



EM-CING-054-090311

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raising the bar

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

Steven L. Levine
Real Estate Consultant

ORIGINAL

RECEIVED
MAR 11 2009

CONNECTICUT
SITING COUNCIL

HAND DELIVERED

March 11, 2009

Honorable Daniel F. Caruso, Chairman,
and Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing tele-
communications facility located at Birch Mountain Road, Glastonbury (owner, AT&T
Corp.)

Dear Chairman Caruso and Members of the Council:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile (GSM) communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility

will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will be unaffected.
2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than some enlarged equipment pads as may be noted in the attachments.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. Radio frequency power density may increase due to use of one or more GSM channel for UMTS transmissions. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

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

Please feel free to call me at (860) 513-7636 with questions concerning this matter. Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read "S.L. Levine".

Steven L. Levine
Real Estate Consultant

Attachments

**NEW CINGULAR WIRELESS
Equipment Modification**

Birch Mountain Road, Glastonbury
Site Number 1038
Petition 49 and Exempt Mods approved 7/92 and 8/02

Tower Owner/Manager: AT&T Corp.

Equipment Configuration: Self-Supporting Lattice Tower

Current and/or Approved: Nine CSS DUO-1417-8686 panel antennas @ 130 ft AGL
Six TMA's and three diplexers @ 130 ft
Nine runs 7/8 inch coax
Equipment Shelter

Planned Modifications: Remove all existing antennas, TMA's, and diplexers
Install six Powerwave 7770 antennas (or equivalent) @ 130 ft
Install six TMA's and six diplexers @ 130 ft
Install three additional lines of 1 5/8 inch coax

Power Density:

Worst-case calculations for existing wireless operations at the site indicate a radio frequency electromagnetic radiation power density, measured at ground level beside the tower, of approximately 10 % of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density following proposed modifications would be approximately 7.9 % of the standard.

Existing

| Company | Centerline Ht (feet) | Frequency (MHz) | Number of Channels | Power Per Channel (Watts) | Power Density (mW/cm ²) | Standard Limits (mW/cm ²) | Percent of Limit |
|-----------------|----------------------|-----------------|--------------------|---------------------------|-------------------------------------|---------------------------------------|------------------|
| Other Users * | | | | | | | 0.02 |
| Cingular TDMA * | 128.5 | 880 - 894 | 16 | 100 | 0.0348 | 0.5867 | 5.94 |
| Cingular GSM * | 128.5 | 1900 Band | 2 | 427 | 0.0186 | 1.0000 | 1.86 |
| Cingular GSM * | 128.5 | 880 - 894 | 2 | 296 | 0.0129 | 0.5867 | 2.20 |
| Total | | | | | | | 10.0% |

* Per CSC records

Proposed

| Company | Centerline Ht (feet) | Frequency (MHz) | Number of Channels | Power Per Channel (Watts) | Power Density (mW/cm ²) | Standard Limits (mW/cm ²) | Percent of Limit |
|----------------|-------------------------|--------------------|-----------------------|---------------------------------|--|---|---------------------|
| Other Users * | | | | | | | 0.00 |
| Cingular UMTS | 130 | 880 - 894 | 1 | 500 | 0.0106 | 0.5867 | 1.81 |
| Cingular GSM * | 130 | 1900 Band | 2 | 427 | 0.0182 | 1.0000 | 1.82 |
| Cingular GSM * | 130 | 880 - 894 | 4 | 296 | 0.0252 | 0.5867 | 4.29 |
| Total | | | | | | | 7.9% |

* Per CSC records

Structural information:

The attached structural analysis demonstrates that the tower and foundation have sufficient structural capacity to accommodate the proposed equipment modifications. (Communication Structures Engineering, 3/4/09) Please refer to (circled) pages 3, 8, and 11 for tower and foundation percent usage figures.



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

Steven L. Levine
Real Estate Consultant

March 11, 2009

Richard J. Johnson, Town Manager
Town of Glastonbury
Town Hall 2155 Main St.
Glastonbury, CT 06033-6523

Re: Telecommunications Facility – Birch Mountain Road, Glastonbury

Dear Mr. Johnson:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System (“UMTS”) capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC (“Cingular”) will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (“R.C.S.A.”) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review Cingular’s proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes Cingular’s proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council’s procedures, please call me at (860) 513-7636 or Mr. Derek Phelps, Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

Steven L. Levine
Real Estate Consultant

Enclosure



Mr. Larry Montee
AT&T Corporation National Tower Engineering
1200 Peachtree Street, Atlanta, GA 30309

March 4, 2009

Re: Structural Analysis of AT&T's Existing 125-ft Type 'K2' Lattice Steel Tower at Glastonbury, CT
AT&T Corporate Site Name: Glastonbury, CT / **AT&T Mobility Site Glastonbury / Site No. 1038**
Location: Birch Mtn Rd (1/4 Mile From State Rt. #94)
Latitude N 41° 42' 35", Longitude W 72° 28' 28"; Hartford County, CT

Dear Mr. Montee,

Communication Structures Engineering, Inc. has completed a structural review of the existing 125-ft Type 'K2' Tower located at this AT&T Corporation site known as Glastonbury, CT. In accordance with your request, we have performed a structural analysis of this tower to check its capability to support the existing loads as well as the new loads from the proposed **AT&T Mobility** panel antennas & transmission line changes. In accordance with AT&T's Requirements the specific loading criteria that we utilized were those prescribed by "2003 International Building Code" and "ANSI/TIA/EIA-222-F", "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures." Per the above Code & Standards the wind speed that we utilized for the analysis of this structure was the "3 second gust wind speed" of 105-mph (equivalent to a "fastest-mile wind speed" of 85-mph) as specified for Hartford County, CT. A description of the existing tower, our structural analysis procedure, and the results of CSEI's structural analysis follow:

EXISTING TOWER INFORMATION & DATA

The 125-ft Type 'K2' tower at this site was originally built for Southern New England Telephone (SNET) in 1979/1980 to replace an older 100-ft tower that has since been removed. The 125-ft Type 'K2' tower was designed & detailed by Rose Chulkoff & Rose Engineering (of NYC) to support five large parabolic antennas as well as two possible future antennas. Four of the original five AT&T parabolic antennas are now mounted on this tower and they are scheduled to remain on the tower at this time.

CSEI used the existing tower design & detail drawings and tower foundation drawings from our records to perform the structural modeling of this tower. The existing antenna information, provided to us by AT&T Corporation, was used to determine the existing tower & equipment loads for this analysis. AT&T's Tenant Specification Document that was submitted by AT&T Mobility was utilized to determine the currently proposed AT&T Mobility antenna and cable requirements for this tower.

DESIGN CRITERIA

See the attached page for the applicable Design Criteria and Antenna Configuration that were used for this structural analysis.

STRUCTURAL ANALYSIS PROCEDURE

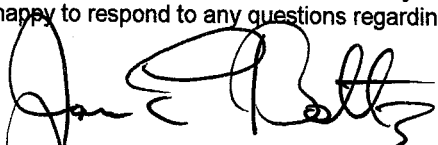
The referenced design criteria combined with wind tunnel test data from tests conducted on AT&T towers, antennas and antenna platforms were utilized to determine the applicable loads for this structure. A frame analysis was performed utilizing the stated wind loads and a computer model of the tower framing modeled on Power Line Systems' "Tower Program". The load carrying frame members of this structure were then checked for compliance with the AISC ASD "Specification for Structural Steel Buildings" which is a reference specification recognized by the "2003 International Building Code" and "ANSI/TIA/EIA-222-F".

RESULTS OF STRUCTURAL ANALYSIS

Our analysis found that all of the existing tower members had maximum stress levels that were less than the allowable stresses permitted by the AISC Specification and the "2003 International Building Code". The tower foundation was also found to be adequate for the proposed loads. We have therefore concluded that this existing tower is capable of supporting the existing loads as well as the proposed AT&T Mobility additions in compliance with the "2003 International Building Code" & "ANSI/TIA/EIA-222-F" design criteria. This tower will not require any structural modifications or changes to support the listed equipment provided the AT&T Mobility antennas and transmission lines are installed in accordance with requirements listed on the Design Criteria page.

If AT&T Mobility or any other carriers add any future additional equipment to this tower, this structure should be re-analyzed at that time. CSEI would be happy to respond to any questions regarding this structural analysis.

Sincerely,


James E. Boltz, P.E. (CT P.E. #20122)



- Attachments: 1.) Design Criteria for a 125-ft AT&T Corporation Tower at Glastonbury, CT
2.) Structural Calculations for AT&T Corporation Tower at Glastonbury, CT

DESIGN CRITERIA

AT&T Tower Site: Glastonbury, CT

LOCATION: Birch Mtn Rd (1/4 Mile From S.R. #94)
Latitude N 41° 42' 35", Longitude W 72° 28' 28"
Hartford County, CT

DESIGN STANDARDS

2003 INTERNATIONAL BUILDING CODE ~ 105 MPH (3 Second Gust Wind Speed)
&
ANSI/TIA/EIA-222-F~ 85 MPH (Fastest Mile Wind Speed)

In addition to the loads from the existing tower framing and platforms the loads from the following antennas and their associated transmission lines were considered in the analysis.

ANTENNA CONFIGURATION (Used for Structural Analysis)

Existing Antennas - To be Removed

- 1.) (AT&T Mobility) Nine CSSDU01417 Panel Antennas at 125-ft above tower base plate and nine associated runs of 0.875 inch diameter coaxial cable.
The three existing runs of 0.375" dia. R.E.T. cables to these antennas will remain and be re-used.

Existing Antennas - To Remain on Tower

- 1.) (Unknown Customers) Five Omni (whip) Antennas located at the top of the tower at mounted at approx.125-ft above tower base with five coaxial cables.
- 2.) (AT&T Corporation) One 12-ft diameter Parabolic Antenna at 118-ft above tower base plate and one associated elliptical waveguide run.
- 3.) (AT&T Corporation) Two 12-ft diameter Parabolic Antennas at 92-ft above tower base plate and two associated elliptical waveguide runs.
- 4.) (AT&T Corporation) One 6-ft diameter Parabolic Antenna at 80-ft above tower base plate and one associated elliptical waveguide run.

New (Proposed) AT&T Mobility Antennas - To Be Added on Tower

- Six Powerwave 7770 (55" X 11" X 5") Panel Antennas with Six (6) TMA's & Six (6) Diplexers at approx.130-ft above tower base plate.
- Twelve runs of 1.625-inch dia. coax cable & three exist. runs of 0.375"dia. R.E.T. Cables.

Note: The twelve new AT&T Mobility 1.625-inch diameter coaxial cables shall be stacked in two rows with one row directly behind the other such that six coaxial cables are exposed to wind loading and six coaxial cables are shielded from wind loading.





COMMUNICATION STRUCTURES ENGINEERING, INC.
 5579-B Chamblee Dunwoody Rd. /Suite 517
 Dunwoody, GA 30338 (770) 951-8080

STRUCTURAL CALCULATIONS
FOR
Glastonbury, CT

AT&T Corporation's 125-ft Modified Type 'K2' Tower
AT&T Mobility Site Glastonbury / Site No. 1038

Hartford County, CT

Issue Date: March 4, 2009

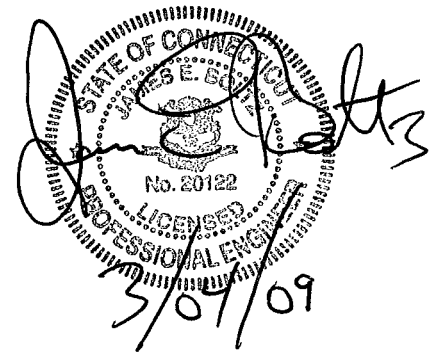


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| Tower Summary Output | 3 TO 11 |

DESIGN CRITERIA

AT&T Tower Site: Glastonbury, CT

AT&T Mobility Site Glastonbury / Site No. 1038

LOCATION: Birch Mtn Rd (1/4 Mile From S.R. #94)
Latitude N 41° 42' 35", Longitude W 72° 28' 28"
Hartford County, CT

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&
ANSI/TIA/EIA-222-F~ 85 MPH (Fastest Mile Wind Speed)

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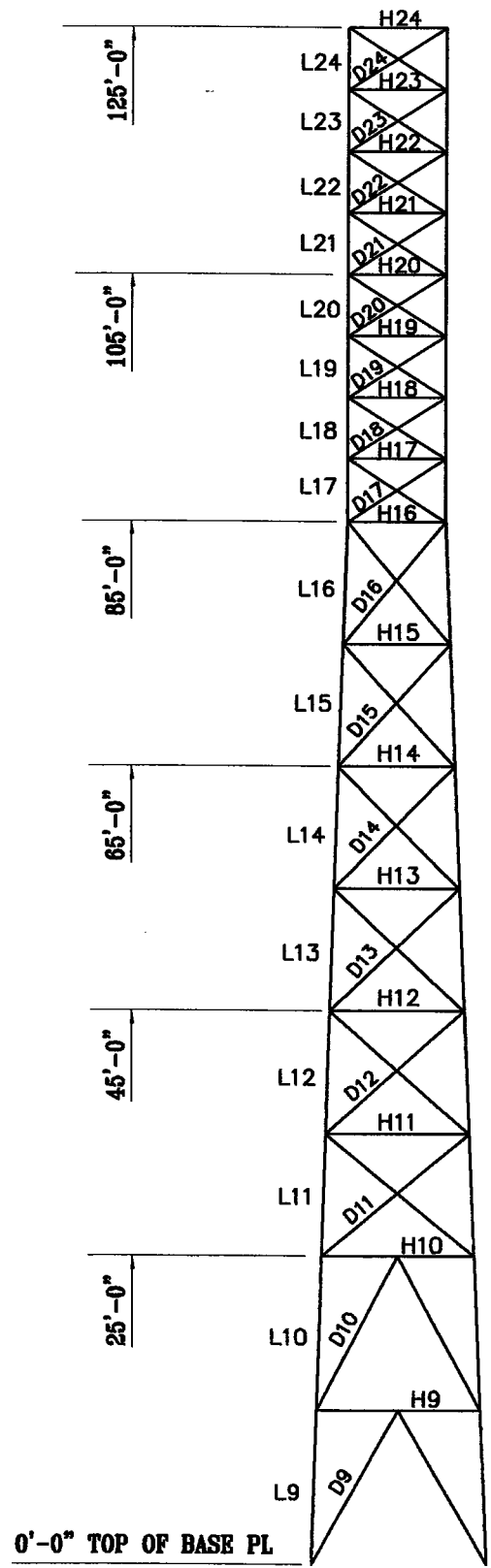
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Note: The twelve new AT&T Mobility 1.625-inch diameter coaxial cables shall be stacked in two rows with one row directly behind the other such that six coaxial cables are exposed to wind loading and six coaxial cables are shielded from wind loading.

125'-0" SELF-SUPPORTED TOWER ANALYSIS MODEL FOR GLASTONBURY, CT



0'-0" TOP OF BASE PL

CSE
Communication Structures Engineering, Inc.
5579-B Chamblee Dunwoody Rd. / Suite 517
Dunwoody, Georgia 30338
(770) 951-8080

 * TOWER - Analysis and Design - Copyright Power Line Systems, Inc. 1986-2006 *

Project Name : Glastonberry, CT, 125 Feet Self Supported Tower
 Project Notes: AT&T Mobility Installation
 Project File : c:\analysis\2009\glastonberry ct 022809\glastonberry ct 030109.tow
 Date run : 4:50:10 PM Sunday, March 01, 2009
 by : Tower Version 9.23
 Licensed to : Communication Structures Engineering Inc.

Successfully performed linear analysis

The model has 0 warnings.

Member check option: TIA/EIA 222-F
 Connection rupture check: Not Checked
 Crossing diagonal check: Fixed
 Loads from file: c:\analysis\2009\glastonberry ct 022809\glastonberry.eia

Maximum element usage is 89.08% for Angle "g101X" in load case "WIND 45"

EIA Sections Information:

| Section Label | Z (ft) | Top Z Count | Bottom Z Count | Joint Member Count | Top Width (ft) | Bottom Width (ft) | Gross Area (ft^2) | Face Adjust Factor | Ar Adjust Factor | Dead Load Factor |
|---------------|---------|-------------|----------------|--------------------|----------------|-------------------|-------------------|--------------------|------------------|------------------|
| 1 | 125.000 | 105.000 | 20 | 74 | 7.67 | 7.67 | 153.32 | 1.0000 | 1.0000 | 1.100 |
| 2 | 105.000 | 85.000 | 20 | 68 | 7.67 | 7.67 | 153.32 | 1.0000 | 1.0000 | 1.100 |
| 3 | 85.000 | 65.000 | 12 | 36 | 7.67 | 9.13 | 167.92 | 1.1500 | 1.0000 | 1.250 |
| 4 | 65.000 | 45.000 | 12 | 34 | 9.13 | 10.58 | 197.10 | 1.1500 | 1.0000 | 1.250 |
| 5 | 45.000 | 25.000 | 16 | 41 | 10.58 | 12.04 | 226.26 | 1.1500 | 1.0000 | 1.250 |
| 6 | 25.000 | 0.000 | 20 | 37 | 12.04 | 13.86 | 323.83 | 1.1500 | 1.0000 | 1.250 |

Equipment Library:

| Property Label | Equipment Label Number | Stock Weight (lbs) | Wind Area (ft^2) | Ice Area (ft^2) | EIA Antenna Type | Coef. | Shape or Drag Diameter | Height (ft) |
|----------------------|------------------------|--------------------|------------------|-----------------|------------------|-------|------------------------|-------------|
| 12-FT PARABOLIC ANT | | 1500.0 | 140.00 | 0.00 | | 1.00 | 0.00 | 0.00 |
| 6-FT PARABOLIC ANT | | 500.0 | 40.00 | 0.00 | | 1.00 | 0.00 | 0.00 |
| ATT MOBILITY INSTALL | | 400.0 | 20.00 | 0.00 | | 1.00 | 0.00 | 0.00 |
| OMNI ANTENNAS | | 50.0 | 5.00 | 0.00 | | 1.00 | 0.00 | 0.00 |

Equipment Connectivity:

| Equipment Attach Label | Equipment EIA Antenna Property Orientation Set | Angle (deg) |
|------------------------|--|-------------|
| P1 | 32XY 12-FT PARABOLIC ANT | 0.00 |
| P2 | 27X 12-FT PARABOLIC ANT | 0.00 |
| P3 | 27P 12-FT PARABOLIC ANT | 0.00 |
| P4 | 25XY 6-FT PARABOLIC ANT | 0.00 |
| A-1 | 33P ATT MOBILITY INSTALL | 0.00 |
| A-2 | 33X ATT MOBILITY INSTALL | 0.00 |
| A-3 | 33XY ATT MOBILITY INSTALL | 0.00 |
| A-4 | 33Y ATT MOBILITY INSTALL | 0.00 |
| O-1 | 33P OMNI ANTENNAS | 0.00 |
| O-2 | 33X OMNI ANTENNAS | 0.00 |
| O-3 | 33XY OMNI ANTENNAS | 0.00 |
| O-4 | 33Y OMNI ANTENNAS | 0.00 |

Linear Appurtenances:

| Description | From (ft) | To (ft) | Quantity | Shape | Width or Diameter (in) | Perimeter (in) | Unit Weight (lbs/ft) | In Face Zone | Include in Wind Load |
|-----------------------|-----------|---------|----------|-------|------------------------|----------------|----------------------|--------------|----------------------|
| CLIMBING LADDER | 0 | 125 | 1 | Flat | 6 | 20 | 10 | No | Yes |
| ATT COAX BUNDLED | 3 | 125 | 6 | Round | 2 | 0 | 2 | No | Yes |
| OMNI ANT COAX | 3 | 125 | 5 | Round | 1.09 | 0 | 0.33 | No | Yes |
| PARABOLIC ANT 1 | 3 | 118 | 1 | Round | 2.25 | 0 | 0.6 | No | Yes |
| PARABOLIC ANT 2 AND 3 | 3 | 92 | 2 | Round | 2.25 | 0 | 0.6 | No | Yes |
| PARABOLIC ANT 4 | 3 | 80 | 1 | Round | 2.25 | 0 | 0.6 | No | Yes |
| COAX LADDER | 3 | 125 | 1 | Flat | 4 | 16 | 5 | No | Yes |

*** Loads Data

Loads from file: c:\analysis\2009\glastonberry ct 022809\glastonberry.eia

Structure Height Summary (used for calculating wind/ice adjust with height):
 Structure height above ground 125.00 (ft)
 Elevation of structure bottom for wind height adjustment: 0.00 (ft)
 Structure height for structure gust response factor: 125.00 (ft)
 Structure gust response factor, Gh: 1.1460
 Guy installation temperature: 32.00 (deg F)
 Tower Type: Rectangular Latticed

EIA Rev. F Load Cases:

| Description | Factor | Wind Load Factor | Ice Load Factor | Strength Allowable Increase Factor | Basic Wind Speed (mph) | Ice Density (lbs/ft^3) | Ice Thickness (in) | Temperature (deg F) | Point Loads | Joint Displ. |
|------------------|--------|------------------|-----------------|------------------------------------|------------------------|------------------------|--------------------|---------------------|-------------|--------------|
| WIND 0 | 1.0000 | 1.0000 | 1.0000 | 1.3300 | 85.000 | 0.0000 | 0.0000 | 60.0 | | |
| WIND 45 | 1.0000 | 1.0000 | 1.0000 | 1.3300 | 85.000 | 0.0000 | 0.0000 | 60.0 | | |
| WIND 0 WITH ICE | 1.0000 | 1.0000 | 1.0000 | 1.3300 | 73.950 | 0.5000 | 57.0000 | 30.0 | | |
| WIND 45 WITH ICE | 1.0000 | 1.0000 | 1.0000 | 1.3300 | 73.950 | 0.5000 | 57.0000 | 30.0 | | |

Equipment Load Case Information for "WIND 0":

| Equipment Label | Property Set | Elevation Above Ground (ft) | qzGh (psf) | Ice Thick. (in) | Ice Total Area (ft^2) | Wind Incidence (deg) | Wind Area (deg) | 222-G CA | 222-G CS | 222-G CM | Antenna Axial Load F&M (lbs) | Antenna Side Load F&M (lbs) | Antenna Moment MM | Long. Trans. Load (lbs) | Vert. Load (lbs) |
|-----------------|----------------------|-----------------------------|------------|-----------------|-----------------------|----------------------|-----------------|----------|----------|----------|------------------------------|-----------------------------|-------------------|-------------------------|------------------|
| P1 | 12-FT PARABOLIC ANT | 120.00 | 30.64 | 0.00 | 140.00 | 0.00 | 0.00 | | | | 4289.00 | 0.00 | 1500.00 | 0.00 | 1500.00 |
| P2 | 12-FT PARABOLIC ANT | 95.00 | 28.66 | 0.00 | 140.00 | 0.00 | 0.00 | | | | 4012.07 | 0.00 | 1500.00 | 0.00 | 1500.00 |
| P3 | 12-FT PARABOLIC ANT | 95.00 | 28.66 | 0.00 | 140.00 | 0.00 | 0.00 | | | | 4012.07 | 0.00 | 1500.00 | 0.00 | 1500.00 |
| P4 | 6-FT PARABOLIC ANT | 85.00 | 27.76 | 0.00 | 40.00 | 0.00 | 0.00 | | | | 1110.45 | 0.00 | 500.00 | 0.00 | 500.00 |
| A-1 | ATT MOBILITY INSTALL | 125.00 | 31.00 | 0.00 | 20.00 | 0.00 | 0.00 | | | | 619.90 | 0.00 | 400.00 | 0.00 | 400.00 |
| A-2 | ATT MOBILITY INSTALL | 125.00 | 31.00 | 0.00 | 20.00 | 0.00 | 0.00 | | | | 619.90 | 0.00 | 400.00 | 0.00 | 400.00 |
| A-3 | ATT MOBILITY INSTALL | 125.00 | 31.00 | 0.00 | 20.00 | 0.00 | 0.00 | | | | 619.90 | 0.00 | 400.00 | 0.00 | 400.00 |
| A-4 | ATT MOBILITY INSTALL | 125.00 | 31.00 | 0.00 | 20.00 | 0.00 | 0.00 | | | | 619.90 | 0.00 | 400.00 | 0.00 | 400.00 |
| O-1 | OMNI ANTENNAS | 125.00 | 31.00 | 0.00 | 5.00 | 0.00 | 0.00 | | | | 154.98 | 0.00 | 50.00 | 0.00 | 50.00 |
| O-2 | OMNI ANTENNAS | 125.00 | 31.00 | 0.00 | 5.00 | 0.00 | 0.00 | | | | 154.98 | 0.00 | 50.00 | 0.00 | 50.00 |
| O-3 | OMNI ANTENNAS | 125.00 | 31.00 | 0.00 | 5.00 | 0.00 | 0.00 | | | | 154.98 | 0.00 | 50.00 | 0.00 | 50.00 |
| O-4 | OMNI ANTENNAS | 125.00 | 31.00 | 0.00 | 5.00 | 0.00 | 0.00 | | | | 154.98 | 0.00 | 50.00 | 0.00 | 50.00 |

EIA Section Load Case Information for "WIND 0":

| Section Label | Z of Top (ft) | Z of Bottom (ft) | Ave. Above Gnd. (ft) | Elev. (ft) | qzGh (psf) | Ice Thick. (in) | Face AF (ft^2) | Face RR*AR (ft^2) | Face AG (ft^2) | Face e (ft^2) | Face DF (ft^2) | Face DR (ft^2) | Face RR (ft^2) | Face CF (ft^2) | Face WF (ft^2) | Face AE (ft^2) | Face WF (ft^2) | Face AAF (ft^2) | NotF CAF (ft^2) | NotF AAR (ft^2) | NotF CAR (ft^2) | NotF AAR*CAR (ft^2) | NotF WA (ft^2) | Total Wind Weight (lbs) | Total Weight (lbs) | |
|---------------|---------------|------------------|----------------------|------------|------------|-----------------|----------------|-------------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|---------------------|----------------|-------------------------|--------------------|--|
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

5

| Equipment Label | Equipment Property Set | Elevation Above Ground (ft) | qzGh (psf) | Ice Thick. (in) | Total Area (ft^2) | Wind Incidence Angle (deg) | 222-G CA | 222-G CS | 222-G CM | 222-G CF | Face AE (ft^2) | Face WF (ft^2) | Antenna Axial Load (lbs) | Antenna Side Load (lbs) | Antenna Moment (ft-lbs) | Long. Load (lbs) | Trans. Load (lbs) | Vert. Load (lbs) | | | | | |
|-----------------|------------------------|-----------------------------|------------|-----------------|-------------------|----------------------------|----------|----------|----------|----------|----------------|----------------|--------------------------|-------------------------|-------------------------|------------------|-------------------|------------------|------|-------|------|------|------|
| 1 | 125.00 105.00 | 115.00 | 30.27 | 0.00 | 39.91 | 0.00 | 0.00 | 153.3 | 0.26 | 1.00 | 1.00 | 0.60 | 2.74 | 39.9 | 3304 | 16.67 | 2.00 | 31.52 | 1.20 | 37.83 | 2154 | 5457 | 4070 |
| 2 | 105.00 85.00 | 95.00 | 28.66 | 0.00 | 38.31 | 0.00 | 0.00 | 153.3 | 0.25 | 1.00 | 1.00 | 0.60 | 2.78 | 38.3 | 3047 | 16.67 | 2.00 | 35.46 | 1.20 | 42.55 | 2175 | 5222 | 3856 |
| 3 | 85.00 65.00 | 75.00 | 26.79 | 0.00 | 44.76 | 0.00 | 0.00 | 167.9 | 0.27 | 1.00 | 1.00 | 0.61 | 2.71 | 44.8 | 3251 | 16.67 | 2.00 | 43.15 | 1.20 | 51.78 | 2280 | 5531 | 4581 |
| 4 | 65.00 45.00 | 55.00 | 24.51 | 0.00 | 46.77 | 0.00 | 0.00 | 197.1 | 0.24 | 1.00 | 1.00 | 0.60 | 2.83 | 46.8 | 3239 | 16.67 | 2.00 | 44.08 | 1.20 | 52.90 | 2114 | 5353 | 5119 |
| 5 | 45.00 25.00 | 35.00 | 21.54 | 0.00 | 48.89 | 0.00 | 0.00 | 226.3 | 0.22 | 1.00 | 1.00 | 0.59 | 2.91 | 48.9 | 3067 | 16.67 | 2.00 | 44.08 | 1.20 | 52.90 | 1858 | 4925 | 6250 |
| 6 | 25.00 0.00 | 12.50 | 21.19 | 0.00 | 45.49 | 0.00 | 0.00 | 323.8 | 0.14 | 1.00 | 1.00 | 0.58 | 3.25 | 45.5 | 3132 | 19.83 | 2.00 | 48.49 | 1.20 | 58.19 | 2073 | 5206 | 7945 |

Equipment Load Case Information for "WIND 45":

| Equipment Label | Equipment Property Set | Elevation Above Ground (ft) | qzGh (psf) | Ice Thick. (in) | Total Area (ft^2) | Wind Incidence Angle (deg) | 222-G CA | 222-G CS | 222-G CM | 222-G CF | Face AE (ft^2) | Face WF (ft^2) | Antenna Axial Load (lbs) | Antenna Side Load (lbs) | Antenna Moment (ft-lbs) | Long. Load (lbs) | Trans. Load (lbs) | Vert. Load (lbs) |
|-----------------|------------------------|-----------------------------|------------|-----------------|-------------------|----------------------------|----------|----------|----------|----------|----------------|----------------|--------------------------|-------------------------|-------------------------|------------------|-------------------|------------------|
| P1 | 12-FT PARABOLIC ANT | 120.00 | 30.64 | 0.00 | 140.00 | 315.00 | | | | | | | 3032.78 | 3032.78 | 1500.00 | | | |
| P2 | 12-FT PARABOLIC ANT | 95.00 | 28.66 | 0.00 | 140.00 | 315.00 | | | | | | | 2836.96 | 2836.96 | 1500.00 | | | |
| P3 | 12-FT PARABOLIC ANT | 95.00 | 28.66 | 0.00 | 140.00 | 315.00 | | | | | | | 2836.96 | 2836.96 | 1500.00 | | | |
| P4 | 6-FT PARABOLIC ANT | 85.00 | 27.76 | 0.00 | 40.00 | 315.00 | | | | | | | 785.21 | 785.21 | 500.00 | | | |
| A-1 | ATT MOBILITY INSTALL | 125.00 | 31.00 | 0.00 | 20.00 | 315.00 | | | | | | | 438.34 | 438.34 | 400.00 | | | |
| A-2 | ATT MOBILITY INSTALL | 125.00 | 31.00 | 0.00 | 20.00 | 315.00 | | | | | | | 438.34 | 438.34 | 400.00 | | | |
| A-3 | ATT MOBILITY INSTALL | 125.00 | 31.00 | 0.00 | 20.00 | 315.00 | | | | | | | 438.34 | 438.34 | 400.00 | | | |
| A-4 | ATT MOBILITY INSTALL | 125.00 | 31.00 | 0.00 | 20.00 | 315.00 | | | | | | | 438.34 | 438.34 | 400.00 | | | |
| O-1 | OMNI ANTENNAS | 125.00 | 31.00 | 0.00 | 5.00 | 315.00 | | | | | | | 109.58 | 109.58 | 50.00 | | | |
| O-2 | OMNI ANTENNAS | 125.00 | 31.00 | 0.00 | 5.00 | 315.00 | | | | | | | 109.58 | 109.58 | 50.00 | | | |
| O-3 | OMNI ANTENNAS | 125.00 | 31.00 | 0.00 | 5.00 | 315.00 | | | | | | | 109.58 | 109.58 | 50.00 | | | |
| O-4 | OMNI ANTENNAS | 125.00 | 31.00 | 0.00 | 5.00 | 315.00 | | | | | | | 109.58 | 109.58 | 50.00 | | | |

EIA Section Load Case Information for "WIND 45":

| Section Label | Z of Top (ft) | Z of Bottom (ft) | Elev. Above Gnd. (ft) | qzGh (psf) | Ice Thick. (in) | Face Area (ft^2) | Face AR (ft^2) | Face RR (ft^2) | Face DR (ft^2) | Face RR (ft^2) | Face CF (ft^2) | Face AE (ft^2) | Face WF (ft^2) | Antenna Axial Load (lbs) | Antenna Side Load (lbs) | Antenna Moment (ft-lbs) | Long. Load (lbs) | Trans. Load (lbs) | Vert. Load (lbs) | | | | | |
|---------------|---------------|------------------|-----------------------|------------|-----------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------------|-------------------------|-------------------------|------------------|-------------------|------------------|------|-------|------|------|------|
| 1 | 125.00 | 105.00 | 115.00 | 30.27 | 0.00 | 39.91 | 0.00 | 0.00 | 153.3 | 0.26 | 1.20 | 1.20 | 0.60 | 2.74 | 47.7 | 3949 | 16.67 | 2.00 | 31.52 | 1.20 | 37.83 | 2154 | 6102 | 4070 |
| 2 | 105.00 | 85.00 | 95.00 | 28.66 | 0.00 | 38.31 | 0.00 | 0.00 | 153.3 | 0.25 | 1.19 | 1.19 | 0.60 | 2.78 | 45.5 | 3618 | 16.67 | 2.00 | 35.46 | 1.20 | 42.55 | 2175 | 5793 | 3856 |
| 3 | 85.00 | 65.00 | 75.00 | 26.79 | 0.00 | 44.76 | 0.00 | 0.00 | 167.9 | 0.27 | 1.20 | 1.20 | 0.61 | 2.71 | 53.7 | 3901 | 16.67 | 2.00 | 43.15 | 1.20 | 51.78 | 2280 | 6180 | 4581 |
| 4 | 65.00 | 45.00 | 55.00 | 24.51 | 0.00 | 46.77 | 0.00 | 0.00 | 197.1 | 0.24 | 1.18 | 1.18 | 0.60 | 2.83 | 55.1 | 3816 | 16.67 | 2.00 | 44.08 | 1.20 | 52.90 | 2114 | 5930 | 5119 |
| 5 | 45.00 | 25.00 | 35.00 | 21.54 | 0.00 | 48.89 | 0.00 | 0.00 | 226.3 | 0.22 | 1.16 | 1.16 | 0.59 | 2.91 | 56.8 | 3564 | 16.67 | 2.00 | 44.08 | 1.20 | 52.90 | 1858 | 5422 | 6250 |
| 6 | 25.00 | 0.00 | 12.50 | 21.19 | 0.00 | 45.49 | 0.00 | 0.00 | 323.8 | 0.14 | 1.11 | 1.11 | 0.58 | 3.25 | 50.3 | 3462 | 19.83 | 2.00 | 48.49 | 1.20 | 58.19 | 2073 | 5536 | 7945 |

Equipment Load Case Information for "WIND 0 WITH ICE":

| Equipment Label | Equipment Property Set | Elevation Above Ground (ft) | qzGh (psf) | Ice Thick. (in) | Total Area (ft^2) | Wind Incidence Angle (deg) | 222-G CA | 222-G CS | 222-G CM | 222-G CF | Face AE (ft^2) | Face WF (ft^2) | Antenna Axial Load (lbs) | Antenna Side Load (lbs) | Antenna Moment (ft-lbs) | Long. Load (lbs) | Trans. Load (lbs) | Vert. Load (lbs) | | | | | | |
|-----------------|------------------------|-----------------------------|------------|-----------------|-------------------|----------------------------|----------|----------|----------|----------|----------------|----------------|--------------------------|-------------------------|-------------------------|------------------|-------------------|------------------|--|--|--|--|--|--|
| P1 | 12-FT PARABOLIC ANT | 120.00 | 23.19 | 0.50 | 140.00 | 0.00 | | | | | | | 3246.34 | 3246.34 | 0.00 | 1500.00 | | | | | | | | |
| P2 | 12-FT PARABOLIC ANT | 95.00 | 21.69 | 0.50 | 140.00 | 0.00 | | | | | | | 3036.73 | 3036.73 | 0.00 | 1500.00 | | | | | | | | |
| P3 | 12-FT PARABOLIC ANT | 95.00 | 21.69 | 0.50 | 140.00 | 0.00 | | | | | | | 3036.73 | 3036.73 | 0.00 | 1500.00 | | | | | | | | |
| P4 | 6-FT PARABOLIC ANT | 85.00 | 21.01 | 0.50 | 40.00 | 0.00 | | | | | | | 840.50 | 840.50 | 0.00 | 500.00 | | | | | | | | |
| A-1 | ATT MOBILITY INSTALL | 125.00 | 23.46 | 0.50 | 20.00 | 0.00 | | | | | | | 469.20 | 469.20 | 0.00 | 400.00 | | | | | | | | |
| A-2 | ATT MOBILITY INSTALL | 125.00 | 23.46 | 0.50 | 20.00 | 0.00 | | | | | | | 469.20 | 469.20 | 0.00 | 400.00 | | | | | | | | |
| A-3 | ATT MOBILITY INSTALL | 125.00 | 23.46 | 0.50 | 20.00 | 0.00 | | | | | | | 469.20 | 469.20 | 0.00 | 400.00 | | | | | | | | |



*** Analysis Results:

Summary of Joint Support Reactions For All Load Cases:

| Load Case | Joint Label | Long. Force (kips) | Tran. Force (kips) | Vert. Force (kips) | Shear Force (kips) | Tran. Moment (ft-k) | Long. Moment (ft-k) | Vert. Moment (ft-k) | Bending Moment (ft-k) | Found. Usage % |
|------------------|-------------|--------------------|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|-----------------------|----------------|
| WIND 0 | 11P | -12.11 | -5.85 | 147.63 | 13.45 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 0 | 11X | -12.88 | 5.10 | 148.19 | 13.85 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 0 | 11XY | -11.98 | -4.22 | -128.32 | 12.70 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 0 | 11Y | -11.25 | 4.97 | -128.88 | 12.30 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 45 | 11P | -12.91 | -13.71 | 216.57 | 18.83 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 45 | 11X | -6.18 | -5.28 | 10.07 | 8.12 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 45 | 11XY | -12.81 | -12.04 | -197.26 | 17.58 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 45 | 11Y | -4.51 | -5.38 | 9.24 | 7.02 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 0 WITH ICE | 11P | -10.57 | -5.07 | 128.03 | 11.72 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 0 WITH ICE | 11X | -11.15 | 4.50 | 128.59 | 12.02 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 0 WITH ICE | 11XY | -9.99 | -3.36 | -102.81 | 10.54 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 0 WITH ICE | 11Y | -9.44 | 3.92 | -103.36 | 10.22 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 45 WITH ICE | 11P | -11.20 | -11.81 | 185.92 | 16.28 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 45 WITH ICE | 11X | -5.50 | -4.34 | 13.03 | 7.01 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 45 WITH ICE | 11XY | -10.65 | -10.07 | -160.69 | 14.66 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |
| WIND 45 WITH ICE | 11Y | -3.77 | -4.90 | 12.20 | 6.18 | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 |

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress
 Printed capacities do not include EIA allowable stress increase for wind load cases.
 Printed capacities do not include the strength factor entered for each loadcase.

Group Summary (Compression Portion):

| Group Label | Group Desc. | Angle Type | Steel Strength (ksi) | Max Usage | Max Comp. Use In Control | Comp. Force (kips) | Comp. Control Load Case | L/R Comp. Capacity (kips) | Comp. Shear Capacity (kips) | Conn. Bearing Capacity (kips) | RLX Capacity (kips) | RLY Capacity (kips) | RLZ Capacity (kips) | L/R Length (ft) | Curve No. | No. Bolts | Of Comp. |
|-------------|-------------|------------|----------------------|-----------|--------------------------|--------------------|-------------------------|---------------------------|-----------------------------|-------------------------------|---------------------|---------------------|---------------------|-----------------|-----------|-----------|----------|
| L9 | LEG | SAE | 36.0 | 89.08 | 89.08 | g101X | -196.199 | WIND 45 | 165.611 | 0.000 | 0.000 | 0.500 | 0.500 | 64.19 | 12.517 | 1 | 0 |
| L10 | LEG | SAE | 36.0 | 78.91 | 78.91 | g126X | -173.801 | WIND 45 | 165.610 | 0.000 | 0.000 | 0.500 | 0.500 | 64.19 | 12.517 | 1 | 0 |
| L11 | LEG | SAE | 36.0 | 77.60 | 77.60 | g151X | -158.813 | WIND 45 | 153.869 | 0.000 | 0.000 | 0.500 | 0.500 | 51.35 | 10.013 | 1 | 0 |
| L12 | LEG | SAE | 36.0 | 70.23 | 70.23 | g167X | -143.732 | WIND 45 | 153.869 | 0.000 | 0.000 | 0.500 | 0.500 | 51.35 | 10.013 | 1 | 0 |
| L13 | LEG | SAE | 36.0 | 71.50 | 71.50 | g185X | -123.524 | WIND 45 | 129.897 | 0.000 | 0.000 | 0.500 | 0.500 | 50.92 | 10.013 | 1 | 0 |
| L14 | LEG | SAE | 36.0 | 60.73 | 60.73 | g201X | -104.926 | WIND 45 | 129.898 | 0.000 | 0.000 | 0.500 | 0.500 | 50.91 | 10.013 | 1 | 0 |
| L15 | LEG | SAE | 36.0 | 59.90 | 59.90 | g219X | -83.693 | WIND 45 | 105.051 | 0.000 | 0.000 | 0.500 | 0.500 | 50.92 | 10.013 | 1 | 0 |
| L16 | LEG | SAE | 36.0 | 45.56 | 45.56 | g237X | -63.651 | WIND 45 | 105.051 | 0.000 | 0.000 | 0.500 | 0.500 | 50.92 | 10.013 | 1 | 0 |
| L17 | LEG | SAE | 36.0 | 60.93 | 60.93 | g255X | -50.815 | WIND 45 | 62.710 | 0.000 | 0.000 | 1.000 | 1.000 | 60.61 | 5.000 | 1 | 0 |
| L18 | LEG | SAE | 36.0 | 46.73 | 46.73 | g256X | -38.974 | WIND 45 | 62.710 | 0.000 | 0.000 | 1.000 | 1.000 | 60.61 | 5.000 | 1 | 0 |
| L19 | LEG | SAE | 36.0 | 33.76 | 33.76 | g259X | -28.160 | WIND 45 | 62.710 | 0.000 | 0.000 | 1.000 | 1.000 | 60.61 | 5.000 | 1 | 0 |
| L20 | LEG | SAE | 36.0 | 25.40 | 25.40 | g263X | -21.181 | WIND 45 | 62.710 | 0.000 | 0.000 | 1.000 | 1.000 | 60.61 | 5.000 | 1 | 0 |
| L21 | LEG | SAE | 36.0 | 17.90 | 17.90 | g323X | -14.928 | WIND 45 | 62.710 | 0.000 | 0.000 | 1.000 | 1.000 | 60.61 | 5.000 | 1 | 0 |

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| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|--------------|------|-------|-------|--------|---------|---------|--------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-------|---|---|
| L22 | LEG | SAE | 5X5X0.375 | 36.0 | 11.47 | 11.47 | 9324X | -9.563 | WIND 45 | 62.710 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 60.61 | 5.000 | 1 | 0 |
| L23 | LEG | SAE | 5X5X0.375 | 36.0 | 6.34 | 6.34 | 9327X | -5.287 | WIND 45 | 62.710 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 60.61 | 5.000 | 1 | 0 |
| L24 | LEG | SAE | 5X5X0.375 | 36.0 | 2.43 | 2.43 | 9331X | -2.029 | WIND 45 | 62.710 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 60.61 | 5.000 | 1 | 0 |
| D9 | DIA | DAE | 2.5X2.5X0.25 | 36.0 | 64.83 | 64.83 | 9106X | -15.979 | WIND 0 | 18.531 | 0.000 | 0.000 | 0.000 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 144.21 | 14.301 | 5 | 0 | |
| D10 | DIA | DAE | 2.5X2.5X0.25 | 36.0 | 67.60 | 67.60 | 9130X | -17.065 | WIND 0 | 18.981 | 0.000 | 0.000 | 0.000 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 142.04 | 14.086 | 5 | 0 | |
| D11 | DIA | SAU | 3.5X3X0.3125 | 36.0 | 63.43 | 63.43 | 9152X | -11.542 | WIND 45 | 13.683 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 152.93 | 15.378 | 5 | 0 | |
| D12 | DIA | SAU | 3.5X3X0.25 | 36.0 | 63.08 | 63.08 | 9168X | -9.987 | WIND 45 | 11.904 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 146.05 | 14.832 | 5 | 0 | |
| D13 | DIA | SAU | 3.5X3X0.25 | 36.0 | 65.17 | 65.17 | 9186X | -10.931 | WIND 45 | 12.611 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 140.83 | 14.302 | 5 | 0 | |
| D14 | DIA | SAU | 3.5X3X0.25 | 36.0 | 61.03 | 61.03 | 9202X | -10.839 | WIND 45 | 13.354 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 135.80 | 13.791 | 5 | 0 | |
| D15 | DIA | SAU | 3.5X3X0.25 | 36.0 | 60.53 | 60.53 | 9220X | -11.377 | WIND 45 | 14.132 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 130.96 | 13.300 | 5 | 0 | |
| D16 | DIA | SAU | 3.5X3X0.25 | 36.0 | 58.05 | 58.05 | 9238X | -11.504 | WIND 45 | 14.900 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 126.34 | 12.831 | 5 | 0 | |
| D17 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 64.73 | 64.73 | 9271X | -8.465 | WIND 0 | 9.833 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 141.05 | 9.152 | 4 | 0 | |
| D18 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 58.20 | 58.20 | 9279X | -7.612 | WIND 0 | 9.833 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 141.05 | 9.152 | 4 | 0 | |
| D19 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 37.37 | 37.37 | 9287X | -4.888 | WIND 0 | 9.833 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 141.05 | 9.152 | 4 | 0 | |
| D20 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 37.99 | 37.99 | 9295X | -4.968 | WIND 0 | 9.833 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 141.05 | 9.152 | 4 | 0 | |
| D21 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 32.84 | 32.84 | 9375X | -4.295 | WIND 0 | 9.833 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 141.05 | 9.152 | 4 | 0 | |
| D22 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 29.65 | 29.65 | 9379X | -3.878 | WIND 0 | 9.833 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 141.05 | 9.152 | 4 | 0 | |
| D23 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 33.60 | 33.60 | 9380X | -4.395 | WIND 0 | 9.833 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 141.05 | 9.152 | 4 | 0 | |
| D24 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 11.86 | 11.86 | 9383P | -1.551 | WIND 0 | 9.833 | 0.000 | 0.000 | 0.000 | 0.500 | 0.750 | 0.500 | 0.500 | 0.500 | 0.500 | 141.05 | 9.152 | 4 | 0 | |
| H9 | HOR | DAE | 2.5X2.5X0.25 | 36.0 | 17.71 | 17.71 | g113XY | -7.199 | WIND 0 | 30.563 | 0.000 | 0.000 | 0.000 | 1.000 | 1.200 | 1.000 | 1.000 | 1.000 | 1.000 | 101.07 | 6.477 | 1 | 0 | |
| H10 | HOR | DAE | 2.5X2.5X0.25 | 36.0 | 19.32 | 19.32 | g138XY | -8.397 | WIND 45 | 32.674 | 0.000 | 0.000 | 0.000 | 1.000 | 1.200 | 1.000 | 1.000 | 1.000 | 1.000 | 93.96 | 6.021 | 1 | 0 | |
| H11 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 64.78 | 64.78 | g159Y | -6.392 | WIND 0 | 10.921 | 0.000 | 0.000 | 0.000 | 0.500 | 0.600 | 0.500 | 0.500 | 0.500 | 176.52 | 11.312 | 6 | 0 | | |
| H12 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 37.50 | 37.50 | g175Y | -5.482 | WIND 0 | 8.991 | 0.000 | 0.000 | 0.000 | 0.500 | 0.600 | 0.500 | 0.500 | 0.500 | 129.34 | 10.584 | 5 | 0 | | |
| H13 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 50.99 | 50.99 | g193Y | -5.672 | WIND 0 | 8.363 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 111.52 | 9.126 | 3 | 0 | | | |
| H14 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 33.33 | 33.33 | g209Y | -5.738 | WIND 0 | 12.950 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 111.52 | 9.126 | 3 | 0 | | | |
| H15 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 40.05 | 40.05 | g227Y | -5.738 | WIND 0 | 10.773 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 111.52 | 9.126 | 3 | 0 | | | |
| H16 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 29.63 | 29.63 | g245Y | -2.687 | WIND 0 | 6.820 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 131.02 | 8.396 | 5 | 0 | | | |
| H17 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 29.05 | 29.05 | g299Y | -1.956 | WIND 0 | 5.062 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 187.36 | 7.666 | 6 | 0 | | | |
| H18 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 25.53 | 25.53 | g303Y | -1.719 | WIND 0 | 5.062 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 187.36 | 7.666 | 6 | 0 | | | |
| H19 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 14.81 | 14.81 | g305Y | -0.997 | WIND 0 | 5.062 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 187.36 | 7.666 | 4 | 0 | | | |
| H20 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 12.09 | 12.09 | g307Y | -0.814 | WIND 0 | 5.062 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 187.36 | 7.666 | 4 | 0 | | | |
| H21 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 6.70 | 6.70 | g351Y | -0.451 | WIND 0 | 5.062 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 187.36 | 7.666 | 4 | 0 | | | |
| H22 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 4.02 | 4.02 | g355Y | -0.271 | WIND 0 | 5.062 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 187.36 | 7.666 | 4 | 0 | | | |
| H23 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 19.97 | 19.97 | g365X | -1.345 | WIND 0 | 5.062 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 187.36 | 7.666 | 4 | 0 | | | |
| H24 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 0.94 | 0.56 | g359Y | -0.038 | WIND 0 | 5.062 | 0.000 | 0.000 | 0.000 | 0.500 | 0.700 | 0.500 | 0.500 | 187.36 | 7.666 | 4 | 0 | | | |
| R1 | RUD | SAE | 3X3X0.1875 | 36.0 | 3.76 | 2.48 | g371Y | -0.423 | WIND 45 | 12.848 | 0.000 | 0.000 | 0.000 | 0.500 | 0.500 | 0.500 | 0.500 | 109.14 | 10.841 | 10.841 | 0.000 | 5.000 | 0 | 0 |

Group Summary (Tension Portion):

| Group Label | Group Desc. | Angle Type | Angle Size | Steel Strength (ksi) | Max Usage | Max Use In Tens. Member | Max Tension Control Force (kips) | Tension Control Case Capacity (kips) | Net Tens. Section Capacity (kips) | Conn. Shear Capacity (kips) | Bearing Capacity (kips) | Rupture Capacity (kips) | Length (ft) | No. of Holes | Hole Diameter (in) |
|-------------|-------------|------------|------------|----------------------|-----------|-------------------------|----------------------------------|--------------------------------------|-----------------------------------|-----------------------------|-------------------------|-------------------------|-------------|--------------|--------------------|
| L9 | LEG | SAE | 6X6X0.875 | 36.0 | 89.08 | 63.84 | 9101Y 178.455 | WIND 45 210.168 | 210.168 | 0.000 | 0.000 | 0.000 | 12.517 | 0 | 0.000 |
| L10 | LEG | SAE | 6X6X0.875 | 36.0 | 78.91 | 56.68 | 9126Y 158.431 | WIND 45 210.168 | 210.168 | 0.000 | 0.000 | 0.000 | 12.517 | 0 | 0.000 |
| L11 | LEG | SAE | 6X6X0.75 | 36.0 | 77.60 | 60.19 | 9151Y 145.948 | WIND 45 182.304 | 182.304 | 0.000 | 0.000 | 0.000 | 10.013 | 0 | 0.000 |
| L12 | LEG | SAE | 6X6X0.75 | 36.0 | 70.23 | 54.21 | 9167Y 131.444 | WIND 45 182.304 | 182.304 | 0.000 | 0.000 | 0.000 | 10.013 | 0 | 0.000 |
| L13 | LEG | SAE | 6X6X0.625 | 36.0 | 71.50 | 55.36 | 9185Y 113.067 | WIND 45 153.576 | 153.576 | 0.000 | 0.000 | 0.000 | 10.013 | 0 | 0.000 |
| L14 | LEG | SAE | 6X6X0.625 | 36.0 | 60.73 | 46.67 | 9201Y 95.331 | WIND 45 153.576 | 153.576 | 0.000 | 0.000 | 0.000 | 10.013 | 0 | 0.000 |
| L15 | LEG | SAE | 6X6X0.5 | 36.0 | 59.90 | 45.98 | 9219Y 75.952 | WIND 45 124.200 | 124.200 | 0.000 | 0.000 | 0.000 | 10.013 | 0 | 0.000 |
| L16 | LEG | SAE | 6X6X0.5 | 36.0 | 45.56 | 34.26 | 9237Y 56.591 | WIND 45 124.200 | 124.200 | 0.000 | 0.000 | 0.000 | 10.013 | 0 | 0.000 |
| L17 | LEG | SAE | 5X5X0.375 | 36.0 | 60.93 | 42.98 | 9255Y 44.569 | WIND 45 77.976 | 77.976 | 0.000 | 0.000 | 0.000 | 5.000 | 0 | 0.000 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|--------------|------|-------|-------|--------|--------|---------|--------|-------|-------|-------|--------|-------|-------|---|
| L18 | LEG | SAE | 5X5X0.375 | 36.0 | 46.73 | 32.14 | 9256Y | 33.333 | WIND 45 | 77.976 | 0.000 | 0.000 | 0.000 | 5.000 | 0.000 | 0.000 | 0 |
| L19 | LEG | SAE | 5X5X0.375 | 36.0 | 33.76 | 23.51 | g259Y | 24.379 | WIND 45 | 77.976 | 0.000 | 0.000 | 0.000 | 5.000 | 0.000 | 0.000 | 0 |
| L20 | LEG | SAE | 5X5X0.375 | 36.0 | 25.40 | 17.00 | g263Y | 17.632 | WIND 45 | 77.976 | 0.000 | 0.000 | 0.000 | 5.000 | 0.000 | 0.000 | 0 |
| L21 | LEG | SAE | 5X5X0.375 | 36.0 | 17.90 | 11.38 | g323Y | 11.805 | WIND 45 | 77.976 | 0.000 | 0.000 | 0.000 | 5.000 | 0.000 | 0.000 | 0 |
| L22 | LEG | SAE | 5X5X0.375 | 36.0 | 11.47 | 6.36 | g324Y | 6.600 | WIND 45 | 77.976 | 0.000 | 0.000 | 0.000 | 5.000 | 0.000 | 0.000 | 0 |
| L23 | LEG | SAE | 5X5X0.375 | 36.0 | 6.34 | 2.15 | g327XY | 2.226 | WIND 0 | 77.976 | 0.000 | 0.000 | 0.000 | 5.000 | 0.000 | 0.000 | 0 |
| L24 | LEG | SAE | 5X5X0.375 | 36.0 | 2.43 | 0.33 | g331XY | 0.340 | WIND 0 | 77.976 | 0.000 | 0.000 | 0.000 | 5.000 | 0.000 | 0.000 | 0 |
| D9 | DIA | DAE | 2.5X2.5X0.25 | 36.0 | 64.83 | 22.71 | g106XY | 15.525 | WIND 0 | 51.408 | 0.000 | 0.000 | 0.000 | 14.301 | 0.000 | 0.000 | 0 |
| D10 | DIA | DAE | 2.5X2.5X0.25 | 36.0 | 67.60 | 23.66 | g130XY | 16.177 | WIND 0 | 51.408 | 0.000 | 0.000 | 0.000 | 14.086 | 0.000 | 0.000 | 0 |
| D11 | DIA | SAU | 3.5X3X0.3125 | 36.0 | 63.43 | 19.44 | g155XY | 10.780 | WIND 45 | 41.688 | 0.000 | 0.000 | 0.000 | 15.378 | 0.000 | 0.000 | 0 |
| D12 | DIA | SAU | 3.5X3X0.25 | 36.0 | 63.08 | 20.99 | g171XY | 9.407 | WIND 45 | 33.696 | 0.000 | 0.000 | 0.000 | 14.832 | 0.000 | 0.000 | 0 |
| D13 | DIA | SAU | 3.5X3X0.25 | 36.0 | 65.17 | 22.79 | g189XY | 10.215 | WIND 45 | 33.696 | 0.000 | 0.000 | 0.000 | 14.302 | 0.000 | 0.000 | 0 |
| D14 | DIA | SAU | 3.5X3X0.25 | 36.0 | 61.03 | 22.59 | g205XY | 10.123 | WIND 45 | 33.696 | 0.000 | 0.000 | 0.000 | 13.791 | 0.000 | 0.000 | 0 |
| D15 | DIA | SAU | 3.5X3X0.25 | 36.0 | 60.53 | 23.41 | g223XY | 10.492 | WIND 45 | 33.696 | 0.000 | 0.000 | 0.000 | 13.300 | 0.000 | 0.000 | 0 |
| D16 | DIA | SAU | 3.5X3X0.25 | 36.0 | 58.05 | 23.67 | g241XY | 10.606 | WIND 45 | 33.696 | 0.000 | 0.000 | 0.000 | 12.831 | 0.000 | 0.000 | 0 |
| D17 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 64.73 | 20.56 | g271XY | 7.737 | WIND 0 | 28.296 | 0.000 | 0.000 | 0.000 | 9.152 | 0.000 | 0.000 | 0 |
| D18 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 58.20 | 21.17 | g279XY | 7.967 | WIND 0 | 28.296 | 0.000 | 0.000 | 0.000 | 9.152 | 0.000 | 0.000 | 0 |
| D19 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 37.37 | 14.09 | g287XY | 5.302 | WIND 0 | 28.296 | 0.000 | 0.000 | 0.000 | 9.152 | 0.000 | 0.000 | 0 |
| D20 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 37.99 | 12.22 | g295XY | 4.598 | WIND 0 | 28.296 | 0.000 | 0.000 | 0.000 | 9.152 | 0.000 | 0.000 | 0 |
| D21 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 32.84 | 10.86 | g375XY | 4.088 | WIND 0 | 28.296 | 0.000 | 0.000 | 0.000 | 9.152 | 0.000 | 0.000 | 0 |
| D22 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 29.65 | 10.24 | g379XY | 3.854 | WIND 0 | 28.296 | 0.000 | 0.000 | 0.000 | 9.152 | 0.000 | 0.000 | 0 |
| D23 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 33.60 | 8.93 | g380XY | 3.360 | WIND 0 | 28.296 | 0.000 | 0.000 | 0.000 | 9.152 | 0.000 | 0.000 | 0 |
| D24 | DIA | SAU | 2.5X2X0.3125 | 36.0 | 11.86 | 3.90 | g383Y | 1.469 | WIND 0 | 28.296 | 0.000 | 0.000 | 0.000 | 9.152 | 0.000 | 0.000 | 0 |
| H9 | HOR | DAE | 2.5X2.5X0.25 | 36.0 | 17.71 | 11.04 | g113X | 7.551 | WIND 0 | 51.408 | 0.000 | 0.000 | 0.000 | 6.477 | 0.000 | 0.000 | 0 |
| H10 | HOR | DAE | 2.5X2.5X0.25 | 36.0 | 19.32 | 13.02 | g134X | 8.901 | WIND 45 | 51.408 | 0.000 | 0.000 | 0.000 | 6.021 | 0.000 | 0.000 | 0 |
| H11 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 64.78 | 21.36 | g159P | 7.303 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 11.312 | 0.000 | 0.000 | 0 |
| H12 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 37.50 | 17.47 | g175P | 5.971 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 10.584 | 0.000 | 0.000 | 0 |
| H13 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 50.99 | 19.20 | g193P | 6.563 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 9.854 | 0.000 | 0.000 | 0 |
| H14 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 33.33 | 18.45 | g209P | 6.309 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 9.126 | 0.000 | 0.000 | 0 |
| H15 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 40.05 | 18.64 | g227P | 6.374 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 8.396 | 0.000 | 0.000 | 0 |
| H16 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 29.63 | 8.92 | g245P | 3.050 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 7.666 | 0.000 | 0.000 | 0 |
| H17 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 29.05 | 7.59 | g299P | 2.594 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 7.666 | 0.000 | 0.000 | 0 |
| H18 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 25.53 | 6.28 | g312P | 2.148 | WIND 45 | 25.704 | 0.000 | 0.000 | 0.000 | 7.666 | 0.000 | 0.000 | 0 |
| H19 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 14.81 | 4.22 | g305P | 1.443 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 7.666 | 0.000 | 0.000 | 0 |
| H20 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 12.09 | 2.83 | g307P | 0.967 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 7.666 | 0.000 | 0.000 | 0 |
| H21 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 6.70 | 2.12 | g351P | 0.725 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 7.666 | 0.000 | 0.000 | 0 |
| H22 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 4.02 | 1.07 | g364X | 0.367 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 7.666 | 0.000 | 0.000 | 0 |
| H23 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 19.97 | 0.55 | g357P | 0.189 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 7.666 | 0.000 | 0.000 | 0 |
| H24 | HOR | SAE | 2.5X2.5X0.25 | 36.0 | 0.94 | 0.94 | g369X | 0.322 | WIND 0 | 25.704 | 0.000 | 0.000 | 0.000 | 7.666 | 0.000 | 0.000 | 0 |
| R1 | RUD | SAE | 3X3X0.1875 | 36.0 | 3.76 | 3.76 | g317X | 1.178 | WIND 45 | 23.544 | 0.000 | 0.000 | 0.000 | 10.841 | 0.000 | 0.000 | 0 |

*** End of Report

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$$\text{WT. OF FOUNDATION} = (25)^2 \times 2.5 \times 0.15 = 234.4 \text{ K}$$

$$(4)^2 \times 3.5 \times 4 \times 0.15 = 33.6 \text{ K}$$

$$[(25)^2 - 64] \times 3 \times 0.1 = 168.3 \text{ K}$$

WT. OF TOWER

$$436.3 \text{ K}$$

$$= 40.0 \text{ K}$$

$$476.3 \text{ K}$$

$$\text{RESISTING MOMENT} = 476.3 \text{ K} \times 12.5' = 5953.75 \text{ K-FT}$$

$$\text{OVERTURNING MOMENT} = 276.51 \text{ K} (13.813') = 3819.43 \text{ K-FT}$$

$$\frac{5953.75}{3819.43} = 1.56 > 1.50 \text{ O.K.}$$

NOTE: PER ENGINEER:

$$\text{USAGE \%} = \frac{1.50}{1.56} \times 100\%$$

$$= \underline{\underline{96\%}}$$

— S. LEVINE
3/11/09