

**JULIE D. KOHLER**

PLEASE REPLY TO: Bridgeport  
WRITER'S DIRECT DIAL: (203) 337-4157  
E-Mail Address: [jkohler@cohenandwolf.com](mailto:jkohler@cohenandwolf.com)

April 30, 2015

Attorney Melanie Bachman  
Acting Executive Director  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

**Re: Notice of Exempt Modification  
Cordless Data Transfer, Inc./T-Mobile equipment upgrade  
Site ID CT11254B  
2 Hinckley Hill Road Norwich, Connecticut**

Dear Attorney Bachman:

This office represents T-Mobile Northeast LLC ("T-Mobile") and has been retained to file exempt modification filings with the Connecticut Siting Council on its behalf.

In this case, Cordless Data Transfer Inc. owns the existing lattice tower and related facility located at 2 Hinckley Hill Road, Norwich, Connecticut (Latitude: 41.57131; Longitude: -72.302383). T-Mobile intends to add three (3) antennas and add related equipment at this existing telecommunications facility in Norwich ("Norwich Facility"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, copies of this letter are being sent to the Mayor, Deb Hinchey. Cordless Data Transfer, Inc. also owns the property.

The existing Norwich Facility consists of a 150 foot tall lattice tower.<sup>1</sup> T-Mobile plans to add three (3) antennas and add smart bias-T's to pipe masts at a centerline of 148 feet. T-Mobile will mount three (3) RRU's (remote radio units) on a proposed H-frame mounted between the ice bridge and ice canopy posts. (See the plans revised to April 21, 2015 attached hereto as Exhibit A). The existing Norwich Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated April 24, 2015 and attached hereto as Exhibit B.

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

<sup>1</sup> The Council approved T-Mobile's (then Omnipoint's) co-location on this facility in Petition 579 on September 5, 2002. The Petition No. 579 Staff Report indicates that Omnipoint proposed to extend the 140 foot facility to 150 feet, not to exceed a height of 153 feet including antennas. T-Mobile's proposed modifications are consistent with that approval.

April 30, 2015  
Site ID CT11254B  
Page 2

1. The proposed modification will not increase the height of the tower. T-Mobile's proposed antennas will be installed at a lower centerline than the existing antennas to accommodate for the slight increase in antenna length. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.
2. The proposed modifications will not require an extension of the site boundaries. All of the modifications are proposed within the existing compound area.
3. The proposed modification to the Norwich Facility will not increase the noise levels at the existing facility by six decibels or more.
4. The operation of the additional antennas will not increase the total radio frequency (RF) power density, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated April 15, 2015, T-Mobile's operations would add 6.29% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 70.20% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit C.

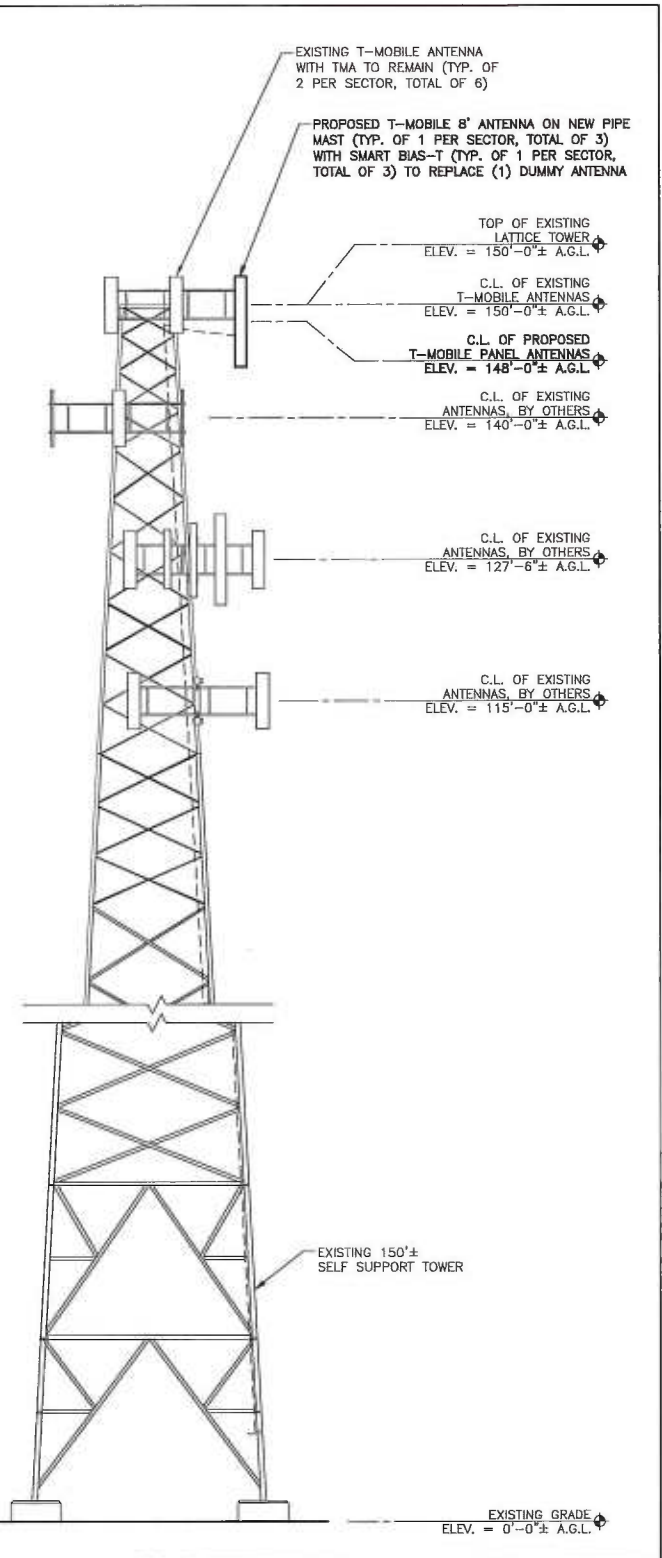
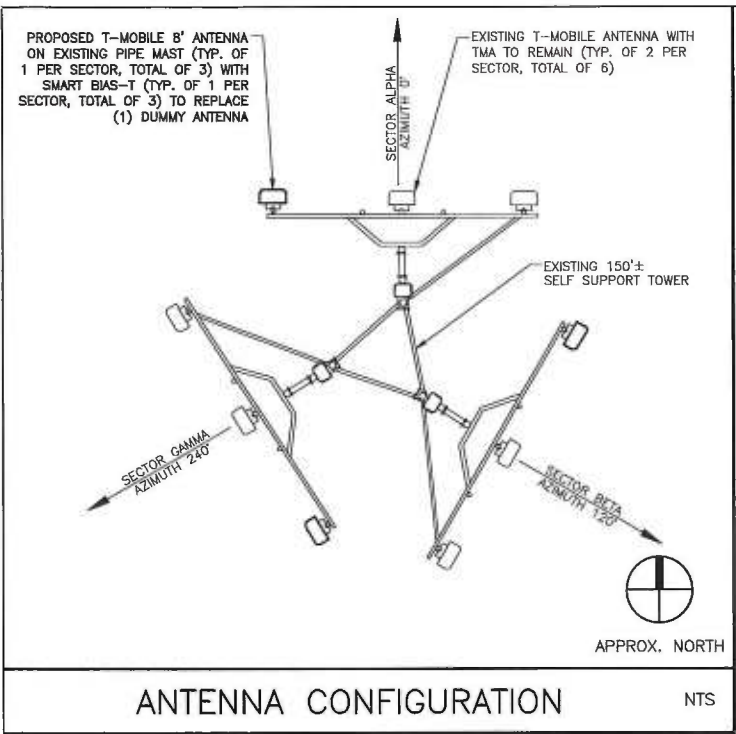
For the foregoing reasons, T-Mobile respectfully submits that the proposed additional antennas and equipment at the Norwich Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement by the Council of this proposed exempt modification, T-Mobile shall commence construction approximately sixty days from the date of the Council's notice of acknowledgement.

Sincerely,

  
Julie D. Kohler, Esq.

cc: Norwich Mayor, Deb Hinchey  
Cordless Data Transfer  
Jamie Ford, EBI Consulting

# **EXHIBIT A**

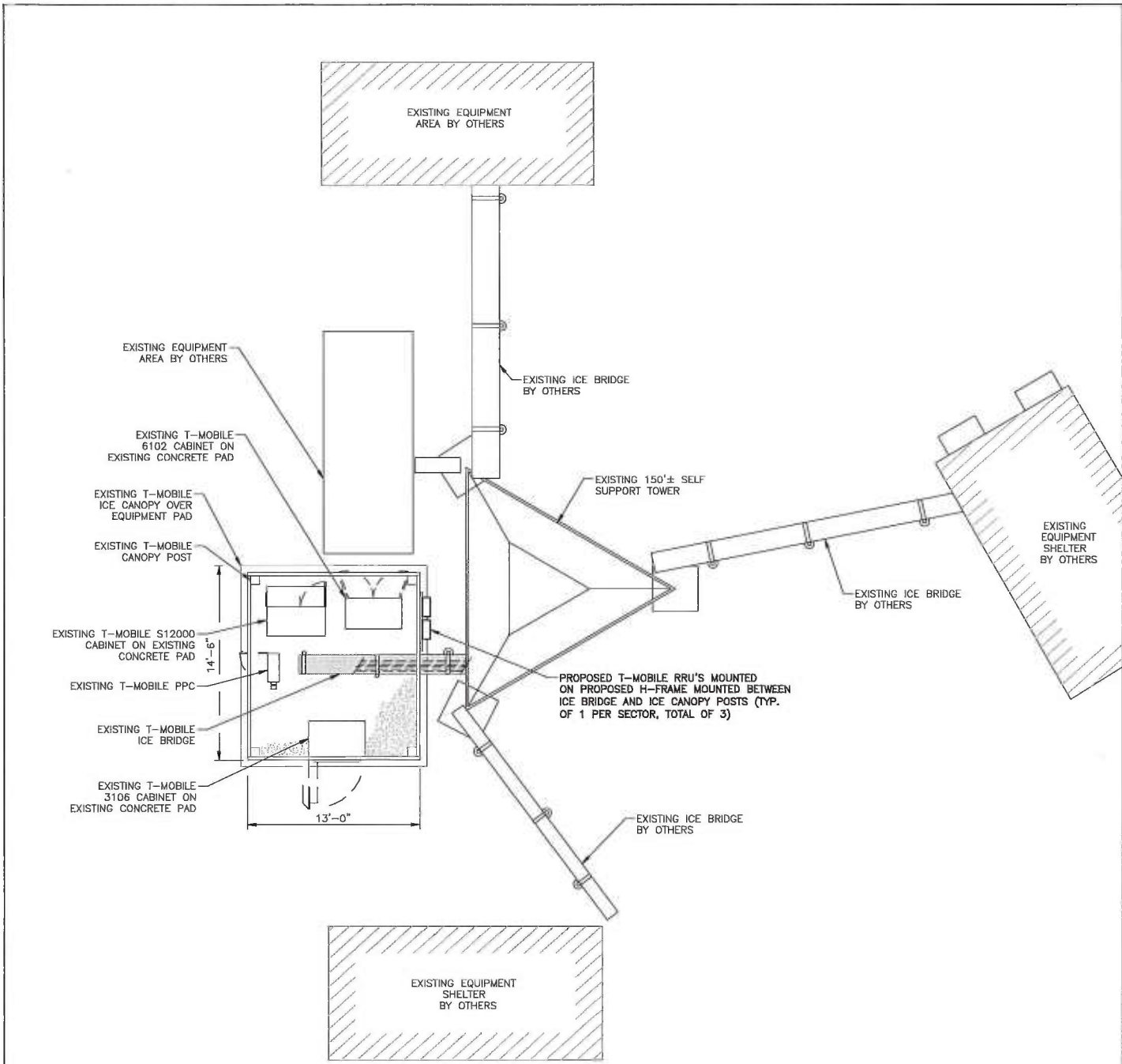


CONFIGURATION

**704BU**

NOTE: ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE STRUCTURAL AND RF ENGINEERS.

|  |  |  |                        |      |             |                                  |           |
|--|--|--|------------------------|------|-------------|----------------------------------|-----------|
| PREPARED BY:<br>21 B Street   Burlington, MA 01803<br>Tel: (781) 273-2500   Fax: (781) 273-3311<br>www.ebiconsulting.com | CLIENT:<br><b>T-Mobile Northeast, LLC</b><br>35 GRIFFIN ROAD SOUTH<br>BLOOMFIELD, CT 06002<br>860.692.7100 | SITE INFO:<br><b>CT11254B</b><br><b>CDT NORWICH</b><br>HINCKLEY HILL ROAD<br>NORWICH, CT 06360 | SUBMITTALS             |      |             | DRAWN BY:                        | SHEET NO: |
|  |  |  | NO.                    | DATE | DESCRIPTION | BY                               |           |
|  | A  | 03/20/15   | FOR REVIEW             | MK   | BB          | <b>LE-2</b><br>DATE:<br>03/06/15 |           |
|  | B  | 04/21/15   | REVISED PER STRUCTURAL | BB   |             |                                  |           |



CONFIGURATION  
**704BU**



**NOTE:**  
ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE STRUCTURAL AND RF ENGINEERS.

**SITE PLAN**

SCALE: 3/32" = 1'-0"

PREPARED BY:  
**EBC Consulting**  
environmental | engineering | due diligence  
21 B Street | Burlington, MA 01803  
Tel: (781) 273-2500 | Fax: (781) 273-3311  
www.ebiconsulting.com  
  
EBC JOB NO.:  
8115000107

CLIENT:  
**T-Mobile Northeast, LLC**  
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
860.692.7100

SITE INFO:  
**CT11254B**  
**CDT NORWICH**  
HINCKLEY HILL ROAD  
NORWICH, CT 06360

| SUBMITTALS |          |                        |    |
|------------|----------|------------------------|----|
| NO.        | DATE     | DESCRIPTION            | BY |
| A          | 03/20/15 | FOR REVIEW             | MK |
| B          | 04/21/15 | REVISED PER STRUCTURAL | BB |
|            |          |                        |    |
|            |          |                        |    |

DRAWN BY:  
MK  
CHECKED BY:  
BB  
DATE:  
03/06/15

SHEET NO:  
**LE-1**



# **EXHIBIT B**



## FRED A. NUDD CORPORATION

1743 ROUTE 104, BOX 577  
ONTARIO, NY 14519  
(315) 524-2531 FAX (315) 524-4249

[www.nuddtowers.com](http://www.nuddtowers.com)



Mark LeGault  
Cordless Data Transfer, Inc.  
600 Old Hartford Road  
Colchester, CT 06415  
March 30, 2015

Fred A. Nudd Job Number: 115-35033

Location: 2 Hinkley Hill Road, Norwich, CT 06360, New London County (Lat. & Long: 41-30-53.45, -72-03-42.08)

Subject: Structural Analysis of a 150 ft Self-Supporting Tower

Fred A. Nudd Corporation has completed a three-dimensional, finite element model structural analysis of the above noted self-supporting tower. This tower was analyzed considering appurtenance loads noted in the appurtenance loading table on the following page. The design loading criteria and strength design are per the TIA/EIA-222-F standard, which is the recommended design standard per the 2003 International Building Code (Sec. 1609 & 3108), including 2005, 2009, 2011 & 2013 Connecticut Building Code Amendments. Additional standards used in this analysis include the AISC Manual for Steel Construction, Allowable Stress Design, 9<sup>th</sup> Ed. and ACI 318-05, Building Code Requirements for Structural Concrete and Commentary. Tower and foundation dimensions have been taken from original design drawings by Fred A. Nudd Corporation (Drawing Number 99-6864-1 & 99-6864-2R, dated July 22, 1999 & November 20, 1999). Onsite subsurface conditions were taken from a geotechnical report by Coneco (Project Number C104.0CDT, dated November 15, 1999). The tower is assumed to be in good, undamaged and equivalent to as new condition and has been maintained / inspected per criteria by TIA-222.

The purpose of this analysis is to determine the structure's ability to support new T-Mobile equipment installed at a rad center of 150 ft above ground level (AGL). The new equipment to be installed, which included antennas, coax, mounts and associated hardware are listed on the following page in the appurtenance loading table.

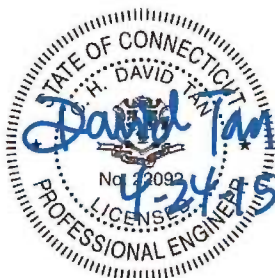
Results of the analysis indicate the tower will be able to support the design loads noted in the appurtenance loading table on the following page. Specific section design loads, capacities and stress ratios are provided on the following pages. Maximum member usage was found to be 84%. Detailed calculation of the applied forces and member capacities are provided in the following pages.

The tower base foundation was analyzed using soil properties from the aforementioned geotechnical report. Based on this analysis, the foundation is capable of supporting the existing and proposed equipment. Factor of safety in excess of two was calculated regarding foundation resistance to applied axial and lateral loads. Detailed calculation of the applied forces and member capacities are provided in the following pages.

In conclusion, the tower superstructure and substructure can support the listed existing and proposed appurtenance loading.

We trust this report satisfies your needs. Please contact us with any questions or concerns regarding this report.

Best Regards,  
Fred. A. Nudd Corporation



David Tan, P.E. (CT PE #22092)

**Code Design Criteria**

TIA/EIA-222-F

Windspeed = 85 mph, fastest mile

Exposure = C

Radial Ice = 0.5 inch

Ice Windspeed = 74 mph, fastest mile

**Appurtenance Loading – Existing and To Remain on Tower**

| Height (ft) | Carrier       | Appurtenance   | Mount                     | Coax (in)                              |
|-------------|---------------|--|---------------------------|--|
| 150         | T-Mobile      | (3) RFS APX16DWV-16DWVS-E-A20<br>(3) Ericsson KRY112 71  | (3) 12 ft Boom /<br>Frame | (18) 1-5/8                             |
| 140         | Sprint        | (1) KMW ET-X-TU-42-15-37-18-IR-RA<br>(1) RFS APXVSP18-C-A20<br>(1) RFS APXV9ERR18-C-A20<br>(3) Alcatel Lucent 4X45 65 RRU<br>(3) Alcatel Lucent 2X50W RRU<br>(3) Alcatel Lucent 1900 MHz RRH, 65 MHz<br>(3) RFS IBC1900BB-3                  | (3) 12 ft Boom /<br>Frame | (3) 1-1/4<br>Hybriflex                 |
| 127.5       | Verizon       | (3) Antel BXA-70063-6CF-2<br>(4) RFS APL868013<br>(6) RFS FD9R6004/2C-3L<br>(3) Ryma MG D5-800T2<br>(1) Antel BXA-171085-12CF<br>(2) Antel BXA-171063-12CF<br>(2) RFS APL866513<br>(3) Alcatel Lucent RRH2x40-AWS<br>(1) RFS DB-T1-6Z-8AB-OZ | (3) 12 ft Boom /<br>Frame | (12) 1-5/8<br>(1) 1-5/8 Fiber<br>Cable |
| 115         | AT&T Mobility | (3) Powerwave 7770.00<br>(6) Powerwave LGP21401  | (3) 10 ft Boom /<br>Frame | (12) 1-1/4                             |

- Height measurement taken as distance from top of base foundation to center of appurtenance.

**Appurtenance Loading – Additional Loading Configuration For T-Mobile**

| Height (ft) | Carrier  | Appurtenance  | Mount                     | Coax (in) |
|-------------|----------|---|---------------------------|-----------|
| 150         | T-Mobile | (3) Commscope LNX-6515DS-VTM<br>(3) Andrew Smart Bias Tee | (3) 12 ft Boom /<br>Frame | --        |

- Height measurement taken as distance from top of base foundation to center of appurtenance.

**Maximum Member Usage**

| Member                  | Percentage |
|-------------------------|------------|
| Leg                     | 73         |
| Diagonal                | 84         |
| Horizontal              | 2          |
| Anchor Bolts            | 73         |
| Splice/Connection Bolts | 84         |

- Percentage equal to or less than 100% denote member stress levels are satisfactory for loading.
- Percentage greater than 100% indicates member strengthening is required.

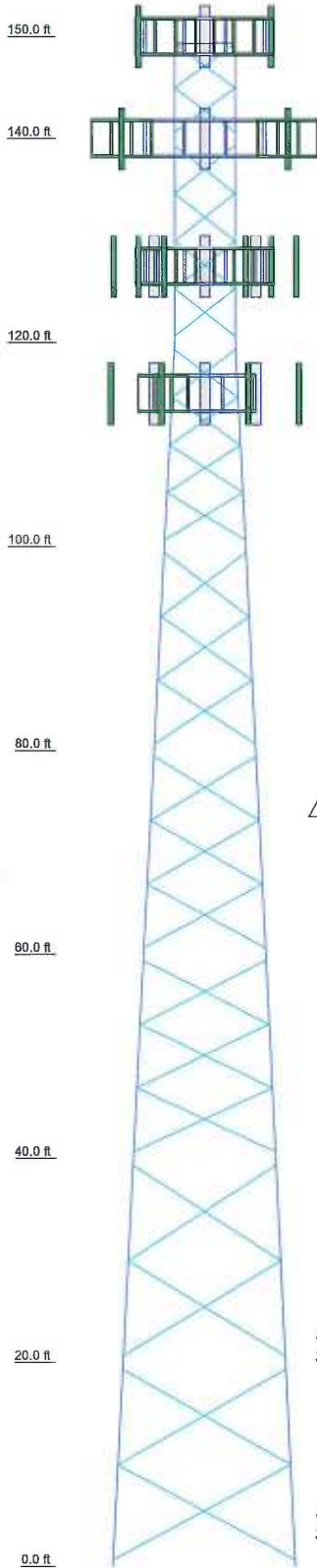
**Foundation Reaction Usage**

| Design Load       | Capacity (kip) | Design Load (kip) | Percentage |
|-------------------|----------------|-------------------|------------|
| Compression / Leg | 288.6          | 235.4             | 82         |
| Uplift / Leg      | 318.8          | 198.7             | 62         |
| Shear / Leg       | 47.9           | 23.4              | 49         |

- Percentage equal to or less than 100% denote foundation is satisfactory for loading.
- Percentage greater than 100% indicates foundation strengthening is required.



|                 |             |         |             |                   |           |                  |        |        |         |
|-----------------|-------------|---------|-------------|-------------------|-----------|------------------|--------|--------|---------|
| Section         | T1          | T2      | T3          | T4                | T5        | T6               | T7     | T8     | T9      |
| Legs            | P2.5x.203   | P4x.237 | P5x.258     | P6x.28            | P6x.322   | P6x.5            |        |        |         |
| Leg Grade       |             |         |             | A500M-54          |           |                  |        |        |         |
| Diagonals       | A           |         | L2 1/2x3/16 | L2 1/2x2 1/2x3/16 | L3x3x3/16 | L3 1/2x3 1/2x1/4 |        |        |         |
| Diagonal Grade  |             |         |             | A36               |           |                  |        |        |         |
| Top Girts       | L3x3x1/4    |         |             |                   |           |                  |        |        |         |
| Face Width (ft) | 6           |         | 8           | 10                | 12        | 14               | 16     | 18     |         |
| # Panels @ (ft) | 2 @ 4.33333 |         |             | 9 @ 5.25          |           | 4 @ 9.33333      |        |        |         |
| Weight (lb)     | 47.5        | 791.8   | 1140.7      | 1485.0            | 1895.3    | 2805.9           | 3829.5 | 3184.6 | 16284.4 |



**DESIGNED APPURTENANCE LOADING**

| TYPE                                 | ELEVATION | TYPE                                 | ELEVATION |
|--------------------------------------|-----------|--------------------------------------|-----------|
| RFS APX16DWW-16DWVS-E-A20 (T-Mobile) | 150       | Alcatel Lucent RRH2x40 AWS (Verizon) | 127.5     |
| RFS APX16DWW-16DWVS-E-A20 (T-Mobile) | 150       | Alcatel Lucent RRH2x40 AWS (Verizon) | 127.5     |
| RFS APX16DWW-16DWVS-E-A20 (T-Mobile) | 150       | RFS DB-T1-6Z-8B-0Z (Verizon)         | 127.5     |
| Commscope LNX-6515DS-VTM (T-Mobile)  | 150       | (2) RFS APL868013 (Verizon)          | 127.5     |
| Commscope LNX-6515DS-VTM (T-Mobile)  | 150       | (2) RFS APL868513 (Verizon)          | 127.5     |
| Commscope LNX-6515DS-VTM (T-Mobile)  | 150       | Antel BXA-70063/6CF-2 (Verizon)      | 127.5     |
| Ericsson KRY112 71 (T-Mobile)        | 150       | Antel BXA-70063/6CF-2 (Verizon)      | 127.5     |
| Ericsson KRY112 71 (T-Mobile)        | 150       | Antel BXA-70063/6CF-2 (Verizon)      | 127.5     |
| Ericsson KRY112 71 (T-Mobile)        | 150       | Nudd 12' boom                        | 127.5     |
| Nudd 12' boom                        | 150       | Nudd 12' boom                        | 127.5     |
| Nudd 12' boom                        | 150       | (2) RFS FD9R6004/2C-3L (Verizon)     | 127.5     |
| Nudd 12' boom                        | 150       | (2) RFS FD9R6004/2C-3L (Verizon)     | 127.5     |
| Nudd 12' boom                        | 150       | (2) RFS FD9R6004/2C-3L (Verizon)     | 127.5     |
| KMW ET-X-TU-42-15-37-18-IR-RA        | 140       | Ryma MG D5-800T2 (Verizon)           | 127.5     |
| RFS APXVSP18-C                       | 140       | Ryma MG D5-800T2 (Verizon)           | 127.5     |
| RFS APXV9ERR18-C-A20                 | 140       | Ryma MG D5-800T2 (Verizon)           | 127.5     |
| Alcatel Lucent 1900 MHz              | 140       | (2) Ericsson RRUs11 (ATI)            | 115       |
| Alcatel Lucent 800 MHz               | 140       | Raycap DC6-48-60-18-8F (ATI)         | 115       |
| Alcatel Lucent 1900 MHz              | 140       | KMW AM-X-CD-16-65-00T-RET (ATI)      | 115       |
| Alcatel Lucent 800 MHz               | 140       | Powerwave 7770.00 (ATI)              | 115       |
| Nudd 12' boom                        | 140       | Powerwave 7770.00 (ATI)              | 115       |
| Alcatel Lucent 1900 MHz RRH          | 140       | Powerwave 7770.00 (ATI)              | 115       |
| Alcatel Lucent 1900 MHz RRH          | 140       | Powerwave 7770.00 (ATI)              | 115       |
| RFS IBC1900BB-3                      | 140       | Nudd 10' boom                        | 115       |
| RFS IBC1900BB-3                      | 140       | Nudd 10' boom                        | 115       |
| RFS IBC1900BB-3                      | 140       | Nudd 10' boom                        | 115       |
| Antel BXA-171085-12CF (Verizon)      | 127.5     | (2) Powerwave LGP21401 (ATI)         | 115       |
| Antel BXA-171083-12CF (Verizon)      | 127.5     | (2) Powerwave LGP21401 (ATI)         | 115       |
| Antel BXA-171083-12CF (Verizon)      | 127.5     | (2) Powerwave LGP21401 (ATI)         | 115       |
| Alcatel Lucent RRH2x40 AWS (Verizon) | 127.5     | Andrew SBNH-1D8585C (ATI)            | 115       |
|                                      |           | (2) Ericsson RRUs11 (ATI)            | 115       |
|                                      |           | (2) Ericsson RRUs11 (ATI)            | 115       |
|                                      |           | Powerwave P65-17-XLH-RR (ATI)        | 115       |

**SYMBOL LIST**

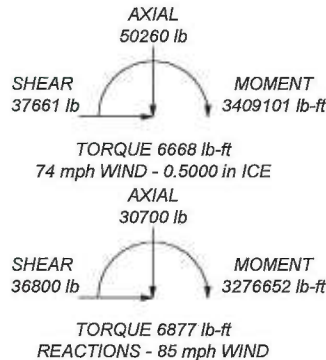
| MARK | SIZE              | MARK | SIZE |
|------|-------------------|------|------|
| A    | L1 1/2x1 1/2x3/16 |      |      |

**MATERIAL STRENGTH**

| GRADE    | Fy     | Fu     | GRADE | Fy     | Fu     |
|----------|--------|--------|-------|--------|--------|
| A500M-54 | 54 ksi | 70 ksi | A36   | 36 ksi | 58 ksi |

**MAX. CORNER REACTIONS AT BASE:**

DOWN: 235440 lb  
 UPLIFT: -198724 lb  
 SHEAR: 23371 lb

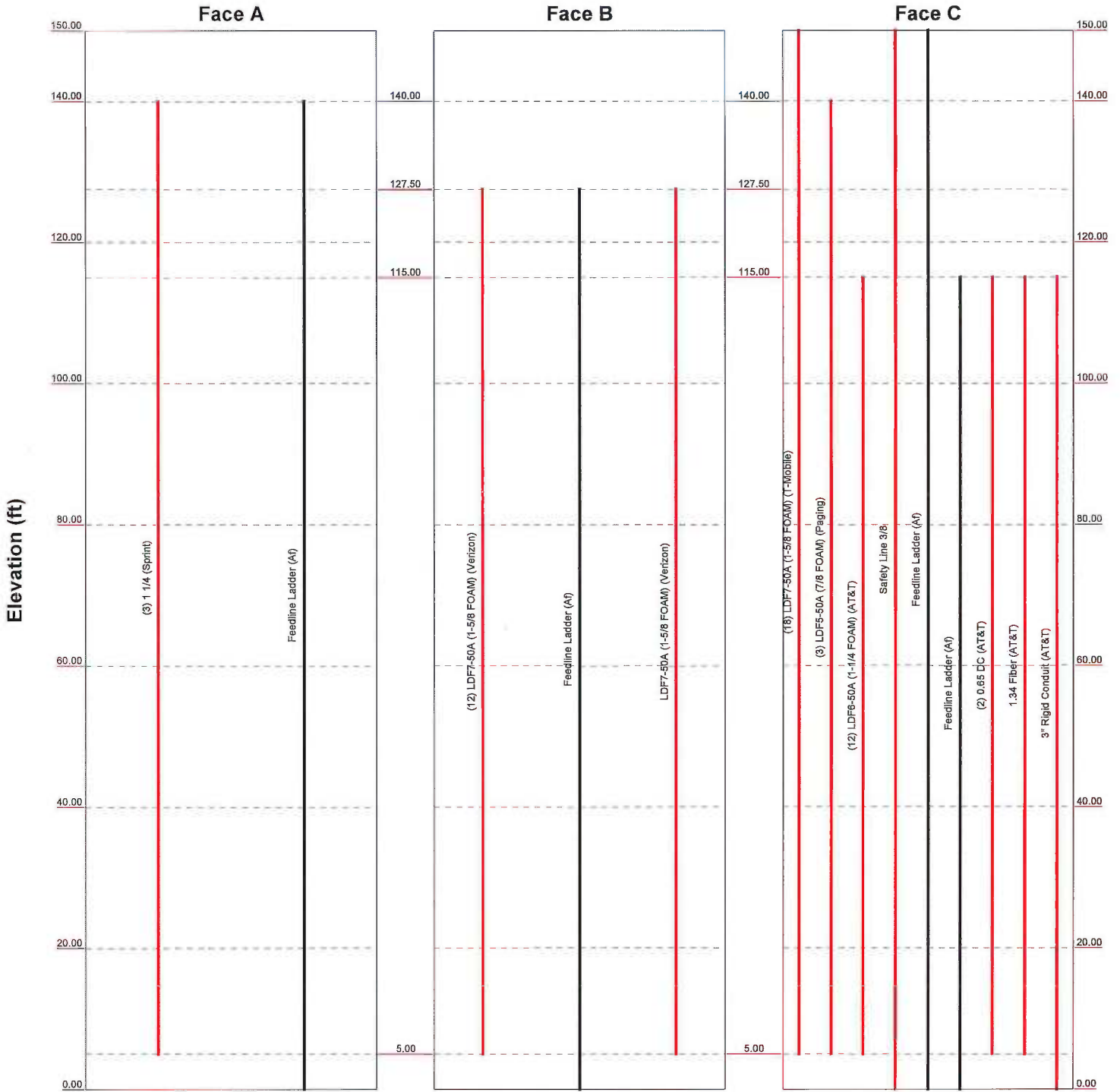


|                |  |                |             |
|----------------|--|----------------|-------------|
| Phone:<br>FAX: | Job: 150' SS Tower Norwich, CT. Analysis |                |             |
|                | Project: 215-35024                       |                |             |
|                | Client: CDT                              | Drawn by: FAN  | App'd:      |
|                | Code: TIA/EIA-222-F                      | Date: 03/30/15 | Scale: NTS  |
|                | Path:                                    |                | Dwg No. E-1 |

# Feedline Distribution Chart

## 0' - 150'

— Round   
 — Flat   
 — App In Face   
 — App Out Face   
 — Truss Leg



|   |                |             |  |
|---|----------------|-------------|--|
| Job: <b>150' SS Tower Norwich, CT. Analysis</b> |                |             |  |
| Project: <b>215-35024</b>                       |                |             |  |
| Client: CDT                                     | Drawn by: FAN  | App'd:      |  |
| Code: TIA/EIA-222-F                             | Date: 03/30/15 | Scale: NTS  |  |
| Phone:  | Path:          | Dwg No. E-7 |  |
| FAX:  |                |             |  |

|  |   |                                  |
|--|---|----------------------------------|
| <b>RISATower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>1 of 28           |
|  | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|  | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

## Tower Input Data

The main tower is a 3x free standing tower with an overall height of 150.00 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 6.00 ft at the top and 18.00 ft at the base.

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

The following design criteria apply:

Basic wind speed of 85 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 74 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Weld together tower sections have flange connections..

Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..

Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..

Welds are fabricated with ER-70S-6 electrodes..

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

Pressures are calculated at each section.

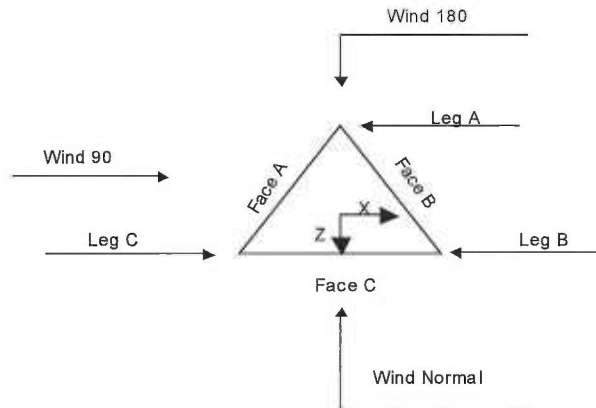
Stress ratio used in tower member design is 1.333.

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>Poles</li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> </ul> |
|--|--|---|

|   |   |                                  |
|---|---|----------------------------------|
| <b>RISA Tower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>2 of 28           |
|   | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|   | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |



Triangular Tower

### Tower Section Geometry

| Tower Section | Tower Elevation | Assembly Database | Description | Section Width | Number of Sections | Section Length |
|---------------|-----------------|-------------------|-------------|---------------|--------------------|----------------|
|               | ft              |                   |             | ft            |                    | ft             |
| T1            | 150.00-140.00   |                   |             | 6.00          | 1                  | 10.00          |
| T2            | 140.00-120.00   |                   |             | 6.00          | 1                  | 20.00          |
| T3            | 120.00-100.00   |                   |             | 6.00          | 1                  | 20.00          |
| T4            | 100.00-80.00    |                   |             | 8.00          | 1                  | 20.00          |
| T5            | 80.00-60.00     |                   |             | 10.00         | 1                  | 20.00          |
| T6            | 60.00-40.00     |                   |             | 12.00         | 1                  | 20.00          |
| T7            | 40.00-20.00     |                   |             | 14.00         | 1                  | 20.00          |
| T8            | 20.00-0.00      |                   |             | 16.00         | 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 |
|---------------|-----------------|------------------|--------------|------------------------|-----------------|-----------------|--------------------|
|               | ft              | ft               |              |                        |                 | in              | in                 |
| T1            | 150.00-140.00   | 4.33             | X Brace      | No                     | No              | 8.0000          | 8.0000             |
| T2            | 140.00-120.00   | 4.67             | X Brace      | No                     | No              | 8.0000          | 8.0000             |
| T3            | 120.00-100.00   | 4.67             | X Brace      | No                     | No              | 8.0000          | 8.0000             |
| T4            | 100.00-80.00    | 6.25             | X Brace      | No                     | No              | 7.5000          | 7.5000             |
| T5            | 80.00-60.00     | 6.25             | X Brace      | No                     | No              | 7.5000          | 7.5000             |
| T6            | 60.00-40.00     | 6.25             | X Brace      | No                     | No              | 7.5000          | 7.5000             |
| T7            | 40.00-20.00     | 9.33             | X Brace      | No                     | No              | 8.0000          | 8.0000             |

|   |   |                                  |
|---|---|----------------------------------|
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| Tower Section | Tower Elevation | Diagonal Spacing | Bracing Type | Has K Brace End Panels | Has Horizontals | Top Girt Offset | Bottom Girt Offset |
|---------------|-----------------|------------------|--------------|------------------------|-----------------|-----------------|--------------------|
|               | ft              | ft               |              |                        |                 | in              | in                 |
| T8            | 20.00-0.00      | 9.33             | X Brace      | No                     | No              | 8.0000          | 8.0000             |

### Tower Section Geometry (cont'd)

| Tower Elevation  | Leg Type | Leg Size  | Leg Grade            | Diagonal Type | Diagonal Size     | Diagonal Grade  |
|------------------|----------|-----------|----------------------|---------------|-------------------|-----------------|
| ft               |          |           |                      |               |                   |                 |
| T1 150.00-140.00 | Pipe     | P2.5x.203 | A500M-54<br>(54 ksi) | Equal Angle   | L1 1/2x1 1/2x3/16 | A36<br>(36 ksi) |
| T2 140.00-120.00 | Pipe     | P2.5x.203 | A500M-54<br>(54 ksi) | Equal Angle   | L2x2x3/16         | A36<br>(36 ksi) |
| T3 120.00-100.00 | Pipe     | P4x.237   | A500M-54<br>(54 ksi) | Equal Angle   | L2x2x3/16         | A36<br>(36 ksi) |
| T4 100.00-80.00  | Pipe     | P5x.258   | A500M-54<br>(54 ksi) | Equal Angle   | L2 1/2x2 1/2x3/16 | A36<br>(36 ksi) |
| T5 80.00-60.00   | Pipe     | P6x.28    | A500M-54<br>(54 ksi) | Equal Angle   | L3x3x3/16         | A36<br>(36 ksi) |
| T6 60.00-40.00   | Pipe     | P8x.322   | A500M-54<br>(54 ksi) | Equal Angle   | L3x3x3/16         | A36<br>(36 ksi) |
| T7 40.00-20.00   | Pipe     | P8x.5     | A500M-54<br>(54 ksi) | Equal Angle   | L3 1/2x3 1/2x1/4  | A36<br>(36 ksi) |
| T8 20.00-0.00    | Pipe     | P8x.5     | A500M-54<br>(54 ksi) | Equal Angle   | L3 1/2x3 1/2x1/4  | A36<br>(36 ksi) |

### Tower Section Geometry (cont'd)

| Tower Elevation  | Secondary Horizontal Type | Secondary Horizontal Size | Secondary Horizontal Grade | Inner Bracing Type | Inner Bracing Size | Inner Bracing Grade |
|------------------|---------------------------|---------------------------|----------------------------|--------------------|--------------------|---------------------|
| ft               |                           |                           |                            |                    |                    |                     |
| T1 150.00-140.00 | Solid Round               |                           | A572-50<br>(50 ksi)        | Solid Round        | 9/16               | A572-50<br>(50 ksi) |
| T2 140.00-120.00 | Solid Round               |                           | A572-50<br>(50 ksi)        | Solid Round        | 9/16               | A572-50<br>(50 ksi) |
| T3 120.00-100.00 | Solid Round               |                           | A572-50<br>(50 ksi)        | Solid Round        | 9/16               | A572-50<br>(50 ksi) |
| T4 100.00-80.00  | Solid Round               |                           | A572-50<br>(50 ksi)        | Solid Round        | 9/16               | A572-50<br>(50 ksi) |
| T5 80.00-60.00   | Solid Round               |                           | A572-50<br>(50 ksi)        | Solid Round        | 9/16               | A572-50<br>(50 ksi) |
| T6 60.00-40.00   | Solid Round               |                           | A572-50<br>(50 ksi)        | Solid Round        | 9/16               | A572-50<br>(50 ksi) |
| T7 40.00-20.00   | Solid Round               |                           | A572-50<br>(50 ksi)        | Solid Round        | 9/16               | A572-50<br>(50 ksi) |
| T8 20.00-0.00    | Solid Round               |                           | A572-50<br>(50 ksi)        | Solid Round        | 9/16               | A572-50<br>(50 ksi) |

### Tower Section Geometry (cont'd)



|   |   |                                  |
|---|---|----------------------------------|
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| Tower Elevation     | Gusset Area (per face) | Gusset Thickness | Gusset Grade    | Adjust. Factor $A_f$ | Adjust. Factor $A_r$ | Weight Mult. | Double Angle Stitch Bolt Spacing Diagonals in | Double Angle Stitch Bolt Spacing Horizontals in |
|---------------------|------------------------|------------------|-----------------|----------------------|----------------------|--------------|---|---|
| ft                  | ft <sup>2</sup>        | in               |                 |                      |                      |              |   |   |
| T1<br>150.00-140.00 | 0.00                   | 0.0000           | A36<br>(36 ksi) | 1                    | 1                    | 1            | 36.0000                                       | 36.0000   |
| T2<br>140.00-120.00 | 0.00                   | 0.0000           | A36<br>(36 ksi) | 1                    | 1                    | 1            | 36.0000                                       | 36.0000   |
| T3<br>120.00-100.00 | 0.00                   | 0.0000           | A36<br>(36 ksi) | 1                    | 1                    | 1            | 36.0000                                       | 36.0000   |
| T4<br>100.00-80.00  | 0.00                   | 0.0000           | A36<br>(36 ksi) | 1                    | 1                    | 1            | 36.0000                                       | 36.0000   |
| T5<br>80.00-60.00   | 0.00                   | 0.0000           | A36<br>(36 ksi) | 1                    | 1                    | 1            | 36.0000                                       | 36.0000   |
| T6<br>60.00-40.00   | 0.00                   | 0.0000           | A36<br>(36 ksi) | 1                    | 1                    | 1            | 36.0000                                       | 36.0000   |
| T7<br>40.00-20.00   | 0.00                   | 0.0000           | A36<br>(36 ksi) | 1                    | 1                    | 1            | 36.0000                                       | 36.0000   |
| T8<br>20.00-0.00    | 0.00                   | 0.0000           | A36<br>(36 ksi) | 1                    | 1                    | 1            | 36.0000                                       | 36.0000   |

### Tower Section Geometry (cont'd)

| Tower Elevation     | Calc K Single Angles | Calc K Solid Rounds | Legs | K Factors <sup>1</sup> |               |              |       |        |             |             |        |
|---------------------|----------------------|---------------------|------|------------------------|---------------|--------------|-------|--------|-------------|-------------|--------|
|                     |                      |                     |      | X Brace Diags          | K Brace Diags | Single Diags | Girts | Horiz. | Sec. Horiz. | Inner Brace |        |
|                     |                      |                     |      |                        |               |              |       |        |             |             | X<br>Y |
| ft                  |                      |                     |      |                        |               |              |       |        |             |             |        |
| T1<br>150.00-140.00 | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1     | 1      | 1           | 1           | 1      |
| T2<br>140.00-120.00 | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1     | 1      | 1           | 1           | 1      |
| T3<br>120.00-100.00 | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1     | 1      | 1           | 1           | 1      |
| T4<br>100.00-80.00  | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1     | 1      | 1           | 1           | 1      |
| T5<br>80.00-60.00   | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1     | 1      | 1           | 1           | 1      |
| T6<br>60.00-40.00   | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1     | 1      | 1           | 1           | 1      |
| T7<br>40.00-20.00   | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1     | 1      | 1           | 1           | 1      |
| T8<br>20.00-0.00    | Yes                  | 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)

|   |   |                                  |
|---|---|----------------------------------|
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| Tower Elevation<br>ft | Leg                       |   | Diagonal                  |      | Top Girt                  |      | Bottom Girt                  |      | Mid Girt                     |      | Long Horizontal              |      | Short Horizontal             |      |
|-----------------------|---------------------------|---|---------------------------|------|---------------------------|------|------------------------------|------|------------------------------|------|------------------------------|------|------------------------------|------|
|                       | Net Width<br>Deduct<br>in | U | Net Width<br>Deduct<br>in | U    | Net Width<br>Deduct<br>in | U    | Net<br>Width<br>Deduct<br>in | U    | Net<br>Width<br>Deduct<br>in | U    | Net<br>Width<br>Deduct<br>in | U    | Net<br>Width<br>Deduct<br>in | U    |
| T1<br>150.00-140.00   | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T2<br>140.00-120.00   | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T3<br>120.00-100.00   | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T4<br>100.00-80.00    | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T5 80.00-60.00        | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T6 60.00-40.00        | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T7 40.00-20.00        | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T8 20.00-0.00         | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |

### Tower Section Geometry (cont'd)

| Tower Elevation<br>ft | Leg Connection<br>Type | Leg             |     | Diagonal        |     | Top Girt        |     | Bottom Girt     |     | Mid Girt        |     | Long Horizontal |     | Short Horizontal |     |
|-----------------------|------------------------|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|------------------|-----|
|                       |                        | Bolt Size<br>in | No. | Bolt Size<br>in | No. | Bolt Size<br>in | No. | Bolt Size<br>in | No. | Bolt Size<br>in | No. | Bolt Size<br>in | No. | Bolt Size<br>in  | No. |
| T1<br>150.00-140.00   | Flange                 | 0.7500          | 4   | 0.5000          | 1   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250           | 0   |
| T2<br>140.00-120.00   | Flange                 | 1.0000          | 4   | 0.6250          | 1   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250           | 0   |
| T3<br>120.00-100.00   | Flange                 | 1.0000          | 6   | 0.6250          | 1   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250           | 0   |
| T4<br>100.00-80.00    | Flange                 | 1.0000          | 8   | 0.6250          | 1   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250           | 0   |
| T5 80.00-60.00        | Flange                 | 1.2500          | 8   | 0.6250          | 1   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250           | 0   |
| T6 60.00-40.00        | Flange                 | 1.2500          | 8   | 0.6250          | 1   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250           | 0   |
| T7 40.00-20.00        | Flange                 | 1.2500          | 8   | 0.7500          | 1   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250           | 0   |
| T8 20.00-0.00         | Flange                 | 1.5000          | 8   | 0.7500          | 1   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250          | 0   | 0.6250           | 0   |
|                       |                        | F1554-36        |     | A325N           |     | A325N           |     | A325N           |     | A325N           |     | A325N           |     | A325N            |     |

### Feed Line/Linear Appurtenances - Entered As Round Or Flat

| Description                            | Face<br>or<br>Leg | Allow<br>Shield | Component<br>Type | Placement<br>ft | Face<br>Offset<br>in | Lateral<br>Offset<br>(Frac FW) | #  | #<br>Per<br>Row | Clear<br>Spacing<br>in | Width or<br>Diameter<br>in | Perimeter<br>in | Weight<br>plf |
|--|-------------------|-----------------|-------------------|-----------------|----------------------|--------------------------------|----|-----------------|------------------------|----------------------------|-----------------|---------------|
| LDF7-50A<br>(1-5/8 FOAM)<br>(T-Mobile) | C                 | Yes             | Ar (CfAe)         | 150.00 - 5.00   | 0.0000               | -0.25                          | 18 | 9               | 1.9800                 | 1.9800                     |                 | 0.82          |
| LDF5-50A<br>(7/8 FOAM)<br>(Paging)     | C                 | Yes             | Ar (CfAe)         | 140.00 - 5.00   | 0.0000               | -0.35                          | 3  | 3               | 1.0900                 | 1.0900                     |                 | 0.33          |

|   |   |                                  |
|---|---|----------------------------------|
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| Description                     | Face or Leg | Allow Shield | Component Type | Placement<br>ft | Face Offset<br>in | Lateral Offset<br>(Frac FW) | #  | # Per Row | Clear Spacing<br>in | Width or Diameter<br>in | Perimeter<br>in | Weight<br>plf |
|---------------------------------|-------------|--------------|----------------|-----------------|-------------------|-----------------------------|----|-----------|---------------------|-------------------------|-----------------|---------------|
| 1 1/4 (Sprint)                  | A           | Yes          | Ar (CfAe)      | 140.00 - 5.00   | 0.0000            | -0.25                       | 3  | 3         | 1.5500              | 1.5500                  |                 | 0.66          |
| LDF7-50A (1-5/8 FOAM) (Verizon) | B           | Yes          | Ar (CfAe)      | 127.50 - 5.00   | 0.0000            | -0.25                       | 12 | 12        | 1.9800              | 1.9800                  |                 | 0.82          |
| LDF6-50A (1-1/4 FOAM) (AT&T)    | C           | Yes          | Ar (CfAe)      | 115.00 - 5.00   | 0.0000            | 0.25                        | 12 | 6         | 1.5500              | 1.5500                  |                 | 0.66          |
| Safety Line 3/8                 | C           | No           | Ar (Leg)       | 150.00 - 0.00   | 0.0000            | 0                           | 1  | 1         | 0.3750              | 0.3750                  |                 | 0.22          |
| Feedline Ladder (Af)            | C           | Yes          | Af (CfAe)      | 150.00 - 0.00   | 0.0000            | -0.25                       | 1  | 1         | 3.0000              | 3.0000                  | 12.0000         | 8.40          |
| Feedline Ladder (Af)            | C           | Yes          | Af (CfAe)      | 115.00 - 0.00   | 0.0000            | 0.25                        | 1  | 1         | 3.0000              | 3.0000                  | 12.0000         | 8.40          |
| Feedline Ladder (Af)            | B           | Yes          | Af (CfAe)      | 127.50 - 0.00   | 0.0000            | -0.25                       | 1  | 1         | 3.0000              | 3.0000                  | 12.0000         | 8.40          |
| Feedline Ladder (Af)            | A           | Yes          | Af (CfAe)      | 140.00 - 0.00   | 0.0000            | -0.25                       | 1  | 1         | 3.0000              | 3.0000                  | 12.0000         | 8.40          |
| 0.65 DC (AT&T)                  | C           | Yes          | Ar (CfAe)      | 115.00 - 5.00   | 0.0000            | 0.25                        | 2  | 2         | 0.6300              | 0.0000                  |                 | 0.15          |
| 1.34 Fiber (AT&T)               | C           | Yes          | Ar (CfAe)      | 115.00 - 5.00   | 0.0000            | 0.25                        | 1  | 1         | 0.6300              | 0.0000                  |                 | 0.15          |
| 3" Rigid Conduit (AT&T)         | C           | Yes          | Ar (CfAe)      | 115.00 - 0.00   | 0.0000            | -0.25                       | 1  | 1         | 2.0000              | 3.0000                  |                 | 2.80          |
| LDF7-50A (1-5/8 FOAM) (Verizon) | B           | Yes          | Ar (CfAe)      | 127.50 - 5.00   | 0.0000            | -0.25                       | 1  | 1         | 1.9800              | 1.9800                  |                 | 0.82          |

### Feed Line/Linear Appurtenances Section Areas

| Tower Section | Tower Elevation<br>ft | Face | A <sub>R</sub><br>ft <sup>2</sup> | A <sub>F</sub><br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>In Face<br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Out Face<br>ft <sup>2</sup> | Weight<br>lb |
|---------------|-----------------------|------|-----------------------------------|-----------------------------------|---|--|--------------|
| T1            | 150.00-140.00         | A    | 0.313                             | 0.000                             | 0.000   | 0.000  | 0.00         |
|               |                       | B    | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00         |
|               |                       | C    | 15.163                            | 2.500                             | 0.000   | 0.000  | 233.80       |
| T2            | 140.00-120.00         | A    | 8.375                             | 5.000                             | 0.000   | 0.000  | 207.60       |
|               |                       | B    | 16.087                            | 1.875                             | 0.000   | 0.000  | 142.95       |
|               |                       | C    | 35.775                            | 5.000                             | 0.000   | 0.000  | 487.40       |
| T3            | 120.00-100.00         | A    | 8.375                             | 5.000                             | 0.000   | 0.000  | 207.60       |
|               |                       | B    | 42.900                            | 5.000                             | 0.000   | 0.000  | 381.20       |
|               |                       | C    | 51.150                            | 8.750                             | 0.000   | 0.000  | 780.95       |
| T4            | 100.00-80.00          | A    | 8.375                             | 5.000                             | 0.000   | 0.000  | 207.60       |
|               |                       | B    | 42.900                            | 5.000                             | 0.000   | 0.000  | 381.20       |
|               |                       | C    | 56.275                            | 10.000                            | 0.000   | 0.000  | 878.80       |
| T5            | 80.00-60.00           | A    | 8.375                             | 5.000                             | 0.000   | 0.000  | 207.60       |
|               |                       | B    | 42.900                            | 5.000                             | 0.000   | 0.000  | 381.20       |
|               |                       | C    | 56.275                            | 10.000                            | 0.000   | 0.000  | 878.80       |
| T6            | 60.00-40.00           | A    | 8.375                             | 5.000                             | 0.000   | 0.000  | 207.60       |
|               |                       | B    | 42.900                            | 5.000                             | 0.000   | 0.000  | 381.20       |
|               |                       | C    | 56.275                            | 10.000                            | 0.000   | 0.000  | 878.80       |
| T7            | 40.00-20.00           | A    | 8.375                             | 5.000                             | 0.000   | 0.000  | 207.60       |
|               |                       | B    | 42.900                            | 5.000                             | 0.000   | 0.000  | 381.20       |
|               |                       | C    | 56.275                            | 10.000                            | 0.000   | 0.000  | 878.80       |
| T8            | 20.00-0.00            | A    | 6.438                             | 5.000                             | 0.000   | 0.000  | 197.70       |

|  |   |                                  |
|--|---|----------------------------------|
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| Tower Section | Tower Elevation<br>ft | Face | $A_R$<br>ft <sup>2</sup> | $A_F$<br>ft <sup>2</sup> | $C_A A_A$<br>In Face<br>ft <sup>2</sup> | $C_A A_A$<br>Out Face<br>ft <sup>2</sup> | Weight<br>lb |
|---------------|-----------------------|------|--------------------------|--------------------------|---|--|--------------|
|               |                       | B    | 32.175                   | 5.000                    | 0.000                                   | 0.000                                    | 327.90       |
|               |                       | C    | 43.612                   | 10.000                   | 0.000                                   | 0.000                                    | 758.20       |

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

| Tower Section | Tower Elevation<br>ft | Face or Leg | Ice Thickness<br>in | $A_R$<br>ft <sup>2</sup> | $A_F$<br>ft <sup>2</sup> | $C_A A_A$<br>In Face<br>ft <sup>2</sup> | $C_A A_A$<br>Out Face<br>ft <sup>2</sup> | Weight<br>lb |
|---------------|-----------------------|-------------|---------------------|--------------------------|--------------------------|---|--|--------------|
| T1            | 150.00-140.00         | A           | 0.500               | 1.146                    | 0.000                    | 0.000                                   | 0.000                                    | 0.00         |
|               |                       | B           |                     | 0.000                    | 0.000                    | 0.000                                   | 0.000                                    | 0.00         |
|               |                       | C           |                     | 23.496                   | 3.056                    | 0.000                                   | 0.000                                    | 538.85       |
| T2            | 140.00-120.00         | A           | 0.500               | 15.042                   | 6.111                    | 0.000                                   | 0.000                                    | 336.76       |
|               |                       | B           |                     | 24.212                   | 2.292                    | 0.000                                   | 0.000                                    | 310.92       |
|               |                       | C           |                     | 57.442                   | 6.111                    | 0.000                                   | 0.000                                    | 1155.77      |
| T3            | 120.00-100.00         | A           | 0.500               | 15.042                   | 6.111                    | 0.000                                   | 0.000                                    | 336.76       |
|               |                       | B           |                     | 64.567                   | 6.111                    | 0.000                                   | 0.000                                    | 829.11       |
|               |                       | C           |                     | 84.067                   | 11.482                   | 0.000                                   | 0.000                                    | 1760.16      |
| T4            | 100.00-80.00          | A           | 0.500               | 15.042                   | 6.111                    | 0.000                                   | 0.000                                    | 336.76       |
|               |                       | B           |                     | 64.567                   | 6.111                    | 0.000                                   | 0.000                                    | 829.11       |
|               |                       | C           |                     | 92.942                   | 13.272                   | 0.000                                   | 0.000                                    | 1961.63      |
| T5            | 80.00-60.00           | A           | 0.500               | 15.042                   | 6.111                    | 0.000                                   | 0.000                                    | 336.76       |
|               |                       | B           |                     | 64.567                   | 6.111                    | 0.000                                   | 0.000                                    | 829.11       |
|               |                       | C           |                     | 92.942                   | 13.272                   | 0.000                                   | 0.000                                    | 1961.63      |
| T6            | 60.00-40.00           | A           | 0.500               | 15.042                   | 6.111                    | 0.000                                   | 0.000                                    | 336.76       |
|               |                       | B           |                     | 64.567                   | 6.111                    | 0.000                                   | 0.000                                    | 829.11       |
|               |                       | C           |                     | 92.942                   | 13.272                   | 0.000                                   | 0.000                                    | 1961.63      |
| T7            | 40.00-20.00           | A           | 0.500               | 15.042                   | 6.111                    | 0.000                                   | 0.000                                    | 336.76       |
|               |                       | B           |                     | 64.567                   | 6.111                    | 0.000                                   | 0.000                                    | 829.11       |
|               |                       | C           |                     | 92.942                   | 13.272                   | 0.000                                   | 0.000                                    | 1961.63      |
| T8            | 20.00-0.00            | A           | 0.500               | 11.854                   | 6.111                    | 0.000                                   | 0.000                                    | 308.08       |
|               |                       | B           |                     | 48.425                   | 6.111                    | 0.000                                   | 0.000                                    | 677.34       |
|               |                       | C           |                     | 71.946                   | 13.010                   | 0.000                                   | 0.000                                    | 1610.70      |

### Feed Line Shielding

| Section | Elevation<br>ft | Face | $A_R$<br>ft <sup>2</sup> | $A_R$<br>Ice<br>ft <sup>2</sup> | $A_F$<br>ft <sup>2</sup> | $A_F$<br>Ice<br>ft <sup>2</sup> |
|---------|-----------------|------|--------------------------|---------------------------------|--------------------------|---------------------------------|
| T1      | 150.00-140.00   | A    | 0.000                    | 0.000                           | 0.000                    | 0.000                           |
|         |                 | B    | 0.000                    | 0.000                           | 0.000                    | 0.000                           |
|         |                 | C    | 0.000                    | 1.270                           | 1.504                    | 2.226                           |
| T2      | 140.00-120.00   | A    | 0.000                    | 0.820                           | 1.077                    | 1.640                           |
|         |                 | B    | 0.000                    | 1.128                           | 1.517                    | 2.256                           |
|         |                 | C    | 0.000                    | 2.610                           | 3.391                    | 5.221                           |
| T3      | 120.00-100.00   | A    | 0.000                    | 0.780                           | 1.024                    | 1.559                           |
|         |                 | B    | 0.000                    | 2.860                           | 3.847                    | 5.720                           |
|         |                 | C    | 0.000                    | 3.784                           | 4.760                    | 7.567                           |
| T4      | 100.00-80.00    | A    | 0.000                    | 0.592                           | 0.971                    | 1.479                           |
|         |                 | B    | 0.000                    | 2.171                           | 3.650                    | 5.428                           |
|         |                 | C    | 0.000                    | 3.201                           | 5.002                    | 8.003                           |
| T5      | 80.00-60.00     | A    | 0.000                    | 0.559                           | 1.101                    | 1.676                           |
|         |                 | B    | 0.000                    | 2.050                           | 4.135                    | 6.149                           |
|         |                 | C    | 0.000                    | 3.022                           | 5.667                    | 9.067                           |
| T6      | 60.00-40.00     | A    | 0.000                    | 0.539                           | 1.061                    | 1.616                           |

|  |   |                                  |
|--|---|----------------------------------|
| <b>RISATower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>8 of 28           |
|  | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|  | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

| Section | Elevation   | Face | $A_R$           | $A_{R, Ice}$    | $A_F$           | $A_{F, Ice}$    |
|---------|-------------|------|-----------------|-----------------|-----------------|-----------------|
|         | ft          |      | ft <sup>2</sup> | ft <sup>2</sup> | ft <sup>2</sup> | ft <sup>2</sup> |
| T7      | 40.00-20.00 | B    | 0.000           | 1.977           | 3.988           | 5.930           |
|         |             | C    | 0.000           | 2.915           | 5.465           | 8.744           |
|         |             | A    | 0.000           | 0.381           | 0.876           | 1.334           |
| T8      | 20.00-0.00  | B    | 0.000           | 1.399           | 3.292           | 4.896           |
|         |             | C    | 0.000           | 2.062           | 4.512           | 7.219           |
|         |             | A    | 0.000           | 0.309           | 0.720           | 1.080           |
|         |             | B    | 0.000           | 1.048           | 2.474           | 3.667           |
|         |             | C    | 0.000           | 1.593           | 3.527           | 5.576           |

### Feed Line Center of Pressure

| Section | Elevation     | $CP_X$ | $CP_Z$ | $CP_X, Ice$ | $CP_Z, Ice$ |
|---------|---------------|--------|--------|-------------|-------------|
|         | ft            | in     | in     | in          | in          |
| T1      | 150.00-140.00 | 5.9789 | 8.2828 | 5.2625      | 8.0542      |
| T2      | 140.00-120.00 | 4.1273 | 3.9171 | 3.9794      | 4.1722      |
| T3      | 120.00-100.00 | 3.6129 | 0.9808 | 3.3257      | 1.4685      |
| T4      | 100.00-80.00  | 3.6916 | 1.8181 | 3.3805      | 2.4991      |
| T5      | 80.00-60.00   | 3.9732 | 1.8712 | 3.7271      | 2.6688      |
| T6      | 60.00-40.00   | 4.1999 | 1.9123 | 4.0244      | 2.8141      |
| T7      | 40.00-20.00   | 4.9205 | 2.1808 | 4.7729      | 3.2735      |
| T8      | 20.00-0.00    | 4.3414 | 2.5533 | 4.1882      | 3.6226      |

### Discrete Tower Loads

| Description         | Face or Leg | Offset Type | Offsets: Horz Lateral Vert | Azimuth Adjustment | Placement | $C_{A, A, Front}$ | $C_{A, A, Side}$ | Weight |
|---------------------|-------------|-------------|----------------------------|--------------------|-----------|-------------------|------------------|--------|
|                     |             |             | ft                         | °                  | ft        | ft <sup>2</sup>   | ft <sup>2</sup>  | lb     |
| RFS                 | C           | From Leg    | 4.00                       | 0.0000             | 150.00    | No Ice 6.46       | 2.15             | 53.90  |
| APX16DWV-16DWVS-E-A |             |             | 0.00                       |                    |           | 1/2" Ice 6.82     | 2.55             | 86.90  |
| 20                  |             |             | 0.00                       |                    |           |                   |                  |        |
| (T-Mobile)          |             |             |                            |                    |           |                   |                  |        |
| RFS                 | A           | From Leg    | 4.00                       | 0.0000             | 150.00    | No Ice 6.46       | 2.15             | 53.90  |
| APX16DWV-16DWVS-E-A |             |             | 0.00                       |                    |           | 1/2" Ice 6.82     | 2.55             | 86.90  |
| 20                  |             |             | 0.00                       |                    |           |                   |                  |        |
| (T-Mobile)          |             |             |                            |                    |           |                   |                  |        |
| RFS                 | B           | From Leg    | 4.00                       | 0.0000             | 150.00    | No Ice 6.46       | 2.15             | 53.90  |
| APX16DWV-16DWVS-E-A |             |             | 0.00                       |                    |           | 1/2" Ice 6.82     | 2.55             | 86.90  |
| 20                  |             |             | 0.00                       |                    |           |                   |                  |        |
| (T-Mobile)          |             |             |                            |                    |           |                   |                  |        |
| Commscope           | A           | From Leg    | 4.00                       | 0.0000             | 150.00    | No Ice 11.39      | 7.66             | 43.70  |
| LNx-6515DS-VTM      |             |             | 0.00                       |                    |           | 1/2" Ice 12.00    | 8.31             | 109.30 |
| 20                  |             |             | 0.00                       |                    |           |                   |                  |        |
| (T-Mobile)          |             |             |                            |                    |           |                   |                  |        |
| Commscope           | B           | From Leg    | 4.00                       | 0.0000             | 150.00    | No Ice 11.39      | 7.66             | 43.70  |
| LNx-6515DS-VTM      |             |             | 0.00                       |                    |           | 1/2" Ice 12.00    | 8.31             | 109.30 |
| 20                  |             |             | 0.00                       |                    |           |                   |                  |        |
| (T-Mobile)          |             |             |                            |                    |           |                   |                  |        |
| Commscope           | C           | From Leg    | 4.00                       | 0.0000             | 150.00    | No Ice 11.39      | 7.66             | 43.70  |
| LNx-6515DS-VTM      |             |             | 0.00                       |                    |           | 1/2" Ice 12.00    | 8.31             | 109.30 |



|   |                |  |                                     |  |  |  |                    |  |                   |
|---|----------------|--|-------------------------------------|--|--|--|--------------------|--|-------------------|
| <b>RISA Tower</b><br><br>Phone:<br>FAX: | <b>Job</b>     |  | 150' SS Tower Norwich, CT. Analysis |  |  |  | <b>Page</b>        |  | 9 of 28           |
|   | <b>Project</b> |  | 215-35024                           |  |  |  | <b>Date</b>        |  | 22:48:00 03/30/15 |
|   | <b>Client</b>  |  | CDT                                 |  |  |  | <b>Designed by</b> |  | FAN               |

| Description            | Face or Leg | Offset Type | Offsets: Horz Lateral Vert<br>ft<br>ft<br>ft | Azimuth Adjustment<br>° | Placement<br>ft |          | C <sub>AA</sub><br>Front<br>ft <sup>2</sup> | C <sub>AA</sub><br>Side<br>ft <sup>2</sup> | Weight<br>lb |
|------------------------|-------------|-------------|--|-------------------------|-----------------|----------|---|--|--------------|
| (T-Mobile)             |             |             | 0.00   |                         |                 |          |   |  |              |
| Ericsson KRY112 71     | C           | From Leg    | 4.00   | 0.0000                  | 150.00          | No Ice   | 1.40  | 1.40                                       | 5.00         |
| (T-Mobile)             |             |             | 0.00   |                         |                 | 1/2" Ice | 1.64  | 1.64                                       | 8.00         |
| Ericsson KRY112 71     | A           | From Leg    | 4.00   | 0.0000                  | 150.00          | No Ice   | 1.40  | 1.40                                       | 5.00         |
| (T-Mobile)             |             |             | 0.00   |                         |                 | 1/2" Ice | 1.64  | 1.64                                       | 8.00         |
| Ericsson KRY112 71     | B           | From Leg    | 4.00   | 0.0000                  | 150.00          | No Ice   | 1.40  | 1.40                                       | 5.00         |
| (T-Mobile)             |             |             | 0.00   |                         |                 | 1/2" Ice | 1.64  | 1.64                                       | 8.00         |
| Antel BXA-70063/6CF-2  | C           | From Leg    | 4.00   | 0.0000                  | 127.50          | No Ice   | 7.57  | 2.21                                       | 17.00        |
| (Verizon)              |             |             | 0.00   |                         |                 | 1/2" Ice | 8.02  | 2.70                                       | 57.60        |
| Antel BXA-70063/6CF-2  | A           | From Leg    | 4.00   | 0.0000                  | 127.50          | No Ice   | 7.57  | 2.21                                       | 17.00        |
| (Verizon)              |             |             | 0.00   |                         |                 | 1/2" Ice | 8.02  | 2.70                                       | 57.60        |
| Antel BXA-70063/6CF-2  | B           | From Leg    | 4.00   | 0.0000                  | 127.50          | No Ice   | 7.57  | 2.21                                       | 17.00        |
| (Verizon)              |             |             | 0.00   |                         |                 | 1/2" Ice | 8.02  | 2.70                                       | 57.60        |
| Powerwave 7770.00      | A           | From Leg    | 4.00   | 0.0000                  | 115.00          | No Ice   | 5.88  | 2.93                                       | 35.00        |
| (AT&T)                 |             |             | 0.00   |                         |                 | 1/2" Ice | 6.25  | 3.29                                       | 67.60        |
| Powerwave 7770.00      | B           | From Leg    | 4.00   | 0.0000                  | 115.00          | No Ice   | 5.88  | 2.93                                       | 35.00        |
| (AT&T)                 |             |             | 0.00   |                         |                 | 1/2" Ice | 6.25  | 3.29                                       | 67.60        |
| Powerwave 7770.00      | C           | From Leg    | 4.00   | 0.0000                  | 115.00          | No Ice   | 5.88  | 2.93                                       | 35.00        |
| (AT&T)                 |             |             | 0.00   |                         |                 | 1/2" Ice | 6.25  | 3.29                                       | 67.60        |
| (2) Powerwave LGP21401 | A           | From Leg    | 4.00   | 0.0000                  | 115.00          | No Ice   | 1.95  | 0.53                                       | 31.00        |
| (AT&T)                 |             |             | 0.00   |                         |                 | 1/2" Ice | 2.11  | 0.63                                       | 42.00        |
| (2) Powerwave LGP21401 | B           | From Leg    | 4.00   | 0.0000                  | 115.00          | No Ice   | 1.95  | 0.53                                       | 31.00        |
| (AT&T)                 |             |             | 0.00   |                         |                 | 1/2" Ice | 2.11  | 0.63                                       | 42.00        |
| (2) Powerwave LGP21401 | C           | From Leg    | 4.00   | 0.0000                  | 115.00          | No Ice   | 1.95  | 0.53                                       | 31.00        |
| (AT&T)                 |             |             | 0.00   |                         |                 | 1/2" Ice | 2.11  | 0.63                                       | 42.00        |
| (2) RFS APL868013      | C           | From Leg    | 4.00   | 0.0000                  | 127.50          | No Ice   | 2.87  | 3.61                                       | 8.20         |
| (Verizon)              |             |             | 0.00   |                         |                 | 1/2" Ice | 3.17  | 3.92                                       | 33.60        |
| (2) RFS APL868013      | A           | From Leg    | 4.00   | 0.0000                  | 127.50          | No Ice   | 2.87  | 3.61                                       | 8.20         |
| (Verizon)              |             |             | 0.00   |                         |                 | 1/2" Ice | 3.17  | 3.92                                       | 33.60        |
| (2) RFS APL866513      | B           | From Leg    | 4.00   | 0.0000                  | 127.50          | No Ice   | 4.29  | 3.73                                       | 15.70        |
| (Verizon)              |             |             | 0.00   |                         |                 | 1/2" Ice | 4.62  | 4.05                                       | 47.00        |
| (2) RFS FD9R6004/2C-3L | C           | From Leg    | 4.00   | 0.0000                  | 127.50          | No Ice   | 0.31  | 0.08                                       | 3.10         |
| (Verizon)              |             |             | 0.00   |                         |                 | 1/2" Ice | 0.38  | 0.12                                       | 5.40         |
| (2) RFS FD9R6004/2C-3L | A           | From Leg    | 4.00   | 0.0000                  | 127.50          | No Ice   | 0.31  | 0.08                                       | 3.10         |
| (Verizon)              |             |             | 0.00   |                         |                 | 1/2" Ice | 0.38  | 0.12                                       | 5.40         |
| (2) RFS FD9R6004/2C-3L | B           | From Leg    | 4.00   | 0.0000                  | 127.50          | No Ice   | 0.31  | 0.08                                       | 3.10         |
| (Verizon)              |             |             | 0.00   |                         |                 | 1/2" Ice | 0.38  | 0.12                                       | 5.40         |
| Rymasa MG D5-800T2     | C           | From Leg    | 4.00   | 0.0000                  | 127.50          | No Ice   | 3.45  | 2.22                                       | 19.80        |
| (Verizon)              |             |             | 0.00   |                         |                 | 1/2" Ice | 3.80  | 2.60                                       | 39.90        |



|  |                |  |                                     |  |                    |                   |
|--|----------------|--|-------------------------------------|--|--------------------|-------------------|
| <b>RISATower</b><br><br>Phone:<br>FAX: | <b>Job</b>     |  | 150' SS Tower Norwich, CT. Analysis |  | <b>Page</b>        | 11 of 28          |
|  | <b>Project</b> |  | 215-35024                           |  | <b>Date</b>        | 22:48:00 03/30/15 |
|  | <b>Client</b>  |  | CDT                                 |  | <b>Designed by</b> | FAN               |

| 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 |                    |           |                                     |                                    |        |
|                             |             |             | ft       | ft      | °                  | ft        | ft <sup>2</sup>                     | ft <sup>2</sup>                    | lb     |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Alcatel Lucent 1900 MHz     | A           | From Leg    | 4.00     |         | 0.0000             | 140.00    | No Ice 2.41                         | 2.47                               | 60.00  |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 2.59                       | 2.66                               | 84.70  |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Alcatel Lucent 800 MHz      | A           | From Leg    | 4.00     |         | 0.0000             | 140.00    | No Ice 1.70                         | 1.28                               | 60.00  |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 1.85                       | 1.41                               | 77.00  |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Alcatel Lucent 1900 MHz     | B           | From Leg    | 4.00     |         | 0.0000             | 140.00    | No Ice 2.41                         | 2.47                               | 60.00  |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 2.59                       | 2.66                               | 84.70  |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Alcatel Lucent 800 MHz      | B           | From Leg    | 4.00     |         | 0.0000             | 140.00    | No Ice 1.70                         | 1.28                               | 60.00  |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 1.85                       | 1.41                               | 77.00  |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Alcatel Lucent 1900 MHz     | C           | From Leg    | 4.00     |         | 0.0000             | 140.00    | No Ice 2.41                         | 2.47                               | 60.00  |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 2.59                       | 2.66                               | 84.70  |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Alcatel Lucent 800 MHz      | C           | From Leg    | 4.00     |         | 0.0000             | 140.00    | No Ice 1.70                         | 1.28                               | 60.00  |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 1.85                       | 1.41                               | 77.00  |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Nudd 12' boom               | C           | From Leg    | 1.00     |         | 0.0000             | 150.00    | No Ice 17.10                        | 9.30                               | 254.00 |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 21.40                      | 21.40                              | 376.00 |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Nudd 12' boom               | A           | From Leg    | 1.00     |         | 0.0000             | 150.00    | No Ice 17.10                        | 9.30                               | 254.00 |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 21.40                      | 21.40                              | 376.00 |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Nudd 12' boom               | B           | From Leg    | 1.00     |         | 0.0000             | 150.00    | No Ice 17.10                        | 9.30                               | 254.00 |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 21.40                      | 21.40                              | 376.00 |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Nudd 12' boom               | C           | From Leg    | 1.00     |         | 0.0000             | 127.50    | No Ice 17.10                        | 9.30                               | 254.00 |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 21.40                      | 21.40                              | 376.00 |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Nudd 12' boom               | A           | From Leg    | 1.00     |         | 0.0000             | 127.50    | No Ice 17.10                        | 9.30                               | 254.00 |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 21.40                      | 21.40                              | 376.00 |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Nudd 12' boom               | B           | From Leg    | 1.00     |         | 0.0000             | 127.50    | No Ice 17.10                        | 9.30                               | 254.00 |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 21.40                      | 21.40                              | 376.00 |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Nudd 10' boom               | C           | From Leg    | 1.00     |         | 0.0000             | 115.00    | No Ice 15.50                        | 9.30                               | 255.00 |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 19.60                      | 19.60                              | 367.00 |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Nudd 10' boom               | C           | From Leg    | 1.00     |         | 0.0000             | 115.00    | No Ice 15.50                        | 9.30                               | 255.00 |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 19.60                      | 19.60                              | 367.00 |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Nudd 10' boom               | A           | From Leg    | 1.00     |         | 0.0000             | 115.00    | No Ice 15.50                        | 9.30                               | 255.00 |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 19.60                      | 19.60                              | 367.00 |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Nudd 12' boom               | A           | From Leg    | 1.00     |         | 0.0000             | 140.00    | No Ice 17.10                        | 9.30                               | 254.00 |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 21.40                      | 21.40                              | 376.00 |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Alcatel Lucent 1900 MHz RRH | A           | From Leg    | 4.00     |         | 0.0000             | 140.00    | No Ice 2.58                         | 2.54                               | 60.00  |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 2.77                       | 2.73                               | 86.50  |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Alcatel Lucent 1900 MHz RRH | B           | From Leg    | 4.00     |         | 0.0000             | 140.00    | No Ice 2.91                         | 3.80                               | 60.00  |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 3.11                       | 4.03                               | 86.50  |
|                             |             |             | 0.00     |         |                    |           |                                     |                                    |        |
| Alcatel Lucent 1900 MHz RRH | C           | From Leg    | 4.00     |         | 0.0000             | 140.00    | No Ice 2.91                         | 3.80                               | 60.00  |
|                             |             |             | 0.00     |         |                    |           | 1/2" Ice 3.11                       | 4.03                               | 68.50  |

|   |   |                                  |
|---|---|----------------------------------|
| <b>RISA Tower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>12 of 28          |
|   | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|   | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

| 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 |                    |           |                                     |                                    |        |
|                 |             |             | ft       | ft      | °                  | ft        | ft <sup>2</sup>                     | ft <sup>2</sup>                    | lb     |
| RFS IBC1900BB-3 | A           | From Leg    | 0.00     |         |                    |           |                                     |                                    |        |
|                 |             |             | 4.00     | 0.0000  | 140.00             | No Ice    | 1.41                                | 0.63                               | 22.00  |
|                 |             |             | 0.00     |         |                    | 1/2" Ice  | 1.55                                | 0.74                               | 31.00  |
| RFS IBC1900BB-3 | B           | From Leg    | 0.00     |         |                    |           |                                     |                                    |        |
|                 |             |             | 4.00     | 0.0000  | 140.00             | No Ice    | 1.41                                | 0.63                               | 22.00  |
|                 |             |             | 0.00     |         |                    | 1/2" Ice  | 1.55                                | 0.74                               | 31.00  |
| RFS IBC1900BB-3 | C           | From Leg    | 0.00     |         |                    |           |                                     |                                    |        |
|                 |             |             | 4.00     | 0.0000  | 140.00             | No Ice    | 1.41                                | 0.63                               | 22.00  |
|                 |             |             | 0.00     |         |                    | 1/2" Ice  | 1.55                                | 0.74                               | 31.00  |

### Tower Pressures - No Ice

$$G_H = 1.133$$

| Section Elevation   | z      | K <sub>Z</sub> | q <sub>z</sub> | A <sub>G</sub>  | F <sub>a</sub> | A <sub>F</sub>  | A <sub>R</sub>  | A <sub>leg</sub> | Leg % | C <sub>A</sub> A <sub>A</sub> In Face | C <sub>A</sub> A <sub>A</sub> Out Face |
|---------------------|--------|----------------|----------------|-----------------|----------------|-----------------|-----------------|------------------|-------|---------------------------------------|--|
| ft                  | ft     |                | psf            | ft <sup>2</sup> | c              | ft <sup>2</sup> | ft <sup>2</sup> | ft <sup>2</sup>  |       | ft <sup>2</sup>                       | ft <sup>2</sup>                        |
| T1<br>150.00-140.00 | 145.00 | 1.526          | 28             | 62.396          | A              | 4.993           | 5.104           | 4.792            | 47.46 | 0.000                                 | 0.000                                  |
|                     |        |                |                |                 | B              | 4.993           | 4.792           | 48.97            | 0.000 | 0.000                                 |  |
|                     |        |                |                |                 | C              | 5.989           | 19.954          | 18.47            | 0.000 | 0.000                                 |  |
| T2<br>140.00-120.00 | 130.00 | 1.48           | 27             | 124.792         | A              | 13.653          | 17.958          | 9.583            | 30.32 | 0.000                                 | 0.000                                  |
|                     |        |                |                |                 | B              | 10.088          | 25.671          | 26.80            | 0.000 | 0.000                                 |  |
|                     |        |                |                |                 | C              | 11.339          | 45.358          | 16.90            | 0.000 | 0.000                                 |  |
| T3<br>120.00-100.00 | 110.00 | 1.411          | 26             | 147.509         | A              | 14.599          | 23.400          | 15.025           | 39.54 | 0.000                                 | 0.000                                  |
|                     |        |                |                |                 | B              | 11.776          | 57.925          | 21.56            | 0.000 | 0.000                                 |  |
|                     |        |                |                |                 | C              | 14.613          | 66.175          | 18.60            | 0.000 | 0.000                                 |  |
| T4<br>100.00-80.00  | 90.00  | 1.332          | 25             | 189.283         | A              | 17.025          | 26.949          | 18.574           | 42.24 | 0.000                                 | 0.000                                  |
|                     |        |                |                |                 | B              | 14.347          | 61.474          | 24.50            | 0.000 | 0.000                                 |  |
|                     |        |                |                |                 | C              | 17.995          | 74.849          | 20.01            | 0.000 | 0.000                                 |  |
| T5<br>80.00-60.00   | 70.00  | 1.24           | 23             | 231.055         | A              | 21.929          | 30.495          | 22.120           | 42.19 | 0.000                                 | 0.000                                  |
|                     |        |                |                |                 | B              | 18.895          | 65.020          | 26.36            | 0.000 | 0.000                                 |  |
|                     |        |                |                |                 | C              | 22.363          | 78.395          | 21.95            | 0.000 | 0.000                                 |  |
| T6<br>60.00-40.00   | 50.00  | 1.126          | 21             | 274.393         | A              | 24.383          | 37.173          | 28.798           | 46.78 | 0.000                                 | 0.000                                  |
|                     |        |                |                |                 | B              | 21.456          | 71.698          | 30.91            | 0.000 | 0.000                                 |  |
|                     |        |                |                |                 | C              | 24.979          | 85.073          | 26.17            | 0.000 | 0.000                                 |  |
| T7<br>40.00-20.00   | 30.00  | 1              | 18             | 314.393         | A              | 23.751          | 37.173          | 28.798           | 47.27 | 0.000                                 | 0.000                                  |
|                     |        |                |                |                 | B              | 21.336          | 71.698          | 30.95            | 0.000 | 0.000                                 |  |
|                     |        |                |                |                 | C              | 25.116          | 85.073          | 26.14            | 0.000 | 0.000                                 |  |
| T8<br>20.00-0.00    | 10.00  | 1              | 18             | 354.393         | A              | 25.953          | 35.235          | 28.798           | 47.06 | 0.000                                 | 0.000                                  |
|                     |        |                |                |                 | B              | 24.198          | 60.973          | 33.81            | 0.000 | 0.000                                 |  |
|                     |        |                |                |                 | C              | 28.146          | 72.410          | 28.64            | 0.000 | 0.000                                 |  |

### Tower Pressure - With Ice

$$G_H = 1.133$$



|   |   |                                  |
|---|---|----------------------------------|
| <b>RISA Tower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>13 of 28          |
|   | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|   | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

| Section Elevation<br>ft | z<br>ft | K <sub>Z</sub> | q <sub>z</sub><br>psf | t <sub>z</sub><br>in | A <sub>G</sub><br>ft <sup>2</sup> | F<br>a<br>c<br>e | A <sub>F</sub><br>ft <sup>2</sup> | A <sub>R</sub><br>ft <sup>2</sup> | A <sub>leg</sub><br>ft <sup>2</sup> | Leg<br>% | C <sub>A</sub> A <sub>A</sub><br>In<br>Face<br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Out<br>Face<br>ft <sup>2</sup> |
|-------------------------|---------|----------------|-----------------------|----------------------|-----------------------------------|------------------|-----------------------------------|-----------------------------------|-------------------------------------|----------|--|---|
| T1<br>150.00-140.00     | 145.00  | 1.526          | 21                    | 0.5000               | 63.229                            | A                | 4.993                             | 10.453                            | 6.458                               | 41.81    | 0.000  | 0.000   |
|                         |         |                |                       |                      |                                   | B                | 4.993                             | 9.307                             | 45.16                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                      |                                   | C                | 5.822                             | 31.533                            | 17.29                               | 0.000    | 0.000  |   |
| T2<br>140.00-120.00     | 130.00  | 1.48           | 21                    | 0.5000               | 126.458                           | A                | 14.201                            | 32.003                            | 12.917                              | 27.96    | 0.000  | 0.000   |
|                         |         |                |                       |                      |                                   | B                | 9.766                             | 40.866                            | 25.51                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                      |                                   | C                | 10.620                            | 72.613                            | 15.52                               | 0.000    | 0.000  |   |
| T3<br>120.00-100.00     | 110.00  | 1.411          | 20                    | 0.5000               | 149.178                           | A                | 15.175                            | 37.937                            | 18.364                              | 34.58    | 0.000  | 0.000   |
|                         |         |                |                       |                      |                                   | B                | 11.014                            | 85.382                            | 19.05                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                      |                                   | C                | 14.538                            | 103.959                           | 15.50                               | 0.000    | 0.000  |   |
| T4<br>100.00-80.00      | 90.00   | 1.332          | 18                    | 0.5000               | 190.952                           | A                | 17.629                            | 41.562                            | 21.913                              | 37.02    | 0.000  | 0.000   |
|                         |         |                |                       |                      |                                   | B                | 13.680                            | 89.507                            | 21.24                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                      |                                   | C                | 18.266                            | 116.852                           | 16.22                               | 0.000    | 0.000  |   |
| T5<br>80.00-60.00       | 70.00   | 1.24           | 17                    | 0.5000               | 232.724                           | A                | 22.465                            | 45.952                            | 25.459                              | 37.21    | 0.000  | 0.000   |
|                         |         |                |                       |                      |                                   | B                | 17.992                            | 93.986                            | 22.74                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                      |                                   | C                | 22.236                            | 121.388                           | 17.73                               | 0.000    | 0.000  |   |
| T6<br>60.00-40.00       | 50.00   | 1.126          | 16                    | 0.5000               | 276.062                           | A                | 24.939                            | 53.454                            | 32.137                              | 40.99    | 0.000  | 0.000   |
|                         |         |                |                       |                      |                                   | B                | 20.625                            | 101.541                           | 26.31                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                      |                                   | C                | 24.972                            | 128.978                           | 20.87                               | 0.000    | 0.000  |   |
| T7<br>40.00-20.00       | 30.00   | 1              | 14                    | 0.5000               | 316.062                           | A                | 24.404                            | 52.405                            | 32.137                              | 41.84    | 0.000  | 0.000   |
|                         |         |                |                       |                      |                                   | B                | 20.843                            | 100.913                           | 26.39                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                      |                                   | C                | 25.681                            | 128.624                           | 20.83                               | 0.000    | 0.000  |   |
| T8<br>20.00-0.00        | 10.00   | 1              | 14                    | 0.5000               | 356.062                           | A                | 26.704                            | 49.875                            | 32.137                              | 41.97    | 0.000  | 0.000   |
|                         |         |                |                       |                      |                                   | B                | 24.117                            | 85.706                            | 29.26                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                      |                                   | C                | 29.106                            | 108.682                           | 23.32                               | 0.000    | 0.000  |   |

### Tower Pressure - Service

$$G_H = 1.133$$

| Section Elevation<br>ft | z<br>ft | K <sub>Z</sub> | q <sub>z</sub><br>psf | A <sub>G</sub><br>ft <sup>2</sup> | F<br>a<br>c<br>e | A <sub>F</sub><br>ft <sup>2</sup> | A <sub>R</sub><br>ft <sup>2</sup> | A <sub>leg</sub><br>ft <sup>2</sup> | Leg<br>% | C <sub>A</sub> A <sub>A</sub><br>In<br>Face<br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Out<br>Face<br>ft <sup>2</sup> |
|-------------------------|---------|----------------|-----------------------|-----------------------------------|------------------|-----------------------------------|-----------------------------------|-------------------------------------|----------|--|---|
| T1<br>150.00-140.00     | 145.00  | 1.526          | 14                    | 62.396                            | A                | 4.993                             | 5.104                             | 4.792                               | 47.46    | 0.000  | 0.000   |
|                         |         |                |                       |                                   | B                | 4.993                             | 4.792                             | 48.97                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                                   | C                | 5.989                             | 19.954                            | 18.47                               | 0.000    | 0.000  |   |
| T2<br>140.00-120.00     | 130.00  | 1.48           | 14                    | 124.792                           | A                | 13.653                            | 17.958                            | 9.583                               | 30.32    | 0.000  | 0.000   |
|                         |         |                |                       |                                   | B                | 10.088                            | 25.671                            | 26.80                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                                   | C                | 11.339                            | 45.358                            | 16.90                               | 0.000    | 0.000  |   |
| T3<br>120.00-100.00     | 110.00  | 1.411          | 13                    | 147.509                           | A                | 14.599                            | 23.400                            | 15.025                              | 39.54    | 0.000  | 0.000   |
|                         |         |                |                       |                                   | B                | 11.776                            | 57.925                            | 21.56                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                                   | C                | 14.613                            | 66.175                            | 18.60                               | 0.000    | 0.000  |   |
| T4<br>100.00-80.00      | 90.00   | 1.332          | 12                    | 189.283                           | A                | 17.025                            | 26.949                            | 18.574                              | 42.24    | 0.000  | 0.000   |
|                         |         |                |                       |                                   | B                | 14.347                            | 61.474                            | 24.50                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                                   | C                | 17.995                            | 74.849                            | 20.01                               | 0.000    | 0.000  |   |
| T5<br>80.00-60.00       | 70.00   | 1.24           | 11                    | 231.055                           | A                | 21.929                            | 30.495                            | 22.120                              | 42.19    | 0.000  | 0.000   |
|                         |         |                |                       |                                   | B                | 18.895                            | 65.020                            | 26.36                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                                   | C                | 22.363                            | 78.395                            | 21.95                               | 0.000    | 0.000  |   |
| T6<br>60.00-40.00       | 50.00   | 1.126          | 10                    | 274.393                           | A                | 24.383                            | 37.173                            | 28.798                              | 46.78    | 0.000  | 0.000   |
|                         |         |                |                       |                                   | B                | 21.456                            | 71.698                            | 30.91                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                                   | C                | 24.979                            | 85.073                            | 26.17                               | 0.000    | 0.000  |   |
| T7<br>40.00-20.00       | 30.00   | 1              | 9                     | 314.393                           | A                | 23.751                            | 37.173                            | 28.798                              | 47.27    | 0.000  | 0.000   |
|                         |         |                |                       |                                   | B                | 21.336                            | 71.698                            | 30.95                               | 0.000    | 0.000  |   |
|                         |         |                |                       |                                   | C                | 25.116                            | 85.073                            | 26.14                               | 0.000    | 0.000  |   |



|   |   |                                  |
|---|---|----------------------------------|
| <b>RISA Tower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>14 of 28          |
|   | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|   | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

| Section Elevation | z     | K <sub>Z</sub> | q <sub>z</sub> | A <sub>G</sub>  | F <sub>a c e</sub> | A <sub>F</sub>  | A <sub>R</sub>  | A <sub>leg</sub> | Leg % | C <sub>A A</sub> <sub>In Face</sub> | C <sub>A A</sub> <sub>Out Face</sub> |
|-------------------|-------|----------------|----------------|-----------------|--------------------|-----------------|-----------------|------------------|-------|-------------------------------------|--------------------------------------|
| ft                | ft    |                | psf            | ft <sup>2</sup> |                    | ft <sup>2</sup> | ft <sup>2</sup> | ft <sup>2</sup>  |       | ft <sup>2</sup>                     | ft <sup>2</sup>                      |
| T8 20.00-0.00     | 10.00 | 1              | 9              | 354.393         | A                  | 25.953          | 35.235          | 28.798           | 47.06 | 0.000                               | 0.000                                |
|                   |       |                |                |                 | B                  | 24.198          | 60.973          |                  | 33.81 | 0.000                               | 0.000                                |
|                   |       |                |                |                 | C                  | 28.146          | 72.410          |                  | 28.64 | 0.000                               | 0.000                                |

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

| Section Elevation | Add Weight | Self Weight | F <sub>a c e</sub> | 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 150.00-140.00  | 233.80     | 421.53      | A                  | 0.162 | 2.728          | 0.583          | 1              | 1              | 7.970                | 1244.22  | 124.42 | C          |
|                   |            |             | B                  | 0.157 | 2.747          | 0.583          | 1              | 1              | 7.784                |          |        |            |
|                   |            |             | C                  | 0.416 | 2.034          | 0.658          | 1              | 1              | 19.122               |          |        |            |
| T2 140.00-120.00  | 837.95     | 791.76      | A                  | 0.253 | 2.428          | 0.603          | 1              | 1              | 24.477               | 2559.47  | 127.97 | C          |
|                   |            |             | B                  | 0.287 | 2.332          | 0.612          | 1              | 1              | 25.796               |          |        |            |
|                   |            |             | C                  | 0.454 | 1.966          | 0.675          | 1              | 1              | 41.969               |          |        |            |
| T3 120.00-100.00  | 1369.75    | 1140.72     | A                  | 0.258 | 2.415          | 0.604          | 1              | 1              | 28.729               | 3408.47  | 170.42 | C          |
|                   |            |             | B                  | 0.473 | 1.938          | 0.684          | 1              | 1              | 51.390               |          |        |            |
|                   |            |             | C                  | 0.548 | 1.846          | 0.723          | 1              | 1              | 62.456               |          |        |            |
| T4 100.00-80.00   | 1467.60    | 1485.02     | A                  | 0.232 | 2.492          | 0.598          | 1              | 1              | 33.128               | 3729.69  | 186.48 | C          |
|                   |            |             | B                  | 0.401 | 2.063          | 0.652          | 1              | 1              | 54.418               |          |        |            |
|                   |            |             | C                  | 0.491 | 1.913          | 0.693          | 1              | 1              | 69.843               |          |        |            |
| T5 80.00-60.00    | 1467.60    | 1986.33     | A                  | 0.227 | 2.509          | 0.596          | 1              | 1              | 40.112               | 3873.86  | 193.69 | C          |
|                   |            |             | B                  | 0.363 | 2.142          | 0.637          | 1              | 1              | 60.331               |          |        |            |
|                   |            |             | C                  | 0.436 | 1.997          | 0.667          | 1              | 1              | 74.651               |          |        |            |
| T6 60.00-40.00    | 1467.60    | 2680.91     | A                  | 0.224 | 2.517          | 0.596          | 1              | 1              | 46.525               | 3915.31  | 195.77 | C          |
|                   |            |             | B                  | 0.339 | 2.196          | 0.629          | 1              | 1              | 66.539               |          |        |            |
|                   |            |             | C                  | 0.401 | 2.062          | 0.652          | 1              | 1              | 80.449               |          |        |            |
| T7 40.00-20.00    | 1467.60    | 3829.48     | A                  | 0.194 | 2.617          | 0.589          | 1              | 1              | 45.652               | 3591.18  | 179.56 | C          |
|                   |            |             | B                  | 0.296 | 2.307          | 0.615          | 1              | 1              | 65.405               |          |        |            |
|                   |            |             | C                  | 0.35  | 2.17           | 0.633          | 1              | 1              | 78.937               |          |        |            |
| T8 20.00-0.00     | 1283.80    | 3948.61     | A                  | 0.173 | 2.69           | 0.585          | 1              | 1              | 46.573               | 3551.07  | 177.55 | C          |
|                   |            |             | B                  | 0.24  | 2.467          | 0.599          | 1              | 1              | 60.749               |          |        |            |
|                   |            |             | C                  | 0.284 | 2.34           | 0.611          | 1              | 1              | 72.393               |          |        |            |
| Sum Weight:       | 9595.70    | 16284.35    |                    |       |                |                |                | OTM            | 1833929.3<br>7 lb-ft | 25873.28 |        |            |

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

| Section Elevation | Add Weight | Self Weight | F <sub>a c e</sub> | 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 150.00-140.00  | 233.80     | 421.53      | A                  | 0.162 | 2.728          | 0.583          | 0.8            | 1              | 6.972           | 1166.28 | 116.63 | C          |
|                   |            |             | B                  | 0.157 | 2.747          | 0.583          | 0.8            | 1              | 6.786           |         |        |            |
|                   |            |             | C                  | 0.416 | 2.034          | 0.658          | 0.8            | 1              | 17.924          |         |        |            |
| T2 140.00-120.00  | 837.95     | 791.76      | A                  | 0.253 | 2.428          | 0.603          | 0.8            | 1              | 21.747          | 2421.17 | 121.06 | C          |
|                   |            |             | B                  | 0.287 | 2.332          | 0.612          | 0.8            | 1              | 23.778          |         |        |            |
|                   |            |             | C                  | 0.454 | 1.966          | 0.675          | 0.8            | 1              | 39.701          |         |        |            |
| T3 120.00-100.00  | 1369.75    | 1140.72     | A                  | 0.258 | 2.415          | 0.604          | 0.8            | 1              | 25.809          | 3248.98 | 162.45 | C          |
|                   |            |             | B                  | 0.473 | 1.938          | 0.684          | 0.8            | 1              | 49.034          |         |        |            |
|                   |            |             | C                  | 0.548 | 1.846          | 0.723          | 0.8            | 1              | 59.533          |         |        |            |
| T4                | 1467.60    | 1485.02     | A                  | 0.232 | 2.492          | 0.598          | 0.8            | 1              | 29.723          | 3537.51 | 176.88 | C          |

|   |   |                                  |
|---|---|----------------------------------|
| <b>RISA Tower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>15 of 28          |
|   | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|   | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

| 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    |            |
| 100.00-80.00      |            |             | B       | 0.401 | 2.063          | 0.652          | 0.8            | 1              | 51.549               |          |        |            |
|                   |            |             | C       | 0.491 | 1.913          | 0.693          | 0.8            | 1              | 66.244               |          |        |            |
| T5                | 1467.60    | 1986.33     | A       | 0.227 | 2.509          | 0.596          | 0.8            | 1              | 35.726               | 3641.76  | 182.09 | C          |
| 80.00-60.00       |            |             | B       | 0.363 | 2.142          | 0.637          | 0.8            | 1              | 56.552               |          |        |            |
|                   |            |             | C       | 0.436 | 1.997          | 0.667          | 0.8            | 1              | 70.179               |          |        |            |
| T6                | 1467.60    | 2680.91     | A       | 0.224 | 2.517          | 0.596          | 0.8            | 1              | 41.649               | 3672.18  | 183.61 | C          |
| 60.00-40.00       |            |             | B       | 0.339 | 2.196          | 0.629          | 0.8            | 1              | 62.247               |          |        |            |
|                   |            |             | C       | 0.401 | 2.062          | 0.652          | 0.8            | 1              | 75.454               |          |        |            |
| T7                | 1467.60    | 3829.48     | A       | 0.194 | 2.617          | 0.589          | 0.8            | 1              | 40.902               | 3362.65  | 168.13 | C          |
| 40.00-20.00       |            |             | B       | 0.296 | 2.307          | 0.615          | 0.8            | 1              | 61.138               |          |        |            |
|                   |            |             | C       | 0.35  | 2.17           | 0.633          | 0.8            | 1              | 73.914               |          |        |            |
| T8                | 20.00-0.00 | 1283.80     | A       | 0.173 | 2.69           | 0.585          | 0.8            | 1              | 41.382               | 3274.94  | 163.75 | C          |
|                   |            |             | B       | 0.24  | 2.467          | 0.599          | 0.8            | 1              | 55.909               |          |        |            |
|                   |            |             | C       | 0.284 | 2.34           | 0.611          | 0.8            | 1              | 66.764               |          |        |            |
| Sum Weight:       | 9595.70    | 16284.35    |         |       |                |                |                | OTM            | 1731786.6<br>5 lb-ft | 24325.47 |        |            |

### Tower Forces - No 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    |            |
| 150.00-140.00     |            |             | A       | 0.162 | 2.728          | 0.583          | 0.85           | 1              | 7.222                | 1185.77  | 118.58 | C          |
|                   |            |             | B       | 0.157 | 2.747          | 0.583          | 0.85           | 1              | 7.035                |          |        |            |
|                   |            |             | C       | 0.416 | 2.034          | 0.658          | 0.85           | 1              | 18.224               |          |        |            |
| T2                | 837.95     | 791.76      | A       | 0.253 | 2.428          | 0.603          | 0.85           | 1              | 22.429               | 2455.74  | 122.79 | C          |
| 140.00-120.00     |            |             | B       | 0.287 | 2.332          | 0.612          | 0.85           | 1              | 24.282               |          |        |            |
|                   |            |             | C       | 0.454 | 1.966          | 0.675          | 0.85           | 1              | 40.268               |          |        |            |
| T3                | 1369.75    | 1140.72     | A       | 0.258 | 2.415          | 0.604          | 0.85           | 1              | 26.539               | 3288.85  | 164.44 | C          |
| 120.00-100.00     |            |             | B       | 0.473 | 1.938          | 0.684          | 0.85           | 1              | 49.623               |          |        |            |
|                   |            |             | C       | 0.548 | 1.846          | 0.723          | 0.85           | 1              | 60.264               |          |        |            |
| T4                | 1467.60    | 1485.02     | A       | 0.232 | 2.492          | 0.598          | 0.85           | 1              | 30.574               | 3585.55  | 179.28 | C          |
| 100.00-80.00      |            |             | B       | 0.401 | 2.063          | 0.652          | 0.85           | 1              | 52.266               |          |        |            |
|                   |            |             | C       | 0.491 | 1.913          | 0.693          | 0.85           | 1              | 67.144               |          |        |            |
| T5                | 1467.60    | 1986.33     | A       | 0.227 | 2.509          | 0.596          | 0.85           | 1              | 36.823               | 3699.79  | 184.99 | C          |
| 80.00-60.00       |            |             | B       | 0.363 | 2.142          | 0.637          | 0.85           | 1              | 57.496               |          |        |            |
|                   |            |             | C       | 0.436 | 1.997          | 0.667          | 0.85           | 1              | 71.297               |          |        |            |
| T6                | 1467.60    | 2680.91     | A       | 0.224 | 2.517          | 0.596          | 0.85           | 1              | 42.868               | 3732.96  | 186.65 | C          |
| 60.00-40.00       |            |             | B       | 0.339 | 2.196          | 0.629          | 0.85           | 1              | 63.320               |          |        |            |
|                   |            |             | C       | 0.401 | 2.062          | 0.652          | 0.85           | 1              | 76.703               |          |        |            |
| T7                | 1467.60    | 3829.48     | A       | 0.194 | 2.617          | 0.589          | 0.85           | 1              | 42.089               | 3419.79  | 170.99 | C          |
| 40.00-20.00       |            |             | B       | 0.296 | 2.307          | 0.615          | 0.85           | 1              | 62.205               |          |        |            |
|                   |            |             | C       | 0.35  | 2.17           | 0.633          | 0.85           | 1              | 75.169               |          |        |            |
| T8                | 20.00-0.00 | 1283.80     | A       | 0.173 | 2.69           | 0.585          | 0.85           | 1              | 42.680               | 3343.98  | 167.20 | C          |
|                   |            |             | B       | 0.24  | 2.467          | 0.599          | 0.85           | 1              | 57.119               |          |        |            |
|                   |            |             | C       | 0.284 | 2.34           | 0.611          | 0.85           | 1              | 68.171               |          |        |            |
| Sum Weight:       | 9595.70    | 16284.35    |         |       |                |                |                | OTM            | 1757322.3<br>3 lb-ft | 24712.42 |        |            |

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

|   |   |                                  |
|---|---|----------------------------------|
| <b>RISA Tower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>16 of 28          |
|   | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|   | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

| 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<br>150.00-140.00 | 538.85     | 669.78      | A       | 0.244 | 2.455          | 0.6            | 1              | 1              | 11.269               | 1277.36  | 127.74 | C          |
|                     |            |             | B       | 0.226 | 2.511          | 0.596          | 1              | 1              | 10.541               |          |        |            |
|                     |            |             | C       | 0.591 | 1.81           | 0.748          | 1              | 1              | 29.409               |          |        |            |
| T2<br>140.00-120.00 | 1803.46    | 1268.88     | A       | 0.365 | 2.137          | 0.638          | 1              | 1              | 34.622               | 2816.65  | 140.83 | C          |
|                     |            |             | B       | 0.4   | 2.063          | 0.652          | 1              | 1              | 36.401               |          |        |            |
|                     |            |             | C       | 0.658 | 1.779          | 0.791          | 1              | 1              | 68.053               |          |        |            |
| T3<br>120.00-100.00 | 2926.04    | 1715.74     | A       | 0.356 | 2.158          | 0.635          | 1              | 1              | 39.252               | 4309.22  | 215.46 | C          |
|                     |            |             | B       | 0.646 | 1.783          | 0.783          | 1              | 1              | 77.863               |          |        |            |
|                     |            |             | C       | 0.794 | 1.812          | 0.892          | 1              | 1              | 107.247              |          |        |            |
| T4<br>100.00-80.00  | 3127.50    | 2166.64     | A       | 0.31  | 2.27           | 0.619          | 1              | 1              | 43.355               | 4267.61  | 213.38 | C          |
|                     |            |             | B       | 0.54  | 1.853          | 0.719          | 1              | 1              | 78.030               |          |        |            |
|                     |            |             | C       | 0.708 | 1.777          | 0.825          | 1              | 1              | 114.711              |          |        |            |
| T5<br>80.00-60.00   | 3127.50    | 2866.41     | A       | 0.294 | 2.312          | 0.614          | 1              | 1              | 50.683               | 4021.83  | 201.09 | C          |
|                     |            |             | B       | 0.481 | 1.926          | 0.688          | 1              | 1              | 82.661               |          |        |            |
|                     |            |             | C       | 0.617 | 1.794          | 0.764          | 1              | 1              | 115.006              |          |        |            |
| T6<br>60.00-40.00   | 3127.50    | 3721.00     | A       | 0.284 | 2.34           | 0.611          | 1              | 1              | 57.606               | 3866.76  | 193.34 | C          |
|                     |            |             | B       | 0.443 | 1.986          | 0.67           | 1              | 1              | 88.645               |          |        |            |
|                     |            |             | C       | 0.558 | 1.836          | 0.729          | 1              | 1              | 118.947              |          |        |            |
| T7<br>40.00-20.00   | 3127.50    | 4822.68     | A       | 0.243 | 2.459          | 0.6            | 1              | 1              | 55.854               | 3452.54  | 172.63 | C          |
|                     |            |             | B       | 0.385 | 2.094          | 0.646          | 1              | 1              | 86.001               |          |        |            |
|                     |            |             | C       | 0.488 | 1.916          | 0.692          | 1              | 1              | 114.632              |          |        |            |
| T8 20.00-0.00       | 2596.12    | 5006.11     | A       | 0.215 | 2.546          | 0.594          | 1              | 1              | 56.309               | 3265.08  | 163.25 | C          |
|                     |            |             | B       | 0.308 | 2.274          | 0.619          | 1              | 1              | 77.128               |          |        |            |
|                     |            |             | C       | 0.387 | 2.09           | 0.646          | 1              | 1              | 99.355               |          |        |            |
| Sum Weight:         | 20374.47   | 22237.23    |         |       |                |                |                | OTM            | 2020573.9<br>7 lb-ft | 27277.05 |        |            |

### 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<br>150.00-140.00 | 538.85     | 669.78      | A       | 0.244 | 2.455          | 0.6            | 0.8            | 1              | 10.271          | 1226.78 | 122.68 | C          |
|                     |            |             | B       | 0.226 | 2.511          | 0.596          | 0.8            | 1              | 9.542           |         |        |            |
|                     |            |             | C       | 0.591 | 1.81           | 0.748          | 0.8            | 1              | 28.245          |         |        |            |
| T2<br>140.00-120.00 | 1803.46    | 1268.88     | A       | 0.365 | 2.137          | 0.638          | 0.8            | 1              | 31.782          | 2728.74 | 136.44 | C          |
|                     |            |             | B       | 0.4   | 2.063          | 0.652          | 0.8            | 1              | 34.447          |         |        |            |
|                     |            |             | C       | 0.658 | 1.779          | 0.791          | 0.8            | 1              | 65.929          |         |        |            |
| T3<br>120.00-100.00 | 2926.04    | 1715.74     | A       | 0.356 | 2.158          | 0.635          | 0.8            | 1              | 36.217          | 4192.39 | 209.62 | C          |
|                     |            |             | B       | 0.646 | 1.783          | 0.783          | 0.8            | 1              | 75.661          |         |        |            |
|                     |            |             | C       | 0.794 | 1.812          | 0.892          | 0.8            | 1              | 104.339         |         |        |            |
| T4<br>100.00-80.00  | 3127.50    | 2166.64     | A       | 0.31  | 2.27           | 0.619          | 0.8            | 1              | 39.830          | 4131.70 | 206.59 | C          |
|                     |            |             | B       | 0.54  | 1.853          | 0.719          | 0.8            | 1              | 75.294          |         |        |            |
|                     |            |             | C       | 0.708 | 1.777          | 0.825          | 0.8            | 1              | 111.058         |         |        |            |
| T5<br>80.00-60.00   | 3127.50    | 2866.41     | A       | 0.294 | 2.312          | 0.614          | 0.8            | 1              | 46.190          | 3866.31 | 193.32 | C          |
|                     |            |             | B       | 0.481 | 1.926          | 0.688          | 0.8            | 1              | 79.063          |         |        |            |
|                     |            |             | C       | 0.617 | 1.794          | 0.764          | 0.8            | 1              | 110.559         |         |        |            |
| T6<br>60.00-40.00   | 3127.50    | 3721.00     | A       | 0.284 | 2.34           | 0.611          | 0.8            | 1              | 52.618          | 3704.40 | 185.22 | C          |
|                     |            |             | B       | 0.443 | 1.986          | 0.67           | 0.8            | 1              | 84.520          |         |        |            |
|                     |            |             | C       | 0.558 | 1.836          | 0.729          | 0.8            | 1              | 113.952         |         |        |            |
| T7<br>40.00-20.00   | 3127.50    | 4822.68     | A       | 0.243 | 2.459          | 0.6            | 0.8            | 1              | 50.973          | 3297.84 | 164.89 | C          |
|                     |            |             | B       | 0.385 | 2.094          | 0.646          | 0.8            | 1              | 81.832          |         |        |            |
|                     |            |             | C       | 0.488 | 1.916          | 0.692          | 0.8            | 1              | 109.496         |         |        |            |
| T8 20.00-0.00       | 2596.12    | 5006.11     | A       | 0.215 | 2.546          | 0.594          | 0.8            | 1              | 50.968          | 3073.78 | 153.69 | C          |
|                     |            |             | B       | 0.308 | 2.274          | 0.619          | 0.8            | 1              | 72.304          |         |        |            |
|                     |            |             | C       | 0.387 | 2.09           | 0.646          | 0.8            | 1              | 99.355          |         |        |            |

|   |   |                                  |
|---|---|----------------------------------|
| <b>RISA Tower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>17 of 28          |
|   | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|   | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

| 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 |            |
| Sum Weight:       | 20374.47   | 22237.23    | C       | 0.387 | 2.09           | 0.646          | 0.8            | 1<br>OTM       | 93.534<br>1951169.9<br>2 lb-ft | 26221.94 |     |            |

### 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<br>150.00-140.00 | 538.85     | 669.78      | A       | 0.244 | 2.455          | 0.6            | 0.85           | 1              | 10.520               | 1239.43  | 123.94 | C          |
|                     |            |             | B       | 0.226 | 2.511          | 0.596          | 0.85           | 1              | 9.792                |          |        |            |
|                     |            |             | C       | 0.591 | 1.81           | 0.748          | 0.85           | 1              | 28.536               |          |        |            |
| T2<br>140.00-120.00 | 1803.46    | 1268.88     | A       | 0.365 | 2.137          | 0.638          | 0.85           | 1              | 32.492               | 2750.72  | 137.54 | C          |
|                     |            |             | B       | 0.4   | 2.063          | 0.652          | 0.85           | 1              | 34.936               |          |        |            |
|                     |            |             | C       | 0.658 | 1.779          | 0.791          | 0.85           | 1              | 66.460               |          |        |            |
| T3<br>120.00-100.00 | 2926.04    | 1715.74     | A       | 0.356 | 2.158          | 0.635          | 0.85           | 1              | 36.976               | 4221.60  | 211.08 | C          |
|                     |            |             | B       | 0.646 | 1.783          | 0.783          | 0.85           | 1              | 76.211               |          |        |            |
|                     |            |             | C       | 0.794 | 1.812          | 0.892          | 0.85           | 1              | 105.066              |          |        |            |
| T4<br>100.00-80.00  | 3127.50    | 2166.64     | A       | 0.31  | 2.27           | 0.619          | 0.85           | 1              | 40.711               | 4165.68  | 208.28 | C          |
|                     |            |             | B       | 0.54  | 1.853          | 0.719          | 0.85           | 1              | 75.978               |          |        |            |
|                     |            |             | C       | 0.708 | 1.777          | 0.825          | 0.85           | 1              | 111.971              |          |        |            |
| T5<br>80.00-60.00   | 3127.50    | 2866.41     | A       | 0.294 | 2.312          | 0.614          | 0.85           | 1              | 47.313               | 3905.19  | 195.26 | C          |
|                     |            |             | B       | 0.481 | 1.926          | 0.688          | 0.85           | 1              | 79.963               |          |        |            |
|                     |            |             | C       | 0.617 | 1.794          | 0.764          | 0.85           | 1              | 111.670              |          |        |            |
| T6<br>60.00-40.00   | 3127.50    | 3721.00     | A       | 0.284 | 2.34           | 0.611          | 0.85           | 1              | 53.865               | 3744.99  | 187.25 | C          |
|                     |            |             | B       | 0.443 | 1.986          | 0.67           | 0.85           | 1              | 85.551               |          |        |            |
|                     |            |             | C       | 0.558 | 1.836          | 0.729          | 0.85           | 1              | 115.201              |          |        |            |
| T7<br>40.00-20.00   | 3127.50    | 4822.68     | A       | 0.243 | 2.459          | 0.6            | 0.85           | 1              | 52.193               | 3336.52  | 166.83 | C          |
|                     |            |             | B       | 0.385 | 2.094          | 0.646          | 0.85           | 1              | 82.874               |          |        |            |
|                     |            |             | C       | 0.488 | 1.916          | 0.692          | 0.85           | 1              | 110.780              |          |        |            |
| T8<br>20.00-0.00    | 2596.12    | 5006.11     | A       | 0.215 | 2.546          | 0.594          | 0.85           | 1              | 52.303               | 3121.61  | 156.08 | C          |
|                     |            |             | B       | 0.308 | 2.274          | 0.619          | 0.85           | 1              | 73.510               |          |        |            |
|                     |            |             | C       | 0.387 | 2.09           | 0.646          | 0.85           | 1              | 94.989               |          |        |            |
| Sum Weight:         | 20374.47   | 22237.23    |         |       |                |                |                | OTM            | 1968520.9<br>3 lb-ft | 26485.72 |        |            |

### Tower Forces - Service - Wind Normal 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<br>150.00-140.00 | 233.80     | 421.53      | A       | 0.162 | 2.728          | 0.583          | 1              | 1              | 7.970           | 619.96  | 62.00 | C          |
|                     |            |             | B       | 0.157 | 2.747          | 0.583          | 1              | 1              | 7.784           |         |       |            |
|                     |            |             | C       | 0.416 | 2.034          | 0.658          | 1              | 1              | 19.122          |         |       |            |
| T2<br>140.00-120.00 | 837.95     | 791.76      | A       | 0.253 | 2.428          | 0.603          | 1              | 1              | 24.477          | 1275.31 | 63.77 | C          |
|                     |            |             | B       | 0.287 | 2.332          | 0.612          | 1              | 1              | 25.796          |         |       |            |
|                     |            |             | C       | 0.454 | 1.966          | 0.675          | 1              | 1              | 41.969          |         |       |            |
| T3<br>120.00-100.00 | 1369.75    | 1140.72     | A       | 0.258 | 2.415          | 0.604          | 1              | 1              | 28.729          | 1698.34 | 84.92 | C          |
|                     |            |             | B       | 0.473 | 1.938          | 0.684          | 1              | 1              | 51.390          |         |       |            |



|   |   |                                  |
|---|---|----------------------------------|
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|   | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

| 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   |            |
| T4<br>100.00-80.00 | 1467.60    | 1485.02     | C       | 0.548 | 1.846          | 0.723          | 1              | 1              | 62.456          | 1858.39  | 92.92 | C          |
|                    |            |             | A       | 0.232 | 2.492          | 0.598          | 1              | 1              | 33.128          |          |       |            |
|                    |            |             | B       | 0.401 | 2.063          | 0.652          | 1              | 1              | 54.418          |          |       |            |
| T5<br>80.00-60.00  | 1467.60    | 1986.33     | C       | 0.491 | 1.913          | 0.693          | 1              | 1              | 69.843          | 1930.23  | 96.51 | C          |
|                    |            |             | A       | 0.227 | 2.509          | 0.596          | 1              | 1              | 40.112          |          |       |            |
|                    |            |             | B       | 0.363 | 2.142          | 0.637          | 1              | 1              | 60.331          |          |       |            |
| T6<br>60.00-40.00  | 1467.60    | 2680.91     | C       | 0.436 | 1.997          | 0.667          | 1              | 1              | 74.651          | 1950.88  | 97.54 | C          |
|                    |            |             | A       | 0.224 | 2.517          | 0.596          | 1              | 1              | 46.525          |          |       |            |
|                    |            |             | B       | 0.339 | 2.196          | 0.629          | 1              | 1              | 66.539          |          |       |            |
| T7<br>40.00-20.00  | 1467.60    | 3829.48     | C       | 0.401 | 2.062          | 0.652          | 1              | 1              | 80.449          | 1789.38  | 89.47 | C          |
|                    |            |             | A       | 0.194 | 2.617          | 0.589          | 1              | 1              | 45.652          |          |       |            |
|                    |            |             | B       | 0.296 | 2.307          | 0.615          | 1              | 1              | 65.405          |          |       |            |
| T8 20.00-0.00      | 1283.80    | 3948.61     | C       | 0.35  | 2.17           | 0.633          | 1              | 1              | 78.937          | 1769.39  | 88.47 | C          |
|                    |            |             | A       | 0.173 | 2.69           | 0.585          | 1              | 1              | 46.573          |          |       |            |
|                    |            |             | B       | 0.24  | 2.467          | 0.599          | 1              | 1              | 60.749          |          |       |            |
| Sum Weight:        | 9595.70    | 16284.35    | C       | 0.284 | 2.34           | 0.611          | 1              | 1              | 72.393          | 12891.87 |       |            |
|                    |            |             |         |       |                |                |                | OTM            | 913791.80       |          |       |            |
|                    |            |             |         |       |                |                |                |                | lb-ft           |          |       |            |

### 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          |         |       |                |                |                |                | ft <sup>2</sup> | lb       | plf   |            |
| T1<br>150.00-140.00 | 233.80     | 421.53      | A       | 0.162 | 2.728          | 0.583          | 0.8            | 1              | 6.972           | 581.12   | 58.11 | C          |
|                     |            |             | B       | 0.157 | 2.747          | 0.583          | 0.8            | 1              | 6.786           |          |       |            |
|                     |            |             | C       | 0.416 | 2.034          | 0.658          | 0.8            | 1              | 17.924          |          |       |            |
| T2<br>140.00-120.00 | 837.95     | 791.76      | A       | 0.253 | 2.428          | 0.603          | 0.8            | 1              | 21.747          | 1206.40  | 60.32 | C          |
|                     |            |             | B       | 0.287 | 2.332          | 0.612          | 0.8            | 1              | 23.778          |          |       |            |
|                     |            |             | C       | 0.454 | 1.966          | 0.675          | 0.8            | 1              | 39.701          |          |       |            |
| T3<br>120.00-100.00 | 1369.75    | 1140.72     | A       | 0.258 | 2.415          | 0.604          | 0.8            | 1              | 25.809          | 1618.87  | 80.94 | C          |
|                     |            |             | B       | 0.473 | 1.938          | 0.684          | 0.8            | 1              | 49.034          |          |       |            |
|                     |            |             | C       | 0.548 | 1.846          | 0.723          | 0.8            | 1              | 59.533          |          |       |            |
| T4<br>100.00-80.00  | 1467.60    | 1485.02     | A       | 0.232 | 2.492          | 0.598          | 0.8            | 1              | 29.723          | 1762.63  | 88.13 | C          |
|                     |            |             | B       | 0.401 | 2.063          | 0.652          | 0.8            | 1              | 51.549          |          |       |            |
|                     |            |             | C       | 0.491 | 1.913          | 0.693          | 0.8            | 1              | 66.244          |          |       |            |
| T5<br>80.00-60.00   | 1467.60    | 1986.33     | A       | 0.227 | 2.509          | 0.596          | 0.8            | 1              | 35.726          | 1814.58  | 90.73 | C          |
|                     |            |             | B       | 0.363 | 2.142          | 0.637          | 0.8            | 1              | 56.552          |          |       |            |
|                     |            |             | C       | 0.436 | 1.997          | 0.667          | 0.8            | 1              | 70.179          |          |       |            |
| T6<br>60.00-40.00   | 1467.60    | 2680.91     | A       | 0.224 | 2.517          | 0.596          | 0.8            | 1              | 41.649          | 1829.73  | 91.49 | C          |
|                     |            |             | B       | 0.339 | 2.196          | 0.629          | 0.8            | 1              | 62.247          |          |       |            |
|                     |            |             | C       | 0.401 | 2.062          | 0.652          | 0.8            | 1              | 75.454          |          |       |            |
| T7<br>40.00-20.00   | 1467.60    | 3829.48     | A       | 0.194 | 2.617          | 0.589          | 0.8            | 1              | 40.902          | 1675.51  | 83.78 | C          |
|                     |            |             | B       | 0.296 | 2.307          | 0.615          | 0.8            | 1              | 61.138          |          |       |            |
|                     |            |             | C       | 0.35  | 2.17           | 0.633          | 0.8            | 1              | 73.914          |          |       |            |
| T8 20.00-0.00       | 1283.80    | 3948.61     | A       | 0.173 | 2.69           | 0.585          | 0.8            | 1              | 41.382          | 1631.81  | 81.59 | C          |
|                     |            |             | B       | 0.24  | 2.467          | 0.599          | 0.8            | 1              | 55.909          |          |       |            |
|                     |            |             | C       | 0.284 | 2.34           | 0.611          | 0.8            | 1              | 66.764          |          |       |            |
| Sum Weight:         | 9595.70    | 16284.35    |         |       |                |                |                |                | 862897.16       | 12120.65 |       |            |
|                     |            |             |         |       |                |                |                | OTM            | lb-ft           |          |       |            |



|   |   |                                  |
|---|---|----------------------------------|
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|   | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

**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<br>150.00-140.00 | 233.80     | 421.53      | A       | 0.162 | 2.728          | 0.583          | 0.85           | 1              | 7.222              | 590.83   | 59.08 | C          |
|                     |            |             | B       | 0.157 | 2.747          | 0.583          | 0.85           | 1              | 7.035              |          |       |            |
|                     |            |             | C       | 0.416 | 2.034          | 0.658          | 0.85           | 1              | 18.224             |          |       |            |
| T2<br>140.00-120.00 | 837.95     | 791.76      | A       | 0.253 | 2.428          | 0.603          | 0.85           | 1              | 22.429             | 1223.62  | 61.18 | C          |
|                     |            |             | B       | 0.287 | 2.332          | 0.612          | 0.85           | 1              | 24.282             |          |       |            |
|                     |            |             | C       | 0.454 | 1.966          | 0.675          | 0.85           | 1              | 40.268             |          |       |            |
| T3<br>120.00-100.00 | 1369.75    | 1140.72     | A       | 0.258 | 2.415          | 0.604          | 0.85           | 1              | 26.539             | 1638.74  | 81.94 | C          |
|                     |            |             | B       | 0.473 | 1.938          | 0.684          | 0.85           | 1              | 49.623             |          |       |            |
|                     |            |             | C       | 0.548 | 1.846          | 0.723          | 0.85           | 1              | 60.264             |          |       |            |
| T4<br>100.00-80.00  | 1467.60    | 1485.02     | A       | 0.232 | 2.492          | 0.598          | 0.85           | 1              | 30.574             | 1786.57  | 89.33 | C          |
|                     |            |             | B       | 0.401 | 2.063          | 0.652          | 0.85           | 1              | 52.266             |          |       |            |
|                     |            |             | C       | 0.491 | 1.913          | 0.693          | 0.85           | 1              | 67.144             |          |       |            |
| T5<br>80.00-60.00   | 1467.60    | 1986.33     | A       | 0.227 | 2.509          | 0.596          | 0.85           | 1              | 36.823             | 1843.49  | 92.17 | C          |
|                     |            |             | B       | 0.363 | 2.142          | 0.637          | 0.85           | 1              | 57.496             |          |       |            |
|                     |            |             | C       | 0.436 | 1.997          | 0.667          | 0.85           | 1              | 71.297             |          |       |            |
| T6<br>60.00-40.00   | 1467.60    | 2680.91     | A       | 0.224 | 2.517          | 0.596          | 0.85           | 1              | 42.868             | 1860.02  | 93.00 | C          |
|                     |            |             | B       | 0.339 | 2.196          | 0.629          | 0.85           | 1              | 63.320             |          |       |            |
|                     |            |             | C       | 0.401 | 2.062          | 0.652          | 0.85           | 1              | 76.703             |          |       |            |
| T7<br>40.00-20.00   | 1467.60    | 3829.48     | A       | 0.194 | 2.617          | 0.589          | 0.85           | 1              | 42.089             | 1703.98  | 85.20 | C          |
|                     |            |             | B       | 0.296 | 2.307          | 0.615          | 0.85           | 1              | 62.205             |          |       |            |
|                     |            |             | C       | 0.35  | 2.17           | 0.633          | 0.85           | 1              | 75.169             |          |       |            |
| T8<br>20.00-0.00    | 1283.80    | 3948.61     | A       | 0.173 | 2.69           | 0.585          | 0.85           | 1              | 42.680             | 1666.20  | 83.31 | C          |
|                     |            |             | B       | 0.24  | 2.467          | 0.599          | 0.85           | 1              | 57.119             |          |       |            |
|                     |            |             | C       | 0.284 | 2.34           | 0.611          | 0.85           | 1              | 68.171             |          |       |            |
| Sum Weight:         | 9595.70    | 16284.35    |         |       |                |                |                | OTM            | 875620.82<br>lb-ft | 12313.45 |       |            |

**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>z</sub> | Sum of Torques |
|--------------------------|-----------------|-----------------|-----------------|--|--|----------------|
|                          | lb              | lb              | lb              | lb-ft                                      | lb-ft                                      | lb-ft          |
| Leg Weight               | 10129.62        |                 |                 |  |  |                |
| Bracing Weight           | 6154.73         |                 |                 |  |  |                |
| Total Member Self-Weight | 16284.35        |                 |                 |  |  |                |
| Total Weight             | 30700.25        |                 |                 | 9290.21                                    | -12.10                                     |                |
| Wind 0 deg - No Ice      |                 | 119.96          | -36799.65       | -3268040.47                                | -13192.03                                  | 6115.56        |
| Wind 30 deg - No Ice     |                 | 17673.67        | -30924.08       | -2769207.74                                | -1578646.22                                | 6865.23        |
| Wind 60 deg - No Ice     |                 | 30156.62        | -17729.81       | -1589717.93                                | -2698992.12                                | 6050.07        |
| Wind 90 deg - No Ice     |                 | 35139.56        | -119.96         | -3889.73                                   | -3134452.02                                | 3851.29        |
| Wind 120 deg - No Ice    |                 | 31377.10        | 18295.93        | 1636541.39                                 | -2774270.37                                | 482.99         |
| Wind 150 deg - No Ice    |                 | 17465.89        | 30804.12        | 2774608.23                                 | -1555817.90                                | -3013.94       |
| Wind 180 deg - No Ice    |                 | -119.96         | 35251.84        | 3184478.17                                 | 13167.84                                   | -5566.47       |
| Wind 210 deg - No Ice    |                 | -17673.67       | 30924.08        | 2787788.16                                 | 1578622.03                                 | -6865.23       |
| Wind 240 deg - No Ice    |                 | -31497.07       | 18503.71        | 1659369.71                                 | 2787426.12                                 | -6598.55       |
| Wind 270 deg - No Ice    |                 | -35139.56       | 119.96          | 22470.15                                   | 3134427.83                                 | -3813.29       |
| Wind 300 deg - No Ice    |                 | -30036.66       | -17522.03       | -1566889.61                                | 2685787.99                                 | -483.60        |
| Wind 330 deg - No Ice    |                 | -17465.89       | -30804.12       | -2756027.81                                | 1555793.71                                 | 3013.94        |
| Member Ice               | 5952.88         |                 |                 |  |  |                |
| Total Weight Ice         | 50260.20        |                 |                 | 21702.04                                   | -6724.34                                   |                |
| Wind 0 deg - Ice         |                 | -31.21          | -37662.01       | -3370963.80                                | -2671.13                                   | 4796.12        |
| Wind 30 deg - Ice        |                 | 18312.91        | -31915.34       | -2869326.91                                | -1661512.02                                | 6236.13        |

|  |   |                                  |
|--|---|----------------------------------|
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| Load Case              | Vertical Forces<br>lb | Sum of Forces<br>X<br>lb | Sum of Forces<br>Z<br>lb | Sum of Overturning Moments, $M_x$<br>lb-ft | Sum of Overturning Moments, $M_z$<br>lb-ft | Sum of Torques<br>lb-ft |
|------------------------|-----------------------|--------------------------|--------------------------|--|--|-------------------------|
| Wind 60 deg - Ice      |                       | 31521.67                 | -18276.43                | -1636418.67                                | -2861927.47                                | 6165.27                 |
| Wind 90 deg - Ice      |                       | 36679.88                 | 31.21                    | 25755.25                                   | -3323320.06                                | 4623.76                 |
| Wind 120 deg - Ice     |                       | 32466.63                 | 18858.03                 | 1721545.14                                 | -2926086.34                                | 1787.92                 |
| Wind 150 deg - Ice     |                       | 18366.97                 | 31946.55                 | 2916784.20                                 | -1668532.39                                | -1612.37                |
| Wind 180 deg - Ice     |                       | 31.21                    | 36606.90                 | 3344963.83                                 | -10777.56                                  | -4443.07                |
| Wind 210 deg - Ice     |                       | -18312.91                | 31915.34                 | 2912730.99                                 | 1648063.33                                 | -6236.13                |
| Wind 240 deg - Ice     |                       | -32435.42                | 18803.98                 | 1714524.78                                 | 2908584.44                                 | -6584.04                |
| Wind 270 deg - Ice     |                       | -36679.88                | -31.21                   | 17648.83                                   | 3309871.37                                 | -4623.76                |
| Wind 300 deg - Ice     |                       | -31552.87                | -18330.48                | -1643439.04                                | 2852531.99                                 | -1722.20                |
| Wind 330 deg - Ice     |                       | -18366.97                | -31946.55                | -2873380.12                                | 1655083.70                                 | 1612.37                 |
| Total Weight           | 30700.25              |                          |                          | 9290.21                                    | -12.10                                     |                         |
| Wind 0 deg - Service   |                       | 59.77                    | -18336.16                | -1634529.27                                | -4449.38                                   | 3047.20                 |
| Wind 30 deg - Service  |                       | 8806.26                  | -15408.54                | -1385975.94                                | -784468.07                                 | 3420.74                 |
| Wind 60 deg - Service  |                       | 15026.14                 | -8834.23                 | -798271.67                                 | -1342702.71                                | 3014.57                 |
| Wind 90 deg - Service  |                       | 17508.99                 | -59.77                   | -8101.21                                   | -1559679.27                                | 1918.98                 |
| Wind 120 deg - Service |                       | 15634.27                 | 9116.31                  | 809276.23                                  | -1380211.60                                | 240.66                  |
| Wind 150 deg - Service |                       | 8702.73                  | 15348.76                 | 1376340.67                                 | -773093.41                                 | -1501.76                |
| Wind 180 deg - Service |                       | -59.77                   | 17564.93                 | 1580566.53                                 | 8684.95                                    | -2773.60                |
| Wind 210 deg - Service |                       | -8806.26                 | 15408.54                 | 1382907.84                                 | 788703.65                                  | -3420.74                |
| Wind 240 deg - Service |                       | -15694.04                | 9219.84                  | 820650.89                                  | 1391014.33                                 | -3287.86                |
| Wind 270 deg - Service |                       | -17508.99                | 59.77                    | 5033.12                                    | 1563914.84                                 | -1918.98                |
| Wind 300 deg - Service |                       | -14966.36                | -8730.70                 | -786897.00                                 | 1340371.12                                 | -240.96                 |
| Wind 330 deg - Service |                       | -8702.73                 | -15348.76                | -1379408.77                                | 777328.98                                  | 1501.76                 |

## 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 |

|   |   |                                  |
|---|---|----------------------------------|
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| Comb. No. | Description                 |
|-----------|-----------------------------|
| 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 Reactions

| Location | Condition           | Gov. Load Comb. | Vertical lb | Horizontal, X lb | Horizontal, Z lb |
|----------|---------------------|-----------------|-------------|------------------|------------------|
| Leg C    | Max. Vert           | 23              | 234237.78   | 18039.43         | -10145.11        |
|          | Max. H <sub>x</sub> | 10              | 218859.12   | 19337.07         | -10921.93        |
|          | Max. H <sub>z</sub> | 17              | -195617.13  | -20204.12        | 11462.54         |
|          | Min. Vert           | 17              | -195617.13  | -20204.12        | 11462.54         |
|          | Min. H <sub>x</sub> | 17              | -195617.13  | -20204.12        | 11462.54         |
|          | Min. H <sub>z</sub> | 10              | 218859.12   | 19337.07         | -10921.93        |
| Leg B    | Max. Vert           | 19              | 235439.99   | -18001.08        | -10307.61        |
|          | Max. H <sub>x</sub> | 25              | -195320.38  | 20153.48         | 11593.14         |
|          | Max. H <sub>z</sub> | 25              | -195320.38  | 20153.48         | 11593.14         |
|          | Min. Vert           | 25              | -195320.38  | 20153.48         | 11593.14         |
|          | Min. H <sub>x</sub> | 6               | 217392.11   | -19134.40        | -11019.77        |
|          | Min. H <sub>z</sub> | 6               | 217392.11   | -19134.40        | -11019.77        |
| Leg A    | Max. Vert           | 15              | 233904.53   | 159.91           | 20770.81         |
|          | Max. H <sub>x</sub> | 11              | 8788.15     | 2521.40          | 630.58           |
|          | Max. H <sub>z</sub> | 2               | 220429.00   | 186.05           | 22365.90         |
|          | Min. Vert           | 21              | -198724.48  | -138.40          | -23370.41        |
|          | Min. H <sub>x</sub> | 5               | 10483.32    | -2520.87         | 778.38           |
|          | Min. H <sub>z</sub> | 21              | -198724.48  | -138.40          | -23370.41        |

### Tower Mast Reaction Summary

| Load Combination           | Vertical lb | Shear <sub>x</sub> lb | Shear <sub>z</sub> lb | Overturning Moment, M <sub>x</sub> lb-ft | Overturning Moment, M <sub>z</sub> lb-ft | Torque lb-ft |
|----------------------------|-------------|-----------------------|-----------------------|--|--|--------------|
| Dead Only                  | 30700.25    | 0.69                  | 0.00                  | 9290.33                                  | -12.93                                   | -7.18        |
| Dead+Wind 0 deg - No Ice   | 30700.25    | 119.96                | -36799.32             | -3276624.86                              | -13231.87                                | 6110.26      |
| Dead+Wind 30 deg - No Ice  | 30700.25    | 17673.49              | -30923.80             | -2776516.14                              | -1582800.79                              | 6877.16      |
| Dead+Wind 60 deg - No Ice  | 30700.25    | 30156.33              | -17729.63             | -1593915.59                              | -2706099.12                              | 6071.81      |
| Dead+Wind 90 deg - No Ice  | 30700.25    | 35139.23              | -119.95               | -3895.64                                 | -3142688.98                              | 3877.45      |
| Dead+Wind 120 deg - No Ice | 30700.25    | 31376.83              | 18295.77              | 1640836.48                               | -2781519.14                              | 511.10       |
| Dead+Wind 150 deg - No Ice | 30700.25    | 17465.74              | 30803.82              | 2781923.11                               | -1559906.52                              | -2992.18     |
| Dead+Wind 180 deg - No Ice | 30700.25    | -119.96               | 35251.49              | 3192885.66                               | 13197.12                                 | -5560.55     |
| Dead+Wind 210 deg - No Ice | 30700.25    | -17673.52             | 30923.78              | 2795141.26                               | 1582762.75                               | -6876.92     |
| Dead+Wind 240 deg - No Ice | 30700.25    | -31496.79             | 18503.55              | 1663728.31                               | 2794708.70                               | -6621.34     |
| Dead+Wind 270 deg - No Ice | 30700.25    | -35139.23             | 119.98                | 22529.42                                 | 3142670.12                               | -3878.19     |
| Dead+Wind 300 deg - No Ice | 30700.25    | -30036.37             | -17521.86             | -1571037.12                              | 2692863.91                               | -511.24      |
| Dead+Wind 330 deg - No Ice | 30700.25    | -17465.71             | -30803.83             | -2763310.52                              | 1559884.75                               | 2992.72      |
| Dead+Ice+Temp              | 50260.20    | -0.00                 | -0.00                 | 21703.89                                 | -6727.52                                 | -0.03        |
| Dead+Wind 0 deg+Ice+Temp   | 50260.20    | -31.21                | -37661.46             | -3385051.12                              | -2677.81                                 | 4822.28      |



|  |   |                                  |
|--|---|----------------------------------|
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| Load Combination            | Vertical | Shear <sub>x</sub> | Shear <sub>z</sub> | Overturning Moment, M <sub>x</sub> | Overturning Moment, M <sub>z</sub> | Torque   |
|-----------------------------|----------|--------------------|--------------------|------------------------------------|------------------------------------|----------|
|                             | lb       | lb                 | lb                 | lb-ft                              | lb-ft                              | lb-ft    |
| Dead+Wind 30 deg+Ice+Temp   | 50260.20 | 18312.60           | -31914.86          | -2881354.26                        | -1668461.26                        | 6301.71  |
| Dead+Wind 60 deg+Ice+Temp   | 50260.20 | 31521.15           | -18276.13          | -1643290.79                        | -2873915.08                        | 6244.59  |
| Dead+Wind 90 deg+Ice+Temp   | 50260.20 | 36679.31           | 31.23              | 25853.97                           | -3337218.58                        | 4702.24  |
| Dead+Wind 120 deg+Ice+Temp  | 50260.20 | 32466.15           | 18857.75           | 1728718.45                         | -2938282.48                        | 1846.02  |
| Dead+Wind 150 deg+Ice+Temp  | 50260.20 | 18366.70           | 31946.04           | 2928978.02                         | -1675507.13                        | -1591.50 |
| Dead+Wind 180 deg+Ice+Temp  | 50260.20 | 31.21              | 36606.30           | 3358967.71                         | -10820.96                          | -4464.97 |
| Dead+Wind 210 deg+Ice+Temp  | 50260.20 | -18312.65          | 31914.83           | 2924906.93                         | 1654955.73                         | -6301.87 |
| Dead+Wind 240 deg+Ice+Temp  | 50260.20 | -32434.94          | 18803.70           | 1721666.12                         | 2920714.48                         | -6668.30 |
| Dead+Wind 270 deg+Ice+Temp  | 50260.20 | -36679.31          | -31.19             | 17707.49                           | 3323724.09                         | -4702.29 |
| Dead+Wind 300 deg+Ice+Temp  | 50260.20 | -31552.36          | -18330.21          | -1650350.02                        | 2864498.03                         | -1779.47 |
| Dead+Wind 330 deg+Ice+Temp  | 50260.20 | -18366.66          | -31946.07          | -2885429.13                        | 1662017.07                         | 1591.72  |
| Dead+Wind 0 deg - Service   | 30700.25 | 59.77              | -18335.99          | -1628002.79                        | -6595.54                           | 3044.58  |
| Dead+Wind 30 deg - Service  | 30700.25 | 8806.17            | -15408.39          | -1378806.84                        | -788677.34                         | 3423.15  |
| Dead+Wind 60 deg - Service  | 30700.25 | 15025.99           | -8834.14           | -789542.83                         | -1348387.77                        | 3025.35  |
| Dead+Wind 90 deg - Service  | 30700.25 | 17508.82           | -59.77             | 2725.03                            | -1565935.06                        | 1936.16  |
| Dead+Wind 120 deg - Service | 30700.25 | 15634.12           | 9116.23            | 822262.22                          | -1385976.26                        | 254.70   |
| Dead+Wind 150 deg - Service | 30700.25 | 8702.65            | 15348.61           | 1390840.46                         | -777269.51                         | -1495.04 |
| Dead+Wind 180 deg - Service | 30700.25 | -59.77             | 17564.75           | 1595609.49                         | 6572.86                            | -2770.68 |
| Dead+Wind 210 deg - Service | 30700.25 | -8806.18           | 15408.39           | 1397425.43                         | 788651.88                          | -3423.06 |
| Dead+Wind 240 deg - Service | 30700.25 | -15693.90          | 9219.76            | 833666.66                          | 1392540.55                         | -3299.47 |
| Dead+Wind 270 deg - Service | 30700.25 | -17508.82          | 59.78              | 15891.98                           | 1565916.37                         | -1936.30 |
| Dead+Wind 300 deg - Service | 30700.25 | -14966.22          | -8730.61           | -778141.49                         | 1341784.39                         | -254.67  |
| Dead+Wind 330 deg - Service | 30700.25 | -8702.64           | -15348.62          | -1372224.92                        | 777252.20                          | 1495.11  |

## Solution Summary

| Load Comb. | Sum of Applied Forces |           |           | Sum of Reactions |          |           | % Error |
|------------|-----------------------|-----------|-----------|------------------|----------|-----------|---------|
|            | PX<br>lb              | PY<br>lb  | PZ<br>lb  | PX<br>lb         | PY<br>lb | PZ<br>lb  |         |
| 1          | -0.00                 | -30700.25 | -0.00     | -0.69            | 30700.25 | -0.00     | 0.002%  |
| 2          | 119.96                | -30700.25 | -36799.64 | -119.96          | 30700.25 | 36799.32  | 0.001%  |
| 3          | 17673.67              | -30700.25 | -30924.08 | -17673.49        | 30700.25 | 30923.80  | 0.001%  |
| 4          | 30156.62              | -30700.25 | -17729.81 | -30156.33        | 30700.25 | 17729.63  | 0.001%  |
| 5          | 35139.56              | -30700.25 | -119.96   | -35139.23        | 30700.25 | 119.95    | 0.001%  |
| 6          | 31377.10              | -30700.25 | 18295.93  | -31376.83        | 30700.25 | -18295.77 | 0.001%  |
| 7          | 17465.89              | -30700.25 | 30804.12  | -17465.74        | 30700.25 | -30803.82 | 0.001%  |
| 8          | -119.96               | -30700.25 | 35251.84  | 119.96           | 30700.25 | -35251.49 | 0.001%  |
| 9          | -17673.67             | -30700.25 | 30924.08  | 17673.52         | 30700.25 | -30923.78 | 0.001%  |
| 10         | -31497.07             | -30700.25 | 18503.71  | 31496.79         | 30700.25 | -18503.55 | 0.001%  |
| 11         | -35139.56             | -30700.25 | 119.96    | 35139.23         | 30700.25 | -119.98   | 0.001%  |
| 12         | -30036.66             | -30700.25 | -17522.03 | 30036.37         | 30700.25 | 17521.86  | 0.001%  |
| 13         | -17465.89             | -30700.25 | -30804.12 | 17465.71         | 30700.25 | 30803.83  | 0.001%  |
| 14         | -0.00                 | -50260.20 | -0.00     | 0.00             | 50260.20 | 0.00      | 0.000%  |
| 15         | -31.21                | -50260.20 | -37662.01 | 31.21            | 50260.20 | 37661.46  | 0.001%  |
| 16         | 18312.91              | -50260.20 | -31915.34 | -18312.60        | 50260.20 | 31914.86  | 0.001%  |
| 17         | 31521.67              | -50260.20 | -18276.42 | -31521.15        | 50260.20 | 18276.13  | 0.001%  |
| 18         | 36679.88              | -50260.20 | 31.21     | -36679.31        | 50260.20 | -31.23    | 0.001%  |
| 19         | 32466.63              | -50260.20 | 18858.03  | -32466.15        | 50260.20 | -18857.75 | 0.001%  |
| 20         | 18366.97              | -50260.20 | 31946.55  | -18366.70        | 50260.20 | -31946.04 | 0.001%  |
| 21         | 31.21                 | -50260.20 | 36606.90  | -31.21           | 50260.20 | -36606.30 | 0.001%  |
| 22         | -18312.91             | -50260.20 | 31915.34  | 18312.65         | 50260.20 | -31914.83 | 0.001%  |
| 23         | -32435.42             | -50260.20 | 18803.98  | 32434.94         | 50260.20 | -18803.70 | 0.001%  |
| 24         | -36679.88             | -50260.20 | -31.21    | 36679.31         | 50260.20 | 31.19     | 0.001%  |
| 25         | -31552.87             | -50260.20 | -18330.48 | 31552.36         | 50260.20 | 18330.21  | 0.001%  |
| 26         | -18366.97             | -50260.20 | -31946.55 | 18366.66         | 50260.20 | 31946.07  | 0.001%  |
| 27         | 59.77                 | -30700.25 | -18336.16 | -59.77           | 30700.25 | 18335.99  | 0.000%  |
| 28         | 8806.26               | -30700.25 | -15408.54 | -8806.17         | 30700.25 | 15408.39  | 0.000%  |
| 29         | 15026.14              | -30700.25 | -8834.23  | -15025.99        | 30700.25 | 8834.14   | 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     |        |         |
| 30         | 17508.99              | -30700.25 | -59.77    | -17508.82 | 30700.25         | 59.77     | 0.000% |         |
| 31         | 15634.27              | -30700.25 | 9116.31   | -15634.12 | 30700.25         | -9116.23  | 0.000% |         |
| 32         | 8702.73               | -30700.25 | 15348.76  | -8702.65  | 30700.25         | -15348.61 | 0.000% |         |
| 33         | -59.77                | -30700.25 | 17564.93  | 59.77     | 30700.25         | -17564.75 | 0.000% |         |
| 34         | -8806.26              | -30700.25 | 15408.54  | 8806.18   | 30700.25         | -15408.39 | 0.000% |         |
| 35         | -15694.04             | -30700.25 | 9219.84   | 15693.90  | 30700.25         | -9219.76  | 0.000% |         |
| 36         | -17508.99             | -30700.25 | 59.77     | 17508.82  | 30700.25         | -59.78    | 0.000% |         |
| 37         | -14966.36             | -30700.25 | -8730.70  | 14966.22  | 30700.25         | 8730.61   | 0.000% |         |
| 38         | -8702.73              | -30700.25 | -15348.76 | 8702.64   | 30700.25         | 15348.62  | 0.000% |         |

### Non-Linear Convergence Results

| Load Combination | Converged? | Number of Cycles | Displacement Tolerance | Force Tolerance |
|------------------|------------|------------------|------------------------|-----------------|
| 1                | Yes        | 4                | 0.00000001             | 0.00002515      |
| 2                | Yes        | 4                | 0.00000001             | 0.00007729      |
| 3                | Yes        | 4                | 0.00000001             | 0.00008017      |
| 4                | Yes        | 4                | 0.00000001             | 0.00008290      |
| 5                | Yes        | 4                | 0.00000001             | 0.00008024      |
| 6                | Yes        | 4                | 0.00000001             | 0.00007727      |
| 7                | Yes        | 4                | 0.00000001             | 0.00008042      |
| 8                | Yes        | 4                | 0.00000001             | 0.00008301      |
| 9                | Yes        | 4                | 0.00000001             | 0.00008025      |
| 10               | Yes        | 4                | 0.00000001             | 0.00007714      |
| 11               | Yes        | 4                | 0.00000001             | 0.00008017      |
| 12               | Yes        | 4                | 0.00000001             | 0.00008297      |
| 13               | Yes        | 4                | 0.00000001             | 0.00008027      |
| 14               | Yes        | 4                | 0.00000001             | 0.00000001      |
| 15               | Yes        | 4                | 0.00000001             | 0.00013684      |
| 16               | Yes        | 4                | 0.00000001             | 0.00014016      |
| 17               | Yes        | 4                | 0.00000001             | 0.00014315      |
| 18               | Yes        | 4                | 0.00000001             | 0.00013998      |
| 19               | Yes        | 4                | 0.00000001             | 0.00013664      |
| 20               | Yes        | 4                | 0.00000001             | 0.00014003      |
| 21               | Yes        | 4                | 0.00000001             | 0.00014307      |
| 22               | Yes        | 4                | 0.00000001             | 0.00014006      |
| 23               | Yes        | 4                | 0.00000001             | 0.00013667      |
| 24               | Yes        | 4                | 0.00000001             | 0.00014001      |
| 25               | Yes        | 4                | 0.00000001             | 0.00014335      |
| 26               | Yes        | 4                | 0.00000001             | 0.00014016      |
| 27               | Yes        | 4                | 0.00000001             | 0.00007990      |
| 28               | Yes        | 4                | 0.00000001             | 0.00008130      |
| 29               | Yes        | 4                | 0.00000001             | 0.00008256      |
| 30               | Yes        | 4                | 0.00000001             | 0.00008114      |
| 31               | Yes        | 4                | 0.00000001             | 0.00007967      |
| 32               | Yes        | 4                | 0.00000001             | 0.00008135      |
| 33               | Yes        | 4                | 0.00000001             | 0.00008269      |
| 34               | Yes        | 4                | 0.00000001             | 0.00008126      |
| 35               | Yes        | 4                | 0.00000001             | 0.00007961      |
| 36               | Yes        | 4                | 0.00000001             | 0.00008115      |
| 37               | Yes        | 4                | 0.00000001             | 0.00008267      |
| 38               | Yes        | 4                | 0.00000001             | 0.00008140      |



|   |   |                                  |
|---|---|----------------------------------|
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### Maximum Tower Deflections - Service Wind

| Section No. | Elevation<br>ft | Horz.<br>Deflection<br>in | Gov.<br>Load<br>Comb. | Tilt<br>° | Twist<br>° |
|-------------|-----------------|---------------------------|-----------------------|-----------|------------|
| T1          | 150 - 140       | 6.103                     | 27                    | 0.3981    | 0.0219     |
| T2          | 140 - 120       | 5.221                     | 27                    | 0.3931    | 0.0189     |
| T3          | 120 - 100       | 3.587                     | 27                    | 0.3245    | 0.0120     |
| T4          | 100 - 80        | 2.296                     | 27                    | 0.2438    | 0.0089     |
| T5          | 80 - 60         | 1.365                     | 27                    | 0.1674    | 0.0072     |
| T6          | 60 - 40         | 0.742                     | 27                    | 0.1030    | 0.0052     |
| T7          | 40 - 20         | 0.340                     | 27                    | 0.0592    | 0.0030     |
| T8          | 20 - 0          | 0.109                     | 27                    | 0.0297    | 0.0015     |

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

| Elevation<br>ft | Appurtenance                               | Gov.<br>Load<br>Comb. | Deflection<br>in | Tilt<br>° | Twist<br>° | Radius of<br>Curvature<br>ft |
|-----------------|--|-----------------------|------------------|-----------|------------|------------------------------|
| 150.00          | RFS APX16DWV-16DWVS-E-A20                  | 27                    | 6.103            | 0.3981    | 0.0219     | 71092                        |
| 140.00          | KMW  | 27                    | 5.221            | 0.3931    | 0.0189     | 35903                        |
| 127.50          | ET-X-TU-42-15-37-18-IR-RA                  | 27                    | 4.167            | 0.3560    | 0.0144     | 16290                        |
| 115.00          | Antel BXA-70063/6CF-2<br>Powerwave 7770.00 | 27                    | 3.228            | 0.3037    | 0.0109     | 12469                        |

### Maximum Tower Deflections - Design Wind

| Section No. | Elevation<br>ft | Horz.<br>Deflection<br>in | Gov.<br>Load<br>Comb. | Tilt<br>° | Twist<br>° |
|-------------|-----------------|---------------------------|-----------------------|-----------|------------|
| T1          | 150 - 140       | 12.584                    | 19                    | 0.8131    | 0.0440     |
| T2          | 140 - 120       | 10.785                    | 19                    | 0.8022    | 0.0379     |
| T3          | 120 - 100       | 7.453                     | 19                    | 0.6659    | 0.0241     |
| T4          | 100 - 80        | 4.797                     | 19                    | 0.5051    | 0.0178     |
| T5          | 80 - 60         | 2.857                     | 19                    | 0.3494    | 0.0144     |
| T6          | 60 - 40         | 1.551                     | 19                    | 0.2160    | 0.0104     |
| T7          | 40 - 20         | 0.707                     | 19                    | 0.1244    | 0.0060     |
| T8          | 20 - 0          | 0.226                     | 15                    | 0.0624    | 0.0031     |

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

| Elevation<br>ft | Appurtenance                               | Gov.<br>Load<br>Comb. | Deflection<br>in | Tilt<br>° | Twist<br>° | Radius of<br>Curvature<br>ft |
|-----------------|--|-----------------------|------------------|-----------|------------|------------------------------|
| 150.00          | RFS APX16DWV-16DWVS-E-A20                  | 19                    | 12.584           | 0.8131    | 0.0440     | 35055                        |
| 140.00          | KMW  | 19                    | 10.785           | 0.8022    | 0.0379     | 17696                        |
| 127.50          | ET-X-TU-42-15-37-18-IR-RA                  | 19                    | 8.639            | 0.7282    | 0.0289     | 8130                         |
| 115.00          | Antel BXA-70063/6CF-2<br>Powerwave 7770.00 | 19                    | 6.719            | 0.6246    | 0.0218     | 6217                         |

|   |   |                                  |
|---|---|----------------------------------|
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### Bolt Design Data

| Section No. | Elevation<br>ft | Component Type | Bolt Grade | Bolt Size<br>in | Number Of Bolts | Maximum Load per Bolt<br>lb | Allowable Load<br>lb | Ratio Load<br>Allowable | Allowable Ratio | Criteria       |
|-------------|-----------------|----------------|------------|-----------------|-----------------|-----------------------------|----------------------|-------------------------|-----------------|----------------|
| T1          | 150             | Leg            | A325N      | 0.7500          | 4               | 1526.26                     | 19415.50             | 0.079 ✓                 | 1.333           | Bolt Tension   |
|             |                 | Diagonal       | A325N      | 0.5000          | 1               | 1974.89                     | 4123.34              | 0.479 ✓                 | 1.333           | Bolt Shear     |
| T2          | 140             | Leg            | A325N      | 1.0000          | 4               | 9023.43                     | 34440.60             | 0.262 ✓                 | 1.333           | Bolt Tension   |
|             |                 | Diagonal       | A325N      | 0.6250          | 1               | 5521.36                     | 6117.19              | 0.903 ✓                 | 1.333           | Member Bearing |
| T3          | 120             | Leg            | A325N      | 1.0000          | 6               | 11793.40                    | 34507.80             | 0.342 ✓                 | 1.333           | Bolt Tension   |
|             |                 | Diagonal       | A325N      | 0.6250          | 1               | 5524.23                     | 6117.19              | 0.903 ✓                 | 1.333           | Member Bearing |
| T4          | 100             | Leg            | A325N      | 1.0000          | 8               | 12646.40                    | 34516.40             | 0.366 ✓                 | 1.333           | Bolt Tension   |
|             |                 | Diagonal       | A325N      | 0.6250          | 1               | 5975.71                     | 6117.19              | 0.977 ✓                 | 1.333           | Member Bearing |
| T5          | 80              | Leg            | A325N      | 1.2500          | 8               | 16127.80                    | 53964.30             | 0.299 ✓                 | 1.333           | Bolt Tension   |
|             |                 | Diagonal       | A325N      | 0.6250          | 1               | 6176.44                     | 6117.19              | 1.010 ✓                 | 1.333           | Member Bearing |
| T6          | 60              | Leg            | A325N      | 1.2500          | 8               | 19321.40                    | 53955.60             | 0.358 ✓                 | 1.333           | Bolt Tension   |
|             |                 | Diagonal       | A325N      | 0.6250          | 1               | 6870.06                     | 6117.19              | 1.123 ✓                 | 1.333           | Member Bearing |
| T7          | 40              | Leg            | A325N      | 1.2500          | 8               | 22245.70                    | 53939.50             | 0.412 ✓                 | 1.333           | Bolt Tension   |
|             |                 | Diagonal       | A325N      | 0.7500          | 1               | 8093.03                     | 9062.50              | 0.893 ✓                 | 1.333           | Member Bearing |
| T8          | 20              | Leg            | F1554-36   | 1.5000          | 8               | 24974.00                    | 33823.20             | 0.738 ✓                 | 1.333           | Bolt Tension   |
|             |                 | Diagonal       | A325N      | 0.7500          | 1               | 9344.31                     | 9062.50              | 1.031 ✓                 | 1.333           | Member Bearing |

### Compression Checks

### Leg Design Data (Compression)

| Section No. | Elevation<br>ft | Size      | L<br>ft | L <sub>u</sub><br>ft | Kl/r           | F <sub>a</sub><br>ksi | A<br>in <sup>2</sup> | Actual P<br>lb | Allow. P <sub>a</sub><br>lb | Ratio P/P <sub>a</sub> |
|-------------|-----------------|-----------|---------|----------------------|----------------|-----------------------|----------------------|----------------|-----------------------------|------------------------|
| T1          | 150 - 140       | P2.5x.203 | 10.00   | 0.67                 | 8.4<br>K=1.00  | 31.707                | 1.7040               | -7855.56       | 54030.80                    | 0.145 ✓                |
| T2          | 140 - 120       | P2.5x.203 | 20.00   | 4.67                 | 59.1<br>K=1.00 | 24.270                | 1.7040               | -35823.10      | 41357.70                    | 0.866 ✓                |
| T3          | 120 - 100       | P4x.237   | 20.03   | 4.67                 | 37.2<br>K=1.00 | 28.107                | 3.1741               | -75616.50      | 89211.40                    | 0.848 ✓                |
| T4          | 100 - 80        | P5x.258   | 20.03   | 6.26                 | 40.0<br>K=1.00 | 27.658                | 4.2999               | -116276.00     | 118925.00                   | 0.978 ✓                |
| T5          | 80 - 60         | P6x.28    | 20.03   | 6.26                 | 33.5<br>K=1.00 | 28.667                | 5.5813               | -148683.00     | 160002.00                   | 0.929 ✓                |
| T6          | 60 - 40         | P8x.322   | 20.03   | 6.26                 | 25.6<br>K=1.00 | 29.771                | 8.3993               | -179401.00     | 250055.00                   | 0.717 ✓                |

|  |   |                                  |
|--|---|----------------------------------|
| <b>RISATower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>26 of 28          |
|  | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|  | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

| Section No. | Elevation<br>ft | Size  | L<br>ft | L <sub>u</sub><br>ft | Kl/r           | F <sub>a</sub><br>ksi | A<br>in <sup>2</sup> | Actual P<br>lb | Allow. P <sub>a</sub><br>lb | Ratio<br>$\frac{P}{P_a}$ |
|-------------|-----------------|-------|---------|----------------------|----------------|-----------------------|----------------------|----------------|-----------------------------|--------------------------|
| T7          | 40 - 20         | P8x.5 | 20.03   | 9.35                 | 39.0<br>K=1.00 | 27.821                | 12.7627              | -202073.00     | 355075.00                   | 0.569<br>✓               |
| T8          | 20 - 0          | P8x.5 | 20.03   | 9.35                 | 39.0<br>K=1.00 | 27.821                | 12.7627              | -230407.00     | 355075.00                   | 0.649<br>✓               |

### Diagonal Design Data (Compression)

| Section No. | Elevation<br>ft | Size              | L<br>ft | L <sub>u</sub><br>ft | Kl/r            | F <sub>a</sub><br>ksi | A<br>in <sup>2</sup> | Actual P<br>lb | Allow. P <sub>a</sub><br>lb | Ratio<br>$\frac{P}{P_a}$ |
|-------------|-----------------|-------------------|---------|----------------------|-----------------|-----------------------|----------------------|----------------|-----------------------------|--------------------------|
| T1          | 150 - 140       | L1 1/2x1 1/2x3/16 | 7.40    | 3.42                 | 139.8<br>K=1.00 | 7.641                 | 0.5273               | -1918.97       | 4029.59                     | 0.476<br>✓               |
| T2          | 140 - 120       | L2x2x3/16         | 7.60    | 3.51                 | 110.3<br>K=1.03 | 11.637                | 0.7150               | -5512.72       | 8320.76                     | 0.663<br>✓               |
| T3          | 120 - 100       | L2x2x3/16         | 9.00    | 4.28                 | 130.5<br>K=1.00 | 8.771                 | 0.7150               | -5480.03       | 6271.25                     | 0.874<br>✓               |
| T4          | 100 - 80        | L2 1/2x2 1/2x3/16 | 11.48   | 5.51                 | 133.7<br>K=1.00 | 8.359                 | 0.9020               | -5916.08       | 7540.03                     | 0.785<br>✓               |
| T5          | 80 - 60         | L3x3x3/16         | 13.20   | 6.33                 | 127.4<br>K=1.00 | 9.196                 | 1.0900               | -6206.01       | 10023.70                    | 0.619<br>✓               |
| T6          | 60 - 40         | L3x3x3/16         | 14.99   | 7.14                 | 143.7<br>K=1.00 | 7.232                 | 1.0900               | -6512.89       | 7883.35                     | 0.826<br>✓               |
| T7          | 40 - 20         | L3 1/2x3 1/2x1/4  | 17.27   | 8.35                 | 144.4<br>K=1.00 | 7.165                 | 1.6900               | -7865.86       | 12109.70                    | 0.650<br>✓               |
| T8          | 20 - 0          | L3 1/2x3 1/2x1/4  | 18.99   | 9.21                 | 159.2<br>K=1.00 | 5.890                 | 1.6900               | -8779.92       | 9954.30                     | 0.882<br>✓               |

### Top Girt Design Data (Compression)

| Section No. | Elevation<br>ft | Size     | L<br>ft | L <sub>u</sub><br>ft | Kl/r            | F <sub>a</sub><br>ksi | A<br>in <sup>2</sup> | Actual P<br>lb | Allow. P <sub>a</sub><br>lb | Ratio<br>$\frac{P}{P_a}$ |
|-------------|-----------------|----------|---------|----------------------|-----------------|-----------------------|----------------------|----------------|-----------------------------|--------------------------|
| T1          | 150 - 140       | L3x3x1/4 | 6.00    | 5.76                 | 118.4<br>K=1.01 | 10.513                | 1.4400               | -462.33        | 15138.80                    | 0.031<br>✓               |

### Tension Checks

### Leg Design Data (Tension)

| Section No. | Elevation<br>ft | Size      | L<br>ft | L <sub>u</sub><br>ft | Kl/r | F <sub>a</sub><br>ksi | A<br>in <sup>2</sup> | Actual P<br>lb | Allow. P <sub>a</sub><br>lb | Ratio<br>$\frac{P}{P_a}$ |
|-------------|-----------------|-----------|---------|----------------------|------|-----------------------|----------------------|----------------|-----------------------------|--------------------------|
| T1          | 150 - 140       | P2.5x.203 | 10.00   | 0.67                 | 8.4  | 32.400                | 1.7040               | 6105.06        | 55211.20                    | 0.111                    |

|  |   |                                  |
|--|---|----------------------------------|
| <b>RISATower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>27 of 28          |
|  | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|  | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

| Section No. | Elevation<br>ft | Size      | L<br>ft | L <sub>u</sub><br>ft | KI/r | F <sub>a</sub><br>ksi | A<br>in <sup>2</sup> | Actual P<br>lb | Allow.<br>P <sub>a</sub><br>lb | Ratio<br>$\frac{P}{P_a}$ |
|-------------|-----------------|-----------|---------|----------------------|------|-----------------------|----------------------|----------------|--------------------------------|--------------------------|
| T2          | 140 - 120       | P2.5x.203 | 20.00   | 0.67                 | 8.4  | 32.400                | 1.7040               | 36093.70       | 55211.20                       | 0.654 ✓                  |
| T3          | 120 - 100       | P4x.237   | 20.03   | 0.67                 | 5.3  | 32.400                | 3.1741               | 70760.40       | 102839.00                      | 0.688 ✓                  |
| T4          | 100 - 80        | P5x.258   | 20.03   | 0.63                 | 4.0  | 32.400                | 4.2999               | 101172.00      | 139316.00                      | 0.726 ✓                  |
| T5          | 80 - 60         | P6x.28    | 20.03   | 0.63                 | 3.3  | 32.400                | 5.5813               | 129023.00      | 180836.00                      | 0.713 ✓                  |
| T6          | 60 - 40         | P8x.322   | 20.03   | 0.63                 | 2.6  | 32.400                | 8.3993               | 154571.00      | 272136.00                      | 0.568 ✓                  |
| T7          | 40 - 20         | P8x.5     | 20.03   | 0.67                 | 2.8  | 32.400                | 12.7627              | 177966.00      | 413512.00                      | 0.430 ✓                  |
| T8          | 20 - 0          | P8x.5     | 20.03   | 0.67                 | 2.8  | 32.400                | 12.7627              | 199792.00      | 413512.00                      | 0.483 ✓                  |

### Diagonal Design Data (Tension)

| Section No. | Elevation<br>ft | Size              | L<br>ft | L <sub>u</sub><br>ft | KI/r  | F <sub>a</sub><br>ksi | A<br>in <sup>2</sup> | Actual P<br>lb | Allow.<br>P <sub>a</sub><br>lb | Ratio<br>$\frac{P}{P_a}$ |
|-------------|-----------------|-------------------|---------|----------------------|-------|-----------------------|----------------------|----------------|--------------------------------|--------------------------|
| T1          | 150 - 140       | L1 1/2x1 1/2x3/16 | 7.40    | 3.42                 | 93.4  | 29.000                | 0.3076               | 1974.89        | 8920.90                        | 0.221 ✓                  |
| T2          | 140 - 120       | L2x2x3/16         | 7.60    | 3.51                 | 71.0  | 29.000                | 0.4308               | 5521.36        | 12492.70                       | 0.442 ✓                  |
| T3          | 120 - 100       | L2x2x3/16         | 9.00    | 4.28                 | 86.0  | 29.000                | 0.4308               | 5524.23        | 12492.70                       | 0.442 ✓                  |
| T4          | 100 - 80        | L2 1/2x2 1/2x3/16 | 10.45   | 5.01                 | 79.3  | 29.000                | 0.5710               | 5975.71        | 16559.90                       | 0.361 ✓                  |
| T5          | 80 - 60         | L3x3x3/16         | 12.11   | 5.79                 | 75.7  | 29.000                | 0.7120               | 6176.44        | 20648.90                       | 0.299 ✓                  |
| T6          | 60 - 40         | L3x3x3/16         | 14.99   | 7.14                 | 92.9  | 29.000                | 0.7120               | 6870.06        | 20648.90                       | 0.333 ✓                  |
| T7          | 40 - 20         | L3 1/2x3 1/2x1/4  | 18.07   | 8.74                 | 97.8  | 29.000                | 1.1034               | 8093.03        | 31999.70                       | 0.253 ✓                  |
| T8          | 20 - 0          | L3 1/2x3 1/2x1/4  | 19.81   | 9.61                 | 107.4 | 29.000                | 1.1034               | 9344.31        | 31999.70                       | 0.292 ✓                  |

### Top Girt Design Data (Tension)

| Section No. | Elevation<br>ft | Size     | L<br>ft | L <sub>u</sub><br>ft | KI/r | F <sub>a</sub><br>ksi | A<br>in <sup>2</sup> | Actual P<br>lb | Allow.<br>P <sub>a</sub><br>lb | Ratio<br>$\frac{P}{P_a}$ |
|-------------|-----------------|----------|---------|----------------------|------|-----------------------|----------------------|----------------|--------------------------------|--------------------------|
| T1          | 150 - 140       | L3x3x1/4 | 6.00    | 5.76                 | 74.3 | 21.600                | 1.4400               | 437.46         | 31104.00                       | 0.014 ✓                  |

|   |   |                                  |
|---|---|----------------------------------|
| <b>RISA Tower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>150' SS Tower Norwich, CT. Analysis | <b>Page</b><br>28 of 28          |
|   | <b>Project</b><br>215-35024                       | <b>Date</b><br>22:48:00 03/30/15 |
|   | <b>Client</b><br>CDT                              | <b>Designed by</b><br>FAN        |

### Section Capacity Table

| Section No. | Elevation ft | Component Type | Size              | Critical Element | P lb       | SF*P <sub>allow</sub> lb | % Capacity      | Pass Fail   |             |
|-------------|--------------|----------------|-------------------|------------------|------------|--------------------------|-----------------|-------------|-------------|
| T1          | 150 - 140    | Leg            | P2.5x.203         | 2                | -7855.56   | 72023.05                 | 10.9            | Pass        |             |
|             |              | Diagonal       | L1 1/2x1 1/2x3/16 | 7                | -1918.97   | 5371.44                  | 35.7            | Pass        |             |
|             |              |                |                   |                  |            |                          | 35.9 (b)        |             |             |
| T2          | 140 - 120    | Top Girt       | L3x3x1/4          | 4                | -462.33    | 20180.02                 | 2.3             | Pass        |             |
|             |              | Leg            | P2.5x.203         | 20               | -35823.10  | 55129.81                 | 65.0            | Pass        |             |
|             |              | Diagonal       | L2x2x3/16         | 24               | -5512.72   | 11091.57                 | 49.7            | Pass        |             |
|             |              |                |                   |                  |            |                          | 67.7 (b)        |             |             |
| T3          | 120 - 100    | Leg            | P4x.237           | 47               | -75616.50  | 118918.79                | 63.6            | Pass        |             |
|             |              | Diagonal       | L2x2x3/16         | 53               | -5480.03   | 8359.58                  | 65.6            | Pass        |             |
|             |              |                |                   |                  |            |                          | 67.7 (b)        |             |             |
| T4          | 100 - 80     | Leg            | P5x.258           | 74               | -116276.00 | 158527.02                | 73.3            | Pass        |             |
|             |              | Diagonal       | L2 1/2x2 1/2x3/16 | 76               | -5916.08   | 10050.86                 | 58.9            | Pass        |             |
|             |              |                |                   |                  |            |                          | 73.3 (b)        |             |             |
| T5          | 80 - 60      | Leg            | P6x.28            | 95               | -148683.00 | 213282.66                | 69.7            | Pass        |             |
|             |              | Diagonal       | L3x3x3/16         | 97               | -6206.01   | 13361.59                 | 46.4            | Pass        |             |
|             |              |                |                   |                  |            |                          | 75.7 (b)        |             |             |
| T6          | 60 - 40      | Leg            | P8x.322           | 116              | -179401.00 | 333323.30                | 53.8            | Pass        |             |
|             |              | Diagonal       | L3x3x3/16         | 118              | -6512.89   | 10508.51                 | 62.0            | Pass        |             |
|             |              |                |                   |                  |            |                          | 84.3 (b)        |             |             |
| T7          | 40 - 20      | Leg            | P8x.5             | 137              | -202073.00 | 473314.96                | 42.7            | Pass        |             |
|             |              | Diagonal       | L3 1/2x3 1/2x1/4  | 145              | -7865.86   | 16142.23                 | 48.7            | Pass        |             |
|             |              |                |                   |                  |            |                          | 67.0 (b)        |             |             |
| T8          | 20 - 0       | Leg            | P8x.5             | 152              | -230407.00 | 473314.96                | 48.7            | Pass        |             |
|             |              | Diagonal       | L3 1/2x3 1/2x1/4  | 160              | -8779.92   | 13269.08                 | 66.2            | Pass        |             |
|             |              |                |                   |                  |            |                          | 77.4 (b)        |             |             |
|             |              |                |                   |                  |            |                          | Summary         |             |             |
|             |              |                |                   |                  |            |                          | Leg (T4)        | 73.3        | Pass        |
|             |              |                |                   |                  |            |                          | Diagonal (T6)   | 84.3        | Pass        |
|             |              |                |                   |                  |            |                          | Top Girt (T1)   | 2.3         | Pass        |
|             |              |                |                   |                  |            |                          | Bolt Checks     | 84.3        | Pass        |
|             |              |                |                   |                  |            |                          | <b>RATING =</b> | <b>84.3</b> | <b>Pass</b> |



Site Name: Norwich, CT  
 Client: CDT  
 Project Number: 115-35033  
 Date: 3/30/2015

**Design Base Loads (Unfactored)**

|   |                                   |
|---|-----------------------------------|
| Moment (Overturning) ( $M_u$ ):                                     | 0.0 k-ft                          |
| Shear/Leg ( $V_u$ ):  | 23.4 k                            |
| Compression/Leg ( $P_u$ ):  | 235.4 k                           |
| Uplift/Leg ( $T_u$ ):   | 198.7 k                           |
| Tower Type (GT / SST / MP):   | SST                               |
| Diameter of Caisson (d):  | 3.5 ft                            |
| Length of Caisson (l):  | 4.3 ft                            |
| Caisson Height Above Ground (h):                                    | 0.5 ft                            |
| Depth Below Ground Surface to Water Table (w):                      | 100.0 ft                          |
| Unit Weight of Concrete:  | 150.0 pcf                         |
| Unit Weight of Soil:  | 135.0 pcf                         |
| Unit Weight of Water:   | 62.4 pcf                          |
| Ultimate Compressive Bearing Pressure:                              | 60000 psf                         |
| Capacity Increase (Due to Transient Loads):                         | 1.00                              |
| Pullout Angle:  | 30.0 degrees                      |
| Rod Diameter:   | 1.00 in                           |
| Rod Ultimate Strength:  | 150 ksi                           |
| Rod Net Area:   | 0.85 in <sup>2</sup>              |
| Number of Rods:   | 5                                 |
| Diameter of Cored Hole:   | 3.00 in                           |
| Ultimate Grout / Rock Interface Bond Strength:                      | 250 psi                           |
| Rod Embedment Length:   | 78 in                             |
| Rod Exposure Above Lock Off Nut in Foundation:                      | 60 in                             |
| Rod Embedment Circle:   | 26 in                             |
| Free Stress Length:   | 150 in                            |
| Lock Off Load:  | 89 k                              |
| Volume of Concrete:   | 41.7 ft <sup>3</sup>              |
| Weight of Concrete (Buoyancy Effect Considered):                    | 6.3 k                             |
| Compressive Bearing Resistance:                                     | 577.3 k                           |
| Pullout Weight:   | 711.9 k                           |
| Rod Bond Strength:  | 918.9 k                           |
| Williams Rod Strength:  | 637.5 k                           |
| Maximum Lock Off Load:  | 95.6 k > Design Lock Off Load, OK |
| Nominal Uplift Capacity per Leg (Factor of Safety $\geq$ 2.0):      | 318.8 k                           |
| Nominal Compressive Capacity per Leg (Factor of Safety $\geq$ 2.0): | 288.6 k                           |
| $T_u$ :   | 198.7 k                           |
| $P_u$ :   | 236.1 k                           |
| $T_u/T_{Allowable}$ :   | 0.62 Result: OK                   |
| $P_u/P_{Allowable}$ :   | 0.82 Result: OK                   |

**Lateral Capacity**

| Depth (ft) |        | Ultimate Lateral<br>Bearing Pressure (psf) | Increment<br>(psf/ft) | $\gamma_{soil}$<br>(pcf) | Cohesion<br>(psf) | $\phi$<br>(degree) |
|------------|--------|--|-----------------------|--------------------------|-------------------|--------------------|
| Top        | Bottom |  |                       |                          |                   |                    |
| 0.0        | 0.5    | 0.0  | 100.0                 | 100                      | 0                 | 0                  |
| 0.5        | 1.0    | 47.9                                       | 100.0                 | 100                      | 0                 | 0                  |
| 1.0        | 1.5    | 100.0                                      | 100.0                 | 100                      | 0                 | 0                  |
| 1.5        | 2.5    | 41636.6                                    | 567.5                 | 135                      | 10000             | 38                 |
| 2.5        | 3.0    | 42204.1                                    | 567.5                 | 135                      | 10000             | 38                 |
| 3.0        | 3.5    | 42274.6                                    | 567.5                 | 135                      | 10000             | 38                 |
| 3.5        | 3.9    | 42327.6                                    | 567.5                 | 135                      | 10000             | 38                 |
| 3.9        | 3.8    | 42389.4                                    | 567.5                 | 135                      | 10000             | 38                 |

Total Lateral Resistance: 461.1 k  
 Inflection Point (Below Ground Surface): 3.8 ft  
 Design Overturning Moment At Inflection Point ( $M_{uip}$ ): 101.3 k-ft  
 Nominal Moment Capacity per Leg (Factor of Safety  $\geq 2.0$ ): 206.9 k-ft  
 $M_{uip}/M_{Allowable}$ : 0.49 Result: OK

**Caisson Strength Capacity**

Concrete Compressive Strength ( $f'_c$ ): 3000 psi  
 Vertical Steel Rebar Size #: 6  
 # of Vertical Steel Rebars: 23  
 Vertical Steel Rebar Yield Strength ( $F_y$ ): 60 ksi  
 Horizontal Tie / Stirrup Size #: 4  
 Horizontal Tie / Stirrup Spacing: 12.0 in  
 Horizontal Tie / Stirrup Steel Yield Strength ( $F_y$ ): 40 ksi  
 Load Factor: 1.30  
 Design Moment ( $M_u$ ): 131.7 k-ft  
 Nominal Moment Capacity ( $\phi_B M_n$ ): 692.9 k-ft  
 $M_u/\phi_B M_n$ : 0.19 Result: OK  
 Design Shear ( $V_u$ ): 30.4 k  
 Nominal Shear Capacity ( $\phi_V V_n$ ): 158.6 k  
 $V_u/\phi_V V_n$ : 0.19 Result: OK  
 Design Tension ( $T_u$ ): 258.3 k  
 Nominal Tension Capacity ( $\phi_T T_n$ ): 546.5 k  
 $T_u/\phi_T T_n$ : 0.47 Result: OK  
 Design Compression ( $P_u$ ): 306.1 k  
 Nominal Compression Capacity ( $\phi_P P_n$ ): 2145.5 k  
 $P_u/\phi_P P_n$ : 0.14 Result: OK

# **EXHIBIT C**

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT  
EVALUATION OF HUMAN EXPOSURE POTENTIAL  
TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11254B

CDT Norwich  
2 Hinckley Hill Road  
Norwich, CT 06360

**April 15, 2015**

| Site Compliance Summary                                      |                  |
|--|------------------|
| Compliance Status:   | <b>COMPLIANT</b> |
| Site total MPE% of<br>FCC general public<br>allowable limit: | <b>70.20 %</b>   |

April 15, 2015

T-Mobile USA  
Attn: Jason Overbey, RF Manager  
35 Griffin Road South  
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11254B – CDT Norwich**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **2 Hinckley Hill Road, Norwich, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limit for the 700 MHz Band is  $467 \mu\text{W}/\text{cm}^2$ , and the general population exposure limit for the PCS and AWS bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

## CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **2 Hinckley Hill Road, Norwich, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel
- 2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.
- 5) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

- 6) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antennas used in this modeling are the **RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antenna mounting height centerline of the proposed antennas is **150 feet** above ground level (AGL).
- 9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

**T-Mobile Site Inventory and Power Data**

| Sector:         | A                              | Sector:         | B                              | Sector:         | C                              |
|-----------------|--------------------------------|-----------------|--------------------------------|-----------------|--------------------------------|
| Antenna #:      | 1                              | Antenna #:      | 1                              | Antenna #:      | 1                              |
| Make / Model:   | RFS APX16DWV-16DWVS-E-A20      | Make / Model:   | RFS APX16DWV-16DWVS-E-A20      | Make / Model:   | RFS APX16DWV-16DWVS-E-A20      |
| Gain:           | 16.3 dBd                       | Gain:           | 16.3 dBd                       | Gain:           | 16.3 dBd                       |
| Height (AGL):   | 150                            | Height (AGL):   | 150                            | Height (AGL):   | 150                            |
| Frequency Bands | 1900 MHz(PCS) / 2100 MHz (AWS) | Frequency Bands | 1900 MHz(PCS) / 2100 MHz (AWS) | Frequency Bands | 1900 MHz(PCS) / 2100 MHz (AWS) |
| Channel Count   | 6                              | Channel Count   | 6                              | # PCS Channels: | 6                              |
| Total TX Power: | 240                            | Total TX Power: | 240                            | # AWS Channels: | 240                            |
| ERP (W):        | 10,237.91                      | ERP (W):        | 10,237.91                      | ERP (W):        | 10,237.91                      |
| Antenna A1 MPE% | 1.77                           | Antenna B1 MPE% | 1.77                           | Antenna C1 MPE% | 1.77                           |
| Antenna #:      | 2                              | Antenna #:      | 2                              | Antenna #:      | 2                              |
| Make / Model:   | Commscope LNX-6515DS-VTM       | Make / Model:   | Commscope LNX-6515DS-VTM       | Make / Model:   | Commscope LNX-6515DS-VTM       |
| Gain:           | 14.6 dBd                       | Gain:           | 14.6 dBd                       | Gain:           | 14.6 dBd                       |
| Height (AGL):   | 150                            | Height (AGL):   | 150                            | Height (AGL):   | 150                            |
| Frequency Bands | 700 MHz                        | Frequency Bands | 700 MHz                        | Frequency Bands | 700 MHz                        |
| Channel Count   | 1                              | Channel Count   | 1                              | Channel Count   | 1                              |
| Total TX Power: | 30                             | Total TX Power: | 30                             | Total TX Power: | 30                             |
| ERP (W):        | 865.21                         | ERP (W):        | 865.21                         | ERP (W):        | 865.21                         |
| Antenna A2 MPE% | 0.32                           | Antenna B2 MPE% | 0.32                           | Antenna C2 MPE% | 0.32                           |

| Site Composite MPE%      |                |
|--------------------------|----------------|
| Carrier                  | MPE%           |
| T-Mobile                 | 6.29           |
| Sprint                   | 8.89 %         |
| Verizon Wireless         | 23.98 %        |
| AT&T                     | 25.99 %        |
| Verizon Paging           | 1.59 %         |
| TSR Paging               | 1.80 %         |
| Aquis Paging             | 1.66 %         |
| <b>Site Total MPE %:</b> | <b>70.20 %</b> |

|                          |                |
|--------------------------|----------------|
| T-Mobile Sector 1 Total: | 2.10 %         |
| T-Mobile Sector 2 Total: | 2.10 %         |
| T-Mobile Sector 3 Total: | 2.10 %         |
| <b>Site Total:</b>       | <b>70.20 %</b> |

## Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

| T-Mobile Sector                | Power Density Value (%) |
|--------------------------------|-------------------------|
| Sector 1:                      | 2.10 %                  |
| Sector 2:                      | 2.10 %                  |
| Sector 3 :                     | 2.10 %                  |
| <b>T-Mobile Total:</b>         | <b>6.29 %</b>           |
|                                |                         |
| <b>Site Total:</b>             | <b>70.20 %</b>          |
|                                |                         |
| <b>Site Compliance Status:</b> | <b>COMPLIANT</b>        |

The anticipated composite MPE value for this site assuming all carriers present is **70.20%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.



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