Robinson+Cole

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Also admitted in Massachusetts

August 2, 2017

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification**
370 West Main Street, Stamford, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains fifteen (15) wireless telecommunications antennas at a height of 80 feet above ground level ("AGL") on the existing roof-top tower at 370 West Main Street in Stamford, Connecticut (the "Property"). The tower and Property are owned by Storage Works LLC. The Council approved Cellco's shared use of this tower in 1995. Cellco now intends to remove nine (9) of its existing antennas and install six (6) new antennas (three (3) model JAHH-65B-R3B, 700/2100 MHz antennas and three (3) model JAHH-65B-R3B, 1900 MHz antennas) all at the same 80-foot level on the tower. Cellco also intends to replace six (6) of its existing remote radio heads ("RRHs") with six (6) newer model RRHs. Included in Attachment 1 are specifications for Cellco's replacement antennas and RRHs.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent David Martin, Mayor for the City of Stamford; Ralph Blessing, Stamford's Land Use Bureau Chief; and Storage Works LLC, the owner of the Property and tower.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's proposed replacement antennas and RRHs will be located at the same level (80 feet AGL) on the tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The installation of new antennas and RRHs will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A worst-case General Power Density table for Cellco's modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 3).

A copy of the parcel map and property owner information is included in Attachment 4. A Certificate of Mailing verifying that this filing was sent to municipal officials and the owner of the Property is included in Attachment 5.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
David Martin, Stamford Mayor
Ralph Blessing, Stamford Land Use Bureau Chief
Storage Works LLC
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

JAHH-65B-R3B

Multiband Antenna, 698–787, 824-894 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RETs and low bands have diplexers. Internal SBT's on first LB(Port 1) and first HB(Port 5).

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band

Electrical Specifications

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.5	15.8	18.0	18.4	18.5	18.8
Beamwidth, Horizontal, degrees	67	65	63	63	65	68
Beamwidth, Vertical, degrees	12.4	10.5	5.7	5.2	4.9	4.4
Beam Tilt, degrees	2–14	2–14	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	20	20	21	23
Front-to-Back Ratio at 180°, dB	32	34	31	35	36	38
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.3	14.9	17.6	18.1	18.2	18.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.6	±0.4	±0.5	±0.6
Gain by Beam Tilt, average, dBi	2 ° | 14.3	2 ° | 15.0	0 ° | 17.2	0 ° | 17.6	0 ° | 17.7	0 ° | 17.9
	8 ° | 14.3	8 ° | 14.9	5 ° | 17.6	5 ° | 18.2	5 ° | 18.3	5 ° | 18.7
	14 ° | 14.3	14 ° | 15.4	10 ° | 17.6	10 ° | 18.2	10 ° | 18.3	10 ° | 18.7
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.4	±4	±2.4	±2.9	±2.7
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.5	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	18	17	17	18	19	18
Front-to-Back Total Power at 180° ± 30°, dB	25	24	26	29	27	29
CPR at Boresight, dB	22	23	20	21	21	24
CPR at Sector, dB	11	12	11	11	11	8

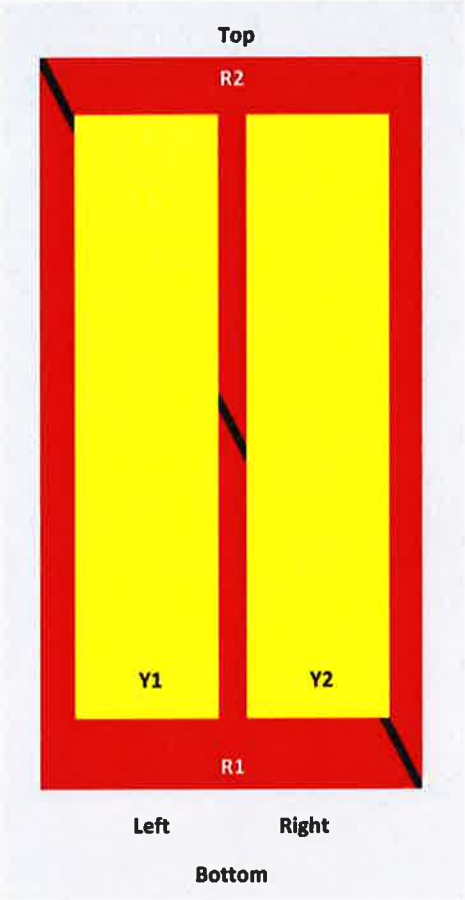
* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

Array Layout

Product Specifications

JAHH-65B-R3B

JAHH-65B-R3B JAHH-65C-R3B



Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-798	1-2	1	ANxxxxxxxxxxxxxxxx1
R2	824-894	3-4	2	ANxxxxxxxxxxxxxxxx2
Y1	1695-2360	5-6	3	ANxxxxxxxxxxxxxxxx3
Y2	1695-2360	7-8		

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band	1695 – 2360 MHz | 698 – 787 MHz | 824 – 894 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

Mechanical Specifications

RF Connector Quantity, total	8
RF Connector Quantity, low band	4
RF Connector Quantity, high band	4
RF Connector Interface	4.3-10 Female
Color	Light gray

Product Specifications

JAHH-65B-R3B

Grounding Type	RF connector body grounded to reflector and mounting bracket
Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	746.0 N @ 150 km/h 167.7 lbf @ 150 km/h
Wind Loading, lateral	243.0 N @ 150 km/h 54.6 lbf @ 150 km/h
Wind Loading, rear	776.0 N @ 150 km/h 174.5 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Length	1828.0 mm | 72.0 in
Width	350.0 mm | 13.8 in
Depth	208.0 mm | 8.2 in
Net Weight, without mounting kit	28.7 kg | 63.3 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 5
Internal RET	High band (1) | Low band (2)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Single RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male

Packed Dimensions

Length	1975.0 mm | 77.8 in
Width	456.0 mm | 18.0 in
Depth	357.0 mm | 14.1 in
Shipping Weight	42.0 kg | 92.6 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Product Specifications

JAHH-65B-R3B

Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

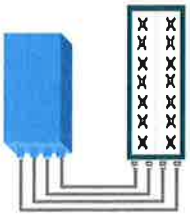
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

Alcatel·Lucent

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.) **Volume in L** **Weight in kg (lb) (w/o mounting HW)**	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield) 38 (with solar shield) 26 (57.2) (with solar shield)
DC voltage range **DC power consumption**	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions **Wind load (@150km/h or 93mph)**	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

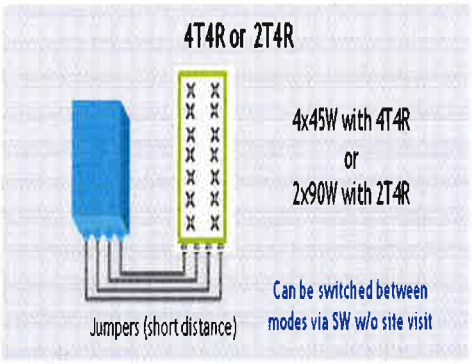
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports



BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall

Features & Performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R selectable by SW)
Frequency band	AWS 1-3, B4/B66a DL: 2110-2180 MHz / UL: 1710-1780 MHz
Instantaneous bandwidth - #carriers	70 MHz – 4 LTE MIMO carriers (in 70 MHz occupied bandwidth)
LTE carrier bandwidth	5, 10, 15, 20 MHz
RF output power	2x90W or 4x45W (selectable by SW)
Noise figure – RX Diversity scheme **Receiver Sensivity (FRC A1-3)**	2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity -104.5 dBm maximum
Sizes (HxWxD) in mm (in.) **Volume in Liters** **Weight in kg (lb) (w/o mounting HW)**	655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield) 35.5 (with solar shield) 29.7 (without solar shield) 25.8kg (56.8lb) (with solar shield)
DC voltage range **DC power consumption**	Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 750W typical @100% RF load (in 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG
Environmental conditions **Wind load (@150km/h or 93mph)**	-40°C (-40°F) /+55°C (+131°F) UL50E Type 4 Enclosure 250N (56lb) Frontal/150N (34lb) Lateral
Antenna ports	4 ports 4.3-10 female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate 7, 9.8 Gbps) SFP: SMDF (HW supports also SMSF and MMDF)
AISG interfaces	1 AISG 2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE

ATTACHMENT 2

Site Name: STAMFORD W, CT
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW PCS	1970	1	2133	2133	80	0.1199	1.0	11.99%
VZW Cellular	869	9	340	3060	80	0.1719	0.579333333	29.68%
VZW AWS	2145	1	3268	3268	80	0.1836	1.0	18.36%
VZW 700	746	1	906	906	80	0.0509	0.497333333	10.24%
Total Percentage of Maximum Permissible Exposure								70.26%

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

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

Absolute worst case maximum values used, including the following assumptions:

1. closest accessible point is distance from antenna to base of pole;

2. continuous transmission from all available channels at full power for indefinite time period; and,

3. all RF energy is assumed to be directed solely to the base of the pole.

ATTACHMENT 3

PJF PAUL J. FORD & COMPANY

Report Date:	June 15, 2017
Client:	On Air Engineering, LLC 88 Foundry Pond Road Cold Spring, NY 10516 Attn: David Weinpahl (201) 456-4624 dweinpahl@onaireng.com
Structure:	Existing 40-ft Self Support
Site Name:	Verizon - Stamford W CT
Site Address:	370 W Main St
City, County, State:	Stamford, Fairfield County, CT
Latitude, Longitude:	41.047824, -73.553628
PJF Project:	A42917-0005.001.8700

Paul J. Ford and Company is pleased to submit this "**Structural Analysis Report**". The purpose of this analysis is to determine if the structure has sufficient capacity to support the proposed equipment described herein.

Analysis Criteria:

Reference Standard:	2016 Connecticut State Building Code with the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.3 and Appendix N.
Ultimate Wind Speed:	120 mph 3-second gust wind speed without ice
Nominal Wind Speed:	93 mph 3-second gust wind speed without ice
Ice Wind Speed:	40 mph 3-second gust wind speed with 0.75" ice
Service Wind Speed:	60 mph 3-second gust wind speed (Serviceability) without ice
TIA-222 Criteria:	Risk Category II, Topographic Category I, Exposure Category C

Proposed Appurtenance Loads:

The structure was analyzed with the addition of the proposed appurtenances loads shown in Table 1 combined with the existing and reserved loads shown in Table 2 of this report.

Summary of Analysis Results:

Existing Structure:	**Acceptable**
Existing Foundation:	**Acceptable - See Note 2, Table 5**

We at Paul J. Ford and Company appreciate the opportunity of providing our continuing professional services to you and On Air Engineering, LLC. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully Submitted by:
Paul J. Ford and Company

Kurt J. Swarts, P.E.
Project Manager
kswarts@pjfweb.com

STATE OF CONNECTICUT
JOSEPH PACHICARAH JACOBS
No. PEN 22731
LICENSED PROFESSIONAL ENGINEER

JUN 15 2017

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 40 ft Self Support tower mounted on top of a roof. The roof elevation is at 54-ft above ground. Original tower design drawings were not available at the time of this analysis. Tower dimensions and member sizes were obtained from a March 17, 2015 "Structural Analysis Report" prepared by Centek Engineering.

2) ANALYSIS CRITERIA

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second gust wind speed of 93 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
81.5	81.5	3	alcatel lucent	RRH2x60-700	-	-	-
		3	alcatel lucent	RRH4x45-AWS			
		6	commscope	JAHH-65B-R3B w/ Mount Pipe			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
90.0	103.5	1	antennae	2.5"OD x 16' Omni Whip	3	1/2	1
	96.0	1	antennae	3' Yagi			
	93.0	1	antennae	3' Yagi			
	90.0	1	tower mount	2.375" OD x 12' Mount Pipe			
91.0	91.0	1	tower mount	13-Ft Wireless Frame	-	-	1
		3		2.375" OD x 6' Mount Pipe			
87.5	87.5	1	antennae	3' Yagi	1	1/2	1
85.5	87.0	1	miscl	GPS	1	1/2	1
	85.5	1	tower mount	4-Ft Standoff Mount			
		1	scala	PR-850			
81.5	81.5	1	tower mounts	(3) 15-Ft Sector Mounts	18 2	7/8 1-1/4 hybrid	1
		3	alcatel lucent	RRH 2x60 - 1900			
		2	commscope	RC2DC-3315-PF-48			
		6	decibel	DB844G65ZAXY w/ Pipe			
		6	commscope	HBXX-6516DS	-	-	2
		3	commscope	LNX-6514DS			
		3	alcatel lucent	RRH2x40-AWS			
		3	alcatel lucent	RRH2x40-700			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
67.0	67.0	1	tower mount	2.375" OD x 6' Side Arm-Pipe	1	1/2	1
		1	antennae	3' Yagi			

Notes:
1) Existing Equipment
2) Equipment To Be Removed; Not Considered in Analysis

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Structural Analysis	Centek Engineering: 14067.006: 3/17/2015	-	-

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) Original tower manufacturers drawing were not available at the time of the analysis. Tower dimensions and member sizes were obtained from a March 17, 2015 "Structural Analysis Report" prepared by Centek Engineering. The analysis assumes that Centek analysis accurately presents the current "as is" conditions of the tower.
5) The analysis has been completed assuming the following material specifications for the tower members and connections; tower legs = ASTM A572 GR 50 (Fy = 50 ksi), tower diagonals = ASTM A36 (Fy = 36 ksi), and diagonal and flange bolts = ASTM A325N.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	94 - 74	Leg	ROHN 2.5 STD	3	-8.852	45.449	19.5	Pass
		Diagonal	L 1.75 x 1.75 x 1/4	11	-3.116	4.048	77.0	Pass
		Top Girt	L3x3x1/4	4	-0.511	11.430	4.5	Pass
T2	74 - 54	Leg	ROHN 2.5 STD	25	-25.407	45.484	55.9	Pass
		Diagonal	L 2 x 2 x 1/4	33	-3.406	5.035	67.6	Pass
							Summary	
						Leg (T2)	55.9	Pass
						Diagonal (T1)	77.0	Pass
						Top Girt (T1)	4.5	Pass
						Bolt Checks	43.0	Pass
						Rating =	77.0	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
	Anchor Rods	54	16.7	Pass
1,2	Base Foundation (Compared w/ Previous Analysis Loads)	54	85.2	Pass

Structure Rating (max from all components) =	85.2%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) An analysis of the roof mounted steel support frame was not part of the scope of service for this analysis. For information purposes only, a comparison of the current analysis reactions to the analysis reactions listed in the 3/17/2015 analysis report by Centek Engineering has been provided .

4.1) Recommendations

The tower has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES BY PAUL J. FORD AND COMPANY

1) It is the responsibility of the client to ensure that the information provided to Paul J. Ford and Company is accurate and complete. Paul J. Ford and Company will rely on the accuracy and completeness of such information in performing or furnishing services under this project.

2) If the existing conditions are not as represented on the referenced drawings and/or documents, Paul J. Ford and Company should be contacted immediately to evaluate the significance of the deviation.

3) The structure has been analyzed according to the minimum design loads recommended by the Reference Standard. If additional design loads are required, Paul J. Ford and Company should be made aware of this prior to the start of the project.

4) The standard of care for all Professional Engineering Services performed or furnished by Paul J. Ford and Company under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.

5) All Services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusions, opinions and/or recommendations made by others based on the information supplied herein.

****

APPENDIX A

TNXTOWER OUTPUT

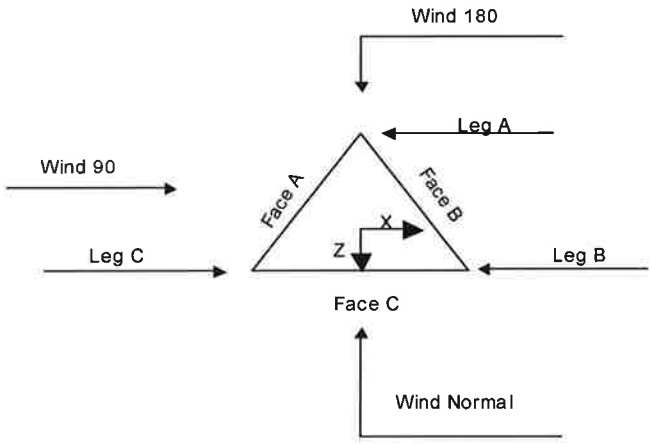
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 94.000 ft above the ground line.
The base of the tower is set at an elevation of 54.000 ft above the ground line.
The face width of the tower is 8.563 ft at the top and 12.063 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 93.000 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50.000 mph is used in combination with ice.
Deflections calculated using a wind speed of 60.000 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals		Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification		Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice		Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		**Poles**
√	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
√	SR Members Are Concentric				



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	94.000-74.000			8.563	1	20.000
T2	74.000-54.000			10.563	1	20.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	94.000-74.000	6.667	X Brace	No	No	0.000	0.000
T2	74.000-54.000	6.667	X Brace	No	No	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 94.000-74.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L 1.75 x 1.75 x 1/4	A36 (36 ksi)
T2 74.000-54.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L 2 x 2 x 1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 94.000-74.000	0.000	0.000	A36 (36 ksi)	1	1	1.15	36.000	36.000	36.000
T2 74.000-54.000	0.000	0.000	A36 (36 ksi)	1	1	1.15	36.000	36.000	36.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Brace Diags X	K Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1 94.000-74.000	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1	1	1	1	1	1	1	1
T2 74.000-54.000	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1	1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 94.000-74.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 74.000-54.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1 94.000-74.000	Flange	0.750 A325N	4	0.500 A325N	1	0.000 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T2 74.000-54.000	Flange	0.750 A325N	4	0.500 A325N	1	0.000 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF4-50A (1/2" foam) ****	A	No	Ar (CaAa)	94.000 - 57.000	0.000	0.45	6	3	0.630 1.500	0.630		0.150
1.5" flat Cable Ladder Rail	C	No	Af (CaAa)	81.500 - 57.000	0.000	-0.3	2	2	30.000	1.500		1.800
LDF5-50A (7/8" foam)	C	No	Ar (CaAa)	81.500 - 57.000	0.000	-0.33	18	12	0.500 1.090	1.090		0.330
HFT1206-24S49-150(1-1/4")	C	No	Ar (CaAa)	81.500 - 57.000	0.000	-0.23	2	2	0.500 1.560	1.560		1.781

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	94.000-74.000	A	0.000	0.000	7.560	0.000	0.018
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	20.805	0.000	0.098
T2	74.000-54.000	A	0.000	0.000	6.426	0.000	0.015
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	47.158	0.000	0.223

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	94.000-74.000	A	1.647	0.000	0.000	20.675	0.000	0.238
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	38.020	0.000	0.601
T2	74.000-54.000	A	1.603	0.000	0.000	17.310	0.000	0.196
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	85.384	0.000	1.330

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	94.000-74.000	3.446	1.326	2.538	1.587
T2	74.000-54.000	5.974	4.361	4.725	3.893

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	LDF4-50A (1/2" foam)	74.00 - 94.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	3	1.5" flat Cable Ladder Rail	74.00 - 81.50	0.6000	0.6000
T1	4	LDF5-50A (7/8" foam)	74.00 - 81.50	0.6000	0.6000
T1	5	HFT1206-24S49-150(1-1/4")	74.00 - 81.50	0.6000	0.6000
T2	1	LDF4-50A (1/2" foam)	57.00 - 74.00	0.6000	0.6000
T2	3	1.5" flat Cable Ladder Rail	57.00 - 74.00	0.6000	0.6000
T2	4	LDF5-50A (7/8" foam)	57.00 - 74.00	0.6000	0.6000
T2	5	HFT1206-24S49-150(1-1/4")	57.00 - 74.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
2.5"OD x 16' Omni Whip	A	From Leg	0.000 0.000 9.500	0.000	94.000	No Ice 1/2" Ice 1" Ice	4.000 5.629 7.275	4.000 5.629 7.275	0.050 0.080 0.119
3' Yagi	A	From Leg	0.000 0.000 2.000	0.000	94.000	No Ice 1/2" Ice 1" Ice	2.083 3.787 5.517	2.083 3.787 5.517	0.031 0.053 0.085
3' Yagi	A	From Leg	0.000 0.000 0.000	0.000	93.000	No Ice 1/2" Ice 1" Ice	2.083 3.787 5.517	2.083 3.787 5.517	0.031 0.053 0.085
3' Yagi	A	From Leg	0.000 0.000 0.000	0.000	87.500	No Ice 1/2" Ice 1" Ice	2.083 3.787 5.517	2.083 3.787 5.517	0.031 0.053 0.085
2.375" OD x 12' Mount Pipe	A	From Leg	0.000 0.000 0.000	0.000	90.000	No Ice 1/2" Ice 1" Ice	2.850 4.078 5.323	2.850 4.078 5.323	0.109 0.130 0.159
****									
PR-850	C	From Leg	4.000 0.000 0.000	0.000	85.500	No Ice 1/2" Ice 1" Ice	6.350 11.430 16.510	6.350 11.430 16.510	0.038 0.049 0.061
GPS	C	From Leg	4.000 0.000 1.500	0.000	85.500	No Ice 1/2" Ice 1" Ice	0.146 0.238 0.311	0.146 0.238 0.311	0.015 0.018 0.023
4-Ft Standoff Mount	C	From Leg	2.000 0.000 0.000	0.000	85.500	No Ice 1/2" Ice 1" Ice	1.670 2.510 3.350	3.270 4.990 6.710	0.055 0.088 0.121
**** [SO 302-1] 3' Yagi	A	From Leg	6.000 0.000 0.000	0.000	67.000	No Ice 1/2" Ice 1" Ice	2.083 3.787 5.517	2.083 3.787 5.517	0.031 0.053 0.085

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
2.375" OD x 6' Side Arm-Pipe	A	From Leg	3.000 0.000 0.000	0.000	67.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.025 0.036 0.051
****									
13-Ft Wireless Frame	B	From Face	0.000 0.000 0.000	0.000	91.000	No Ice 1/2" Ice 1" Ice	17.890 24.350 30.810	5.840 9.070 12.300	0.361 0.497 0.632
**** SM 201-1									
(3) 2.375" OD x 6' Mount Pipe	B	From Face	0.000 0.000 0.000	0.000	91.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.025 0.036 0.051
****									
(3) 15-Ft Sector Mounts	C	None		0.000	81.500	No Ice 1/2" Ice 1" Ice	40.100 57.330 74.560	40.100 57.330 74.560	2.396 3.089 3.782
**** SM 510-3									
DB844G65ZAXY w/ Mount Pipe	A	From Leg	5.000 7.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	4.578 4.955 5.340	4.802 5.416 6.040	0.034 0.080 0.132
JAHH-65B-R3B w/ Mount Pipe	A	From Leg	5.000 5.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	12.568 13.194 13.795	11.821 13.094 14.143	0.088 0.200 0.321
JAHH-65B-R3B w/ Mount Pipe	A	From Leg	5.000 -4.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	12.568 13.194 13.795	11.821 13.094 14.143	0.088 0.200 0.321
DB844G65ZAXY w/ Mount Pipe	A	From Leg	5.000 -7.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	4.578 4.955 5.340	4.802 5.416 6.040	0.034 0.080 0.132
DB844G65ZAXY w/ Mount Pipe	B	From Leg	5.000 7.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	4.578 4.955 5.340	4.802 5.416 6.040	0.034 0.080 0.132
JAHH-65B-R3B w/ Mount Pipe	B	From Leg	5.000 5.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	12.568 13.194 13.795	11.821 13.094 14.143	0.088 0.200 0.321
JAHH-65B-R3B w/ Mount Pipe	B	From Leg	5.000 -4.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	12.568 13.194 13.795	11.821 13.094 14.143	0.088 0.200 0.321
DB844G65ZAXY w/ Mount Pipe	B	From Leg	5.000 -7.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	4.578 4.955 5.340	4.802 5.416 6.040	0.034 0.080 0.132
DB844G65ZAXY w/ Mount Pipe	C	From Leg	5.000 7.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	4.578 4.955 5.340	4.802 5.416 6.040	0.034 0.080 0.132
JAHH-65B-R3B w/ Mount Pipe	C	From Leg	5.000 5.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	12.568 13.194 13.795	11.821 13.094 14.143	0.088 0.200 0.321
JAHH-65B-R3B w/ Mount Pipe	C	From Leg	5.000 -4.000 0.000	0.000	81.500	No Ice 1/2" Ice 1" Ice	12.568 13.194 13.795	11.821 13.094 14.143	0.088 0.200 0.321
DB844G65ZAXY w/ Mount	C	From Leg	5.000	0.000	81.500	No Ice	4.578	4.802	0.034

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pipe			-7.000			1/2"	4.955	5.416	0.080
			0.000			Ice	5.340	6.040	0.132
						1" Ice			
RRH 2x60 - 1900	A	From Leg	5.000	0.000	81.500	No Ice	1.876	1.219	0.043
			5.000			1/2"	2.054	1.368	0.059
			0.000			Ice	2.239	1.525	0.077
						1" Ice			
RRH2x60-700	A	From Leg	5.000	0.000	81.500	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			0.000			Ice	4.029	2.289	0.109
						1" Ice			
RC2DC-3315-PF-48	A	From Leg	5.000	0.000	81.500	No Ice	3.792	2.512	0.032
			0.000			1/2"	4.044	2.725	0.063
			0.000			Ice	4.303	2.945	0.099
						1" Ice			
RRH4x45-AWS	A	From Leg	5.000	0.000	81.500	No Ice	2.580	1.630	0.067
			-4.000			1/2"	2.794	1.811	0.087
			0.000			Ice	3.015	1.999	0.111
						1" Ice			
RC2DC-3315-PF-48	A	From Leg	5.000	0.000	81.500	No Ice	3.792	2.512	0.032
			-4.000			1/2"	4.044	2.725	0.063
			0.000			Ice	4.303	2.945	0.099
						1" Ice			
RRH 2x60 - 1900	B	From Leg	5.000	0.000	81.500	No Ice	1.876	1.219	0.043
			5.000			1/2"	2.054	1.368	0.059
			0.000			Ice	2.239	1.525	0.077
						1" Ice			
RRH2x60-700	B	From Leg	5.000	0.000	81.500	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			0.000			Ice	4.029	2.289	0.109
						1" Ice			
RRH4x45-AWS	B	From Leg	5.000	0.000	81.500	No Ice	2.580	1.630	0.067
			-4.000			1/2"	2.794	1.811	0.087
			0.000			Ice	3.015	1.999	0.111
						1" Ice			
RRH 2x60 - 1900	C	From Leg	5.000	0.000	81.500	No Ice	1.876	1.219	0.043
			5.000			1/2"	2.054	1.368	0.059
			0.000			Ice	2.239	1.525	0.077
						1" Ice			
RRH2x60-700	C	From Leg	5.000	0.000	81.500	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			0.000			Ice	4.029	2.289	0.109
						1" Ice			
RRH4x45-AWS	C	From Leg	5.000	0.000	81.500	No Ice	2.580	1.630	0.067
			-4.000			1/2"	2.794	1.811	0.087
			0.000			Ice	3.015	1.999	0.111
						1" Ice			
2.375" OD x 8' Mount Pipe	A	From Leg	5.000	0.000	81.500	No Ice	1.900	1.900	0.029
			0.000			1/2"	2.728	2.728	0.043
			0.000			Ice	3.401	3.401	0.063
						1" Ice			
2.375" OD x 8' Mount Pipe	B	From Leg	5.000	0.000	81.500	No Ice	1.900	1.900	0.029
			0.000			1/2"	2.728	2.728	0.043
			0.000			Ice	3.401	3.401	0.063
						1" Ice			
2.375" OD x 8' Mount Pipe	C	From Leg	5.000	0.000	81.500	No Ice	1.900	1.900	0.029
			0.000			1/2"	2.728	2.728	0.043
			0.000			Ice	3.401	3.401	0.063
						1" Ice			

Tower Pressures - No Ice

G_H = 0.850

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 94.000-74.000	84.000	1.22	22.961	196.048	A	12.346	9.599	9.599	43.74	7.560	0.000
					B	12.346	9.599		43.74	0.000	0.000
					C	12.346	9.599		43.74	20.805	0.000
T2 74.000-54.000	64.000	1.152	21.683	231.045	A	13.133	9.592	9.592	42.21	6.426	0.000
					B	13.133	9.592		42.21	0.000	0.000
					C	13.133	9.592		42.21	47.158	0.000

Tower Pressure - With Ice

G_H = 0.850

Section Elevation ft	z ft	K_z	q_z psf	t_z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 94.000-74.000	84.000	1.22	6.637	1.647	201.544	A	12.346	42.155	20.597	37.79	20.675	0.000
						B	12.346	42.155		37.79	0.000	0.000
						C	12.346	42.155		37.79	38.020	0.000
T2 74.000-54.000	64.000	1.152	6.268	1.603	236.391	A	13.133	41.336	20.287	37.25	17.310	0.000
						B	13.133	41.336		37.25	0.000	0.000
						C	13.133	41.336		37.25	85.384	0.000

Tower Pressure - Service

G_H = 0.850

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 94.000-74.000	84.000	1.22	9.557	196.048	A	12.346	9.599	9.599	43.74	7.560	0.000
					B	12.346	9.599		43.74	0.000	0.000
					C	12.346	9.599		43.74	20.805	0.000
T2 74.000-54.000	64.000	1.152	9.025	231.045	A	13.133	9.592	9.592	42.21	6.426	0.000
					B	13.133	9.592		42.21	0.000	0.000
					C	13.133	9.592		42.21	47.158	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 94.000-74.000	0.116	1.213	A	0.112	2.917	22.96	1	1	17.767	1.319	65.974	C
			B	0.112	2.917	1	1	1	17.767			
			C	0.112	2.917		1	1	17.767			
T2 74.000-54.000	0.238	1.268	A	0.098	2.971	21.68	1	1	18.546	1.589	79.436	C
			B	0.098	2.971	3	1	1	18.546			
			C	0.098	2.971		1	1	18.546			
Sum Weight:	0.354	2.481						OTM	55.472 kip-ft	2.908		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 94.000-74.000	0.116	1.213	A	0.112	2.917	22.96	0.8	1	15.298	1.179	58.947	A
			B	0.112	2.917	1	0.8	1	15.298			
			C	0.112	2.917		0.8	1	15.298			
T2 74.000-54.000	0.238	1.268	A	0.098	2.971	21.68	0.8	1	15.920	1.445	72.246	A
			B	0.098	2.971	3	0.8	1	15.920			
			C	0.098	2.971		0.8	1	15.920			
Sum Weight:	0.354	2.481						OTM	49.817 kip-ft	2.624		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 94.000-74.000	0.116	1.213	A	0.112	2.917	22.96	0.85	1	15.915	1.222	61.108	B
			B	0.112	2.917	1	0.85	1	15.915			
			C	0.112	2.917		0.85	1	15.915			
T2 74.000-54.000	0.238	1.268	A	0.098	2.971	21.68	0.85	1	16.576	1.474	73.675	B
			B	0.098	2.971	3	0.85	1	16.576			
			C	0.098	2.971		0.85	1	16.576			
Sum Weight:	0.354	2.481						OTM	51.400 kip-ft	2.696		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 94.000-74.000	0.838	3.805	A	0.27	2.378	6.637	1	1	37.229	0.667	33.333	C
			B	0.27	2.378		1	1	37.229			
			C	0.27	2.378		1	1	37.229			
T2 74.000-54.000	1.526	3.846	A	0.23	2.498	6.268	1	1	37.127	0.787	39.355	C
			B	0.23	2.498		1	1	37.127			
			C	0.23	2.498		1	1	37.127			
Sum Weight:	2.364	7.651						OTM	27.870 kip-ft	1.454		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1 94.000-74.000	0.838	3.805	A	0.27	2.378	6.637	0.8	1	34.760	0.634	31.677	A
			B	0.27	2.378		0.8	1	34.760			
			C	0.27	2.378		0.8	1	34.760			
T2 74.000-54.000	1.526	3.846	A	0.23	2.498	6.268	0.8	1	34.501	0.752	37.607	A
			B	0.23	2.498		0.8	1	34.501			
			C	0.23	2.498		0.8	1	34.501			
Sum Weight:	2.364	7.651						OTM	26.527 kip-ft	1.386		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1 94.000-74.000	0.838	3.805	A	0.27	2.378	6.637	0.85	1	35.377	0.633	31.668	B
			B	0.27	2.378		0.85	1	35.377			
			C	0.27	2.378		0.85	1	35.377			
T2 74.000-54.000	1.526	3.846	A	0.23	2.498	6.268	0.85	1	35.157	0.736	36.783	B
			B	0.23	2.498		0.85	1	35.157			
			C	0.23	2.498		0.85	1	35.157			
Sum Weight:	2.364	7.651						OTM	26.358 kip-ft	1.369		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1 94.000-74.000	0.116	1.213	A	0.112	2.917	9.557	1	1	17.767	0.549	27.460	C
			B	0.112	2.917		1	1	17.767			
			C	0.112	2.917		1	1	17.767			
T2 74.000-54.000	0.238	1.268	A	0.098	2.971	9.025	1	1	18.546	0.661	33.064	C
			B	0.098	2.971		1	1	18.546			
			C	0.098	2.971		1	1	18.546			
Sum Weight:	0.354	2.481						OTM	23.089 kip-ft	1.210		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1 94.000-74.000	0.116	1.213	A	0.112	2.917	9.557	0.8	1	15.298	0.491	24.536	A
			B	0.112	2.917		0.8	1	15.298			
			C	0.112	2.917		0.8	1	15.298			
T2 74.000-54.000	0.238	1.268	A	0.098	2.971	9.025	0.8	1	15.920	0.601	30.071	A
			B	0.098	2.971		0.8	1	15.920			
			C	0.098	2.971		0.8	1	15.920			
Sum Weight:	0.354	2.481						OTM	20.736	1.092		

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
									kip-ft			

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1 94.000-74.000	0.116	1.213	A	0.112	2.917	9.557	0.85	1	15.915	0.509	25.435	B
			B	0.112	2.917		0.85	1	15.915			
			C	0.112	2.917		0.85	1	15.915			
T2 74.000-54.000	0.238	1.268	A	0.098	2.971	9.025	0.85	1	16.576	0.613	30.666	B
			B	0.098	2.971		0.85	1	16.576			
			C	0.098	2.971		0.85	1	16.576			
Sum Weight:	0.354	2.481						OTM	21.394 kip-ft	1.122		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	0.801					
Bracing Weight	1.680					
Total Member Self-Weight	2.481			-1.834	-1.070	
Total Weight	7.477			-1.834	-1.070	
Wind 0 deg - No Ice		0.090	-6.551	-163.358	-4.474	-0.073
Wind 30 deg - No Ice		3.254	-5.491	-138.983	-83.637	-0.977
Wind 60 deg - No Ice		5.258	-3.056	-80.172	-135.809	-1.666
Wind 90 deg - No Ice		5.888	-0.090	-5.239	-152.941	-1.782
Wind 120 deg - No Ice		5.452	3.064	73.890	-138.091	-1.344
Wind 150 deg - No Ice		3.123	5.444	132.821	-78.267	-0.681
Wind 180 deg - No Ice		-0.090	6.267	154.035	2.335	0.185
Wind 210 deg - No Ice		-3.254	5.491	135.314	81.498	0.977
Wind 240 deg - No Ice		-5.505	3.198	79.331	138.566	1.551
Wind 270 deg - No Ice		-5.888	0.090	1.570	150.801	1.782
Wind 300 deg - No Ice		-5.206	-2.922	-74.732	131.055	1.347
Wind 330 deg - No Ice		-3.123	-5.444	-136.490	76.127	0.681
Member Ice	5.170					
Total Weight Ice	23.150			-6.472	-6.089	
Wind 0 deg - Ice		0.046	-3.438	-93.496	-7.834	-0.730
Wind 30 deg - Ice		1.728	-2.914	-81.136	-51.017	-1.268
Wind 60 deg - Ice		2.862	-1.660	-49.762	-80.731	-1.473
Wind 90 deg - Ice		3.218	-0.046	-8.217	-90.375	-1.259
Wind 120 deg - Ice		2.888	1.622	34.618	-80.412	-0.674
Wind 150 deg - Ice		1.656	2.881	66.711	-48.146	0.050
Wind 180 deg - Ice		-0.046	3.370	79.210	-4.343	0.751
Wind 210 deg - Ice		-1.728	2.914	68.193	38.840	1.268
Wind 240 deg - Ice		-2.921	1.694	37.490	69.717	1.449
Wind 270 deg - Ice		-3.218	0.046	-4.726	78.197	1.259
Wind 300 deg - Ice		-2.829	-1.588	-46.890	67.072	0.678
Wind 330 deg - Ice		-1.656	-2.881	-79.654	35.968	-0.050
Total Weight	7.477			-1.834	-1.070	
Wind 0 deg - Service		0.037	-2.727	-69.921	-1.468	-0.030
Wind 30 deg - Service		1.355	-2.286	-59.775	-34.418	-0.407

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 60 deg - Service		2.189	-1.272	-35.297	-56.134	-0.693
Wind 90 deg - Service		2.451	-0.037	-4.107	-63.265	-0.742
Wind 120 deg - Service		2.269	1.275	28.829	-57.084	-0.560
Wind 150 deg - Service		1.300	2.266	53.358	-32.183	-0.284
Wind 180 deg - Service		-0.037	2.608	62.188	1.366	0.077
Wind 210 deg - Service		-1.355	2.286	54.396	34.316	0.407
Wind 240 deg - Service		-2.291	1.331	31.094	58.070	0.646
Wind 270 deg - Service		-2.451	0.037	-1.273	63.163	0.742
Wind 300 deg - Service		-2.167	-1.216	-33.032	54.944	0.561
Wind 330 deg - Service		-1.300	-2.266	-58.738	32.081	0.284

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service

Comb. No.	Description
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	94 - 74	Leg	Max Tension	7	3.957	-0.558	0.018
			Max. Compression	27	-8.852	-0.046	-0.009
			Max. Mx	14	-1.081	0.669	-0.045
			Max. My	8	-0.863	0.000	-0.759
			Max. Vy	14	1.506	-0.585	-0.045
			Max. Vx	12	1.430	-0.022	-0.509
		Diagonal	Max Tension	16	3.109	0.000	0.000
			Max. Compression	4	-3.116	0.000	0.000
			Max. Mx	27	-0.068	0.049	0.007
			Max. My	28	-1.111	0.046	0.008
			Max. Vy	27	0.040	0.049	0.007
			Max. Vx	28	-0.002	0.000	0.000
		Top Girt	Max Tension	3	0.423	0.000	0.000
			Max. Compression	14	-0.511	0.000	0.000
			Max. Mx	26	-0.153	-0.171	0.000
			Max. My	26	-0.146	0.000	0.005
			Max. Vy	26	-0.080	0.000	0.000
			Max. Vx	26	-0.002	0.000	0.000
T2	74 - 54	Leg	Max Tension	7	19.951	-0.049	-0.010
			Max. Compression	18	-25.407	0.000	0.000
			Max. Mx	2	-13.712	0.126	-0.008
			Max. My	4	-3.250	-0.010	-0.139
			Max. Vy	18	0.083	0.124	0.003
			Max. Vx	20	-0.102	0.009	-0.002
		Diagonal	Max Tension	4	3.417	0.000	0.000
			Max. Compression	16	-3.406	0.000	0.000
			Max. Mx	28	0.569	0.072	0.007
			Max. My	28	-1.241	0.055	0.007
			Max. Vy	28	0.050	0.071	-0.007
			Max. Vx	28	-0.002	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	28.296	4.851	-2.944
	Max. H_x	18	28.296	4.851	-2.944
	Max. H_z	5	-19.510	-3.468	2.986
	Min. Vert	7	-22.567	-4.387	2.685
	Min. H_x	7	-22.567	-4.387	2.685
	Min. H_z	16	24.373	3.719	-3.131
Leg B	Max. Vert	10	27.606	-4.741	-2.851
	Max. H_x	23	-21.504	4.277	2.578
	Max. H_z	25	-18.308	3.332	2.879
	Min. Vert	23	-21.504	4.277	2.578
	Min. H_x	10	27.606	-4.741	-2.851
	Min. H_z	12	23.543	-3.587	-3.031
Leg A	Max. Vert	2	27.941	-0.015	5.556
	Max. H_x	20	2.680	1.697	0.086
	Max. H_z	2	27.941	-0.015	5.556
	Min. Vert	15	-21.472	0.028	-5.016
	Min. H_x	9	2.922	-1.693	0.211
	Min. H_z	15	-21.472	0.028	-5.016

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	7.477	0.000	0.000	-1.834	-1.070	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	8.972	0.144	-10.482	-260.638	-6.731	-0.116
0.9 Dead+1.6 Wind 0 deg - No Ice	6.729	0.144	-10.482	-260.088	-6.410	-0.116
1.2 Dead+1.6 Wind 30 deg - No Ice	8.972	5.247	-8.855	-223.095	-134.233	-1.563
0.9 Dead+1.6 Wind 30 deg - No Ice	6.729	5.247	-8.855	-222.545	-133.912	-1.563
1.2 Dead+1.6 Wind 60 deg - No Ice	8.972	8.844	-5.138	-131.613	-223.918	-2.665
0.9 Dead+1.6 Wind 60 deg - No Ice	6.729	8.844	-5.138	-131.063	-223.598	-2.665
1.2 Dead+1.6 Wind 90 deg - No Ice	8.972	10.244	-0.144	-7.647	-257.747	-2.850
0.9 Dead+1.6 Wind 90 deg - No Ice	6.729	10.244	-0.144	-7.097	-257.426	-2.850
1.2 Dead+1.6 Wind 120 deg - No Ice	8.972	9.094	5.116	122.301	-226.306	-2.150
0.9 Dead+1.6 Wind 120 deg - No Ice	6.729	9.094	5.116	122.851	-225.986	-2.150
1.2 Dead+1.6 Wind 150 deg - No Ice	8.972	4.998	8.711	213.248	-124.798	-1.090
0.9 Dead+1.6 Wind 150 deg - No Ice	6.729	4.998	8.711	213.798	-124.477	-1.090
1.2 Dead+1.6 Wind 180 deg - No Ice	8.972	-0.144	10.027	247.190	4.163	0.296
0.9 Dead+1.6 Wind 180 deg - No Ice	6.729	-0.144	10.027	247.740	4.484	0.296
1.2 Dead+1.6 Wind 210 deg - No Ice	8.972	-5.247	8.855	218.695	131.666	1.563
0.9 Dead+1.6 Wind 210 deg - No Ice	6.729	-5.247	8.855	219.245	131.986	1.563
1.2 Dead+1.6 Wind 240 deg - No Ice	8.972	-9.238	5.366	131.736	229.186	2.481
0.9 Dead+1.6 Wind 240 deg - No Ice	6.729	-9.238	5.366	132.286	229.507	2.481
1.2 Dead+1.6 Wind 270 deg - No Ice	8.972	-10.244	0.144	3.247	255.180	2.850
0.9 Dead+1.6 Wind 270 deg - No Ice	6.729	-10.244	0.144	3.797	255.501	2.850
1.2 Dead+1.6 Wind 300 deg - No Ice	8.972	-8.700	-4.889	-122.179	215.904	2.155
0.9 Dead+1.6 Wind 300 deg - No Ice	6.729	-8.700	-4.889	-121.628	216.225	2.155
1.2 Dead+1.6 Wind 330 deg - No Ice	8.972	-4.998	-8.711	-217.648	122.231	1.090
0.9 Dead+1.6 Wind 330 deg - No Ice	6.729	-4.998	-8.711	-217.098	122.552	1.090
1.2 Dead+1.0 Ice	24.645	0.000	0.000	-6.836	-6.302	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice	24.645	0.046	-3.438	-93.860	-8.048	-0.730
1.2 Dead+1.0 Wind 30 deg+1.0 Ice	24.645	1.735	-2.927	-81.764	-51.383	-1.267
1.2 Dead+1.0 Wind 60 deg+1.0 Ice	24.645	2.975	-1.724	-51.188	-82.785	-1.472
1.2 Dead+1.0 Wind 90 deg+1.0 Ice	24.645	3.392	-0.046	-8.582	-93.440	-1.258
1.2 Dead+1.0 Wind 120 deg+1.0 Ice	24.645	2.988	1.680	35.164	-82.203	-0.674
1.2 Dead+1.0 Wind 150 deg+1.0 Ice	24.645	1.656	2.881	66.346	-48.359	0.050
1.2 Dead+1.0 Wind 180 deg+1.0 Ice	24.645	-0.046	3.370	78.845	-4.557	0.751

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 210 deg+1.0 Ice	24.645	-1.735	2.927	68.092	38.778	1.267
1.2 Dead+1.0 Wind 240 deg+1.0 Ice	24.645	-3.033	1.758	38.188	71.344	1.448
1.2 Dead+1.0 Wind 270 deg+1.0 Ice	24.645	-3.392	0.046	-5.091	80.835	1.258
1.2 Dead+1.0 Wind 300 deg+1.0 Ice	24.645	-2.929	-1.646	-48.165	68.435	0.677
1.2 Dead+1.0 Wind 330 deg+1.0 Ice	24.645	-1.656	-2.881	-80.018	35.755	-0.050
Dead+Wind 0 deg - Service	7.477	0.037	-2.727	-69.065	-2.487	-0.030
Dead+Wind 30 deg - Service	7.477	1.365	-2.304	-59.299	-35.656	-0.407
Dead+Wind 60 deg - Service	7.477	2.301	-1.337	-35.500	-58.987	-0.693
Dead+Wind 90 deg - Service	7.477	2.665	-0.037	-3.251	-67.788	-0.742
Dead+Wind 120 deg - Service	7.477	2.366	1.331	30.555	-59.608	-0.559
Dead+Wind 150 deg - Service	7.477	1.300	2.266	54.214	-33.201	-0.283
Dead+Wind 180 deg - Service	7.477	-0.037	2.608	63.044	0.347	0.077
Dead+Wind 210 deg - Service	7.477	-1.365	2.304	55.631	33.517	0.407
Dead+Wind 240 deg - Service	7.477	-2.403	1.396	33.009	58.886	0.645
Dead+Wind 270 deg - Service	7.477	-2.665	0.037	-0.417	65.648	0.742
Dead+Wind 300 deg - Service	7.477	-2.263	-1.272	-33.045	55.431	0.561
Dead+Wind 330 deg - Service	7.477	-1.300	-2.266	-57.882	31.062	0.283

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-7.477	0.000	0.000	7.477	0.000	0.000%
2	0.144	-8.972	-10.482	-0.144	8.972	10.482	0.000%
3	0.144	-6.729	-10.482	-0.144	6.729	10.482	0.000%
4	5.247	-8.972	-8.855	-5.247	8.972	8.855	0.000%
5	5.247	-6.729	-8.855	-5.247	6.729	8.855	0.000%
6	8.844	-8.972	-5.138	-8.844	8.972	5.138	0.000%
7	8.844	-6.729	-5.138	-8.844	6.729	5.138	0.000%
8	10.244	-8.972	-0.144	-10.244	8.972	0.144	0.000%
9	10.244	-6.729	-0.144	-10.244	6.729	0.144	0.000%
10	9.094	-8.972	5.116	-9.094	8.972	-5.116	0.000%
11	9.094	-6.729	5.116	-9.094	6.729	-5.116	0.000%
12	4.998	-8.972	8.711	-4.998	8.972	-8.711	0.000%
13	4.998	-6.729	8.711	-4.998	6.729	-8.711	0.000%
14	-0.144	-8.972	10.027	0.144	8.972	-10.027	0.000%
15	-0.144	-6.729	10.027	0.144	6.729	-10.027	0.000%
16	-5.247	-8.972	8.855	5.247	8.972	-8.855	0.000%
17	-5.247	-6.729	8.855	5.247	6.729	-8.855	0.000%
18	-9.238	-8.972	5.366	9.238	8.972	-5.366	0.000%
19	-9.238	-6.729	5.366	9.238	6.729	-5.366	0.000%
20	-10.244	-8.972	0.144	10.244	8.972	-0.144	0.000%
21	-10.244	-6.729	0.144	10.244	6.729	-0.144	0.000%
22	-8.700	-8.972	-4.889	8.700	8.972	4.889	0.000%
23	-8.700	-6.729	-4.889	8.700	6.729	4.889	0.000%
24	-4.998	-8.972	-8.711	4.998	8.972	8.711	0.000%
25	-4.998	-6.729	-8.711	4.998	6.729	8.711	0.000%
26	0.000	-24.645	0.000	0.000	24.645	0.000	0.000%
27	0.046	-24.645	-3.438	-0.046	24.645	3.438	0.000%
28	1.735	-24.645	-2.927	-1.735	24.645	2.927	0.000%
29	2.975	-24.645	-1.724	-2.975	24.645	1.724	0.000%
30	3.392	-24.645	-0.046	-3.392	24.645	0.046	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
31	2.988	-24.645	1.680	-2.988	24.645	-1.680	0.000%
32	1.656	-24.645	2.881	-1.656	24.645	-2.881	0.000%
33	-0.046	-24.645	3.370	0.046	24.645	-3.370	0.000%
34	-1.735	-24.645	2.927	1.735	24.645	-2.927	0.000%
35	-3.033	-24.645	1.758	3.033	24.645	-1.758	0.000%
36	-3.392	-24.645	0.046	3.392	24.645	-0.046	0.000%
37	-2.929	-24.645	-1.646	2.929	24.645	1.646	0.000%
38	-1.656	-24.645	-2.881	1.656	24.645	2.881	0.000%
39	0.037	-7.477	-2.727	-0.037	7.477	2.727	0.000%
40	1.365	-7.477	-2.304	-1.365	7.477	2.304	0.000%
41	2.301	-7.477	-1.337	-2.301	7.477	1.337	0.000%
42	2.665	-7.477	-0.037	-2.665	7.477	0.037	0.000%
43	2.366	-7.477	1.331	-2.366	7.477	-1.331	0.000%
44	1.300	-7.477	2.266	-1.300	7.477	-2.266	0.000%
45	-0.037	-7.477	2.608	0.037	7.477	-2.608	0.000%
46	-1.365	-7.477	2.304	1.365	7.477	-2.304	0.000%
47	-2.403	-7.477	1.396	2.403	7.477	-1.396	0.000%
48	-2.665	-7.477	0.037	2.665	7.477	-0.037	0.000%
49	-2.263	-7.477	-1.272	2.263	7.477	1.272	0.000%
50	-1.300	-7.477	-2.266	1.300	7.477	2.266	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	94 - 74	0.133	40	0.018	0.003
T2	74 - 54	0.050	39	0.015	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
94.000	2.5"OD x 16' Omni Whip	40	0.133	0.018	0.003	402376
93.000	3' Yagi	40	0.128	0.018	0.003	402376
91.000	13-Ft Wireless Frame	40	0.119	0.018	0.002	402376
90.000	2.375" OD x 12' Mount Pipe	40	0.115	0.018	0.002	402376
87.500	3' Yagi	40	0.104	0.018	0.002	309521
85.500	PR-850	40	0.095	0.018	0.002	236693
81.500	(3) 15-Ft Sector Mounts	40	0.078	0.018	0.002	160951
67.000	3' Yagi	39	0.030	0.011	0.001	154761

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	94 - 74	0.499	19	0.067	0.010
T2	74 - 54	0.194	19	0.057	0.005

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
94.000	2.5"OD x 16' Omni Whip	19	0.499	0.067	0.010	112443
93.000	3' Yagi	19	0.482	0.067	0.010	112443
91.000	13-Ft Wireless Frame	19	0.449	0.067	0.009	112443
90.000	2.375" OD x 12' Mount Pipe	19	0.433	0.067	0.009	112443
87.500	3' Yagi	19	0.392	0.067	0.009	86494
85.500	PR-850	19	0.360	0.067	0.008	66143
81.500	(3) 15-Ft Sector Mounts	19	0.298	0.065	0.007	44977
67.000	3' Yagi	19	0.115	0.042	0.003	43247

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	94	Leg	A325N	0.750	4	0.989	29.821	0.033 ✔	1	Bolt Tension
		Diagonal	A325N	0.500	1	3.116	7.952	0.392 ✔	1	Bolt Shear
T2	74	Leg	A325N	0.750	4	4.988	29.821	0.167 ✔	1	Bolt Tension
		Diagonal	A325N	0.500	1	3.417	7.952	0.430 ✔	1	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	94 - 74	ROHN 2.5 STD	20.033	6.678	84.6 K=1.00	1.704	-8.852	45.449	0.195 [1] ✔
T2	74 - 54	ROHN 2.5 STD	20.019	6.673	84.5 K=1.00	1.704	-25.407	45.484	0.559 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	94 - 74	L 1.75 x 1.75 x 1/4	12.211	6.058	212.9 K=1.00	0.813	-3.116	4.048	0.770 [1] ✔
T2	74 - 54	KL/R > 200 (C) - 11 L 2 x 2 x 1/4 KL/R > 200 (C) - 33	13.565	6.684	205.1 K=1.00	0.938	-3.406	5.035	0.676 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	94 - 74	L3x3x1/4	8.563	8.323	168.7 K=1.00	1.440	-0.511	11.430	0.045 [1] ✔

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	94 - 74	ROHN 2.5 STD	20.033	6.678	84.6	1.704	3.957	76.682	0.052 [1] ✔
T2	74 - 54	ROHN 2.5 STD	20.019	6.673	84.5	1.704	19.951	76.682	0.260 [1] ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	94 - 74	L 1.75 x 1.75 x 1/4	12.211	6.058	139.8	0.492	3.109	21.410	0.145 [1] ✔
T2	74 - 54	L 2 x 2 x 1/4	13.565	6.684	133.8	0.586	3.417	25.505	0.134 [1] ✔

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	94 - 74	L3x3x1/4	8.563	8.323	107.4	1.440	0.423	46.656	0.009 [1] ✔

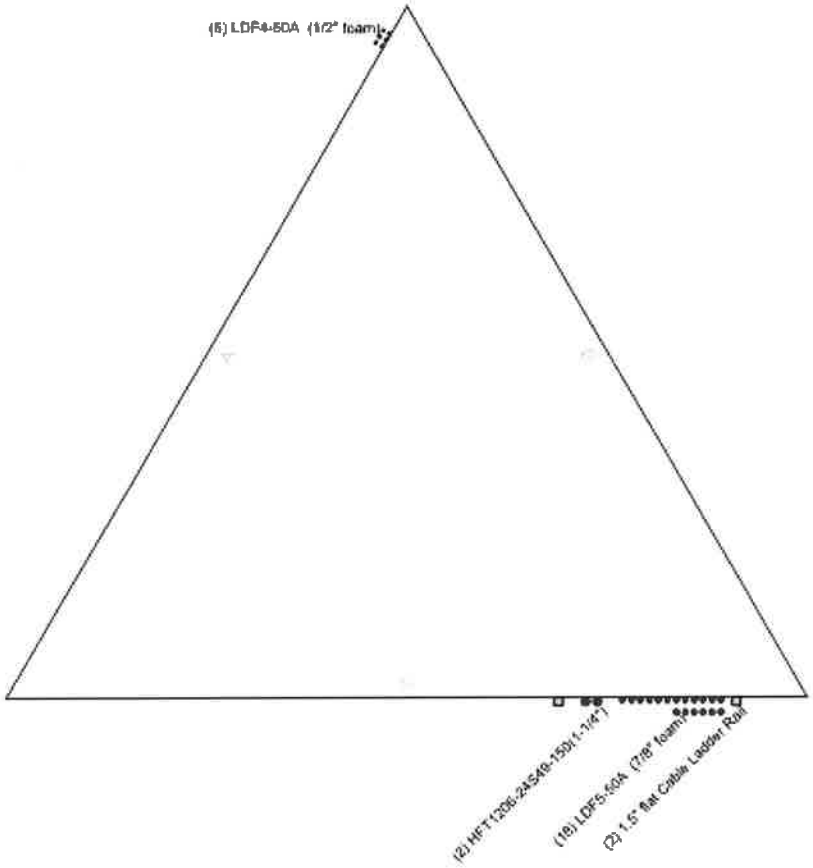
[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	94 - 74	Leg	ROHN 2.5 STD	3	-8.852	45.449	19.5	Pass
		Diagonal	L 1.75 x 1.75 x 1/4	11	-3.116	4.048	77.0	Pass
		Top Girt	L3x3x1/4	4	-0.511	11.430	4.5	Pass
T2	74 - 54	Leg	ROHN 2.5 STD	25	-25.407	45.484	55.9	Pass
		Diagonal	L 2 x 2 x 1/4	33	-3.406	5.035	67.6	Pass
							Summary	
						Leg (T2)	55.9	Pass
						Diagonal (T1)	77.0	Pass
						Top Girt (T1)	4.5	Pass
						Bolt Checks	43.0	Pass
						RATING =	**77.0**	**Pass**

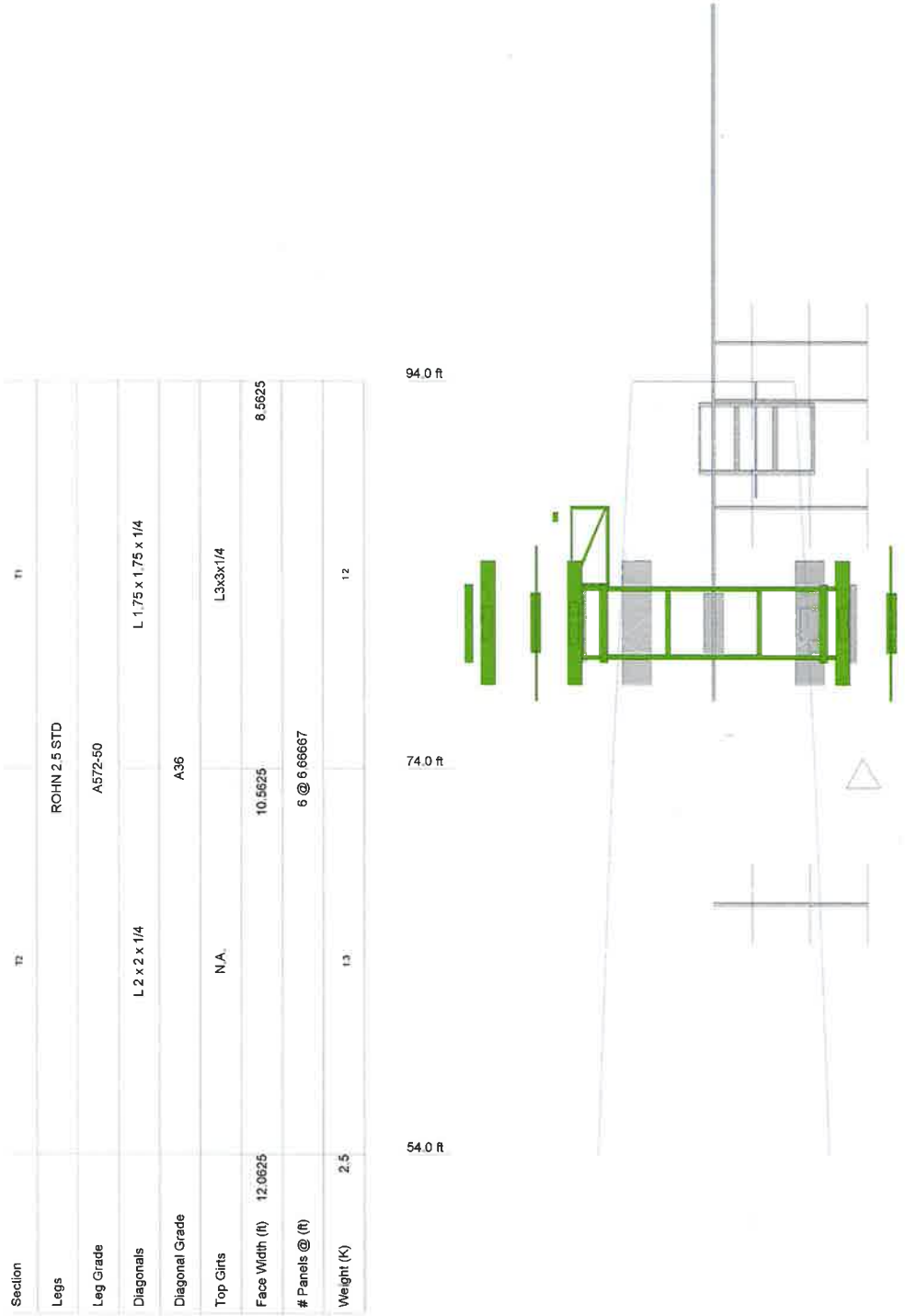
APPENDIX B

BASE LEVEL DRAWING



APPENDIX C

ADDITIONAL CALCULATIONS



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
2.5"OD x 16' Omni Whip	94	JAHH-65B-R3B w/ Mount Pipe	81.5
3' Yagi	94	JAHH-65B-R3B w/ Mount Pipe	81.5
3' Yagi	93	DB844G65ZAXY w/ Mount Pipe	81.5
13-Ft Wireless Frame	91	RRH 2x60 - 1900	81.5
(3) 2.375" OD x 6' Mount Pipe	91	RRH2x60-700	81.5
2.375" OD x 12' Mount Pipe	90	RC2DC-3315-PF-48	81.5
3' Yagi	87.5	RRH4x45-AWS	81.5
4-Ft Standoff Mount	85.5	RC2DC-3315-PF-48	81.5
GPS	85.5	RRH 2x60 - 1900	81.5
PR-850	85.5	RRH2x60-700	81.5
(3) 15-Ft Sector Mounts	81.5	RRH4x45-AWS	81.5
DB844G65ZAXY w/ Mount Pipe	81.5	RRH 2x60 - 1900	81.5
JAHH-65B-R3B w/ Mount Pipe	81.5	RRH2x60-700	81.5
JAHH-65B-R3B w/ Mount Pipe	81.5	RRH4x45-AWS	81.5
DB844G65ZAXY w/ Mount Pipe	81.5	2.375" OD x 8' Mount Pipe	81.5
DB844G65ZAXY w/ Mount Pipe	81.5	2.375" OD x 8' Mount Pipe	81.5
JAHH-65B-R3B w/ Mount Pipe	81.5	2.375" OD x 8' Mount Pipe	81.5
JAHH-65B-R3B w/ Mount Pipe	81.5	2.375" OD x 6' Side Arm- Pipe	67
DB844G65ZAXY w/ Mount Pipe	81.5	3' Yagi	67
DB844G65ZAXY w/ Mount Pipe	81.5		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 93.000 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50.000 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.000 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job: 40-Ft Roof Mounted S/S: Stamford West: Stamford,			
Project: 42917-0005.001.8700			
Client: On-Air Engieering, LLC	Drawn by: Kurt J Swarts	App'd:	
Code: TIA-222-G	Date: 06/05/17	Scale: NTS	
Path: G:\TOWER\429_On Air Engineering\2017\42917-0005 Stamford W CT\TNX Mode\42917-0005.001.8700.eri		Dwg No. E-1	

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 93.000 mph basic wind in accordance with the TIA-222-G Standard.
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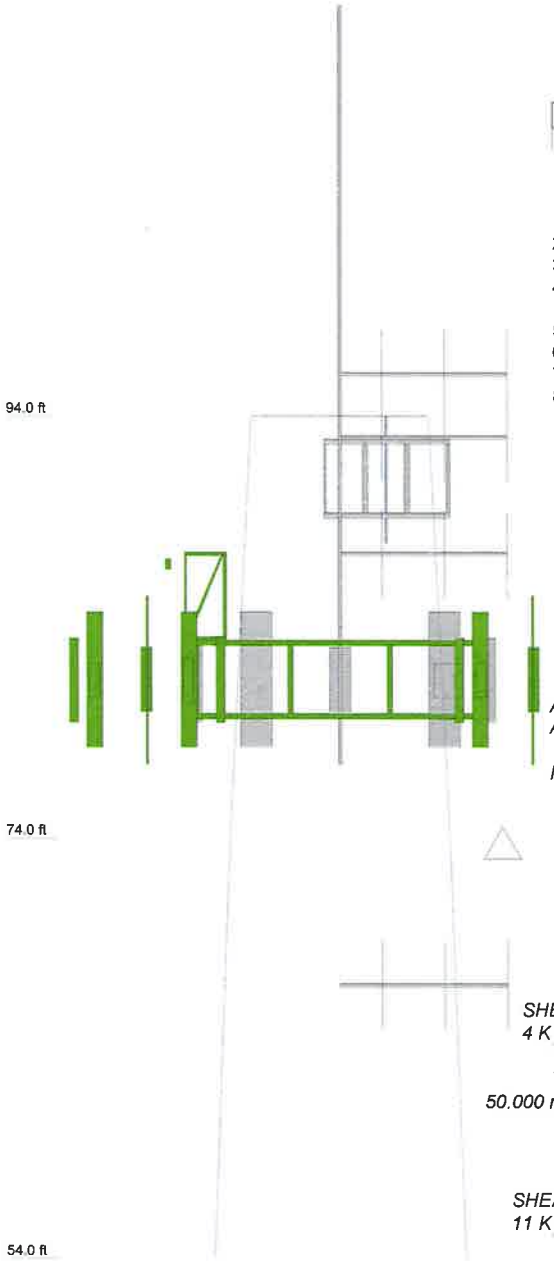
5. Deflections are based upon a 60.000 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 77%

Section									
T1	Legs	ROHN 2.5 STD							
	Leg Grade	A572-50							
	Diagonals	L 2 x 2 x 1/4	L 1.75 x 1.75 x 1/4						
	Diagonal Grade		A36						
T2	Top Girts	N.A.	L3x3x1/4						
	Face Width (ft)	12.0625	10.5625	8.5625					
	# Panels @ (ft)		6 @ 6.66667						
	Weight (K)	2.5	1.3	1.2					



ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 28 K
SHEAR: 6 K

UPLIFT: -23 K
SHEAR: 5 K

AXIAL 25 K
SHEAR 4 K
MOMENT 97 kip-ft

TORQUE 1 kip-ft
50.000 mph WIND - 0.750 in ICE

AXIAL 9 K
SHEAR 11 K
MOMENT 265 kip-ft

TORQUE 3 kip-ft
REACTIONS - 93.000 mph WIND

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
Phone: 614.221.6679
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Job:	40-Ft Roof Mounted S/S: Stamford West: Stamford,		
Project:	42917-0005.001.8700		
Client:	On-Air Engieering, LLC	Drawn by: Kurt J Swarts	App'd:
Code:	TIA-222-G	Date: 06/05/17	Scale: NTS
Path:	G:\TOWERS\09 On Air Engineering\2017\42917-0005 Stamford W CT\TNX Model\42917-0005.001.8700.eri		Dwg No. E-1

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

By KJS Date 6/2/2016
Project # 42917-0005.001.8700

Foundation Reaction Comparison

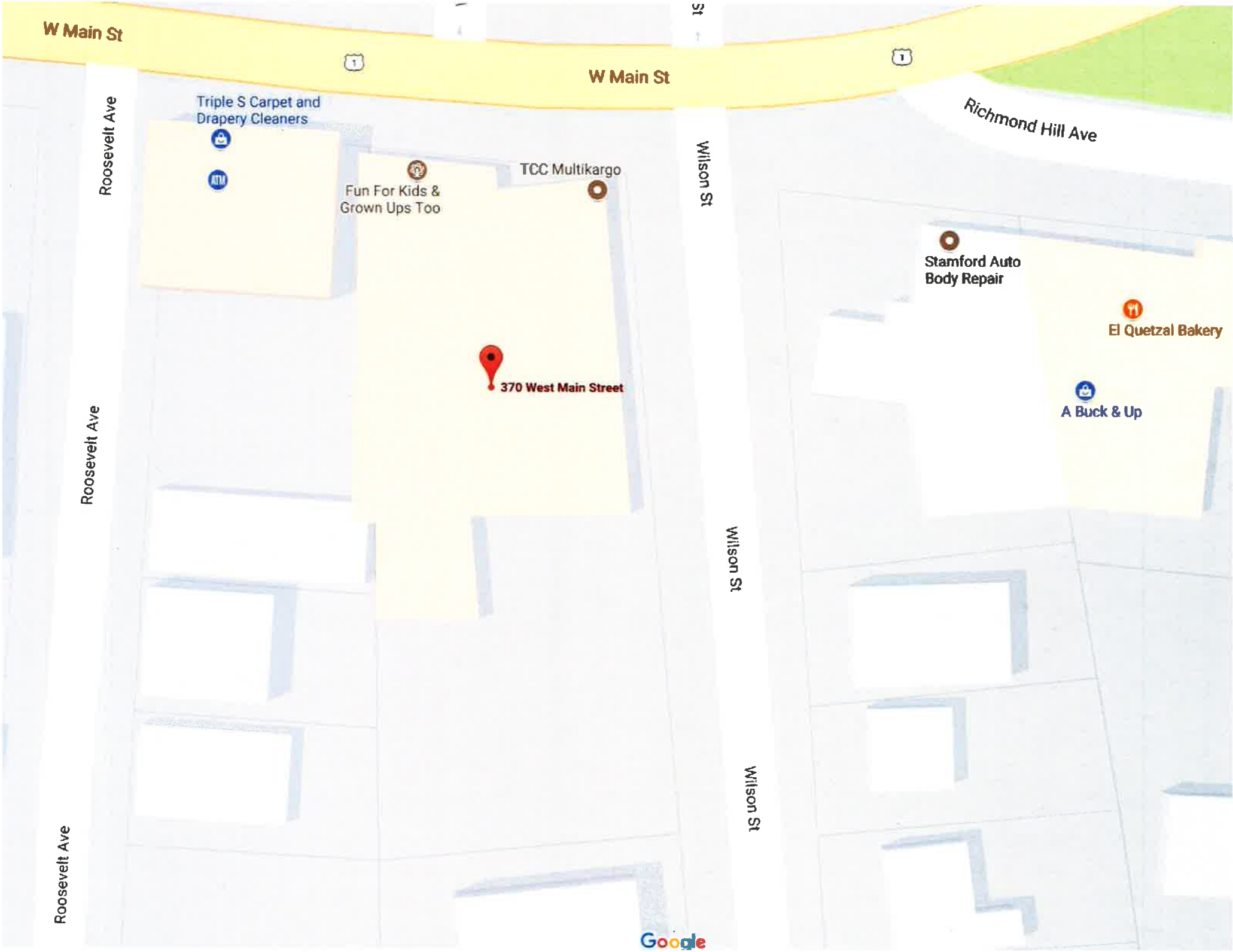
Previous Structural Analysis

Firm:	Centek Engieering, Inc
Document #:	Structural Analysis #14067.006
Drawings Date:	3/17/2015

Reactions	Previous Analysis	Modified Original Design*	Current Analysis	Ratio
Compression (kips)	25	**33.75**	28.00	0.82963
Tension (kips)	20	**27**	23.00	0.85185
Shear (kips)	10	**13.5**	11.00	0.81481
OTM (kip-ft)	238	**321.3**	265.00	0.82477

* The original tower design was completed in accordance with TIA/EIA-222-F standard. Per section 15.5.1 of the TIA-222-G standard, the reactions from the original design shall be multiplied by 1.35 for comparison to the reactions from this analysis.

ATTACHMENT 4


W Main St
W Main St
Roosevelt Ave
Triple S Carpet and Drapery Cleaners
ATM
Fun For Kids & Grown Ups Too
TCC Multikargo
Wilson St
370 West Main Street
Roosevelt Ave
Roosevelt Ave
Wilson St
Wilson St
Richmond Hill Ave
Stamford Auto Body Repair
El Quetzal Bakery
A Buck & Up
Google

370 WEST MAIN STREET

Location	370 WEST MAIN STREET	**Mblu**	002/ 0522/ / /
Acct#	002-0522	**Owner**	STORAGE WORKS LLC
Assessment	$3,471,820	**Appraisal**	$4,959,740
PID	7392	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$3,942,550	$1,017,190	$4,959,740

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$2,759,790	$712,030	$3,471,820

Owner of Record

Owner STORAGE WORKS LLC
Co-Owner
Address 370 WEST MAIN STREET
STAMFORD, CT 06902

Sale Price $0
Certificate
Book & Page 6354/ 164
Sale Date 08/07/2002
Instrument 03

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
STORAGE WORKS LLC	$0		6354/ 164	03	08/07/2002
WESTSIDE STORAGE COMPANY	$0		1763/ 183	25	07/26/1978

Building Information

Building 1 : Section 1

Year Built: 1925
Living Area: 25,900

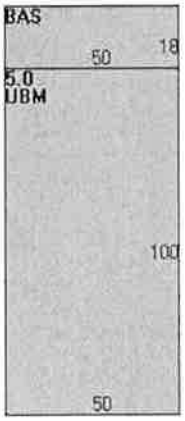
Building Attributes	
Field	**Description**
STYLE	Mini Warehouse
Stories:	5

Occupancy	3
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall/Plaste
Interior Wall 2	
Interior Floor 1	Concrete Slab
Interior Floor 2	Carpet
Heating Fuel	Gas/LP
Heating Type	Hot Wtr Bbd
AC Type	Central
Bldg Use	Commercial MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300
Heat/AC	Heat/AC Pkgs
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Sus-Ceil&Wall
Rooms/Prtns	Average
Wall Height	9
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/StamfordCTPhotos//\00\11\78/

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
5.0	5 Story	5,000	25,000
BAS	First Floor	900	900
UBM	Basement, Unfinished	5,000	0
		10,900	25,900

Building 2 : Section 1

Year Built: 1925
Living Area: 31,435

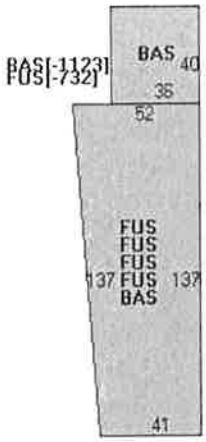
Building Attributes : Bldg 2 of 2	
Field	Description
STYLE	Mini Warehouse
Stories:	5
Occupancy	2
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	

Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall/Plaste
Interior Wall 2	
Interior Floor 1	Concrete Slab
Interior Floor 2	
Heating Fuel	Gas/LP
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	Commercial MDL-94
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	Heat/AC Pkgs
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Sus-Ceil&Wall
Rooms/Prtns	Average
Wall Height	9
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/StamfordCTPhotos//\00\11\78/

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
FUS	Upper Story, Finished	24,748	24,748
BAS	First Floor	6,687	6,687
		31,435	31,435

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
EL2	Elev Pass	6 STOPS	$172,800	1
OH1	Door Overhd Co	2 UNITS	$5,040	1
SPR1	Sprinklers - Wet	25900 S.F.	$27,970	1
EL2	Elev Pass	6 STOPS	$172,800	1

Land

Land Use

Land Line Valuation

Use Code	200	**Size (Acres)**	0.59
Description	Commercial MDL-94	**Depth**	
Zone	MZN	**Assessed Value**	$712,030
Neighborhood	0300	**Appraised Value**	$1,017,190
Alt Land Appr	No		
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
AP1	Fence Chn Lk			300 L.F.	$3,710	1
LP4	Pavng Asphlt			12000 S.F	$13,500	1
CEL1	Cell Tower			1 SITES	$158,530	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$3,942,550	$1,017,190	$4,959,740
2015	$3,942,550	$1,017,190	$4,959,740
2014	$3,942,550	$1,017,190	$4,959,740

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$2,759,790	$712,030	$3,471,820
2015	$2,759,790	$712,030	$3,471,820
2014	$2,759,790	$712,030	$3,471,820

ATTACHMENT 5

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here ***Postmark with Date of Receipt.***
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103	3	3	neopost 08/02/2017 US POSTAGE $002.38 ZIP 06103 041L122033
	Postmaster, per *(name of receiving employee)* V.P		

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	David Martin, Mayor City of Stamford 888 Washington Boulevard Stamford, CT 06901				
2.	Ralph Blessing, Land Use Bureau Chief City of Stamford 888 Washington Boulevard Stamford, CT 06901				
3.	Storage Works LLC 370 West Main Street Stamford, CT 06902		OLD STATE HOUSE STATION 06103 AUG 02 2017 USPS		
4.					
5.					
6.					