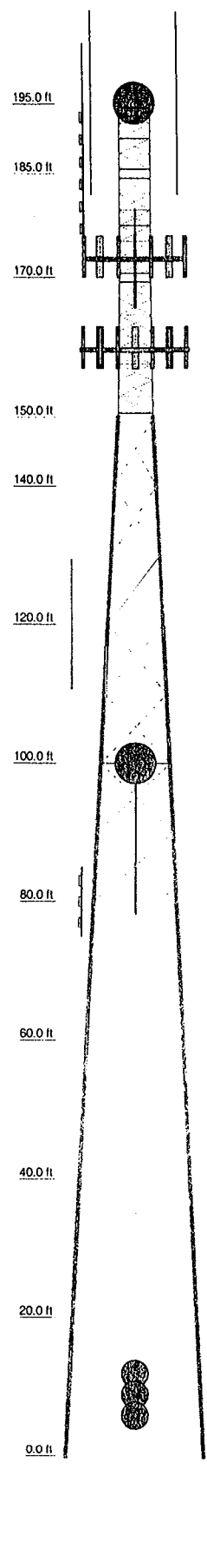
The owner shall refer to TIA/EIA-222-F for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system be performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F section 14.1, Note 1: 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	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11
Legs	SR 1 3/4	SR 2	SR 2 1/4	A	Prod 105217	Prod 105218	Prod 105219	Prod 105220	Prod 105220	Prod 105220	Prod 105220
Leg Grade						A572-50	A572-50	A572-50	A572-50	A572-50	A572-50
Diagonals						L3x3x3/16	L3x3x3/16	L3x3x3/16	L3x3x3/16	L3x3x3/16	L3x3x3/16
Diagonal Grade							A36	A36	A36	A36	A36
Top Girts	SR 7/8										
Mid Girts											
Bottom Girts											
Horizontals											
Face Width (ft)	4.5					5	6	8	10	12	14
# Panels @ (ft)	5 @ 2.166					5	6	8	10	12	14
Weight (lb) 31594.2	62.4	107.6	181.5	227.7	233.6	236.4	279.2	413.7	516.8	526.3	526.3



**APPURTENANCES**

TYPE	ELEVATION	TYPE	ELEVATION
PD1142-30 (LCD)	203	DB809KT4E-VP (VER)	171
PD1110 (CSP)	201.5	Pirot 12' T-Frame Sector Mount (1) (ATI)	160
PD1110 (CSP)	201.5	Pirot 12' T-Frame Sector Mount (1) (ATI)	160
PD201-1 (LCD)	199	Pirot 12' T-Frame Sector Mount (1) (ATI)	160
Pirot 6' Side Mount Standoff (1)	195	(3) ALP 9212 (ATI)	160
Pirot 6' Side Mount Standoff (1)	195	(3) ALP 9212 (ATI)	160
Pirot 6' Side Mount Standoff (1)	195	Pirot 12' T-Frame Sector Mount (1) (ATI)	160
PD220-1 (LCD)	195	(3) ALP 9212 (ATI)	160
PA6-65AC (CSP)	195	PD220-1 (VER)	130
PD1110 (CSP)	188.5	Pirot 6' Side Mount Standoff (1)	120
PD1110 (CSP)	188.5	Pirot 6' Side Mount Standoff (1)	120
ANT150D6-9 (NEU)	185	DB230-2C (VER)	120
Pirot 6' Side Mount Standoff (1)	185	PD1142-1 (NEU)	120
DB222 (LCD)	185	PD1142-1 (NEU)	110
PD220-3B (LCD)	176	PA6-65AC (CSP)	100
BCD-87077 (PAGNET)	174	Pirot 6' Side Mount Standoff (1)	100
(2) AP14/17-880/1940/088D/ADT/XXP (Cingular)	173	2' Dia 16.5' Omni (HAM)	88.25
(2) AP14/17-880/1940/088D/ADT/XXP (Cingular)	173	Pirot 6' Side Mount Standoff (1)	180
(2) UltraSite MHA (Cingular)	173	12' Dipole (SHARON)	80
(2) UltraSite MHA (Cingular)	173	DB432-A (HAM)	70
(2) UltraSite MHA (Cingular)	173	1.2M (VER)	12
Valmont 15' Lo-profile Lattice (Cingular)	173	1.2M (PAG)	9
(2) AP14/17-880/1940/088D/ADT/XXP (Cingular)	173	1.2M (PAG)	6

**SYMBOL LIST**

MARK	SIZE	MARK	SIZE
A	Pirot 105245		

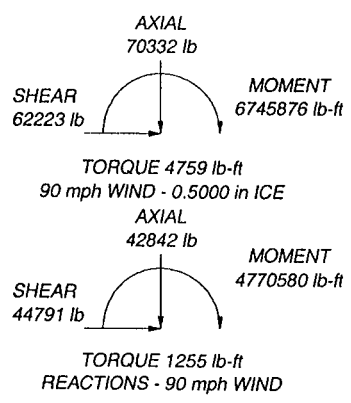
**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

**TOWER DESIGN NOTES**

1. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 90 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 90 mph wind.
4. TOWER RATING: 96.9%

**MAX PIER FORCES:**  
 DOWN: 412917 lb  
 UPLIFT: -362341 lb  
 SHEAR: 43187 lb



**URS Corp. AES**  
 500 Enterprise Dr, Suite 3B  
 Rocky Hill, CT 06067  
 Phone: (860) 529-8882  
 FAX: (860) 529-5566

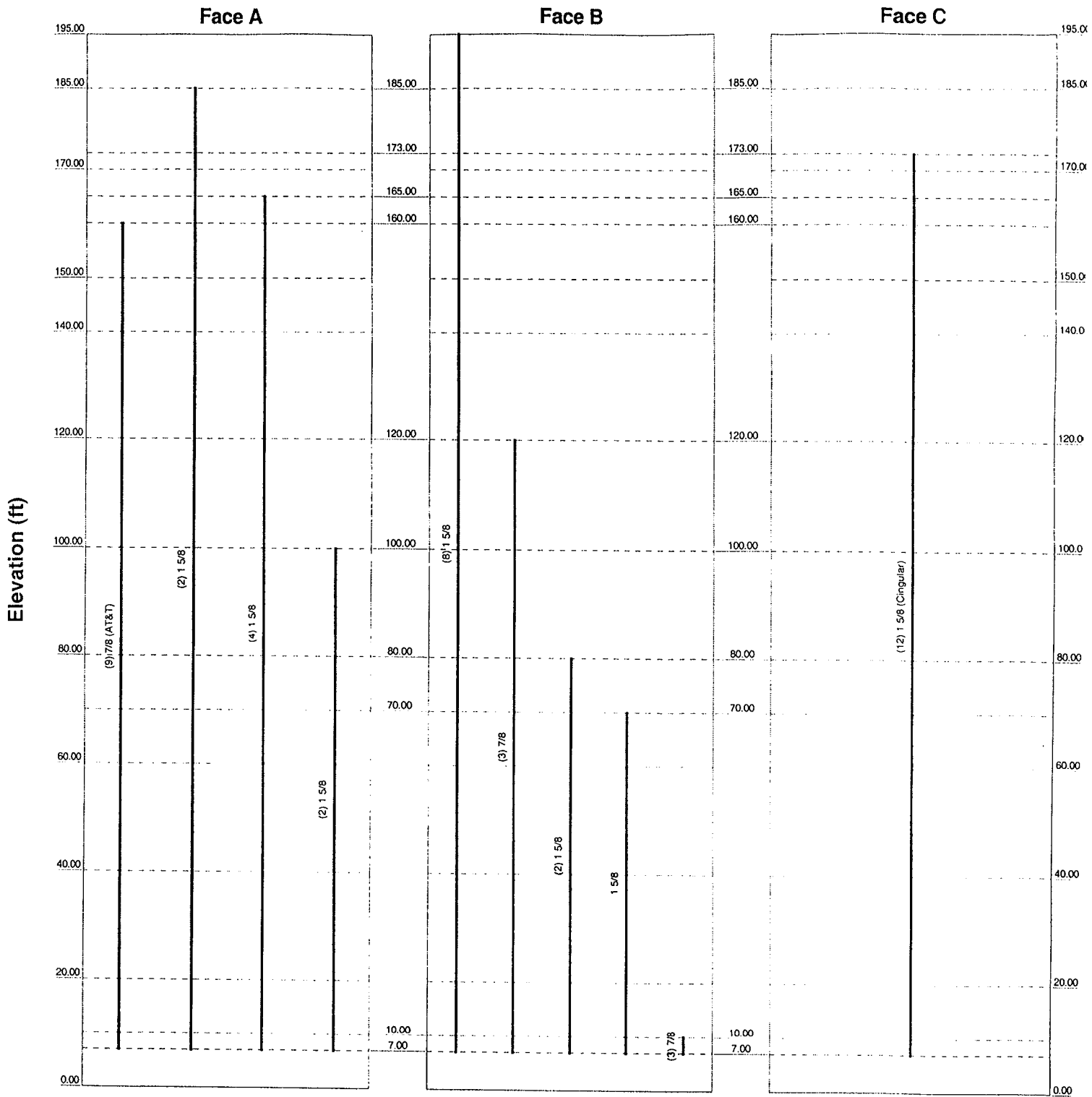
**Job: 195' Lattice Tower**  
 Project: Sharon, CT  
 Client: Cingular  
 Code: TIA/EIA-222-F  
 Path: P:\1\ telecom\F09\ERI FILES\SHARON4 on

Drawn by: Jed Kiernan  
 Date: 03/24/05  
 App'd:  
 Scale:  
 Dwg No

## ERI TOWER FEEDLINE DISTRIBUTION CHART

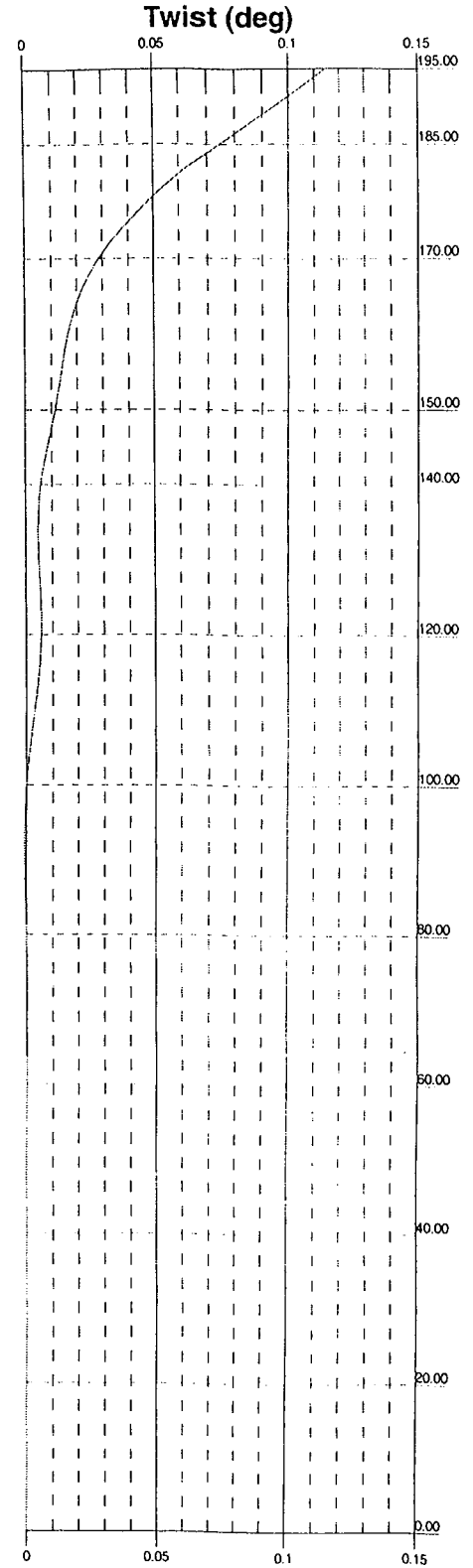
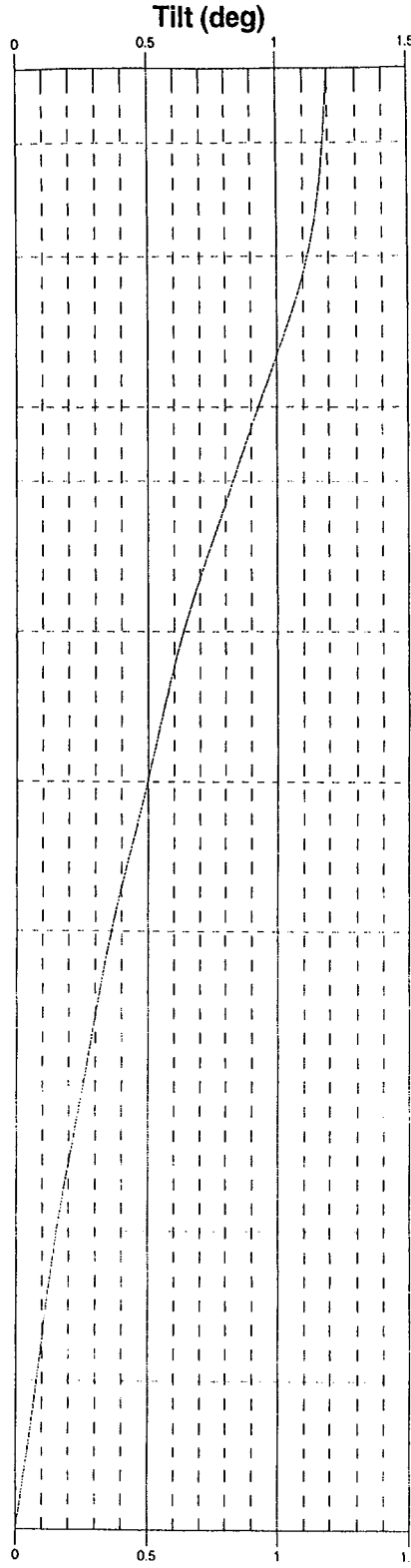
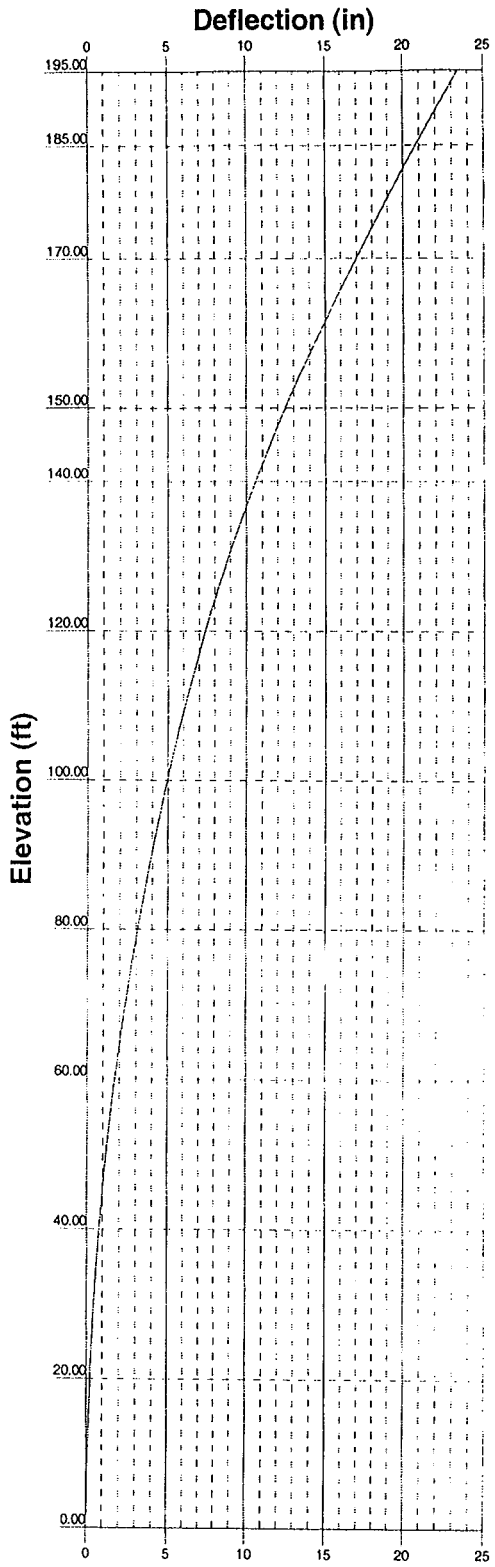
# Feedline Distribution Chart 0' - 195'

Round      Flat      App In Face      App Out Face      Truss Leg



<b>URS Corp. AES</b>		Job: <b>195' Lattice Tower</b>	
500 Enterprise Dr, Suite 3B		Project: <b>Sharon, CT</b>	
Rocky Hill, CT 06067		Client: <b>Cingular</b>	Drawn by: <b>Jed Kiernan</b>
Phone: (860) 529-8882		Code: <b>TIA/EIA-222-F</b>	Date: <b>03/24/05</b>
FAX: (860) 529-5566		Path: <b>P:\Telecom\F09\ERI FILES\SHARON4 on</b>	Dwg No

## ERI TOWER DEFLECTION, TILT, AND TWIST



<b>URS Corp. AES</b>		<b>Job: 195' Lattice Tower</b>	
500 Enterprise Dr, Suite 3B		<b>Project: Sharon, CT</b>	
Rocky Hill, CT 06067		Client: Cingular	Drawn by: Jed Kiernan
Phone: (860) 529-8882		Code: TIA/EIA-222-F	Date: 03/24/05
FAX: (860) 529-5566		Path: P:\Telecom\F09\ERI FILES\SHARON4 on	App'd:
			Scale:
			Dwg No

## ERI TOWER DETAILED OUTPUT

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 1 of 38
	<b>Project</b> Sharon, CT	<b>Date</b> 15:14:35 03/24/05
	<b>Client</b> Cingular	<b>Designed by</b> Jed Kiernan

## Tower Input Data

The main tower is a 3x free standing tower with an overall height of 195.00 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 4.50 ft at the top and 20.00 ft at the base.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Basic wind speed of 90 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 90 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 90 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

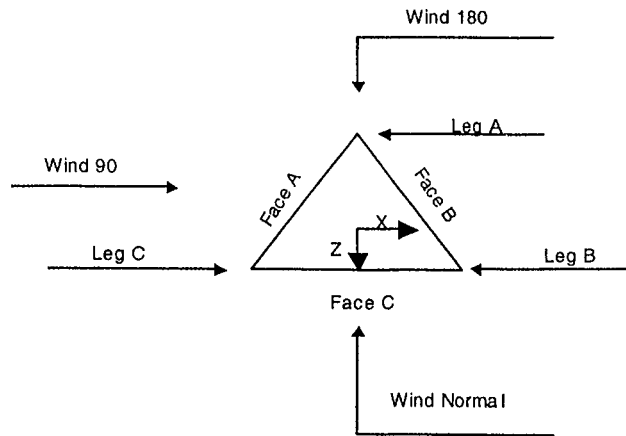
Stress ratio used in tower member design is 1.333.

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

## Options

- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>√ Include Bolts In Member Capacity</li> <li>√ Leg Bolts Are At Top Of Section</li> <li>Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>Add IBC .6D+W Combination</li> </ul> | <ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>√ Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>√ Use Clear Spans For KL/r</li> <li>Retension Guys To Initial Tension</li> <li>Bypass Mast Stability Checks</li> <li>Use Azimuth Dish Coefficients</li> <li>Project Wind Area of Appurt.</li> <li>√ Autocalc Torque Arm Areas</li> <li>√ SR Members Have Cut Ends</li> <li>√ Sort Capacity Reports By Component</li> <li>Triangulate Diamond Inner Bracing</li> </ul> | <ul style="list-style-type: none"> <li>Treat Feedline Bundles As Cylinder</li> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>√ Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>√ SR Leg Bolts Resist Compression</li> <li>√ All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feedline Torque</li> <li>Include Angle Block Shear Check</li> <li style="padding-left: 20px;">Poles</li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> </ul> |
|--|--|---|

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 2 of 38
	<b>Project</b> Sharon, CT	<b>Date</b> 15:14:35 03/24/05
	<b>Client</b> Cingular	<b>Designed by</b> Jed Kiernan



Triangular Tower

### Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	195.00-185.00		V4.5 111574	4.50	1	10.00
T2	185.00-170.00		V4.5 111574	4.50	1	15.00
T3	170.00-150.00		H5.0 116640	4.50	1	20.00
T4	150.00-140.00	pirod	U6.0 105245	5.00	1	10.00
T5	140.00-120.00	pirod	U8.0 105217	6.00	1	20.00
T6	120.00-100.00		U10.0 105217 L3x3/16	8.00	1	20.00
T7	100.00-80.00		U12.0 105218	10.00	1	20.00
T8	80.00-60.00		U14.0 105218	12.00	1	20.00
T9	60.00-40.00	pirod	U16.0 105219	14.00	1	20.00
T10	40.00-20.00		U18.0 105219	16.00	1	20.00
T11	20.00-0.00		U20.0 105219 L3.5x5/16	18.00	1	20.00

### Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	195.00-185.00	2.17	X Brace	No	Steps	8.0160	8.0160
T2	185.00-170.00	2.28	X Brace	No	Steps	8.0160	8.0160
T3	170.00-150.00	2.34	X Brace	No	Steps	7.4880	7.4880
T4	150.00-140.00	10.00	X Brace	No	No	0.0000	0.0000



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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
T5	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T6	120.00-100.00	10.00	X Brace	No	No	0.0000	0.0000
T7	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T8	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T9	60.00-40.00	10.00	X Brace	No	No	0.0000	0.0000
T10	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T11	20.00-0.00	10.00	X Brace	No	No	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 195.00-185.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 185.00-170.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 170.00-150.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T4 150.00-140.00	Truss Leg	Pirod 105245	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 140.00-120.00	Truss Leg	Pirod 105217	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T6 120.00-100.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T7 100.00-80.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T8 80.00-60.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Single Angle	L3x3x5/16	A36 (36 ksi)
T9 60.00-40.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Single Angle	L3x3x5/16	A36 (36 ksi)
T10 40.00-20.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T11 20.00-0.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 195.00-185.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T2 185.00-170.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T3 170.00-150.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T7 100.00-80.00	Single Angle	L3x3x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

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**Tower Section Geometry (cont'd)**

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 195.00-185.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 185.00-170.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T3 170.00-150.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 195.00-185.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T2 185.00-170.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T3 170.00-150.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T4 150.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T5 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T6 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T7 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T8 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T9 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T10 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T11 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors'						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
T1 195.00-185.00	No	No	1	X Y	X Y	X Y	X Y	X Y	X Y	X Y
				1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors <sup>1</sup>								
			Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace	
				X Y	X Y	X Y	X Y	X Y	X Y	X Y	
T2 185.00-170.00	No	No	1	1	1	1	1	1	1	1	1
T3 170.00-150.00	No	No	1	1	1	1	1	1	0.5	1	1
T4 150.00-140.00	No	No	1	1	1	1	1	1	1	1	1
T5 140.00-120.00	No	No	1	1	1	1	1	1	1	1	1
T6 120.00-100.00	No	No	1	1	1	1	1	1	1	1	1
T7 100.00-80.00	No	No	1	1	1	1	1	1	1	1	1
T8 80.00-60.00	No	No	1	1	1	1	1	1	1	1	1
T9 60.00-40.00	No	No	1	1	1	1	1	1	1	1	1
T10 40.00-20.00	No	No	1	1	1	1	1	1	1	1	1
T11 20.00-0.00	No	No	1	1	1	1	1	1	1	1	1

<sup>1</sup>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	Truss-Leg K Factors					
	Truss-Legs Used As Leg Members			Truss-Legs Used As Inner Members		
	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4 150.00-140.00	1	0.5	0.85	1	0.5	0.85
T5 140.00-120.00	1	0.5	0.85	1	0.5	0.85
T6 120.00-100.00	1	0.5	0.85	1	0.5	0.85
T7 100.00-80.00	1	0.5	0.85	1	0.5	0.85
T8 80.00-60.00	1	0.5	0.85	1	0.5	0.85
T9 60.00-40.00	1	0.5	0.85	1	0.5	0.85
T10 40.00-20.00	1	0.5	0.85	1	0.5	0.85
T11 20.00-0.00	1	0.5	0.85	1	0.5	0.85

### Tower Section Geometry (cont'd)

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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 195.00-185.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T2 185.00-170.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 170.00-150.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 150.00-140.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 100.00-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T8 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 60.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T10 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T11 20.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

### 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 (AT&T)	A	Yes	Ar (CfAe)	160.00 - 7.00	9	9	1.1100	1.1100		0.54
1 5/8 (Cingular)	C	Yes	Ar (CfAe)	173.00 - 7.00	12	12	1.9800	1.9800		1.04
1 5/8	B	Yes	Ar (CfAe)	195.00 - 7.00	8	8	1.9800	1.9800		1.04
1 5/8	A	Yes	Ar (CfAe)	185.00 - 7.00	2	2	1.9800	1.9800		1.04
1 5/8	A	Yes	Ar (CfAe)	165.00 - 7.00	4	4	1.9800	1.9800		1.04
7/8	B	Yes	Ar (CfAe)	120.00 - 7.00	3	3	1.1100	1.1100		0.54
1 5/8	A	Yes	Ar (CfAe)	100.00 - 7.00	2	2	1.9800	1.9800		1.04
1 5/8	B	Yes	Ar (CfAe)	80.00 - 7.00	2	2	1.9800	1.9800		1.04
1 5/8	B	Yes	Ar (CfAe)	70.00 - 7.00	1	1	1.9800	1.9800		1.04
7/8	B	Yes	Ar (CfAe)	10.00 - 7.00	3	3	1.1100	1.1100		0.54

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight lb
T1	195.00-185.00	A	0.000	0.000	0.000	0.000	0.00
		B	13.200	0.000	0.000	0.000	83.20
		C	0.000	0.000	0.000	0.000	0.00
T2	185.00-170.00	A	4.950	0.000	0.000	0.000	31.20
		B	19.800	0.000	0.000	0.000	124.80
		C	5.940	0.000	0.000	0.000	37.44
T3	170.00-150.00	A	24.825	0.000	0.000	0.000	152.60

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Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>Λ</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>Λ</sub> Out Face ft <sup>2</sup>	Weight lb
		B	26.400	0.000	0.000	0.000	166.40
		C	39.600	0.000	0.000	0.000	249.60
T4	150.00-140.00	A	18.225	0.000	0.000	0.000	111.00
		B	13.200	0.000	0.000	0.000	83.20
		C	19.800	0.000	0.000	0.000	124.80
T5	140.00-120.00	A	36.450	0.000	0.000	0.000	222.00
		B	26.400	0.000	0.000	0.000	166.40
		C	39.600	0.000	0.000	0.000	249.60
T6	120.00-100.00	A	36.450	0.000	0.000	0.000	222.00
		B	31.950	0.000	0.000	0.000	198.80
		C	39.600	0.000	0.000	0.000	249.60
T7	100.00-80.00	A	43.050	0.000	0.000	0.000	263.60
		B	31.950	0.000	0.000	0.000	198.80
		C	39.600	0.000	0.000	0.000	249.60
T8	80.00-60.00	A	43.050	0.000	0.000	0.000	263.60
		B	40.200	0.000	0.000	0.000	250.80
		C	39.600	0.000	0.000	0.000	249.60
T9	60.00-40.00	A	43.050	0.000	0.000	0.000	263.60
		B	41.850	0.000	0.000	0.000	261.20
		C	39.600	0.000	0.000	0.000	249.60
T10	40.00-20.00	A	43.050	0.000	0.000	0.000	263.60
		B	41.850	0.000	0.000	0.000	261.20
		C	39.600	0.000	0.000	0.000	249.60
T11	20.00-0.00	A	27.983	0.000	0.000	0.000	171.34
		B	28.035	0.000	0.000	0.000	174.64
		C	25.740	0.000	0.000	0.000	162.24

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>Λ</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>Λ</sub> Out Face ft <sup>2</sup>	Weight lb
T1	195.00-185.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		19.867	0.000	0.000	0.000	204.40
		C		0.000	0.000	0.000	0.000	0.00
T2	185.00-170.00	A	0.500	7.450	0.000	0.000	0.000	76.65
		B		29.800	0.000	0.000	0.000	306.59
		C		8.940	0.000	0.000	0.000	91.98
T3	170.00-150.00	A	0.500	40.658	0.000	0.000	0.000	392.61
		B		39.733	0.000	0.000	0.000	408.79
		C		59.600	0.000	0.000	0.000	613.19
T4	150.00-140.00	A	0.500	30.725	0.000	0.000	0.000	290.41
		B		19.867	0.000	0.000	0.000	204.40
		C		29.800	0.000	0.000	0.000	306.59
T5	140.00-120.00	A	0.500	61.450	0.000	0.000	0.000	580.82
		B		39.733	0.000	0.000	0.000	408.79
		C		59.600	0.000	0.000	0.000	613.19
T6	120.00-100.00	A	0.500	61.450	0.000	0.000	0.000	580.82
		B		50.283	0.000	0.000	0.000	500.20
		C		59.600	0.000	0.000	0.000	613.19
T7	100.00-80.00	A	0.500	71.383	0.000	0.000	0.000	683.02
		B		50.283	0.000	0.000	0.000	500.20
		C		59.600	0.000	0.000	0.000	613.19
T8	80.00-60.00	A	0.500	71.383	0.000	0.000	0.000	683.02
		B		62.700	0.000	0.000	0.000	627.95
		C		59.600	0.000	0.000	0.000	613.19
T9	60.00-40.00	A	0.500	71.383	0.000	0.000	0.000	683.02
		B		65.183	0.000	0.000	0.000	653.50

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_{AA}$ In Face ft <sup>2</sup>	$C_{AA}$ Out Face ft <sup>2</sup>	Weight lb
T10	40.00-20.00	C	0.500	59.600	0.000	0.000	0.000	613.19
		A		71.383	0.000	0.000	0.000	683.02
		B		65.183	0.000	0.000	0.000	653.50
T11	20.00-0.00	C	0.500	59.600	0.000	0.000	0.000	613.19
		A		46.399	0.000	0.000	0.000	443.96
		B		43.952	0.000	0.000	0.000	438.48
		C		38.740	0.000	0.000	0.000	398.57

### Feed Line Shielding

Section	Elevation ft	Face	$A_R$ ft <sup>2</sup>	$A_R$ Ice ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$A_F$ Ice ft <sup>2</sup>
T1	195.00-185.00	A	0.000	0.000	0.000	0.000
		B	1.185	3.749	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	185.00-170.00	A	0.406	1.292	0.000	0.000
		B	1.624	5.168	0.000	0.000
		C	0.586	1.898	0.000	0.000
T3	170.00-150.00	A	2.156	7.063	0.000	0.000
		B	2.293	6.902	0.000	0.000
		C	4.182	12.961	0.000	0.000
T4	150.00-140.00	A	0.000	0.000	1.574	3.361
		B	0.000	0.000	1.140	2.173
		C	0.000	0.000	1.710	3.260
T5	140.00-120.00	A	0.000	0.000	2.657	5.675
		B	0.000	0.000	1.925	3.669
		C	0.000	0.000	2.887	5.504
T6	120.00-100.00	A	0.000	0.000	2.729	5.624
		B	0.000	0.000	2.392	4.602
		C	0.000	0.000	2.965	5.454
T7	100.00-80.00	A	0.000	0.000	3.450	6.992
		B	0.000	0.000	2.561	4.925
		C	0.000	0.000	3.174	5.838
T8	80.00-60.00	A	0.000	0.000	2.717	5.507
		B	0.000	0.000	2.537	4.837
		C	0.000	0.000	2.500	4.598
T9	60.00-40.00	A	0.000	0.000	2.588	5.245
		B	0.000	0.000	2.516	4.789
		C	0.000	0.000	2.381	4.379
T10	40.00-20.00	A	0.000	0.000	2.914	5.753
		B	0.000	0.000	2.833	5.253
		C	0.000	0.000	2.681	4.803
T11	20.00-0.00	A	0.000	0.000	1.845	3.642
		B	0.000	0.000	1.848	3.450
		C	0.000	0.000	1.697	3.041

### Feed Line Center of Pressure

Section	Elevation ft	$CP_x$ in	$CP_z$ in	$CP_x$ Ice in	$CP_z$ Ice in
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<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 9 of 38
	<b>Project</b> Sharon, CT	<b>Date</b> 15:14:35 03/24/05
	<b>Client</b> Cingular	<b>Designed by</b> Jed Kiernan

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub> Ice	CP <sub>z</sub> Ice
	ft	in	in	in	in
T1	195.00-185.00	5.2225	-3.0152	4.1478	-2.3947
T2	185.00-170.00	3.2535	-1.6552	2.7435	-1.4324
T3	170.00-150.00	0.1540	1.6046	-0.0702	1.1815
T4	150.00-140.00	-0.7883	0.7850	-1.0777	0.5534
T5	140.00-120.00	-1.0132	0.9969	-1.3930	0.7051
T6	120.00-100.00	-0.5226	0.7699	-0.8399	0.3582
T7	100.00-80.00	-1.4770	0.3455	-1.8222	-0.1007
T8	80.00-60.00	-0.4082	-0.3427	-0.8310	-0.8336
T9	60.00-40.00	-0.1893	-0.5439	-0.6728	-1.0970
T10	40.00-20.00	-0.1999	-0.5710	-0.7181	-1.1698
T11	20.00-0.00	0.0261	-0.5757	-0.3503	-1.1065

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>MA</sub> Front ft <sup>2</sup>	C <sub>MA</sub> Side ft <sup>2</sup>	Weight lb
PD1110 (CSP)	A	From Face	6.00 0.00 0.00	0.0000	201.50	No Ice 1/2" Ice 3.84	2.50 2.50 3.84	20.00 39.52
PD1110 (CSP)	A	From Face	6.00 0.00 0.00	0.0000	188.50	No Ice 1/2" Ice 3.84	2.50 2.50 3.84	20.00 39.52
PD1110 (CSP)	B	From Face	6.00 0.00 0.00	0.0000	201.50	No Ice 1/2" Ice 3.84	2.50 2.50 3.84	20.00 39.52
PD1110 (CSP)	B	From Face	6.00 0.00 0.00	0.0000	188.50	No Ice 1/2" Ice 3.84	2.50 2.50 3.84	20.00 39.52
Pirod 6' Side Mount Standoff (1)	A	None		0.0000	195.00	No Ice 1/2" Ice 5.43	4.50 4.50 5.43	70.00 130.00
Pirod 6' Side Mount Standoff (1)	B	None		0.0000	195.00	No Ice 1/2" Ice 5.43	4.50 4.50 5.43	70.00 130.00
(2) AP14/17- 880/1940/088D/ADT/XXP (Cingular)	A	From Leg	3.00 0.00 0.00	0.0000	173.00	No Ice 1/2" Ice 8.39	7.55 4.33 5.13	61.70 106.25
(2) AP14/17- 880/1940/088D/ADT/XXP (Cingular)	B	From Leg	3.00 0.00 0.00	0.0000	173.00	No Ice 1/2" Ice 8.39	7.55 4.33 5.13	61.70 106.25
(2) AP14/17- 880/1940/088D/ADT/XXP (Cingular)	C	From Leg	3.00 0.00 0.00	0.0000	173.00	No Ice 1/2" Ice 8.39	7.55 4.33 5.13	61.70 106.25
(3) ALP 9212 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 5.67	5.06 4.04 4.64	17.20 50.00
(3) ALP 9212 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 5.67	5.06 4.04 4.64	17.20 50.00
(3) ALP 9212 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 5.67	5.06 4.04 4.64	17.20 50.00
Pirod 12' T-Frame Sector	A	From Leg	3.00	0.0000	160.00	No Ice	12.20	360.00

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	Job	195' Lattice Tower	Page	10 of 38
	Project	Sharon, CT	Date	15:14:35 03/24/05
	Client	Cingular	Designed by	Jed Kiernan

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>A</sub> Front	C <sub>A</sub> A <sub>A</sub> Side	Weight
			Horz	Lateral					
Mount (1) (AT&T)			0.00			1/2" Ice	17.60	17.60	490.00
Pirot 12' T-Frame Sector Mount (1) (AT&T)	B	From Leg	3.00	0.0000	160.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
Pirot 12' T-Frame Sector Mount (1) (AT&T)	C	From Leg	3.00	0.0000	160.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
Pirot 6' Side Mount Standoff (1)	C	None		0.0000	195.00	No Ice	4.50	4.50	70.00
PD1142-30 (LCD)	C	From Leg	6.00	0.0000	203.00	No Ice	5.43	5.43	130.00
			0.00			1/2" Ice	0.14	0.14	10.00
			0.00			1/2" Ice	1.49	1.49	110.00
ANT150D6-9 (NEU)	C	From Leg	6.00	0.0000	185.00	No Ice	3.20	3.20	26.00
			0.00			1/2" Ice	5.76	5.76	29.00
PD201-1 (LCD)	C	From Leg	6.00	0.0000	199.00	No Ice	0.63	0.63	4.00
			0.00			1/2" Ice	1.54	1.54	10.65
PD220-1 (LCD)	C	From Leg	6.00	0.0000	195.00	No Ice	4.21	4.21	25.00
			0.00			1/2" Ice	6.29	6.29	65.06
Pirot 6' Side Mount Standoff (1)	C	None		0.0000	185.00	No Ice	4.50	4.50	70.00
BCD-87077 (PAGNET)	A	From Leg	4.00	0.0000	174.00	1/2" Ice	5.43	5.43	130.00
			0.00			No Ice	3.06	3.06	26.50
			0.00			1/2" Ice	4.27	4.27	49.13
DB809KT4E-YP (VER)	A	From Leg	2.00	0.0000	171.00	No Ice	3.20	3.20	30.50
			0.00			1/2" Ice	4.30	4.30	53.71
PD220-1 (VER)	B	From Leg	6.00	0.0000	130.00	No Ice	4.21	4.21	25.00
			0.00			1/2" Ice	6.29	6.29	65.06
DB230-2C (VER)	B	From Leg	6.00	0.0000	120.00	No Ice	2.10	2.10	104.00
			0.00			1/2" Ice	3.78	3.78	135.20
PD1142-1 (NEU)	A	From Leg	6.00	0.0000	110.00	No Ice	1.32	1.32	10.00
			0.00			1/2" Ice	3.21	3.21	23.85
12' Dipole (SHARON)	C	From Leg	2.00	0.0000	80.00	No Ice	3.20	3.20	26.00
			0.00			1/2" Ice	5.76	5.76	29.00
2" Dia 16.5' Omni (HAM)	A	From Leg	6.00	0.0000	88.25	No Ice	3.00	3.00	55.00
			0.00			1/2" Ice	5.00	5.00	100.00
PD220-3B (LCD)	B	From Leg	6.00	0.0000	176.00	No Ice	4.21	4.21	25.00
			0.00			1/2" Ice	6.29	6.29	65.06
DB222 (LCD)	C	From Leg	6.00	0.0000	185.00	No Ice	1.60	1.60	16.00
			0.00			1/2" Ice	2.88	2.88	20.80
PD1142-1 (NEU)	C	From Leg	6.00	0.0000	120.00	No Ice	1.32	1.32	10.00
			0.00			1/2" Ice	3.21	3.21	23.85
DB432-A (HAM)	A	None		0.0000	70.00	No Ice	0.30	0.30	5.00
Pirot 6' Side Mount Standoff	B	None		0.0000	120.00	1/2" Ice	0.54	0.54	6.50
						No Ice	4.50	4.50	70.00



<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	Job	195' Lattice Tower	Page	11 of 38
	Project	Sharon, CT	Date	15:14:35 03/24/05
	Client	Cingular	Designed by	Jed Kiernan

Description	Face or Leg	Offset Type	Offsets: Horiz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>A</sub> A <sub>Front</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>Side</sub> ft <sup>2</sup>	Weight lb
(1) Pirod 6' Side Mount Standoff	C	None		0.0000	120.00	1/2" Ice 5.43 No Ice 4.50	5.43 4.50	130.00 70.00
(1) Pirod 6' Side Mount Standoff	A	None		0.0000	100.00	1/2" Ice 5.43 No Ice 4.50	5.43 4.50	130.00 70.00
(1) Pirod 6' Side Mount Standoff	A	None		0.0000	80.00	1/2" Ice 5.43 No Ice 4.50	5.43 4.50	130.00 70.00
(2) UltraSite MHA (Cingular)	A	From Leg	3.00 0.00 0.00	0.0000	173.00	No Ice 0.00 1/2" Ice 0.00	0.34 0.52	19.00 22.00
(2) UltraSite MHA (Cingular)	B	From Leg	3.00 0.00 0.00	0.0000	173.00	No Ice 0.00 1/2" Ice 0.00	0.34 0.52	19.00 22.00
(2) UltraSite MHA (Cingular)	C	From Leg	3.00 0.00 0.00	0.0000	173.00	No Ice 0.00 1/2" Ice 0.00	0.34 0.52	19.00 22.00
Valmont 15' Lo-profile Lattice (Cingular)	C	None		0.0000	173.00	No Ice 24.90 1/2" Ice 30.70	24.90 30.70	1810.00 2435.00

### Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horiz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft <sup>2</sup>	Weight lb
PA6-65AC (CSP)		Paraboloid w/o Radome	None		Worst		100.00	6.00	No Ice 28.27 1/2" Ice 29.05	90.00 239.13
PA6-65AC (CSP)		Paraboloid w/o Radome	None		Worst		195.00	6.00	No Ice 28.27 1/2" Ice 29.05	90.00 239.13
1.2M (VER)		Paraboloid w/o Radome	None		Worst		12.00	4.00	No Ice 12.17 1/2" Ice 13.09	165.00 232.19
1.2M (PAG)		Paraboloid w/o Radome	None		Worst		9.00	4.00	No Ice 12.17 1/2" Ice 13.09	165.00 232.19
1.2M (PAG)		Paraboloid w/o Radome	None		Worst		6.00	4.00	No Ice 12.17 1/2" Ice 13.09	165.00 232.19

### Truss-Leg Properties

Section Designation	Area in <sup>2</sup>	Area Ice in <sup>2</sup>	Self Weight lb	Ice Weight lb	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in <sup>2</sup>
Pirod 105245	1090.3344	1814.3549	676.81	218.88	7.5718	12.5997	5.3014
Pirod 105217	2130.7479	3520.4599	619.35	443.34	7.3984	12.2238	5.3014
Pirod 105218	2263.4687	3690.8612	754.52	458.46	7.8593	12.8155	7.2158
Pirod 105218	2263.4687	3690.8612	754.52	458.46	7.8593	12.8155	7.2158

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Section Designation	Area <i>in</i> <sup>2</sup>	Area Ice <i>in</i> <sup>2</sup>	Self Weight <i>lb</i>	Ice Weight <i>lb</i>	Equiv. Diameter <i>in</i>	Equiv. Diameter Ice <i>in</i>	Leg Area <i>in</i> <sup>2</sup>
Pirod 105219	2441.8688	3942.2854	944.27	485.72	8.4787	13.6885	9.4248
Pirod 105219	2441.8688	3942.2854	944.27	485.72	8.4787	13.6885	9.4248
Pirod 105220	2578.8005	4132.5504	1121.16	500.74	8.9542	14.3491	11.9282
Pirod 105220	2578.8005	4132.5504	1121.16	500.74	8.9542	14.3491	11.9282

**Tower Pressures - No Ice**

$G_H = 1.116$

Section Elevation <i>ft</i>	<i>z</i> <i>ft</i>	$K_z$	$q_s$ <i>psf</i>	$A_G$ <i>ft</i> <sup>2</sup>	$F_{ac}$ <i>e</i>	$A_F$ <i>ft</i> <sup>2</sup>	$A_R$ <i>ft</i> <sup>2</sup>	$A_{Ice}$ <i>ft</i> <sup>2</sup>	Leg %	$C_A A_A$ In Face <i>ft</i> <sup>2</sup>	$C_A A_A$ Out Face <i>ft</i> <sup>2</sup>
T1 195.00-185.00	190.00	1.649	34	46.458	A	0.000	6.824	2.917	42.74	0.000	0.000
					B	0.000	18.839		15.48		
					C	0.000	7.368		39.58		
T2 185.00-170.00	177.50	1.617	34	70.000	A	0.000	14.877	5.000	33.61	0.000	0.000
					B	0.000	28.508		17.54		
					C	0.000	16.770		29.82		
T3 170.00-150.00	160.00	1.57	33	98.750	A	0.000	38.094	7.501	19.69	0.000	0.000
					B	0.000	39.532		18.97		
					C	0.000	52.554		14.27		
T4 150.00-140.00	145.00	1.526	32	66.264	A	2.670	30.866	12.641	37.69	0.000	0.000
					B	3.104	25.841		43.67		
					C	2.534	32.441		36.14		
T5 140.00-120.00	130.00	1.48	31	162.528	A	6.065	61.153	24.703	36.75	0.000	0.000
					B	6.798	51.103		42.66		
					C	5.835	64.303		35.22		
T6 120.00-100.00	110.00	1.411	29	202.945	A	9.235	62.691	26.241	36.48	0.000	0.000
					B	9.572	58.191		38.72		
					C	8.999	65.841		35.06		
T7 100.00-80.00	90.00	1.332	28	242.945	A	12.320	69.291	26.241	32.15	0.000	0.000
					B	13.209	58.191		36.75		
					C	12.596	65.841		33.45		
T8 80.00-60.00	70.00	1.24	26	283.362	A	12.427	71.359	28.309	33.79	0.000	0.000
					B	12.607	68.509		34.90		
					C	12.645	67.909		35.14		
T9 60.00-40.00	50.00	1.126	23	323.362	A	14.242	71.359	28.309	33.07	0.000	0.000
					B	14.314	70.159		33.51		
					C	14.449	67.909		34.37		
T10 40.00-20.00	30.00	1	21	363.780	A	18.746	72.947	29.897	32.61	0.000	0.000
					B	18.828	71.747		33.01		
					C	18.980	69.497		33.79		
T11 20.00-0.00	10.00	1	21	403.780	A	21.890	57.879	29.897	37.48	0.000	0.000
					B	21.886	57.932		37.46		
					C	22.037	55.637		38.49		

**Tower Pressure - With Ice**

$G_H = 1.116$

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	Job	195' Lattice Tower	Page	13 of 38
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Section Elevation	z	K <sub>z</sub>	q <sub>z</sub>	t <sub>z</sub>	A <sub>G</sub>	F a c e	A <sub>F</sub>	A <sub>R</sub>	A <sub>leg</sub>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>
ft	ft		psf	in	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>			
T1 195.00-185.00	190.00	1.649	34	0.5000	47.292	A	0.000	12.801	4.583	35.81	0.000	0.000
						B	0.000	28.918		15.85		
						C	0.000	14.071		32.57		
T2 185.00-170.00	177.50	1.617	34	0.5000	71.250	A	0.000	24.931	7.500	30.08	0.000	0.000
						B	0.000	43.405		17.28		
						C	0.000	28.343		26.46		
T3 170.00-150.00	160.00	1.57	33	0.5000	100.417	A	0.000	60.279	10.834	17.97	0.000	0.000
						B	0.000	59.515		18.20		
						C	0.000	77.315		14.01		
T4 150.00-140.00	145.00	1.526	32	0.5000	67.098	A	2.014	51.759	21.034	39.12	0.000	0.000
						B	3.202	40.901		47.69		
						C	2.116	50.834		39.73		
T5 140.00-120.00	130.00	1.48	31	0.5000	164.197	A	5.374	102.264	40.814	37.92	0.000	0.000
						B	7.379	80.547		46.42		
						C	5.545	100.414		38.52		
T6 120.00-100.00	110.00	1.411	29	0.5000	204.614	A	8.999	104.239	42.789	37.79	0.000	0.000
						B	10.021	93.073		41.51		
						C	9.169	102.389		38.36		
T7 100.00-80.00	90.00	1.332	28	0.5000	244.614	A	12.282	114.173	42.789	33.84	0.000	0.000
						B	14.349	93.073		39.83		
						C	13.436	102.389		36.94		
T8 80.00-60.00	70.00	1.24	26	0.5000	285.031	A	13.002	117.088	45.704	35.13	0.000	0.000
						B	13.672	108.404		37.44		
						C	13.911	105.304		38.34		
T9 60.00-40.00	50.00	1.126	23	0.5000	325.031	A	15.325	117.088	45.704	34.52	0.000	0.000
						B	15.780	110.888		36.08		
						C	16.191	105.304		37.62		
T10 40.00-20.00	30.00	1	21	0.5000	365.448	A	20.034	119.293	47.910	34.39	0.000	0.000
						B	20.533	113.093		35.85		
						C	20.983	107.510		37.29		
T11 20.00-0.00	10.00	1	21	0.5000	405.448	A	24.613	94.309	47.910	40.29	0.000	0.000
						B	24.806	91.862		41.07		
						C	25.215	86.650		42.83		

### Tower Pressure - Service

$G_H = 1.116$

Section Elevation	z	K <sub>z</sub>	q <sub>z</sub>	A <sub>G</sub>	F a c e	A <sub>F</sub>	A <sub>R</sub>	A <sub>leg</sub>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>
ft	ft		psf	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>			
T1 195.00-185.00	190.00	1.649	34	46.458	A	0.000	6.824	2.917	42.74	0.000	0.000
					B	0.000	18.839		15.48		
					C	0.000	7.368		39.58		
T2 185.00-170.00	177.50	1.617	34	70.000	A	0.000	14.877	5.000	33.61	0.000	0.000
					B	0.000	28.508		17.54		
					C	0.000	16.770		29.82		
T3 170.00-150.00	160.00	1.57	33	98.750	A	0.000	38.094	7.501	19.69	0.000	0.000
					B	0.000	39.532		18.97		
					C	0.000	52.554		14.27		
T4 150.00-140.00	145.00	1.526	32	66.264	A	2.670	30.866	12.641	37.69	0.000	0.000
					B	3.104	25.841		43.67		
					C	2.534	32.441		36.14		
T5 140.00-	130.00	1.48	31	162.528	A	6.065	61.153	24.703	36.75	0.000	0.000

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 14 of 38
	<b>Project</b> Sharon, CT	<b>Date</b> 15:14:35 03/24/05
	<b>Client</b> Cingular	<b>Designed by</b> Jed Kiernan

Section Elevation ft	z ft	K <sub>z</sub>	q <sub>z</sub> psf	A <sub>G</sub> ft <sup>2</sup>	F a c e	A <sub>F</sub> ft <sup>2</sup>	A <sub>R</sub> ft <sup>2</sup>	A <sub>leg</sub> ft <sup>2</sup>	Leg %	C <sub>A</sub> A <sub>n</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>n</sub> Out Face ft <sup>2</sup>
120.00					B	6.798	51.103		42.66		
T6 120.00-100.00	110.00	1.411	29	202.945	C	5.835	64.303		35.22	0.000	0.000
					A	9.235	62.691	26.241	36.48		
					B	9.572	58.191		38.72		
					C	8.999	65.841		35.06		
T7 100.00-80.00	90.00	1.332	28	242.945	A	12.320	69.291	26.241	32.15	0.000	0.000
					B	13.209	58.191		36.75		
					C	12.596	65.841		33.45		
T8 80.00-60.00	70.00	1.24	26	283.362	A	12.427	71.359	28.309	33.79	0.000	0.000
					B	12.607	68.509		34.90		
					C	12.645	67.909		35.14		
T9 60.00-40.00	50.00	1.126	23	323.362	A	14.242	71.359	28.309	33.07	0.000	0.000
					B	14.314	70.159		33.51		
					C	14.449	67.909		34.37		
T10 40.00-20.00	30.00	1	21	363.780	A	18.746	72.947	29.897	32.61	0.000	0.000
					B	18.828	71.747		33.01		
					C	18.980	69.497		33.79		
T11 20.00-0.00	10.00	1	21	403.780	A	21.890	57.879	29.897	37.48	0.000	0.000
					B	21.886	57.932		37.46		
					C	22.037	55.637		38.49		

### Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub> ft <sup>2</sup>	F lb	w plf	Ctrl. Face
T1 195.00-185.00	83.20	624.81	A	0.147	2.783	0.581	1	1	3.965	964.71	96.47	B
			B	0.406	2.053	0.654	1	1	12.318			
			C	0.159	2.74	0.583	1	1	4.294			
T2 185.00-170.00	193.44	1007.62	A	0.213	2.555	0.593	1	1	8.822	1430.94	95.40	B
			B	0.407	2.05	0.655	1	1	18.661			
			C	0.24	2.469	0.599	1	1	10.050			
T3 170.00-150.00	568.60	1681.47	A	0.386	2.093	0.646	1	1	24.605	2538.46	126.92	C
			B	0.4	2.063	0.652	1	1	25.765			
			C	0.532	1.862	0.714	1	1	37.547			
T4 150.00-140.00	319.00	1237.65	A	0.506	1.892	0.701	1	1	24.295	1689.33	168.93	C
			B	0.437	1.996	0.667	1	1	20.348			
			C	0.528	1.866	0.712	1	1	25.634			
T5 140.00-120.00	638.00	2333.62	A	0.414	2.038	0.657	1	1	46.257	3334.38	166.72	C
			B	0.356	2.157	0.635	1	1	39.234			
			C	0.432	2.005	0.665	1	1	48.595			
T6 120.00-100.00	670.40	2896.44	A	0.354	2.161	0.634	1	1	48.985	3549.61	177.48	C
			B	0.334	2.21	0.627	1	1	46.050			
			C	0.369	2.129	0.639	1	1	51.095			
T7 100.00-80.00	712.00	3079.21	A	0.336	2.205	0.628	1	1	55.803	3790.80	189.54	A
			B	0.294	2.312	0.614	1	1	48.942			
			C	0.323	2.237	0.623	1	1	53.626			
T8 80.00-60.00	764.00	4089.63	A	0.296	2.308	0.615	1	1	56.284	3724.27	186.21	A
			B	0.286	2.333	0.612	1	1	54.520			
			C	0.284	2.339	0.611	1	1	54.152			
T9 60.00-40.00	774.40	4213.69	A	0.265	2.394	0.606	1	1	57.467	3583.57	179.18	A
			B	0.261	2.404	0.605	1	1	55.747			
			C	0.255	2.423	0.603	1	1	55.404			
T10 40.00-20.00	774.40	5136.76	A	0.252	2.431	0.602	1	1	62.690	3525.68	176.28	A
			B	0.249	2.441	0.602	1	1	61.992			
			C	0.243	2.458	0.6	1	1	60.690			

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b>	195' Lattice Tower	<b>Page</b>	15 of 38
	<b>Project</b>	Sharon, CT	<b>Date</b>	15:14:35 03/24/05
	<b>Client</b>	Cingular	<b>Designed by</b>	Jed Kiernan

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb							ft <sup>2</sup>	lb	plf	
T11 20.00-0.00	508.22	5293.34	A	0.198	2.604	0.59	1	1	56.033	3376.54	168.83	B
			B	0.198	2.604	0.59	1	1	56.062			
			C	0.192	2.622	0.589	1	1	54.801			
Sum Weight:	6005.66	31594.25						OTM	2832903.9 4 lb-ft	31508.28		

### Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb							ft <sup>2</sup>	lb	plf	
T1 195.00-185.00	83.20	624.81	A	0.147	2.783	0.581	0.8	1	3.965	964.71	96.47	B
			B	0.406	2.053	0.654	0.8	1	12.318			
			C	0.159	2.74	0.583	0.8	1	4.294			
T2 185.00-170.00	193.44	1007.62	A	0.213	2.555	0.593	0.8	1	8.822	1430.94	95.40	B
			B	0.407	2.05	0.655	0.8	1	18.661			
			C	0.24	2.469	0.599	0.8	1	10.050			
T3 170.00-150.00	568.60	1681.47	A	0.386	2.093	0.646	0.8	1	24.605	2538.46	126.92	C
			B	0.4	2.063	0.652	0.8	1	25.765			
			C	0.532	1.862	0.714	0.8	1	37.547			
T4 150.00-140.00	319.00	1237.65	A	0.506	1.892	0.701	0.8	1	23.761	1655.93	165.59	C
			B	0.437	1.996	0.667	0.8	1	19.727			
			C	0.528	1.866	0.712	0.8	1	25.127			
T5 140.00-120.00	638.00	2333.62	A	0.414	2.038	0.657	0.8	1	45.044	3254.30	162.71	C
			B	0.356	2.157	0.635	0.8	1	37.874			
			C	0.432	2.005	0.665	0.8	1	47.428			
T6 120.00-100.00	670.40	2896.44	A	0.354	2.161	0.634	0.8	1	47.138	3424.57	171.23	C
			B	0.334	2.21	0.627	0.8	1	44.135			
			C	0.369	2.129	0.639	0.8	1	49.295			
T7 100.00-80.00	712.00	3079.21	A	0.336	2.205	0.628	0.8	1	53.339	3623.42	181.17	A
			B	0.294	2.312	0.614	0.8	1	46.300			
			C	0.323	2.237	0.623	0.8	1	51.107			
T8 80.00-60.00	764.00	4089.63	A	0.296	2.308	0.615	0.8	1	53.798	3559.81	177.99	A
			B	0.286	2.333	0.612	0.8	1	51.999			
			C	0.284	2.339	0.611	0.8	1	51.623			
T9 60.00-40.00	774.40	4213.69	A	0.265	2.394	0.606	0.8	1	54.619	3405.95	170.30	A
			B	0.261	2.404	0.605	0.8	1	53.884			
			C	0.255	2.423	0.603	0.8	1	52.514			
T10 40.00-20.00	774.40	5136.76	A	0.252	2.431	0.602	0.8	1	58.941	3314.82	165.74	A
			B	0.249	2.441	0.602	0.8	1	58.226			
			C	0.243	2.458	0.6	0.8	1	56.894			
T11 20.00-0.00	508.22	5293.34	A	0.198	2.604	0.59	0.8	1	51.655	3112.90	155.65	B
			B	0.198	2.604	0.59	0.8	1	51.685			
			C	0.192	2.622	0.589	0.8	1	50.393			
Sum Weight:	6005.66	31594.25						OTM	2759477.7 7 lb-ft	30285.81		

### Tower Forces - No Ice - Wind 90 To Face

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 2B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 16 of 38
	<b>Project</b> Sharon, CT	<b>Date</b> 15:14:35 03/24/05
	<b>Client</b> Cingular	<b>Designed by</b> Jed Kiernan

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub> ft <sup>2</sup>	F lb	w plf	Ctrl. Face
T1 195.00-185.00	83.20	624.81	A	0.147	2.783	0.581	0.85	1	3.965	964.71	96.47	B
			B	0.406	2.053	0.654	0.85	1	12.318			
			C	0.159	2.74	0.583	0.85	1	4.294			
T2 185.00-170.00	193.44	1007.62	A	0.213	2.555	0.593	0.85	1	8.822	1430.94	95.40	B
			B	0.407	2.005	0.655	0.85	1	18.661			
			C	0.24	2.469	0.599	0.85	1	10.050			
T3 170.00-150.00	568.60	1681.47	A	0.386	2.093	0.646	0.85	1	24.605	2538.46	126.92	C
			B	0.4	2.063	0.652	0.85	1	25.765			
			C	0.532	1.862	0.714	0.85	1	37.547			
T4 150.00-140.00	319.00	1237.65	A	0.506	1.892	0.701	0.85	1	23.895	1664.28	166.43	C
			B	0.437	1.996	0.667	0.85	1	19.882			
			C	0.528	1.866	0.712	0.85	1	25.254			
T5 140.00-120.00	638.00	2333.62	A	0.414	2.038	0.657	0.85	1	45.347	3274.32	163.72	C
			B	0.356	2.157	0.635	0.85	1	38.214			
			C	0.432	2.005	0.665	0.85	1	47.720			
T6 120.00-100.00	670.40	2896.44	A	0.354	2.161	0.634	0.85	1	47.600	3455.83	172.79	C
			B	0.334	2.21	0.627	0.85	1	44.614			
			C	0.369	2.129	0.639	0.85	1	49.745			
T7 100.00-80.00	712.00	3079.21	A	0.336	2.205	0.628	0.85	1	53.955	3665.26	183.26	A
			B	0.294	2.312	0.614	0.85	1	46.960			
			C	0.323	2.237	0.623	0.85	1	51.736			
T8 80.00-60.00	764.00	4089.63	A	0.296	2.308	0.615	0.85	1	54.420	3600.93	180.05	A
			B	0.286	2.333	0.612	0.85	1	52.629			
			C	0.284	2.339	0.611	0.85	1	52.255			
T9 60.00-40.00	774.40	4213.69	A	0.265	2.394	0.606	0.85	1	55.331	3450.35	172.52	A
			B	0.261	2.404	0.605	0.85	1	54.600			
			C	0.255	2.423	0.603	0.85	1	53.237			
T10 40.00-20.00	774.40	5136.76	A	0.252	2.431	0.602	0.85	1	59.878	3367.54	168.38	A
			B	0.249	2.441	0.602	0.85	1	59.168			
			C	0.243	2.458	0.6	0.85	1	57.843			
T11 20.00-0.00	508.22	5293.34	A	0.198	2.604	0.59	0.85	1	52.749	3178.81	158.94	B
			B	0.198	2.604	0.59	0.85	1	52.779			
			C	0.192	2.622	0.589	0.85	1	51.495			
Sum Weight:	6005.66	31594.25						OTM	2777834.3 1 lb-ft	30591.43		

### Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub> ft <sup>2</sup>	F lb	w plf	Ctrl. Face
T1 195.00-185.00	204.40	810.70	A	0.271	2.377	0.607	1	1	7.775	1508.06	150.81	B
			B	0.611	1.797	0.761	1	1	21.998			
			C	0.298	2.303	0.615	1	1	8.656			
T2 185.00-170.00	475.22	1279.70	A	0.35	2.172	0.632	1	1	15.767	2217.33	147.82	B
			B	0.609	1.799	0.759	1	1	32.956			
			C	0.398	2.068	0.651	1	1	18.443			
T3 170.00-150.00	1414.59	2076.19	A	0.6	1.804	0.754	1	1	45.437	4400.89	220.04	C
			B	0.593	1.809	0.749	1	1	44.585			
			C	0.77	1.797	0.872	1	1	67.444			
T4 150.00-140.00	801.40	1725.86	A	0.801	1.817	0.898	1	1	48.472	3109.77	310.98	A
			B	0.657	1.78	0.79	1	1	35.528			
			C	0.789	1.808	0.888	1	1	47.236			
T5 140.00-120.00	1602.80	4006.89	A	0.656	1.78	0.789	1	1	86.077	5243.75	262.19	A
			B	0.535	1.858	0.716	1	1	65.071			

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 17 of 38
	<b>Project</b> Sharon, CT	<b>Date</b> 15:14:35 03/24/05
	<b>Client</b> Cingular	<b>Designed by</b> Jed Kiernan

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb							ft <sup>2</sup>	lb	plf	
T6 120.00-100.00	1694.21	4712.71	C	0.645	1.783	0.782	1	1	84.106	5085.65	254.28	A
			A	0.553	1.84	0.726	1	1	84.698			
			B	0.504	1.895	0.699	1	1	75.123			
T7 100.00-80.00	1796.41	5022.89	C	0.545	1.848	0.722	1	1	83.053	5379.26	268.96	A
			A	0.517	1.879	0.706	1	1	92.922			
			B	0.439	1.992	0.668	1	1	76.554			
T8 80.00-60.00	1924.16	6083.76	C	0.474	1.937	0.684	1	1	83.506	5189.23	259.46	A
			A	0.456	1.963	0.676	1	1	92.181			
			B	0.428	2.011	0.664	1	1	85.604			
T9 60.00-40.00	1949.70	6260.79	C	0.418	2.029	0.659	1	1	83.330	4910.12	245.51	A
			A	0.407	2.05	0.655	1	1	91.975			
			B	0.39	2.085	0.647	1	1	87.575			
T10 40.00-20.00	1949.70	7376.28	C	0.374	2.118	0.641	1	1	83.718	4710.94	235.55	A
			A	0.381	2.102	0.644	1	1	96.874			
			B	0.366	2.136	0.638	1	1	92.708			
T11 20.00-0.00	1281.02	7597.94	C	0.352	2.168	0.633	1	1	89.043	4416.19	220.81	A
			A	0.293	2.314	0.614	1	1	82.508			
			B	0.288	2.329	0.612	1	1	81.046			
Sum Weight:	15093.61	46953.72	C	0.276	2.362	0.609	1	1	77.969	46171.20		
								OTM	4354653.3			
									2 lb-ft			

### Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb							ft <sup>2</sup>	lb	plf	
T1 195.00-185.00	204.40	810.70	A	0.271	2.377	0.607	0.8	1	7.775	1508.06	150.81	B
			B	0.611	1.797	0.761	0.8	1	21.998			
			C	0.298	2.303	0.615	0.8	1	8.656			
T2 185.00-170.00	475.22	1279.70	A	0.35	2.172	0.632	0.8	1	15.767	2217.33	147.82	B
			B	0.609	1.799	0.759	0.8	1	32.956			
			C	0.398	2.068	0.651	0.8	1	18.443			
T3 170.00-150.00	1414.59	2076.19	A	0.6	1.804	0.754	0.8	1	45.437	4400.89	220.04	C
			B	0.593	1.809	0.749	0.8	1	44.585			
			C	0.77	1.797	0.872	0.8	1	67.444			
T4 150.00-140.00	801.40	1725.86	A	0.801	1.817	0.898	0.8	1	48.069	3083.92	308.39	A
			B	0.657	1.78	0.79	0.8	1	34.888			
			C	0.789	1.808	0.888	0.8	1	46.813			
T5 140.00-120.00	1602.80	4006.89	A	0.656	1.78	0.789	0.8	1	85.002	5178.28	258.91	A
			B	0.535	1.858	0.716	0.8	1	63.595			
			C	0.645	1.783	0.782	0.8	1	82.998			
T6 120.00-100.00	1694.21	4712.71	A	0.553	1.84	0.726	0.8	1	82.898	4977.58	248.88	A
			B	0.504	1.895	0.699	0.8	1	73.119			
			C	0.545	1.848	0.722	0.8	1	81.219			
T7 100.00-80.00	1796.41	5022.89	A	0.517	1.879	0.706	0.8	1	90.465	5237.06	261.85	A
			B	0.439	1.992	0.668	0.8	1	73.685			
			C	0.474	1.937	0.684	0.8	1	80.819			
T8 80.00-60.00	1924.16	6083.76	A	0.456	1.963	0.676	0.8	1	89.581	5042.84	252.14	A
			B	0.428	2.011	0.664	0.8	1	82.870			
			C	0.418	2.029	0.659	0.8	1	80.548			
T9 60.00-40.00	1949.70	6260.79	A	0.407	2.05	0.655	0.8	1	88.910	4746.49	237.32	A
			B	0.39	2.085	0.647	0.8	1	84.419			
			C	0.374	2.118	0.641	0.8	1	80.480			
T10 40.00-	1949.70	7376.28	A	0.381	2.102	0.644	0.8	1	92.867	4516.09	225.80	A

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 18 of 38
	<b>Project</b> Sharon, CT	<b>Date</b> 15:14:35 03/24/05
	<b>Client</b> Cingular	<b>Designed by</b> Jed Kiernan

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb							ft <sup>2</sup>	lb	plf	
20.00			B	0.366	2.136	0.638	0.8	1	88.602			
			C	0.352	2.168	0.633	0.8	1	84.846			
T11 20.00-0.00	1281.02	7597.94	A	0.293	2.314	0.614	0.8	1	77.585	4152.70	207.64	A
			B	0.288	2.329	0.612	0.8	1	76.085			
			C	0.276	2.362	0.609	0.8	1	72.926			
Sum Weight:	15093.61	46953.72						OTM	4290798.8 7 lb-ft	45061.26		

**Tower Forces - With Ice - Wind 90 To Face**

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb							ft <sup>2</sup>	lb	plf	
T1 195.00-185.00	204.40	810.70	A	0.271	2.377	0.607	0.85	1	7.775	1508.06	150.81	B
			B	0.611	1.797	0.761	0.85	1	21.998			
			C	0.298	2.303	0.615	0.85	1	8.656			
T2 185.00-170.00	475.22	1279.70	A	0.35	2.172	0.632	0.85	1	15.767	2217.33	147.82	B
			B	0.609	1.799	0.759	0.85	1	32.956			
			C	0.398	2.068	0.651	0.85	1	18.443			
T3 170.00-150.00	1414.59	2076.19	A	0.6	1.804	0.754	0.85	1	45.437	4400.89	220.04	C
			B	0.593	1.809	0.749	0.85	1	44.585			
			C	0.77	1.797	0.872	0.85	1	67.444			
T4 150.00-140.00	801.40	1725.86	A	0.801	1.817	0.898	0.85	1	48.169	3090.38	309.04	A
			B	0.657	1.78	0.79	0.85	1	35.048			
			C	0.789	1.808	0.888	0.85	1	46.919			
T5 140.00-120.00	1602.80	4006.89	A	0.656	1.78	0.789	0.85	1	85.271	5194.65	259.73	A
			B	0.535	1.858	0.716	0.85	1	63.964			
			C	0.645	1.783	0.782	0.85	1	83.275			
T6 120.00-100.00	1694.21	4712.71	A	0.553	1.84	0.726	0.85	1	83.348	5004.60	250.23	A
			B	0.504	1.895	0.699	0.85	1	73.620			
			C	0.545	1.848	0.722	0.85	1	81.678			
T7 100.00-80.00	1796.41	5022.89	A	0.517	1.879	0.706	0.85	1	91.079	5272.61	263.63	A
			B	0.439	1.992	0.668	0.85	1	74.402			
			C	0.474	1.937	0.684	0.85	1	81.491			
T8 80.00-60.00	1924.16	6083.76	A	0.456	1.963	0.676	0.85	1	90.231	5079.44	253.97	A
			B	0.428	2.011	0.664	0.85	1	83.553			
			C	0.418	2.029	0.659	0.85	1	81.243			
T9 60.00-40.00	1949.70	6260.79	A	0.407	2.05	0.655	0.85	1	89.676	4787.40	239.37	A
			B	0.39	2.085	0.647	0.85	1	85.208			
			C	0.374	2.118	0.641	0.85	1	81.289			
T10 40.00-20.00	1949.70	7376.28	A	0.381	2.102	0.644	0.85	1	93.869	4564.80	228.24	A
			B	0.366	2.136	0.638	0.85	1	89.628			
			C	0.352	2.168	0.633	0.85	1	85.895			
T11 20.00-0.00	1281.02	7597.94	A	0.293	2.314	0.614	0.85	1	78.816	4218.58	210.93	A
			B	0.288	2.329	0.612	0.85	1	77.325			
			C	0.276	2.362	0.609	0.85	1	74.187			
Sum Weight:	15093.61	46953.72						OTM	4306762.4 8 lb-ft	45338.75		

**Tower Forces - Service - Wind Normal To Face**



<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	Job	195' Lattice Tower	Page	19 of 38
	Project	Sharon, CT	Date	15:14:35 03/24/05
	Client	Cingular	Designed by	Jed Kiernan

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb	e						ft <sup>2</sup>	lb	plf	
T1 195.00-185.00	83.20	624.81	A	0.147	2.783	0.581	1	1	3.965	964.71	96.47	B
			B	0.406	2.053	0.654	1	1	12.318			
			C	0.159	2.74	0.583	1	1	4.294			
T2 185.00-170.00	193.44	1007.62	A	0.213	2.555	0.593	1	1	8.822	1430.94	95.40	B
			B	0.407	2.05	0.655	1	1	18.661			
			C	0.24	2.469	0.599	1	1	10.050			
T3 170.00-150.00	568.60	1681.47	A	0.386	2.093	0.646	1	1	24.605	2538.46	126.92	C
			B	0.4	2.063	0.652	1	1	25.765			
			C	0.532	1.862	0.714	1	1	37.547			
T4 150.00-140.00	319.00	1237.65	A	0.506	1.892	0.701	1	1	24.295	1689.33	168.93	C
			B	0.437	1.996	0.667	1	1	20.348			
			C	0.528	1.866	0.712	1	1	25.634			
T5 140.00-120.00	638.00	2333.62	A	0.414	2.038	0.657	1	1	46.257	3334.38	166.72	C
			B	0.356	2.157	0.635	1	1	39.234			
			C	0.432	2.005	0.665	1	1	48.595			
T6 120.00-100.00	670.40	2896.44	A	0.354	2.161	0.634	1	1	48.985	3549.61	177.48	C
			B	0.334	2.21	0.627	1	1	46.050			
			C	0.369	2.129	0.639	1	1	51.095			
T7 100.00-80.00	712.00	3079.21	A	0.336	2.205	0.628	1	1	55.803	3790.80	189.54	A
			B	0.294	2.312	0.614	1	1	48.942			
			C	0.323	2.237	0.623	1	1	53.626			
T8 80.00-60.00	764.00	4089.63	A	0.296	2.308	0.615	1	1	56.284	3724.27	186.21	A
			B	0.286	2.333	0.612	1	1	54.520			
			C	0.284	2.339	0.611	1	1	54.152			
T9 60.00-40.00	774.40	4213.69	A	0.265	2.394	0.606	1	1	57.467	3583.57	179.18	A
			B	0.261	2.404	0.605	1	1	56.747			
			C	0.255	2.423	0.603	1	1	55.404			
T10 40.00-20.00	774.40	5136.76	A	0.252	2.431	0.602	1	1	62.690	3525.68	176.28	A
			B	0.249	2.441	0.602	1	1	61.992			
			C	0.243	2.458	0.6	1	1	60.690			
T11 20.00-0.00	508.22	5293.34	A	0.198	2.604	0.59	1	1	56.033	3376.54	168.83	B
			B	0.198	2.604	0.59	1	1	56.062			
			C	0.192	2.622	0.589	1	1	54.801			
Sum Weight:	6005.66	31594.25						OTM	2832903.9 4 lb-ft	31508.28		

**Tower Forces - Service - Wind 60 To Face**

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb	e						ft <sup>2</sup>	lb	plf	
T1 195.00-185.00	83.20	624.81	A	0.147	2.783	0.581	0.8	1	3.965	964.71	96.47	B
			B	0.406	2.053	0.654	0.8	1	12.318			
			C	0.159	2.74	0.583	0.8	1	4.294			
T2 185.00-170.00	193.44	1007.62	A	0.213	2.555	0.593	0.8	1	8.822	1430.94	95.40	B
			B	0.407	2.05	0.655	0.8	1	18.661			
			C	0.24	2.469	0.599	0.8	1	10.050			
T3 170.00-150.00	568.60	1681.47	A	0.386	2.093	0.646	0.8	1	24.605	2538.46	126.92	C
			B	0.4	2.063	0.652	0.8	1	25.765			
			C	0.532	1.862	0.714	0.8	1	37.547			
T4 150.00-140.00	319.00	1237.65	A	0.506	1.892	0.701	0.8	1	23.761	1655.93	165.59	C
			B	0.437	1.996	0.667	0.8	1	19.727			
			C	0.528	1.866	0.712	0.8	1	25.127			
T5 140.00-120.00	638.00	2333.62	A	0.414	2.038	0.657	0.8	1	45.044	3254.30	162.71	C
			B	0.356	2.157	0.635	0.8	1	37.874			

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	Job	195' Lattice Tower	Page	20 of 38
	Project	Sharon, CT	Date	15:14:35 03/24/05
	Client	Cingular	Designed by	Jed Kiernan

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb							ft <sup>2</sup>	lb	plf	
T6 120.00-100.00	670.40	2896.44	C	0.432	2.005	0.665	0.8	1	47.428	3424.57	171.23	C
			A	0.354	2.161	0.634	0.8	1	47.138			
			B	0.334	2.21	0.627	0.8	1	44.135			
T7 100.00-80.00	712.00	3079.21	C	0.369	2.129	0.639	0.8	1	49.295	3623.42	181.17	A
			A	0.336	2.205	0.628	0.8	1	53.339			
			B	0.294	2.312	0.614	0.8	1	46.300			
T8 80.00-60.00	764.00	4089.63	C	0.323	2.237	0.623	0.8	1	51.107	3559.81	177.99	A
			A	0.296	2.308	0.615	0.8	1	53.798			
			B	0.286	2.333	0.612	0.8	1	51.999			
T9 60.00-40.00	774.40	4213.69	C	0.284	2.339	0.611	0.8	1	51.623	3405.95	170.30	A
			A	0.265	2.394	0.606	0.8	1	54.619			
			B	0.261	2.404	0.605	0.8	1	53.884			
T10 40.00-20.00	774.40	5136.76	C	0.255	2.423	0.603	0.8	1	52.514	3314.82	165.74	A
			A	0.252	2.431	0.602	0.8	1	58.941			
			B	0.249	2.441	0.602	0.8	1	58.226			
T11 20.00-0.00	508.22	5293.34	C	0.243	2.458	0.6	0.8	1	56.894	3112.90	155.65	B
			A	0.198	2.604	0.59	0.8	1	51.655			
			B	0.198	2.604	0.59	0.8	1	51.685			
Sum Weight:	6005.66	31594.25		0.192	2.622	0.589	0.8	1	50.393			
								OTM	2759477.7	30285.81		
									7 lb-ft			

### Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb							ft <sup>2</sup>	lb	plf	
T1 195.00-185.00	83.20	624.81	A	0.147	2.783	0.581	0.85	1	3.965	964.71	96.47	B
			B	0.406	2.053	0.654	0.85	1	12.318			
T2 185.00-170.00	193.44	1007.62	C	0.159	2.74	0.583	0.85	1	4.294	1430.94	95.40	B
			A	0.213	2.555	0.593	0.85	1	8.822			
			B	0.407	2.05	0.655	0.85	1	18.661			
T3 170.00-150.00	568.60	1681.47	C	0.24	2.469	0.599	0.85	1	10.050	2538.46	126.92	C
			A	0.386	2.093	0.646	0.85	1	24.605			
			B	0.4	2.063	0.652	0.85	1	25.765			
T4 150.00-140.00	319.00	1237.65	C	0.532	1.862	0.714	0.85	1	37.547	1664.28	166.43	C
			A	0.506	1.892	0.701	0.85	1	23.895			
			B	0.437	1.996	0.667	0.85	1	19.882			
T5 140.00-120.00	638.00	2333.62	C	0.528	1.866	0.712	0.85	1	25.254	3274.32	163.72	C
			A	0.414	2.038	0.657	0.85	1	45.347			
			B	0.356	2.157	0.635	0.85	1	38.214			
T6 120.00-100.00	670.40	2896.44	C	0.432	2.005	0.665	0.85	1	47.720	3455.83	172.79	C
			A	0.354	2.161	0.634	0.85	1	47.600			
			B	0.334	2.21	0.627	0.85	1	44.614			
T7 100.00-80.00	712.00	3079.21	C	0.369	2.129	0.639	0.85	1	49.745	3665.26	183.26	A
			A	0.336	2.205	0.628	0.85	1	53.955			
			B	0.294	2.312	0.614	0.85	1	46.960			
T8 80.00-60.00	764.00	4089.63	C	0.323	2.237	0.623	0.85	1	51.736	3600.93	180.05	A
			A	0.296	2.308	0.615	0.85	1	54.420			
			B	0.286	2.333	0.612	0.85	1	52.629			
T9 60.00-40.00	774.40	4213.69	C	0.284	2.339	0.611	0.85	1	52.255	3450.35	172.52	A
			A	0.265	2.394	0.606	0.85	1	55.331			
			B	0.261	2.404	0.605	0.85	1	54.600			
T10 40.00-	774.40	5136.76	A	0.255	2.423	0.603	0.85	1	53.237			
			A	0.252	2.431	0.602	0.85	1	59.878	3367.54	168.38	A

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 21 of 38
	<b>Project</b> Sharon, CT	<b>Date</b> 15:14:35 03/24/05
	<b>Client</b> Cingular	<b>Designed by</b> Jed Kiernan

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	R <sub>R</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	lb	lb							ft <sup>2</sup>	lb	plf	
20.00			B	0.249	2.441	0.602	0.85	1	59.168			
			C	0.243	2.458	0.6	0.85	1	57.843			
T11 20.00-0.00	508.22	5293.34	A	0.198	2.604	0.59	0.85	1	52.749	3178.81	158.94	B
			B	0.198	2.604	0.59	0.85	1	52.779			
			C	0.192	2.622	0.589	0.85	1	51.495			
Sum Weight:	6005.66	31594.25						OTM	2777834.3 1 lb-ft	30591.43		

### Force Totals

Load Case	Vertical Forces	Sum of Forces X	Sum of Forces Z	Sum of Overturning Moments, M <sub>x</sub>	Sum of Overturning Moments, M <sub>y</sub>	Sum of Torques
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Leg Weight	21395.10					
Bracing Weight	10199.15					
Total Member Self-Weight	31594.25			50.05	-284.98	
Total Weight	42841.91			50.05	-284.98	
Wind 0 deg - No Ice		0.00	-44791.00	-4749728.55	-284.98	-1259.21
Wind 30 deg - No Ice		21937.08	-37996.13	-4065687.18	-2347639.46	-1186.70
Wind 60 deg - No Ice		37731.46	-21784.27	-2338126.16	-4050124.97	-822.19
Wind 90 deg - No Ice		43874.15	0.00	50.05	-4694993.94	-252.57
Wind 120 deg - No Ice		38790.14	22395.50	2374939.34	-4113713.90	401.94
Wind 150 deg - No Ice		21937.08	37996.13	4065787.27	-2347639.46	934.12
Wind 180 deg - No Ice		0.00	43568.54	4676402.47	-284.98	1212.87
Wind 210 deg - No Ice		-21937.08	37996.13	4065787.27	2347069.50	1186.70
Wind 240 deg - No Ice		-38790.14	22395.50	2374939.34	4113143.94	857.27
Wind 270 deg - No Ice		-43874.15	0.00	50.05	4694423.98	252.57
Wind 300 deg - No Ice		-37731.46	-21784.27	-2338126.16	4049555.01	-390.68
Wind 330 deg - No Ice		-21937.08	-37996.13	-4065687.18	2347069.50	-934.12
Member Ice	15359.47					
Total Weight Ice	70331.63			-296.80	906.17	
Wind 0 deg - Ice		0.00	-62223.17	-6700526.06	906.17	-4745.35
Wind 30 deg - Ice		30695.36	-53165.92	-5761390.87	-3325263.05	-4645.71
Wind 60 deg - Ice		52925.61	-30556.61	-3318484.20	-5746363.01	-3336.56
Wind 90 deg - Ice		61390.71	0.00	-296.80	-6651432.26	-1173.22
Wind 120 deg - Ice		53886.85	31111.59	3349817.84	-5801662.59	1316.79
Wind 150 deg - Ice		30695.36	53165.92	5760797.27	-3325263.05	3472.49
Wind 180 deg - Ice		0.00	61113.23	6636078.01	906.17	4667.61
Wind 210 deg - Ice		-30695.36	53165.92	5760797.27	3327075.38	4645.71
Wind 240 deg - Ice		-53886.85	31111.59	3349817.84	5803474.92	3428.56
Wind 270 deg - Ice		-61390.71	0.00	-296.80	6653244.59	1173.22
Wind 300 deg - Ice		-52925.61	-30556.61	-3318484.20	5748175.34	-1331.05
Wind 330 deg - Ice		-30695.36	-53165.92	-5761390.87	3327075.38	-3472.49
Total Weight	42841.91			50.05	-284.98	
Wind 0 deg - Service		0.00	-44791.00	-4749879.91	-463.82	-1259.21
Wind 30 deg - Service		21937.08	-37996.13	-4065838.54	-2347818.31	-1186.70
Wind 60 deg - Service		37731.46	-21784.27	-2338277.52	-4050303.82	-822.19
Wind 90 deg - Service		43874.15	0.00	-101.31	-4695172.79	-252.57
Wind 120 deg - Service		38790.14	22395.50	2374787.98	-4113892.75	401.94
Wind 150 deg - Service		21937.08	37996.13	4065635.91	-2347818.31	934.12
Wind 180 deg - Service		0.00	43568.54	4676251.11	-463.82	1212.87
Wind 210 deg - Service		-21937.08	37996.13	4065635.91	2346890.66	1186.70
Wind 240 deg - Service		-38790.14	22395.50	2374787.98	4112965.10	857.27
Wind 270 deg - Service		-43874.15	0.00	-101.31	4694245.14	252.57
Wind 300 deg - Service		-37731.46	-21784.27	-2338277.52	4049376.17	-390.68

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 22 of 38
	<b>Project</b> Sharon, CT	<b>Date</b> 15:14:35 03/24/05
	<b>Client</b> Cingular	<b>Designed by</b> Jed Kiernan

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M <sub>x</sub> lb-ft	Sum of Overturning Moments, M <sub>y</sub> lb-ft	Sum of Torques lb-ft
Wind 330 deg - Service		-21937.08	-37996.13	-4065838.54	2346890.66	-934.12

### Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

### 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
T1	195 - 185	Leg	Max Tension	25	10557.91	-892.70	-424.49
			Max. Compression	23	-11774.44	146.88	-119.83
			Max. Mx	18	-9802.16	956.29	66.29

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T2	185 - 170	Diagonal	Max. My	21	-6337.21	87.04	1112.74
			Max. Vy	24	-1690.40	198.70	-0.07
			Max. Vx	21	1871.80	23.26	-137.11
			Max. Tension	16	2885.43	0.00	0.00
			Max. Compression	22	-2864.09	0.00	0.00
			Max. Mx	23	460.16	-4.04	-0.10
			Max. My	22	-2842.83	-1.70	1.24
			Max. Vy	23	-4.91	-4.04	-0.10
			Max. Vx	22	-0.50	-1.70	1.24
			Max. Tension	21	276.68	0.00	0.00
			Max. Compression	15	-240.26	0.00	0.00
			Horizontal	Max. Mx	14	20.12	5.81
		Max. My		17	-116.11	0.00	-0.00
		Max. Vy		14	-5.17	0.00	0.00
		Max. Vx		17	0.00	0.00	0.00
		Max. Tension		19	853.48	0.00	0.00
		Max. Compression		25	-887.71	0.00	0.00
		Top Girt	Max. Mx	14	-9.59	9.22	0.00
			Max. My	15	-437.10	0.00	0.00
			Max. Vy	14	-8.20	0.00	0.00
			Max. Vx	15	-0.00	0.00	0.00
			Max. Tension	17	1184.87	0.00	0.00
			Max. Compression	23	-1200.52	0.00	0.00
		Bottom Girt	Max. Mx	14	10.55	9.22	0.00
			Max. My	21	-556.54	0.00	-0.00
			Max. Vy	14	-8.20	0.00	0.00
			Max. Vx	21	0.00	0.00	0.00
			Max. Tension	21	97.82	0.00	0.00
			Max. Compression	23	-73.05	0.00	0.00
		Mid Girt	Max. Mx	14	0.28	9.22	0.00
			Max. My	21	-25.66	0.00	-0.00
			Max. Vy	14	-8.20	0.00	0.00
			Max. Vx	21	0.00	0.00	0.00
			Max. Tension	25	37213.42	-1887.58	-1053.25
			Max. Compression	23	-41735.63	618.71	-403.56
		Leg	Max. Mx	18	-32158.36	2103.48	216.43
			Max. My	15	-36986.20	176.27	-2218.09
			Max. Vy	24	-4153.06	669.57	-128.78
			Max. Vx	15	-4436.48	-44.14	743.46
			Max. Tension	22	5898.61	0.00	0.00
			Max. Compression	16	-5840.37	0.00	0.00
			Max. Mx	19	916.42	-5.41	-0.25
Max. My	22		-5782.80	-0.99	2.92		
Max. Vy	22		-5.45	-5.39	0.31		
Max. Vx	22		-1.16	-0.99	2.92		
Max. Tension	21		634.72	0.00	0.00		
Max. Compression	15		-589.18	0.00	0.00		
Diagonal	Max. Mx	14	53.04	5.81	0.00		
	Max. My	17	-279.32	0.00	-0.00		
	Max. Vy	14	-5.17	0.00	0.00		
	Max. Vx	17	0.00	0.00	0.00		
	Max. Tension	19	1440.35	0.00	0.00		
	Max. Compression	17	-1412.00	0.00	0.00		
Horizontal	Max. Mx	14	-2.38	9.22	0.00		
	Max. My	15	-773.19	0.00	0.00		
	Max. Vy	14	-8.20	0.00	0.00		
	Max. Vx	15	-0.00	0.00	0.00		
	Max. Tension	25	2697.87	0.00	0.00		
	Max. Compression	23	-2795.83	0.00	0.00		
Top Girt	Max. Mx	14	20.27	9.22	0.00		
	Max. My	21	-1204.92	0.00	-0.00		
	Max. Vy	14	-8.20	0.00	0.00		
Bottom Girt	Max. Vx	21	0.00	0.00	0.00		
	Max. Tension	25	2697.87	0.00	0.00		
	Max. Compression	23	-2795.83	0.00	0.00		

<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 24 of 38
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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T3	170 - 150	Mid Girt	Max. Vy	14	-8.20	0.00	0.00
			Max. Vx	21	0.00	0.00	0.00
			Max Tension	21	308.85	0.00	0.00
			Max. Compression	15	-250.12	0.00	0.00
			Max. Mx	14	22.98	9.22	0.00
			Max. My	21	15.65	0.00	-0.00
		Leg	Max. Vy	14	-8.20	0.00	0.00
			Max. Vx	21	0.00	0.00	0.00
			Max Tension	25	102487.60	907.83	-23.70
			Max. Compression	23	-110672.29	4135.40	-79.28
			Max. Mx	15	-110403.31	4142.56	133.42
			Max. My	20	-2506.49	-81.96	-2801.53
		Diagonal	Max. Vy	19	-8188.22	4136.27	-54.12
			Max. Vx	26	-4022.68	30.81	1968.14
			Max Tension	16	7179.13	0.00	0.00
			Max. Compression	22	-7244.44	0.00	0.00
			Max. Mx	23	218.04	-9.24	-0.22
			Max. My	16	-6251.53	-0.35	-4.61
		Horizontal	Max. Vy	23	-7.76	-9.24	-0.22
			Max. Vx	16	1.82	-0.35	-4.61
			Max Tension	21	1385.79	0.00	0.00
			Max. Compression	15	-1247.67	0.00	0.00
			Max. Mx	14	88.49	6.97	0.00
			Max. My	19	152.82	0.00	0.00
		Top Girt	Max. Vy	14	-5.66	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
			Max Tension	19	2650.39	0.00	0.00
			Max. Compression	17	-2551.11	0.00	0.00
			Max. Mx	14	-6.37	9.28	0.00
			Max. My	15	-1566.05	0.00	0.00
		Bottom Girt	Max. Vy	14	-8.22	0.00	0.00
			Max. Vx	15	-0.00	0.00	0.00
			Max Tension	21	1633.25	0.00	0.00
			Max. Compression	15	-1523.68	0.00	0.00
			Max. Mx	14	25.32	11.31	0.00
			Max. My	20	-16.20	0.00	-0.00
		Mid Girt	Max. Vy	14	9.08	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
			Max Tension	21	456.66	0.00	0.00
			Max. Compression	15	-330.61	0.00	0.00
			Max. Mx	14	27.64	10.27	0.00
			Max. My	21	183.48	0.00	-0.00
Leg	Max. Vy	14	-8.65	0.00	0.00		
	Max. Vx	21	0.00	0.00	0.00		
	Max Tension	25	109898.88	-3864.77	54.99		
	Max. Compression	23	-117786.38	5483.95	10.46		
	Max. Mx	25	109494.80	-5945.38	39.28		
	Max. My	26	-4672.35	-207.06	9642.03		
Diagonal	Max. Vy	17	425.79	-5932.32	4.91		
	Max. Vx	26	-989.55	-207.06	9642.03		
	Max Tension	21	8094.01	87.70	-6.12		
	Max. Compression	15	-8765.20	0.00	0.00		
	Max. Mx	21	6986.82	88.25	3.04		
	Max. My	16	-7763.26	-53.53	41.53		
Leg	Max. Vy	21	22.76	88.25	3.04		
	Max. Vx	16	-8.41	0.00	0.00		
	Max Tension	25	153916.46	-6321.31	25.21		
	Max. Compression	23	-165729.84	7089.84	-46.09		
	Max. Mx	19	-165573.99	7092.99	31.08		
	Max. My	26	-5627.74	-207.25	9642.02		
T5	140 - 120	Leg	Max. Vy	17	249.57	-6970.50	31.68

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft		
T6	120 - 100	Diagonal	Max. Vx	22	513.10	-184.49	9603.24		
			Max Tension	16	7898.95	0.00	0.00		
			Max. Compression	16	-8444.14	0.00	0.00		
			Max. Mx	23	6531.81	92.48	-2.59		
			Max. My	15	-536.16	50.98	8.41		
			Max. Vy	23	-25.53	91.11	2.96		
		Leg	Max. Vx	15	2.07	0.00	0.00		
			Max Tension	21	190254.48	-5208.97	-2.94		
			Max. Compression	19	-206788.19	8451.46	5.12		
			Max. Mx	19	-206788.19	8451.46	5.12		
			Max. My	20	-8114.17	-309.28	-9103.92		
			Max. Vy	15	590.01	7077.73	15.03		
			Max. Vx	18	1077.51	-316.07	8973.29		
			Diagonal	Max Tension	25	8086.32	0.00	0.00	
Max. Compression	19	-8737.76		0.00	0.00				
Max. Mx	19	5132.08		116.30	-7.82				
Max. My	20	-7980.68		-42.64	-15.45				
Max. Vy	19	-32.86		116.30	-7.82				
Max. Vx	20	2.99		-42.64	-15.45				
T7	100 - 80	Leg	Max Tension	21	228116.11	-4572.26	-7.95		
			Max. Compression	23	-250190.80	8082.96	-52.23		
			Max. Mx	19	-227042.17	8451.46	5.12		
			Max. My	20	-10122.37	-394.69	-9840.60		
			Max. Vy	19	1157.47	8451.46	5.12		
			Max. Vx	20	1056.40	-394.69	-9840.60		
		Diagonal	Max Tension	16	8449.44	0.00	0.00		
			Max. Compression	16	-8946.17	0.00	0.00		
			Max. Mx	23	7172.87	115.25	-5.17		
			Max. My	24	-8523.12	-36.19	27.50		
			Max. Vy	23	-34.13	115.25	-5.17		
			Max. Vx	24	-4.63	0.00	0.00		
		Top Girt	Max Tension	21	4748.82	0.00	0.00		
			Max. Compression	19	-4160.72	0.00	0.00		
Max. Mx	14		300.55	-82.59	0.00				
Max. My	22		-3585.64	0.00	2.38				
Max. Vy	14		-33.03	0.00	0.00				
Max. Vx	22		0.95	0.00	0.00				
T8	80 - 60	Leg	Max Tension	21	263081.80	-6015.67	-4.31		
			Max. Compression	23	-291179.47	6148.76	-5.87		
			Max. Mx	23	-270328.43	8082.96	-52.23		
			Max. My	24	-13953.47	8.06	-6108.85		
			Max. Vy	19	474.92	8082.91	42.21		
			Max. Vx	26	378.66	179.58	5955.23		
		Diagonal	Max Tension	16	8928.86	0.00	0.00		
			Max. Compression	16	-9449.00	0.00	0.00		
			Max. Mx	21	7482.91	145.26	-10.33		
			Max. My	21	-7776.61	25.23	-14.29		
			Max. Vy	21	48.55	145.26	-10.33		
			Max. Vx	21	2.86	0.00	0.00		
		T9	60 - 40	Leg	Max Tension	21	295693.22	-5670.56	-0.31
					Max. Compression	23	-330030.56	5613.23	-12.62
Max. Mx	21				294986.40	-6925.74	-18.03		
Max. My	24				-16075.90	53.76	-6287.32		
Max. Vy	21				284.21	-6925.74	-18.03		
Max. Vx	24				161.95	53.80	-6287.32		
Diagonal	Max Tension			16	9228.96	0.00	0.00		
	Max. Compression			16	-9648.66	0.00	0.00		
	Max. Mx			23	7598.59	154.53	-10.73		
	Max. My			21	-8177.88	35.05	-14.69		
	Max. Vy			21	52.35	152.26	-12.48		
	Max. Vx			21	2.87	0.00	0.00		

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft			
T10	40 - 20	Leg	Max Tension	25	325366.64	-3588.09	-2.06			
			Max. Compression	23	-368379.05	597.00	-1.37			
			Max. Mx	25	324579.58	-11390.21	-1.10			
			Max. My	26	-17293.74	-678.76	6230.02			
			Max. Vy	21	932.86	-11390.11	-0.94			
			Max. Vx	24	-216.45	2308.60	-5434.23			
		Diagonal	Max Tension	16	10623.89	0.00	0.00			
			Max. Compression	16	-10223.19	0.00	0.00			
			Max. Mx	23	7792.19	196.22	-14.22			
			Max. My	22	-9027.19	36.12	-19.05			
			Max. Vy	21	65.89	189.59	-14.57			
			Max. Vx	21	3.44	0.00	0.00			
			T11	20 - 0	Leg	Max Tension	25	351323.66	2131.47	-1.28
						Max. Compression	23	-406069.82	-0.00	0.28
Max. Mx	23	-383795.81				14023.87	-0.00			
Max. My	24	-25308.30				8015.56	-10220.90			
Max. Vy	23	1769.79				14023.87	-0.01			
Max. Vx	24	-1417.74				8015.56	-10220.90			
Diagonal	Max Tension	16			14689.20	0.00	0.00			
	Max. Compression	16			-12274.54	0.00	0.00			
			Max. Mx	21	5134.80	241.75	-22.36			
			Max. My	21	-11136.98	124.39	-29.14			
			Max. Vy	21	72.59	241.75	-22.36			
			Max. Vx	21	4.41	0.00	0.00			

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	23	412917.19	29898.26	-17373.22
	Max. H <sub>x</sub>	23	412917.19	29898.26	-17373.22
	Max. H <sub>z</sub>	17	-362249.11	-37350.77	21677.04
	Min. Vert	17	-362249.11	-37350.77	21677.04
	Min. H <sub>x</sub>	17	-362249.11	-37350.77	21677.04
	Min. H <sub>z</sub>	23	412917.19	29898.26	-17373.22
Leg B	Max. Vert	19	412825.73	-29963.81	-17255.92
	Max. H <sub>x</sub>	25	-362340.86	37420.88	21559.43
	Max. H <sub>z</sub>	25	-362340.86	37420.88	21559.43
	Min. Vert	25	-362340.86	37420.88	21559.43
	Min. H <sub>x</sub>	19	412825.73	-29963.81	-17255.92
	Min. H <sub>z</sub>	19	412825.73	-29963.81	-17255.92
Leg A	Max. Vert	15	412881.37	-134.45	34578.52
	Max. H <sub>x</sub>	24	23453.13	2232.79	-4483.30
	Max. H <sub>z</sub>	15	412881.37	-134.45	34578.52
	Min. Vert	21	-362285.18	136.80	-43186.00
	Min. H <sub>x</sub>	18	23453.05	-2234.98	-4483.26
	Min. H <sub>z</sub>	21	-362285.18	136.80	-43186.00

### Tower Mast Reaction Summary



<b>ERITower</b>  <b>URS Corp. AES</b> 500 Enterprise Dr, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-5566	<b>Job</b> 195' Lattice Tower	<b>Page</b> 27 of 38
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Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>y</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>y</sub>	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead Only	42841.91	0.00	0.00	163.59	-284.63	0.00
Dead+Wind 0 deg - No Ice	42841.91	0.00	-44791.00	-4770080.10	-283.40	-1255.13
Dead+Wind 30 deg - No Ice	42841.91	21937.08	-37996.13	-4083183.33	-2357822.36	-1164.02
Dead+Wind 60 deg - No Ice	42841.91	37731.46	-21784.27	-2348165.35	-4067717.77	-815.26
Dead+Wind 90 deg - No Ice	42841.91	43874.15	-0.00	156.05	-4715340.92	-263.97
Dead+Wind 120 deg - No Ice	42841.91	38790.14	22395.50	2385293.24	-4131442.11	403.47
Dead+Wind 150 deg - No Ice	42841.91	21937.08	37996.13	4083530.52	-2357800.85	949.55
Dead+Wind 180 deg - No Ice	42841.91	0.00	43568.54	4696831.11	-284.37	1211.04
Dead+Wind 210 deg - No Ice	42841.91	-21937.08	37996.13	4083527.73	2357230.94	1166.07
Dead+Wind 240 deg - No Ice	42841.91	-38790.14	22395.50	2385290.04	4130869.61	852.39
Dead+Wind 270 deg - No Ice	42841.91	-43874.15	-0.00	155.59	4714767.12	263.97
Dead+Wind 300 deg - No Ice	42841.91	-37731.46	-21784.27	-2348163.31	4067145.70	-395.06
Dead+Wind 330 deg - No Ice	42841.91	-21937.08	-37996.13	-4083180.98	2357253.49	-951.51
Dead+Ice+Temp	70331.63	0.00	0.00	-126.25	906.70	0.00
Dead+Wind 0 deg+Ice+Temp	70331.61	0.00	-62222.94	-6745255.37	940.59	-4758.61
Dead+Wind 30 deg+Ice+Temp	70331.61	30695.32	-53165.73	-5799969.14	-3347665.81	-4588.51
Dead+Wind 60 deg+Ice+Temp	70331.61	52925.49	-30556.54	-3340689.23	-5785111.73	-3328.37
Dead+Wind 90 deg+Ice+Temp	70331.61	61390.53	-0.05	-158.92	-6696196.73	-1211.50
Dead+Wind 120 deg+Ice+Temp	70331.61	53886.65	31111.47	3372470.54	-5840540.32	1338.35
Dead+Wind 150 deg+Ice+Temp	70331.61	30695.22	53165.79	5799793.15	-3347581.15	3548.98
Dead+Wind 180 deg+Ice+Temp	70331.61	0.01	61113.09	6681023.13	935.88	4680.32
Dead+Wind 210 deg+Ice+Temp	70331.61	-30695.21	53165.79	5799773.30	3349442.76	4591.69
Dead+Wind 240 deg+Ice+Temp	70331.61	-53886.65	31111.47	3372449.84	5842381.58	3417.17
Dead+Wind 270 deg+Ice+Temp	70331.61	-61390.53	-0.05	-160.39	6698028.84	1211.62
Dead+Wind 300 deg+Ice+Temp	70331.61	-52925.49	-30556.55	-3340671.44	5786956.99	-1355.44
Dead+Wind 330 deg+Ice+Temp	70331.61	-30695.31	-53165.74	-5799950.50	3349534.76	-3552.20
Dead+Wind 0 deg - Service	42841.91	0.00	-44791.00	-4770080.10	-283.40	-1255.13
Dead+Wind 30 deg - Service	42841.91	21937.08	-37996.13	-4083183.33	-2357822.36	-1164.02
Dead+Wind 60 deg - Service	42841.91	37731.46	-21784.27	-2348165.35	-4067717.77	-815.26
Dead+Wind 90 deg - Service	42841.91	43874.15	-0.00	156.05	-4715340.92	-263.97
Dead+Wind 120 deg - Service	42841.91	38790.14	22395.50	2385293.24	-4131442.11	403.47
Dead+Wind 150 deg - Service	42841.91	21937.08	37996.13	4083530.52	-2357800.85	949.55
Dead+Wind 180 deg - Service	42841.91	0.00	43568.54	4696831.11	-284.37	1211.04
Dead+Wind 210 deg - Service	42841.91	-21937.08	37996.13	4083527.73	2357230.94	1166.07
Dead+Wind 240 deg - Service	42841.91	-38790.14	22395.50	2385290.04	4130869.61	852.39
Dead+Wind 270 deg - Service	42841.91	-43874.15	-0.00	155.59	4714767.12	263.97
Dead+Wind 300 deg - Service	42841.91	-37731.46	-21784.27	-2348163.31	4067145.70	-395.06
Dead+Wind 330 deg - Service	42841.91	-21937.08	-37996.13	-4083180.98	2357253.49	-951.51

### Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-42841.91	0.00	-0.00	42841.91	-0.00	0.000%
2	0.00	-42841.91	-44791.00	-0.00	42841.91	44791.00	0.000%
3	21937.08	-42841.91	-37996.13	-21937.08	42841.91	37996.13	0.000%
4	37731.46	-42841.91	-21784.27	-37731.46	42841.91	21784.27	0.000%
5	43874.15	-42841.91	-0.00	-43874.15	42841.91	0.00	0.000%
6	38790.14	-42841.91	22395.50	-38790.14	42841.91	-22395.50	0.000%
7	21937.08	-42841.91	37996.13	-21937.08	42841.91	-37996.13	0.000%
8	0.00	-42841.91	43568.54	-0.00	42841.91	-43568.54	0.000%
9	-21937.08	-42841.91	37996.13	21937.08	42841.91	-37996.13	0.000%
10	-38790.14	-42841.91	22395.50	38790.14	42841.91	-22395.50	0.000%
11	-43874.15	-42841.91	-0.00	43874.15	42841.91	0.00	0.000%
12	-37731.46	-42841.91	-21784.27	37731.46	42841.91	21784.27	0.000%
13	-21937.08	-42841.91	-37996.13	21937.08	42841.91	37996.13	0.000%
14	0.00	-70331.63	0.00	-0.00	70331.63	-0.00	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
15	-0.00	-70331.63	-62223.17	-0.00	70331.61	62222.94	0.000%
16	30695.36	-70331.63	-53165.92	-30695.32	70331.61	53165.73	0.000%
17	52925.61	-70331.63	-30556.61	-52925.49	70331.61	30556.54	0.000%
18	61390.71	-70331.63	-0.00	-61390.53	70331.61	0.05	0.000%
19	53886.85	-70331.63	31111.59	-53886.65	70331.61	-31111.47	0.000%
20	30695.36	-70331.63	53165.92	-30695.22	70331.61	-53165.79	0.000%
21	0.00	-70331.63	61113.23	-0.01	70331.61	-61113.09	0.000%
22	-30695.36	-70331.63	53165.92	30695.21	70331.61	-53165.79	0.000%
23	-53886.85	-70331.63	31111.59	53886.65	70331.61	-31111.47	0.000%
24	-61390.71	-70331.63	-0.00	61390.53	70331.61	0.05	0.000%
25	-52925.61	-70331.63	-30556.61	52925.49	70331.61	30556.55	0.000%
26	-30695.36	-70331.63	-53165.92	30695.31	70331.61	53165.74	0.000%
27	0.00	-42841.91	-44791.00	-0.00	42841.91	44791.00	0.000%
28	21937.08	-42841.91	-37996.13	-21937.08	42841.91	37996.13	0.000%
29	37731.46	-42841.91	-21784.27	-37731.46	42841.91	21784.27	0.000%
30	43874.15	-42841.91	-0.00	-43874.15	42841.91	0.00	0.000%
31	38790.14	-42841.91	22395.50	-38790.14	42841.91	-22395.50	0.000%
32	21937.08	-42841.91	37996.13	-21937.08	42841.91	-37996.13	0.000%
33	0.00	-42841.91	43568.54	-0.00	42841.91	-43568.54	0.000%
34	-21937.08	-42841.91	37996.13	21937.08	42841.91	-37996.13	0.000%
35	-38790.14	-42841.91	22395.50	38790.14	42841.91	-22395.50	0.000%
36	-43874.15	-42841.91	-0.00	43874.15	42841.91	0.00	0.000%
37	-37731.46	-42841.91	-21784.27	37731.46	42841.91	21784.27	0.000%
38	-21937.08	-42841.91	-37996.13	21937.08	42841.91	37996.13	0.000%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000001
3	Yes	4	0.00000001	0.00000104
4	Yes	4	0.00000001	0.00000001
5	Yes	4	0.00000001	0.00000108
6	Yes	4	0.00000001	0.00000001
7	Yes	4	0.00000001	0.00000107
8	Yes	4	0.00000001	0.00000001
9	Yes	4	0.00000001	0.00000102
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000108
12	Yes	4	0.00000001	0.00000001
13	Yes	4	0.00000001	0.00000109
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000135
16	Yes	4	0.00000001	0.00000277
17	Yes	4	0.00000001	0.00000124
18	Yes	4	0.00000001	0.00000282
19	Yes	4	0.00000001	0.00000112
20	Yes	4	0.00000001	0.00000316
21	Yes	4	0.00000001	0.00000136
22	Yes	4	0.00000001	0.00000275
23	Yes	4	0.00000001	0.00000111
24	Yes	4	0.00000001	0.00000283
25	Yes	4	0.00000001	0.00000122
26	Yes	4	0.00000001	0.00000320
27	Yes	4	0.00000001	0.00000001

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28	Yes	4	0.00000001	0.00000104
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000108
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000107
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000102
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000108
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000109

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 185	23.406	31	1.1953	0.1159
T2	185 - 170	20.789	31	1.1816	0.0730
T3	170 - 150	16.982	31	1.1157	0.0291
T4	150 - 140	12.465	31	0.9278	0.0110
T5	140 - 120	10.563	31	0.8310	0.0063
T6	120 - 100	7.404	31	0.6374	0.0044
T7	100 - 80	4.964	31	0.4992	0.0025
T8	80 - 60	3.069	31	0.3629	0.0021
T9	60 - 40	1.710	31	0.2591	0.0014
T10	40 - 20	0.777	31	0.1569	0.0008
T11	20 - 0	0.227	31	0.0777	0.0004

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
203.00	PD1142-30	31	23.406	1.1953	0.1159	49116
201.50	PD1110	31	23.406	1.1953	0.1159	49116
199.00	PD201-1	31	23.406	1.1953	0.1159	49116
195.00	PA6-65AC	31	23.406	1.1953	0.1159	49116
188.50	PD1110	31	21.702	1.1879	0.0870	37725
185.00	ANT150D6-9	31	20.789	1.1816	0.0730	23701
176.00	PD220-3B	31	18.477	1.1510	0.0431	10721
174.00	BCD-87077	31	17.973	1.1407	0.0379	9527
173.00	(2) AP14/17- 880/1940/088D/ADT/XXP	31	17.723	1.1350	0.0354	9028
171.00	DB809KT4E-YP	31	17.228	1.1225	0.0310	8194
160.00	(3) ALP 9212	31	14.618	1.0289	0.0161	5691
130.00	PD220-1	31	8.883	0.7304	0.0054	5928
120.00	DB230-2C	31	7.404	0.6374	0.0044	6562
110.00	PD1142-1	31	6.108	0.5643	0.0032	7838
100.00	PA6-65AC	31	4.964	0.4992	0.0025	9536
88.25	2" Dia 16.5' Omni	31	3.785	0.4172	0.0023	8829
80.00	12' Dipole	31	3.069	0.3629	0.0021	8414
70.00	DB432-A	31	2.328	0.3085	0.0018	9778
12.00	1.2M	31	0.111	0.0471	0.0002	20407
9.00	1.2M	31	0.079	0.0354	0.0002	27209

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Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
6.00	1.2M	31	0.050	0.0237	0.0001	40814

### Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
T1	195 - 185	32.752	23	1.6510	0.2803
T2	185 - 170	29.156	23	1.6328	0.1910
T3	170 - 150	23.900	23	1.5467	0.0930
T4	150 - 140	17.627	23	1.2973	0.0485
T5	140 - 120	14.959	23	1.1671	0.0317
T6	120 - 100	10.499	23	0.9012	0.0165
T7	100 - 80	7.037	23	0.7076	0.0109
T8	80 - 60	4.349	23	0.5148	0.0078
T9	60 - 40	2.421	23	0.3677	0.0051
T10	40 - 20	1.098	23	0.2226	0.0029
T11	20 - 0	0.318	23	0.1101	0.0014

### Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
203.00	PD1142-30	23	32.752	1.6510	0.2803	47572
201.50	PD1110	23	32.752	1.6510	0.2803	47572
199.00	PD201-1	23	32.752	1.6510	0.2803	47572
195.00	PA6-65AC	23	32.752	1.6510	0.2803	47572
188.50	PD1110	23	30.411	1.6411	0.2211	36465
185.00	ANT150D6-9	23	29.156	1.6328	0.1910	21917
176.00	PD220-3B	23	25.967	1.5930	0.1247	8432
174.00	BCD-87077	23	25.271	1.5796	0.1129	7375
173.00	(2) AP14/17-880/1940/088D/ADT/XXP	23	24.926	1.5721	0.1074	6945
171.00	DB809KT4E-YP	23	24.240	1.5557	0.0975	6246
160.00	(3) ALP 9212	23	20.625	1.4320	0.0644	4329
130.00	PD220-1	23	12.591	1.0297	0.0214	4313
120.00	DB230-2C	23	10.499	0.9012	0.0165	4696
110.00	PD1142-1	23	8.660	0.7992	0.0130	5562
100.00	PA6-65AC	23	7.037	0.7076	0.0109	6687
88.25	2" Dia 16.5' Omni	23	5.365	0.5917	0.0090	6219
80.00	12' Dipole	23	4.349	0.5148	0.0078	5937
70.00	DB432-A	23	3.298	0.4377	0.0064	6897
12.00	1.2M	23	0.155	0.0668	0.0008	14305
9.00	1.2M	23	0.110	0.0502	0.0006	19074
6.00	1.2M	15	0.070	0.0335	0.0004	28611

### Compression Checks

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### Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P/P <sub>a</sub>
T1	195 - 185	1 3/4	10.00	2.17	59.4 K=1.00	22.818	2.4053	-11774.40	54883.50	0.215
T2	185 - 170	2	15.00	2.28	54.7 K=1.00	23.609	3.1416	-41735.60	74168.90	0.563
T3	170 - 150	2 1/4	20.00	2.34	50.0 K=1.00	24.349	3.9761	-110672.00	96813.50	1.143
T4	150 - 140	Pirod 105245	10.02	10.02	37.8 K=1.00	26.132	5.3014	-117786.00	138539.00	0.850
T5	140 - 120	Pirod 105217	20.03	10.02	37.8 K=1.00	26.132	5.3014	-165730.00	138539.00	1.196
T6	120 - 100	Pirod 105218	20.03	10.02	32.4 K=1.00	26.848	7.2158	-206788.00	193727.00	1.067
T7	100 - 80	Pirod 105218	20.03	10.02	32.4 K=1.00	26.848	7.2158	-250191.00	193727.00	1.291
T8	80 - 60	Pirod 105219	20.03	10.02	28.4 K=1.00	27.351	9.4248	-291179.00	257781.00	1.130
T9	60 - 40	Pirod 105219	20.03	10.02	28.4 K=1.00	27.351	9.4248	-330031.00	257781.00	1.280
T10	40 - 20	Pirod 105220	20.03	10.02	25.2 K=1.00	27.723	11.9282	-368379.00	330691.00	1.114
T11	20 - 0	Pirod 105220	20.03	10.02	25.2 K=1.00	27.723	11.9282	-406070.00	330691.00	1.228

### Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L <sub>d</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual V lb	Allow. V <sub>a</sub> lb	Stress Ratio
T4	150 - 140	0.5	1.47	120.0	14.277	0.1963	990.26	3137.44	0.316
T5	140 - 120	0.5	1.47	120.0	10.279	0.1963	514.39	2258.95	0.228
T6	120 - 100	0.5	1.46	119.0	10.423	0.1963	993.35	2290.46	0.434
T7	100 - 80	0.5	1.46	119.0	10.423	0.1963	1157.49	2290.46	0.505
T8	80 - 60	0.625	1.45	94.4	13.671	0.3068	478.88	4694.36	0.102
T9	60 - 40	0.625	1.45	94.4	13.671	0.3068	284.25	4694.36	0.061
T10	40 - 20	0.625	1.43	93.6	13.766	0.3068	932.86	4726.89	0.197
T11	20 - 0	0.625	1.43	93.6	13.766	0.3068	1778.20	4726.89	0.376

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### Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>n</sub> lb	Ratio P/P <sub>n</sub>
T1	195 - 185	7/8	4.99	2.42	132.5 K=1.00	8.500	0.6013	-2864.09	5111.43	0.560
T2	185 - 170	7/8	5.04	2.43	133.2 K=1.00	8.415	0.6013	-5840.37	5060.33	1.154
T3	170 - 150	1	5.48	2.65	127.4 K=1.00	9.207	0.7854	-7244.44	7230.89	1.002
T4	150 - 140	L2 1/2x2 1/2x3/16	11.42	5.19	125.8 K=1.00	9.431	0.9020	-8765.20	8506.47	1.030
T5	140 - 120	L2 1/2x2 1/2x3/16	12.50	5.84	141.5 K=1.00	7.462	0.9020	-7917.81	6730.52	1.176
T6	120 - 100	L3x3x3/16	13.80	6.54	131.6 K=1.00	8.625	1.0900	-8737.76	9400.92	0.929
T7	100 - 80	L3x3x3/16	15.24	7.29	146.8 K=1.00	6.931	1.0900	-8946.17	7555.12	1.184
T8	80 - 60	L3x3x5/16	16.80	8.09	164.8 K=1.00	5.496	1.7800	-9345.64	9783.69	0.955
T9	60 - 40	L3x3x5/16	18.45	8.93	181.9 K=1.00	4.515	1.7800	-9648.66	8036.47	1.201
T10	40 - 20	L3 1/2x3 1/2x5/16	19.30	9.36	162.9 K=1.00	5.630	2.0900	-10223.20	11767.00	0.869
T11	20 - 0	L3 1/2x3 1/2x5/16	21.03	10.24	178.1 K=1.00	4.710	2.0900	-12274.50	9844.38	1.247

### Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>n</sub> lb	Ratio P/P <sub>n</sub>
T1	195 - 185	3/4	4.50	4.35	278.7 K=1.00	1.923	0.4418	-240.26	849.56	0.283
T2	185 - 170	KL/R > 200 (C) - 32 3/4	4.50	4.33	277.3 K=1.00	1.942	0.4418	-589.18	857.75	0.687
T3	170 - 150	KL/R > 200 (C) - 84 3/4	4.57	4.39	140.4 K=0.50	7.578	0.4418	-1247.67	3348.02	0.373

### Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>n</sub> lb	Ratio P/P <sub>n</sub>
T1	195 - 185	1	4.50	4.35	209.0	3.419	0.7854	-887.71	2685.03	0.331

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	<b>Client</b>	Cingular	<b>Designed by</b>	Jed Kiernan

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	KL/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
					K=1.00					✓
T2	185 - 170	KL/R > 200 (C) - 6 1	4.50	4.33	208.0 K=1.00	3.452	0.7854	-1412.00	2710.91	0.521
T3	170 - 150	KL/R > 200 (C) - 43 1	4.52	4.33	207.7 K=1.00	3.460	0.7854	-2551.11	2717.47	0.939
T7	100 - 80	KL/R > 200 (C) - 95 L3x3x3/16	10.00	9.00	181.2 K=1.00	4.548	1.0900	-4160.72	4957.04	0.839

### Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	KL/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T1	195 - 185	1	4.50	4.35	209.0 K=1.00	3.419	0.7854	-1200.52	2685.03	0.447
T2	185 - 170	KL/R > 200 (C) - 8 1	4.50	4.33	208.0 K=1.00	3.452	0.7854	-2795.83	2710.91	1.031
T3	170 - 150	KL/R > 200 (C) - 46 1	4.98	4.80	230.3 K=1.00	2.817	0.7854	-1523.68	2212.27	0.689
		KL/R > 200 (C) - 97								✓

### Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	KL/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T1	195 - 185	1	4.50	4.35	209.0 K=1.00	3.419	0.7854	-73.05	2685.03	0.027
T2	185 - 170	KL/R > 200 (C) - 11 1	4.50	4.33	208.0 K=1.00	3.452	0.7854	-250.12	2710.91	0.092
T3	170 - 150	KL/R > 200 (C) - 48 1	4.75	4.56	219.0 K=1.00	3.114	0.7854	-330.61	2445.42	0.135
		KL/R > 200 (C) - 100								✓

### Tension Checks

### Leg Design Data (Tension)

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Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P/P <sub>a</sub>
T1	195 - 185	1 3/4	10.00	2.17	59.4	30.000	2.4053	10557.90	72158.50	0.146
T2	185 - 170	2	15.00	2.28	54.7	30.000	3.1416	37213.40	94247.80	✓ 0.395
T3	170 - 150	2 1/4	20.00	2.34	50.0	30.000	3.9761	102488.00	119282.00	✓ 0.859
T4	150 - 140	Pirod 105245	10.02	10.02	37.8	30.000	5.3014	109899.00	159043.00	✓ 0.691
T5	140 - 120	Pirod 105217	20.03	10.02	37.8	30.000	5.3014	153930.00	159043.00	✓ 0.968
T6	120 - 100	Pirod 105218	20.03	10.02	32.4	30.000	7.2158	190215.00	216475.00	✓ 0.879
T7	100 - 80	Pirod 105218	20.03	10.02	32.4	30.000	7.2158	228116.00	216475.00	✓ 1.054
T8	80 - 60	Pirod 105219	20.03	10.02	28.4	30.000	9.4248	263080.00	282743.00	✓ 0.930
T9	60 - 40	Pirod 105219	20.03	10.02	28.4	30.000	9.4248	295693.00	282743.00	✓ 1.046
T10	40 - 20	Pirod 105220	20.03	10.02	25.2	30.000	11.9282	325367.00	357847.00	✓ 0.909
T11	20 - 0	Pirod 105220	20.03	10.02	25.2	30.000	11.9282	351324.00	357847.00	✓ 0.982

### Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L <sub>d</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual V lb	Allow. V <sub>a</sub> lb	Stress Ratio
T4	150 - 140	0.5	1.47	120.0	14.277	0.1963	990.26	3137.44	0.316
T5	140 - 120	0.5	1.47	120.0	10.279	0.1963	514.39	2258.95	✓ 0.228
T6	120 - 100	0.5	1.46	119.0	10.423	0.1963	993.35	2290.46	✓ 0.434
T7	100 - 80	0.5	1.46	119.0	10.423	0.1963	1157.49	2290.46	✓ 0.505
T8	80 - 60	0.625	1.45	94.4	13.671	0.3068	478.88	4694.36	✓ 0.102
T9	60 - 40	0.625	1.45	94.4	13.671	0.3068	284.25	4694.36	✓ 0.061
T10	40 - 20	0.625	1.43	93.6	13.766	0.3068	932.86	4726.89	✓ 0.197
T11	20 - 0	0.625	1.43	93.6	13.766	0.3068	1778.20	4726.89	✓ 0.376

### Diagonal Design Data (Tension)



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Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T1	195 - 185	7/8	4.99	2.42	132.5	30.000	0.6013	2885.43	18039.60	0.160
T2	185 - 170	7/8	5.04	2.43	133.2	30.000	0.6013	5898.61	18039.60	0.327
T3	170 - 150	1	5.48	2.65	127.4	30.000	0.7854	7179.13	23561.90	0.305
T4	150 - 140	L2 1/2x2 1/2x3/16	11.42	5.19	80.1	21.600	0.9020	8094.01	19483.20	0.415
T5	140 - 120	L2 1/2x2 1/2x3/16	11.93	5.59	86.2	21.600	0.9020	7898.94	19483.20	0.405
T6	120 - 100	L3x3x3/16	13.80	6.54	83.5	21.600	1.0900	8086.32	23544.00	0.343
T7	100 - 80	L3x3x3/16	15.24	7.29	93.2	21.600	1.0900	8449.44	23544.00	0.359
T8	80 - 60	L3x3x5/16	16.01	7.70	100.3	21.600	1.7800	8928.86	38448.00	0.232
T9	60 - 40	L3x3x5/16	18.45	8.93	116.2	21.600	1.7800	9228.96	38448.00	0.240
T10	40 - 20	L3 1/2x3 1/2x5/16	20.16	9.79	108.8	21.600	2.0900	10623.90	45144.00	0.235
T11	20 - 0	L3 1/2x3 1/2x5/16	21.92	10.68	118.6	21.600	2.0900	14689.20	45144.00	0.325

### Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T1	195 - 185	3/4	4.50	4.35	278.7	30.000	0.4418	276.68	13253.60	0.021
T2	185 - 170	3/4	4.50	4.33	277.3	30.000	0.4418	634.72	13253.60	0.048
T3	170 - 150	3/4	4.57	4.39	280.7	30.000	0.4418	1385.79	13253.60	0.105

### Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T1	195 - 185	1	4.50	4.35	209.0	30.000	0.7854	853.48	23561.90	0.036
T2	185 - 170	1	4.50	4.33	208.0	30.000	0.7854	1440.35	23561.90	0.061
T3	170 - 150	1	4.52	4.33	207.7	30.000	0.7854	2650.39	23561.90	0.112

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Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>n</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>n</sub> lb	Ratio P P <sub>n</sub>
T7	100 - 80	L3x3x3/16	10.00	9.00	115.0	21.600	1.0900	4748.82	23544.00	0.202 ✓

### Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>n</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>n</sub> lb	Ratio P P <sub>n</sub>
T1	195 - 185	1	4.50	4.35	209.0	30.000	0.7854	1184.87	23561.90	0.050 ✓
T2	185 - 170	1	4.50	4.33	208.0	30.000	0.7854	2697.87	23561.90	0.115 ✓
T3	170 - 150	1	4.98	4.80	230.3	30.000	0.7854	1633.25	23561.90	0.069 ✓

### Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	F <sub>n</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>n</sub> lb	Ratio P P <sub>n</sub>
T1	195 - 185	1	4.50	4.35	209.0	30.000	0.7854	97.82	23561.90	0.004 ✓
T2	185 - 170	1	4.50	4.33	208.0	30.000	0.7854	308.85	23561.90	0.013 ✓
T3	170 - 150	1	4.75	4.56	219.0	30.000	0.7854	456.66	23561.90	0.019 ✓

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P <sub>allow</sub> lb	% Capacity	Pass Fail
T1	195 - 185	Leg	1 3/4	1	-11774.40	73159.70	16.1	Pass
T2	185 - 170	Leg	2	39	-41735.60	98867.14	42.2	Pass
T3	170 - 150	Leg	2 1/4	91	-110672.00	129052.39	85.8	Pass
T4	150 - 140	Leg	Pirod 105245	157	-117786.00	184672.48	63.8	Pass
T5	140 - 120	Leg	Pirod 105217	166	-165730.00	184672.48	89.7	Pass
T6	120 - 100	Leg	Pirod 105218	182	-206788.00	258238.08	80.1	Pass
T7	100 - 80	Leg	Pirod 105218	196	-250191.00	258238.08	96.9	Pass
T8	80 - 60	Leg	Pirod 105219	214	-291179.00	343622.06	84.7	Pass
T9	60 - 40	Leg	Pirod 105219	229	-330031.00	343622.06	96.0	Pass
T10	40 - 20	Leg	Pirod 105220	244	-368379.00	440811.08	83.6	Pass
T11	20 - 0	Leg	Pirod 105220	259	-406070.00	440811.08	92.1	Pass
T1	195 - 185	Diagonal	7/8	18	-2864.09	6813.54	42.0	Pass
T2	185 - 170	Diagonal	7/8	55	-5840.37	6745.42	86.6	Pass
T3	170 - 150	Diagonal	1	108	-7244.44	9638.78	75.2	Pass
T4	150 - 140	Diagonal	L2 1/2x2 1/2x3/16	164	-8765.20	11339.12	77.3	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P <sub>allow</sub> lb	% Capacity	Pass Fail	
T5	140 - 120	Diagonal	L2 1/2x2 1/2x3/16	170	-7917.81	8971.78	88.3	Pass	
T6	120 - 100	Diagonal	L3x3x3/16	185	-8737.76	12531.43	69.7	Pass	
T7	100 - 80	Diagonal	L3x3x3/16	206	-8946.17	10070.97	88.8	Pass	
T8	80 - 60	Diagonal	L3x3x5/16	221	-9345.64	13041.66	71.7	Pass	
T9	60 - 40	Diagonal	L3x3x5/16	236	-9648.66	10712.61	90.1	Pass	
T10	40 - 20	Diagonal	L3 1/2x3 1/2x5/16	257	-10223.20	15685.41	65.2	Pass	
T11	20 - 0	Diagonal	L3 1/2x3 1/2x5/16	272	-12274.50	13122.56	93.5	Pass	
T1	195 - 185	Horizontal	3/4	32	-240.26	1132.46	21.2	Pass	
T2	185 - 170	Horizontal	3/4	84	-589.18	1143.38	51.5	Pass	
T3	170 - 150	Horizontal	3/4	150	-1247.67	4462.91	28.0	Pass	
T1	195 - 185	Top Girt	1	6	-887.71	3579.14	24.8	Pass	
T2	185 - 170	Top Girt	1	43	-1412.00	3613.64	39.1	Pass	
T3	170 - 150	Top Girt	1	95	-2551.11	3622.39	70.4	Pass	
T7	100 - 80	Top Girt	L3x3x3/16	201	-4160.72	6607.73	63.0	Pass	
T1	195 - 185	Bottom Girt	1	8	-1200.52	3579.14	33.5	Pass	
T2	185 - 170	Bottom Girt	1	46	-2795.83	3613.64	77.4	Pass	
T3	170 - 150	Bottom Girt	1	97	-1523.68	2948.96	51.7	Pass	
T1	195 - 185	Mid Girt	1	11	-73.05	3579.14	2.0	Pass	
T2	185 - 170	Mid Girt	1	48	-250.12	3613.64	6.9	Pass	
T3	170 - 150	Mid Girt	1	100	-330.61	3259.74	10.1	Pass	
							Summary		
							Leg (T7)	96.9	Pass
							Diagonal (T11)	93.5	Pass
							Horizontal (T2)	51.5	Pass
							Top Girt (T3)	70.4	Pass
							Bottom Girt (T2)	77.4	Pass
							Mid Girt (T3)	10.1	Pass
							<b>RATING =</b>	<b>96.9</b>	<b>Pass</b>

## Element Map

Section No.	Section Elevation ft	Component Type	Element List
T1	195.00-185.00	Leg	1-3
		Diagonal	13-18,20-31,33-38
		Horizontal	19,32
		Top Girt	4-6
		Bottom Girt	7-9
T2	185.00-170.00	Mid Girt	10-12
		Leg	39-41
		Diagonal	51-56,58-63,65-76,78-83,85-90
		Horizontal	57,64,77,84
		Top Girt	42-44
T3	170.00-150.00	Bottom Girt	45-47
		Mid Girt	48-50
		Leg	91-93
		Diagonal	103-108,110-115,117-122,124-135,137-142,144-149,151-156
		Horizontal	109,116,123,136,143,150
		Top Girt	94-96
		Bottom Girt	97-99
		Mid Girt	100-102

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Section No.	Section Elevation ft	Component Type	Element List
T4	150.00-140.00	Leg	157-159
		Diagonal	160-165
T5	140.00-120.00	Leg	166-168
		Diagonal	169-180
T6	120.00-100.00	Leg	181-183
		Diagonal	184-195
T7	100.00-80.00	Leg	196-198
		Diagonal	202-213
		Top Girt	199-201
T8	80.00-60.00	Leg	214-216
		Diagonal	217-228
T9	60.00-40.00	Leg	229-231
		Diagonal	232-243
T10	40.00-20.00	Leg	244-246
		Diagonal	247-258
T11	20.00-0.00	Leg	259-261
		Diagonal	262-273
			Total number of elements: 273

