

June 19, 2020

Via Electronic Mail

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

Re: **Request of Cellco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of an Existing Tower at 16 Bell Road Extension, Cornwall, Connecticut**

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes (“C.G.S.”) §16-50aa, as amended, Cellco Partnership d/b/a Verizon Wireless (“Cellco”) hereby requests an order from the Siting Council (“Council”) to approve the shared use of an existing telecommunications tower on a 41-acre parcel at 16 Bell Road Extension in Cornwall, Connecticut (the “Property”). The Property is owned by LEGULL LLC and tower is owned by Blue Sky Towers (“Blue Sky”). Cellco identifies this site as its “Cornwall Facility”. The existing 110-foot monopole tower was approved by the Siting Council on October 21, 2010 in Docket No. 402. (*See Attachment 1*). The Docket No. 402 Certificate was transferred from Cellco to Construction Services of Branford, LLC (“CSB”) on September 18, 2014 and from CSB to Blue Sky on January 22, 2015.

Cellco requests that the Council find that the proposed shared use of the Blue Sky tower satisfies the criteria of C.G.S § 16-50aa and issue an order approving this request. A copy of this filing is being sent to Cornwall First Selectmen Gordon M. Ridgway; Karen Nelson, Cornwall’s Zoning Enforcement Officer; Blue Sky, the owner of the tower; and LEGULL LLC, the owner of the Property.

Background

Cellco is licensed by the Federal Communications Commission (“FCC”) to provide

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wireless services throughout the State of Connecticut. Cellco and Blue Sky have agreed to the proposed shared use of the Bell Road Extension tower pursuant to mutually acceptable terms and conditions. Likewise, Blue Sky and Cellco have agreed to the proposed installation of equipment on the ground within an existing fenced compound. Blue Sky has authorized Cellco to apply for all necessary permits and approvals that may be required to share the existing tower. (*See* Owner's authorization letter included in Attachment 2).

Cellco proposes to install six (6) antennas and six (6) remote radio heads ("RRHs") on the tower at a height of 110 feet above ground level ("AGL"). Cellco will also install one (1) equipment cabinet and a 20 kW diesel-fueled backup generator in the northeast corner of the site compound. Included in Attachment 3 are Cellco's project plans showing the location of all proposed site improvements. Attachment 4 contains specifications for Cellco's proposed generator, antennas and RRHs.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." Cellco respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing Blue Sky tower is structurally capable of supporting Cellco's antennas, RRHs, antenna mounting frame and related equipment. The proposed shared use of this tower is, therefore, technically feasible. A Structural Analysis Report dated June 12, 2020 prepared for this project confirms that the tower can support all of Cellco's proposed tower loading. A copy of the Structural Analysis Report is included in Attachment 5. A Mount Structural Analysis Report, dated May 28, 2020, was also prepared and confirms that the antenna mounts will have sufficient capacity to support Cellco's proposed equipment. The Mount Structural Replacement Report is included in Attachment 6.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the shared use of an existing tower such as the Blue Sky tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

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C. Environmental Feasibility. The proposed shared use of the Blue Sky tower would have minimal environmental effects, for the following reasons:

1. The proposed installation of six (6) antennas and six (6) RRHs on an antenna mounting frame at a height of 110 feet AGL on the existing 110-foot tower would have an insignificant incremental visual impact on the area around the existing tower. As mentioned above, Cellco's equipment will be located within the existing fenced compound area. Cellco's shared use of this tower facility would therefore, not cause any significant change or alteration in the physical or environmental characteristics of the existing site.
2. Noise associated with Cellco's proposed facility will comply with State and local noise standards. Noise associated with the backup generator is exempt from these same standards.
3. Operation of Cellco's antennas at this site would not exceed the RF emissions standards adopted by the Federal Communications Commission ("FCC"). Included in Attachment 7 of this filing is a worst-case General Power Density table that demonstrates that the facility will operate well within the FCC's safety standards.
4. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the facility other than periodic maintenance visits to the cell site.

The proposed shared use of the Blue Sky tower would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, Cellco has entered into an agreement with Blue Sky for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Cellco's antennas, antenna mounting frame, RRHs and all related equipment. Cellco

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is not aware of any public safety concerns relative to the proposed sharing of the existing Blue Sky tower. In fact, the provision of new and improved wireless service through shared use of the existing tower is expected to enhance the safety and welfare of area residents and members of the general public traveling through the Town of Cornwall.

Conclusion

A Certificate of Mailing verifying that this filing was sent to the municipal officials and the Property owner is included in Attachment 8.

For the reasons discussed above, the proposed shared use of the existing Blue Sky tower at the Property satisfies the criteria stated in C.G.S. § 16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Thank you for your consideration of this matter.

Very truly yours,



Kenneth C. Baldwin

Enclosures

Copy to:

Gordon Ridgway, First Selectman
Karen Nelson, Zoning Enforcement Officer
Blue Sky Towers
LEGULL LLC
Greg Richard

ATTACHMENT 1

<p>DOCKET NO. 402 - Cellco Partnership d/b/a Verizon Wireless application for a Certificate of Environmental Compatibility and Public need for the construction, maintenance and operation of a telecommunications facility located at 16 Bell Road Extension, Cornwall, Connecticut.</p>	<p>} Connecticut } Siting } Council } October 21, 2010</p>
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Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Cellco Partnership d/b/a Verizon Wireless, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 16 Bell Road Extension, Cornwall, Connecticut.

Unless otherwise approved by the Council, the facility shall be constructed, operated, and maintained substantially as specified in the Council’s record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of the Certificate Holder and other entities, both public and private, but such tower shall not exceed a height of 110 feet above ground level. The height at the top of the Certificate Holder’s antennas shall not exceed 112 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Cornwall for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
 - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and the Connecticut Department of Transportation Drainage Manual;
 - c) delineation of the south property line through a certified A-2 survey; and,
 - d) provisions for an independent environmental inspector to be on-site bi-weekly to ensure environmental controls are in place during road construction activities. A final report of the inspector’s findings shall be issued to the Council once road construction is complete.

3. Construction of the access road shall not occur from March 1 through May 15.

4. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Cornwall public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
9. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Cornwall. Any proposed modifications to this Decision and Order shall likewise be so served.
10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
11. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.
12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

13. The Certificate Holder shall maintain the facility and associated equipment in a reasonable physical and operational condition, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping, that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.
14. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.
15. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Waterbury Republican-American and The Register Citizen.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant

Cellco Partnership d/b/a
Verizon Wireless

Intervenor

Town of Cornwall

Intervenor

Frederic I. Thaler
Kathleen Mooney
66 Popple Swamp Road
Cornwall Bridge, CT 06754

Intervenor

Nicholas and Caroline Daifotis
239 Brushy Ridge Road
New Canaan, CT 06840

Its Representative

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

Its Representative

The Honorable Gordon M. Ridgway
First Selectman
Town of Cornwall
P.O. Box 97
Cornwall, CT 06753

ATTACHMENT 2

Letter of Authorization

This letter of authorization dated 1 day of May 2020, provides written authorization for Verizon Wireless, its attorneys, other agents or representatives, to apply for any necessary zoning petitions, permits or any other approvals, including, but not limited to the filing of a building permit application (after required zoning approval has been completed, if necessary) which are necessary for the placement of a wireless communications facility with a portion of Map C07, Block 1, Lot 1, commonly known as 16 Bell Road Extension, State of Connecticut, County of Litchfield, Town of Cornwall.

This Letter of Authorization shall not constitute an agreement to enter into a binding agreement and neither party shall be bound with regard to the leasing or purchase of the above mentioned property until a final agreement has become fully executed between the parties.

By: 

Print Name: JAMES M. BURGESS

Title: VICER PRESIDENT, REAL ESTATE

Date: 5/1/20

ATTACHMENT 3



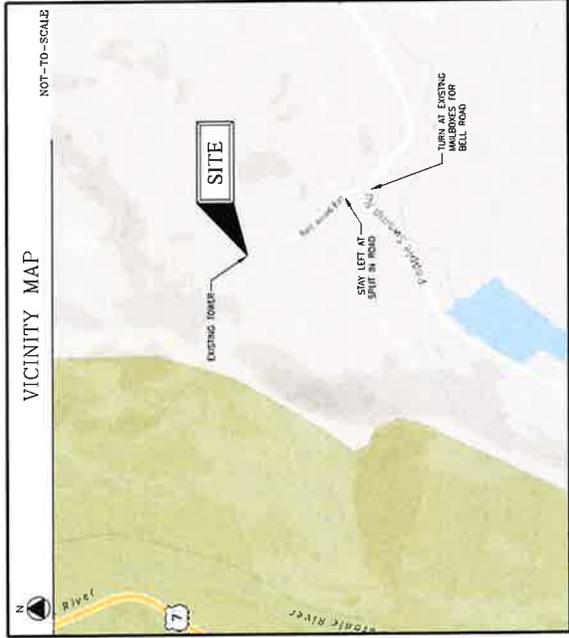
WIRELESS COMMUNICATIONS FACILITY

SITE NAME: CORNWALL CT

BLUE SKY TOWERS CT-5001
16 BELL ROAD EXT.
CORNWALL, CT 06754

WIRELESS COMMUNICATIONS FACILITY 20 AL EXANDER DRIVE WALLINGFORD, CT 06492	
On Air Engineering, LLC 85 Foundry Pond Rd. CORNWALL, CT 06754 203-456-4624	
NO. DATE 1 11/15/17 2 11/15/17 3 11/15/17 4 11/15/17 5 11/15/17 6 11/15/17 7 11/15/17 8 11/15/17 9 11/15/17 10 11/15/17	REVISIONS 1 11/15/17 2 11/15/17 3 11/15/17 4 11/15/17 5 11/15/17 6 11/15/17 7 11/15/17 8 11/15/17 9 11/15/17 10 11/15/17
DRAWN BY: AS CHECKED BY: DW	PROJECT INFORMATION BLUE SKY TOWERS CT-5001 16 BELL RD. EXT. CORNWALL, CT 06754
SITE NAME: CORNWALL CT	TITLE SHEET
PROJECT INFORMATION: NEW BUILD MACRO	SHEET NUMBER: T-1

DRAWING SCHEDULE	
SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
A-1	COMPOUND PLAN, EQUIPMENT PLAN & SOUTH ELEVATION
A-2	ANTENNA PLAN & DETAILS



PROJECT SUMMARY	
SITE NAME:	CORNWALL CT
SITE ADDRESS:	16 BELL ROAD EXT. CORNWALL, CT 06754
PROPERTY OWNER & MAILING ADDRESS:	LEGULL LLC 24 BRATTLEBURY CORNWALL, MA 02754
TOWER OWNER:	BLUE SKY TOWERS 352 PARK ST. SUITE 106 N. READING, MA 01864
PARCEL ID:	C07-143
TOWER COORDINATES:	41° 50' 43.811" N 73° 27' 51.492" W
APPLICANT:	CELLECT PARTNERSHIP 48 S. VERIZON WIRELESS 20 ALEXANDER DR WALLINGFORD, CT 06492
VERIZON WIRELESS PROJECT MANAGER:	STRIKE THROUGH COMMUNICATIONS 1000 WASHINGTON ST ROBENSON & COLE, LLP ROBENSON & COLE, LLP (603) 274-8345

PROJECT DESCRIPTION	
-	INSTALLATION OF (1) OUTDOOR EQUIPMENT CABINET AND DIESEL FUELED GENERATOR ON A NEW 15'x10' CONCRETE PAD WITH 15' TOWER ATTACHED TO THE NORTH SIDE OF THE PAD.
-	INSTALLATION OF (6) PANEL ANTENNAS AND ASSOCIATED DEVICES ON THE EXISTING MONOPOLE
-	INSTALLATION OF (2) GPS ANTENNAS ON EQUIPMENT COMPARTMENT OF THE EXISTING MONOPOLE
-	EXISTING UTILITY DEMARCATION POINTS AT COMPOUND
-	GROUNDING OF ALL PROPOSED EQUIPMENT TO EXISTING GROUND RING WITHIN COMPOUND

verizon
WIRELESS COMMUNICATIONS FACILITY
39 ALEXANDER DRIVE
WALLINGFORD, CT 06492

On Air Engineering, LLC
516 Funday Road
Cold Spring, NY 10516
Company: 516-464-6824
Cell: 516-464-6824



NO.	DATE	REVISION	DESCRIPTION
1	06/21/20	REVISED	REVISED PER STRUWAY COMMENTS
2	06/21/20	REVISED	REVISED PER STRUWAY COMMENTS
3	06/21/20	REVISED	REVISED PER STRUWAY COMMENTS
4	06/21/20	REVISED	REVISED PER STRUWAY COMMENTS
5	06/21/20	REVISED	REVISED PER STRUWAY COMMENTS
6	06/21/20	REVISED	REVISED PER STRUWAY COMMENTS
7	06/21/20	REVISED	REVISED PER STRUWAY COMMENTS
8	06/21/20	REVISED	REVISED PER STRUWAY COMMENTS
9	06/21/20	REVISED	REVISED PER STRUWAY COMMENTS
10	06/21/20	REVISED	REVISED PER STRUWAY COMMENTS

DATE: 06/21/20
DRAWN BY: AS
DW

CORNWALL CT
NEW BUILD MACRO

PROJECT INFORMATION
BLUE SKY TOWERS CT-5001
16 BELL RD. EXT.
CORNWALL, CT 06754

ANTENNA PLAN & DETAILS
A-2



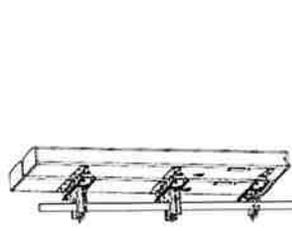
RRH DIMENSIONS 700/850 (B1.2/95)	
HEIGHT	15"
WIDTH	15"
DEPTH	8.1"
WEIGHT	70.3 LBS
COLOR	OFF WHITE

4 RRH DETAIL - 700/850
SCALE: 1/2"



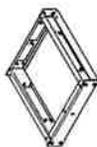
RRH DIMENSIONS AWS/PCS (B66/82)	
HEIGHT	15"
WIDTH	15"
DEPTH	10"
WEIGHT	84.4 LBS
COLOR	OFF WHITE

3 RRH DETAIL - AWS/PCS
SCALE: 1/2"



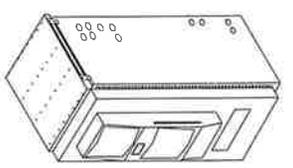
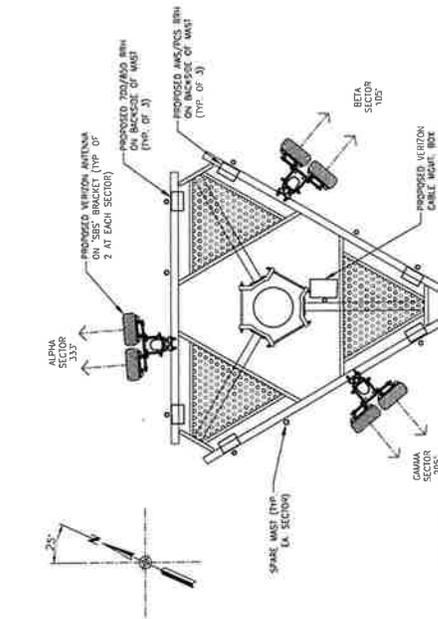
ANTENNA SPECIFICATIONS	
MODEL #	NHH-45C-R2B
SIZE	95.9" H x 18" W x 7.0" D; 87.1 LBS.
ACCESSORY EQUIPMENT	SIDE-BY-SIDE MOUNTING BRACKET

2 ANTENNA DETAIL
SCALE: 1/2"



EQUIPMENT SPECIFICATIONS			
MODEL #	7602387/31	HEIGHT	6"
WIDTH	32"	DEPTH	36.63"
WEIGHT			

7 RBAB4 CABINET SUB-BASE (PLINTH)
SCALE: 3/8" = 1"



EQUIPMENT SPECIFICATIONS			
MODEL #	RBAB4	HEIGHT	85.2"
WIDTH	32.0"	DEPTH	35.4"
WEIGHT			1,955 LBS

6 RBAB4 EQUIPMENT CABINET
SCALE: 3/8" = 1"



EQUIPMENT SPECIFICATIONS*			
MODEL #	SDC20	HEIGHT	84.4"
WIDTH	36"	DEPTH	46"
WEIGHT			3,075 LBS

5 20KW DIESEL GENERATOR
SCALE: 1/2"

*INCLUDES FULL INGE "M" SKID

ATTACHMENT 4

SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DIESEL GENERATOR SET
EPA Certified Stationary Emergency

Standby Power Rating
20 kW AC, 60 Hz

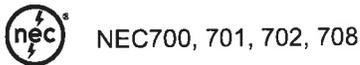
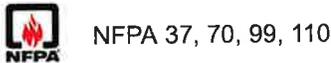


Image used for illustration purposes only



Codes and Standards

Generac products are designed to the following standards:



Powering Ahead

For over 50 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DC DIESEL GENERATOR SET

EPA Certified Stationary Emergency

STANDARD OPTIONS

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner with Service Indicator
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Exhaust Silencer with Drain
- Factory Filled Oil & Coolant

Fuel System

- Primary Fuel Filter

Cooling System

- 120V AC Coolant Heater
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

Electrical System

- Battery Charging Alternator
- AGM Spill Proof Battery
- Battery Cables
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- Class H Insulation Material
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Auxiliary Voltage Regulator Power Winding
- Amortisseur Winding
- Brushless Excitation
- Sealed Bearings
- Automated Manufacturing (Winding, Insertion, Lacing and Varnishing)
- Rotor Dynamically Spin Balanced
- Full Load Capacity Alternator
- Protective Thermal Switch

GENERATOR SET

- Single-Side Service
- Internal Genset Puck Style Vibration Isolators
- Separation of Circuits- High/Low Voltage
- Silencer Heat Shield
- High Heat Wrapped Exhaust Piping
- Silencer Enclosed Within Generator
- 5 Year Extended Warranty
- Extended Factory Testing
- 12 Gallon System Spill Containment
- 2.5 Gallon Fuel Fill Spill Containment

ENCLOSURE

- Serviceable Items Accessible Through Single Lift-Off Side Door
- High Performance Sound-Absorbing Material
- Gasketed Door
- Stamped Air-Intake Louvers
- Single Door Latch Lockable with Key & Padlock
- Rhino Coat™ - Textured Polyester Powder Coat
- 150 MPH Wind Rating
- 36" Snow Rating
- 4 Point Lift System

FUEL TANK

- UL 142 Compliant
- Double Wall Construction
- Thermal Valve (Fusible Link)
- Factory Pressure Tested (5 psi)
- Rupture Basin Alarm
- Fuel Level Gauge and Sender
- Check Valve in Supply Line
- Fire Rated Hose
- Rhino Coat™ - Textured Polyester Powder Coat
- Stainless Steel Hardware
- Integrated Fork Pockets

CONTROL SYSTEM

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC RS-232/485
- All-Phase Sensing DVR
- Full System Status
- Utility Monitoring
- 2-Wire Start Compatible
- Power Output (kW)
- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed

- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground
- 15 Channel Data Logging
- 0.2 msec High Speed Data Logging
- Alarm Information Automatically Comes Up On the Display

Alarms

- Generator Run- Dry Contact
- Major Alarm- Dry Contact
- Minor Alarm- Dry Contact
- Low Fuel Alarm- Dry Contact
- Generator Fluid Spill Alarm- Dry Contact
- Alarms & Warnings Time and Date Stamped
- Alarms & Warnings for Transient and Steady State Conditions
- Snap Shots of Key Operation Parameters During Alarms & Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

MODEL OPTIONS

CONTROL SYSTEM

- 21 Light Annunciator- Shipped Loose Kit and Field Installed
- External E-Stop-Shipped Loose Kit and Field Installed

ENCLOSURE

- Aluminum Enclosure
- Extreme Cold Weather Kit (-40°C)- Shipped Loose Kit and Field Installed

TANKS

- MDEQ 5 Gallon Fuel Spill Box with 90% Fill Alarm- Shipped Loose Kit and Field Installed
- MDEQ Fuel Vent- Shipped Loose Kit and Field Installed

SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DIESEL GENERATOR SET
 EPA Certified Stationary Emergency



APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Mitsubishi
EPA Emissions Compliance	Interim Tier 4
Cylinder #	4
Type	In-Line
Displacement - L (Cu In)	2.5 (158)
Bore - mm (in)	88 (3.5)
Stroke - mm (in)	103 (4.1)
Compression Ratio	22:1
Intake Air Method	Naturally Aspirated

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	± 0.25%

Lubrication System

Oil Pump Type	Trochoid Gear Pump
Oil Filter Type	Filtering Paper, Full Flow
Crankcase Capacity - L (qts)	6.5 (6.9)

Cooling System

Cooling System Type	Forced Circulation
Water Pump Type	Centrifugal Pump
Fan Type	Pusher
Fan Speed (rpm)	2376
Fan Diameter - mm (in)	380 (15)
Coolant Heater Wattage	1000
Coolant Heater Standard Voltage	120

Fuel System

Fuel Type	Ultra Low Sulfur Diesel #2
Fuel Specifications	ASTM
Fuel Filtering (microns)	6
Fuel Inject Pump Make	Bosch
Injector Type	Engine Driven Gear
Engine Type	Diesel
Fuel Supply Line - mm (in.)	6.6 (0.26)

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	12V-50A
Battery Size	650 CCA
Battery Group	35
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	Mecc Alte ECP 28-2L/4
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<45
Standard Excitation	Brushless

Bearings	Dual Sealed
Coupling	Belt, Pulley
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±1.0%

RATING DEFINITIONS

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DC DIESEL GENERATOR SET
 EPA Certified Stationary Emergency



OPERATING DATA

POWER RATINGS

Single-Phase 120/240 VAC @1.0pf	20 kW*	Amps: 83
Circuit Breaker	100A	

*18 kW output until 50 hour break-in complete

FUEL CONSUMPTION RATES*

Diesel - gph (lph)	
Percent Load	Standby
50%	1.02 (3.78)
75%	1.37 (5.18)
100%	1.81 (6.85)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Coolant Flow per Minute	gpm (lpm)	15.9 (60)
Coolant System Capacity	gal (L)	6 (22.7)
Heat Rejection to Coolant	BTU/hr	238,200
Inlet Air	cfm (m ³ /min)	67.1 (1.9)
Max. Operating Ambient Temperature (Before Derate)	°F (°C)	104° (40°)
Maximum Radiator Backpressure	in H ₂ O	0.50

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power cfm (m ³ /min)	88 (2.49)

ENGINE

EXHAUST

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	33.5
Piston Speed	ft/min	1220.47
BMEP	psi	96.5

		Standby
Exhaust Flow (Rated Output)	cfm (m ³ /min)	193 (328)
Max. Backpressure (Post Silencer)	inHg (kPa)	1.96 (6.67)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	928 (497.7)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

NHH-45C-R2B



6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 45° HPBW, 2x RETs and 2x SBTs. Both high bands share the same electrical tilt.

- Narrow beamwidth capacity antenna for higher level of densification and enhanced data throughput
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- One LB RET and one HB RET. Both high bands are controlled by one RET to ensure same tilt level for 4x Rx or 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Effective Projective Area (EPA), frontal	1.4 m ² 15.069 ft ²
Effective Projective Area (EPA), lateral	0.3 m ² 3.229 ft ²
Grounding Type	RF connector body grounded to reflector and mounting bracket
Performance Note	Outdoor usage Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN
RF Connector Interface	4,3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	6

Remote Electrical Tilt (RET) Information, General

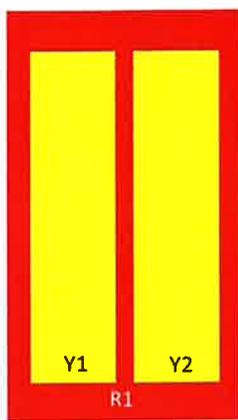
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male

Dimensions

Width	457 mm 17.992 in
Length	2437 mm 95.945 in
Depth	178 mm 7.008 in

NHH-45C-R2B

Array Layout



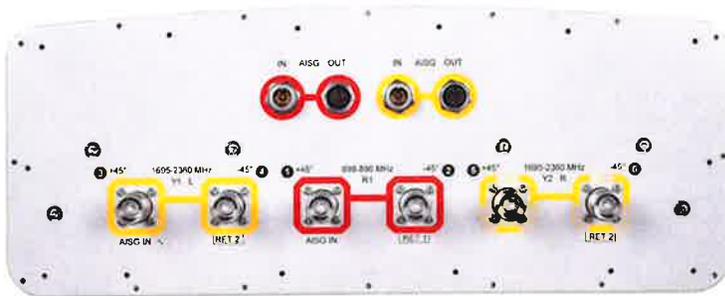
Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-896	1-2	1	ANxxxxxxxxxxxxxxxxx1
Y1	1695-2360	3-4	2	ANxxxxxxxxxxxxxxxxx2
Y2	1695-2360	5-6		

Left Right
Bottom

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

Port Configuration

NHH-45C-R2B



Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2360 MHz 698 – 896 MHz
Total Input Power, maximum	800 W @ 50 °C

Remote Electrical Tilt (RET) Information, Electrical

Protocol	3GPP/AISG 2.0 (Single RET)
Power Consumption, idle state, maximum	1 W
Power Consumption, normal conditions, maximum	10 W
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 Port 3
Internal RET	High band (1) Low band (1)

NHH-45C-R2B

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	18.1	18.4	19.5	20	20.4	20.8
Beamwidth, Horizontal, degrees	47	43	44	42.6	42	39
Beamwidth, Vertical, degrees	9	8.3	5.8	5.4	5	4.5
Beam Tilt, degrees	0–10	0–10	0–8	0–8	0–8	0–8
USLS (First Lobe), dB	17	20	19	20	20	21
Front-to-Back Ratio at 180°, dB	35	38	36	39	38	41
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	28	28	28	28
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	300	300	300	300	300	250

Electrical Specifications, BASTA

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	17.8	18.3	19.1	19.8	20.1	20.6
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.2	±0.5	±0.4	±0.3	±0.3
Gain by Beam Tilt, average, dBi	0° 17.7 10° 17.7 5° 17.8	0° 18.1 5° 18.4 10° 18.2	0° 19.0 4° 19.1 8° 19.0	0° 19.7 4° 19.8 8° 19.7	0° 19.9 4° 20.1 8° 20.1	0° 20.5 4° 20.8 8° 20.5
Beamwidth, Horizontal Tolerance, degrees	±1.3	±2.7	±1.8	±1.9	±1.6	±2.1
Beamwidth, Vertical Tolerance, degrees	±0.4	±0.2	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	17	16	15	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	24	25	28	30	32	32
CPR at Boresight, dB	26	21	18	20	18	17
CPR at Sector, dB	19	17	12	13	15	16

Material Specifications

Radiator Material

Aluminum | Low loss circuit board

NHH-45C-R2B

Reflector Material Aluminum

Mechanical Specifications

Wind Loading at Velocity, frontal 1,485.0 N @ 150 km/h
Wind Loading at Velocity, lateral 315.0 N @ 150 km/h
Wind Loading at Velocity, maximum 1,485.0 N @ 150 km/h | 333.8 N @ 150 km/h
Wind Speed, maximum 241 km/h | 149.75 mph

Packaging and Weights

Width, packed 608 mm | 23.937 in
Depth, packed 346 mm | 13.622 in
Length, packed 2579 mm | 101.535 in
Net Weight, without mounting kit 39.5 kg | 87.082 lb
Weight, gross 64.8 kg | 142.859 lb

Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Above maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
ROHS	Compliant/Exempted



Included Products

BSAMNT-3 — 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.

BSAMNT-M — Middle Downtilt Mounting Kit for Long Antennas for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor bracket set.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance

SAMSUNG

Dual-Band Radio Unit AWS/PCS (B66/B2)

RFV01U-D1A

Samsung's RFV01U-D1A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.



The RFV01U-D1A RU targets dual-band support across Band 66 (AWS) and Band 2 (PCS), making it an ideal product for broad coverage footprints across multiple common mid-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation
- Built-in Broadcast Auxiliary Services (BAS) filter ensures compliant AWS operation without impacting footprint

Key Technical Specifications

Duplex Type: FDD

Operating Frequencies:

B66: DL(2,110-2,180MHz)/UL(1,710-1,780MHz)

B2: DL(1,930-1,990MHz)/UL(1,850-1,910MHz)

Instantaneous Bandwidth:

70MHz(B66) + 60MHz(B2)

RF Chain: 4T4R/2T4R/2T2R

Output Power: Total 320W

DU-RU Interface: CPRI (10Gbps)

Dimensions: 380 x 380 x 255mm (36.8L)

Weight: 38.3kg

Input Power: -48V DC

Operating Temp.: -40 - 55°(w/o solar load)

Cooling: Natural convection

SAMSUNG

Dual-Band Radio Unit 700/850MHz (B13/B5) RFV01U-D2A

Samsung's RFV01U-D2A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.



The RFV01U-D2A RU targets dual-band support across Band 13 (700MHz) and Band 5 (850MHz), making it an ideal product for broad coverage footprints across multiple common low-end, long-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
 B13: DL(746-756MHz)/UL(777-787MHz)
 B5: DL(869-894MHz)/UL(824-849MHz)
Instantaneous Bandwidth: 10MHz(B13) + 25MHz(B5)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 207mm (29.9L)
Weight: 31.9kg
Input Power: -48V DC
Operating Temp.: -40 - 55°(w/o solar load)
Cooling: Natural convection

ATTACHMENT 5

STRUCTURAL ANALYSIS REPORT

For

CT-5001 CORNWALL CT

16 Bell Road Extension
Cornwall, CT 06754

Antennas Mounted to the Monopole



Prepared for:

verizon^v

20 Alexander Drive
Wallingford, CT 06492

Dated: June 12, 2020

Prepared by:

H **D** **G** **HUDSON**
Design Group LLC

45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupplc.com





HUDSON
Design Group LLC

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by VERIZON to conduct a structural evaluation of the 110' monopole supporting the proposed VERIZON's antennas located at elevation 110' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of VERIZON's proposed antennas listed below.

Record drawings of the existing monopole prepared by Valmont Structures, dated April 10, 2015, were available and obtained for our use. Lease Exhibit drawings prepared by On Air Engineering LLC, dated March 13, 2020, were provided to this office.

Mount Structural Analysis Report prepared by Paul J. Ford & Company, dated May 28, 2020, was provided to this office.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing monopole and foundation **are in conformance** with the ANSI/TIA-222-G Standard for the loading considered under the criteria listed in this report. **The monopole structure is rated at 24.9%** - (Base Plate at EL.1' Controlling).



APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
VERIZON	(6) NHH-45C-R2B Antennas	110'	RMQP-4096-HK Platform
VERIZON	(3) B5/B13 RRH-BR04C	110'	RMQP-4096-HK Platform
VERIZON	(3) B2/B66A RRH-BR049	110'	RMQP-4096-HK Platform
VERIZON	(1) DB-C1-12C-24AB-0Z	110'	RMQP-4096-HK Platform

*Proposed VERIZON Appurtenances shown in Bold.

VERIZON EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
VERIZON	(1) 1 5/8" Fiber Cable	110'	Inside Monopole

*Proposed VERIZON Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	6.7 %	80 – 110	PASS	
Pole Section-L2	15.3 %	46.08 – 80	PASS	
Pole Section-L3	22.0 %	1 – 46.08	PASS	
Base Plate & Anchor Bolts	24.9 %	1	PASS	Controlling

FOUNDATION COMPARISON SUMMARY:

	Design Reactions	Proposed Reactions	Pass/Fail	Comments
AXIAL	37.2 k	34.9 k	PASS	
SHEAR	45.1 k	20.1 k	PASS	
MOMENT	6120 ft-k	1475 ft-k	PASS	



HUDSON
Design Group LLC

DESIGN CRITERIA:

1. EIA/TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures
2. Connecticut State Building Code
County: Litchfield
Wind Load: 100 mph
Structural Class: II
Exposure Category: C
Topographic Category: I
Ice Thickness: 1.0 inch
3. Approximate height above grade to proposed antennas: 110'

ASSUMPTIONS:

1. The monopole and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
2. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
3. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.
4. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

SUPPORT RECOMMENDATIONS:

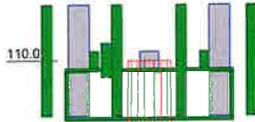
HDG recommends that the proposed antennas, RRHs and OVP box be mounted on the proposed steel platform supported by the monopole.



HUDSON
Design Group LLC

TNX INPUT/OUTPUT

Section	1	2	3
Length (ft)	30.00	39.92	52.00
Number of Sides	18	18	18
Thickness (in)	0.3750	0.3750	0.4375
Socket Length (ft)	6.00	6.92	
Top Dia (in)	36.0900	41.0040	48.0460
Bot Dia (in)	43.1700	50.4300	60.3300
Grade		A572-85	
Weight (lb)	4769.7	7331.0	13207.1
			25307.8



80.0 ft

46.1 ft

1.0 ft

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) NHH-45C-R2B w/ Mount Pipe	110	B2/B66A RRH-BR049	110
(2) NHH-45C-R2B w/ Mount Pipe	110	B2/B66A RRH-BR049	110
(2) NHH-45C-R2B w/ Mount Pipe	110	B2/B66A RRH-BR049	110
B5/B13 RRH-BR04C	110	DB-C1-12C-24AB-0Z	110
B5/B13 RRH-BR04C	110	RMQP-4096-HK Platform (VERIZON - proposed)	107.5
B5/B13 RRH-BR04C	110		

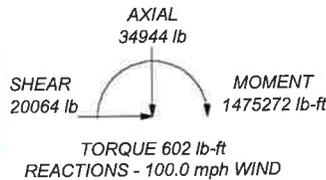
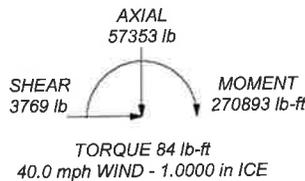
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 100.0 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 40.0 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 24.9%

ALL REACTIONS
ARE FACTORED



Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (P) 978.557.5553 FAX: (F) 978.336.5586	Job: CT5001		
	Project: 110 ft Monopole		
	Client: VERIZON	Drawn by: kw	App'd:
	Code: TIA-222-G	Date: 06/11/20	Scale: NTS
	Path:	Dwg No. E-1	

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (P) 978.557.5553 FAX: (F) 978.336.5586	Job CT5001	Page 1 of 10
	Project 110 ft Monopole	Date 10:17:08 06/11/20
	Client VERIZON	Designed by kw

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Litchfield County, Connecticut.

Basic wind speed of 100.0 mph.

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56.0 pcf.

A wind speed of 40.0 mph is used in combination with ice.

Temperature drop of 50.0 °F.

Deflections calculated using a wind speed of 60.0 mph.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	110.00-80.00	30.00	6.00	18	36.0900	43.1700	0.3750	1.5000	A572-65 (65 ksi)
L2	80.00-46.08	39.92	6.92	18	41.0040	50.4300	0.3750	1.5000	A572-65 (65 ksi)
L3	46.08-1.00	52.00		18	48.0460	60.3300	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	36.5889	42.5098	6850.5841	12.6788	18.3337	373.6603	13710.1824	21.2589	5.6918	15.178
	43.7781	50.9367	11785.6824	15.1922	21.9304	537.4140	23586.8726	25.4732	6.9379	18.501
L2	43.0173	48.3587	10085.1890	14.4233	20.8300	484.1658	20183.6483	24.1839	6.5567	17.485
	51.1501	59.5780	18858.9729	17.7695	25.6184	736.1484	37742.7610	29.7946	8.2157	21.908
L3	50.3797	66.1104	18931.1439	16.9010	24.4074	775.6318	37887.1980	33.0615	7.6861	17.568
	61.1932	83.1682	37691.1818	21.2618	30.6476	1229.8233	75431.9586	41.5920	9.8481	22.51

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (P) 978.557.5553 FAX: (F) 978.336.5586	Job	CT5001	Page	2 of 10
	Project	110 ft Monopole	Date	10:17:08 06/11/20
	Client	VERIZON	Designed by	kw

Monopole Base Plate Data

Base Plate Data	
Base plate is square	
Base plate is grouted	
Anchor bolt grade	A615-75
Anchor bolt size	2.2500 in
Number of bolts	18
Embedment length	72.0000 in
f_c	3.0 ksi
Grout space	3.0000 in
Base plate grade	A572-50
Base plate thickness	3.2500 in
Bolt circle diameter	67.7600 in
Outer diameter	74.9000 in
Inner diameter	36.0000 in
Base plate type	Plain Plate

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA}		Weight plf
							ft ² /ft		
1 5/8 Fiber Cable (VERIZON - proposed)	C	No	No	Inside Pole	110.00 - 8.00	1	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment	Placement ft	C _{AA}		Weight lb	
						Front ft ²	Side ft ²		
RMQP-4096-HK Platform (VERIZON - proposed)	A	None		0.0000	107.50	No Ice	33.00	33.00	2300.00
						1/2" Ice	43.00	43.00	2800.00
						1" Ice	53.00	53.00	3300.00
(2) NHH-45C-R2B w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice	16.20	10.24	139.21
						1/2" Ice	16.92	11.77	253.34
						1" Ice	17.63	13.11	378.94
(2) NHH-45C-R2B w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice	16.20	10.24	139.21
						1/2" Ice	16.92	11.77	253.34
						1" Ice	17.63	13.11	378.94
(2) NHH-45C-R2B w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice	16.20	10.24	139.21
						1/2" Ice	16.92	11.77	253.34
						1" Ice	17.63	13.11	378.94
B5/B13 RRH-BR04C	A	From Leg	3.00 0.00 0.00	0.0000	110.00	No Ice	1.88	1.01	82.00
						1/2" Ice	2.05	1.14	98.43
						1" Ice	2.22	1.28	117.53
B5/B13 RRH-BR04C	B	From Leg	3.00 0.00	0.0000	110.00	No Ice	1.88	1.01	82.00
						1/2" Ice	2.05	1.14	98.43

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (P) 978.557.5553 FAX: (F) 978.336.5586	Job CT5001	Page 3 of 10
	Project 110 ft Monopole	Date 10:17:08 06/11/20
	Client VERIZON	Designed by kw

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CA _{AA} Front ft ²	CA _{AA} Side ft ²	Weight lb	
B5/B13 RRH-BR04C	C	From Leg	0.00	0.0000	110.00	1" Ice	2.22	1.28	117.53
			3.00			No Ice	1.88	1.01	82.00
			0.00			1/2" Ice	2.05	1.14	98.43
B2/B66A RRH-BR049	A	From Leg	0.00	0.0000	110.00	1" Ice	2.22	1.28	117.53
			3.00			No Ice	1.88	1.25	97.50
			0.00			1/2" Ice	2.05	1.39	115.84
B2/B66A RRH-BR049	B	From Leg	0.00	0.0000	110.00	1" Ice	2.22	1.54	136.97
			3.00			No Ice	1.88	1.25	97.50
			0.00			1/2" Ice	2.05	1.39	115.84
B2/B66A RRH-BR049	C	From Leg	0.00	0.0000	110.00	1" Ice	2.22	1.54	136.97
			3.00			No Ice	1.88	1.25	97.50
			0.00			1/2" Ice	2.05	1.39	115.84
DB-C1-12C-24AB-0Z	C	From Leg	2.00	0.0000	110.00	No Ice	4.06	3.10	32.00
			0.00			1/2" Ice	4.32	3.34	68.49
			0.00			1" Ice	4.58	3.58	108.97

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+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp

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Comb. No.	Description
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
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
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	26	57353.08	0.00	0.00
	Max. H _x	21	26207.66	20050.29	-22.95
	Max. H _z	2	34943.54	-22.95	20023.79
	Max. M _x	2	1470691.31	-22.95	20023.79
	Max. M _z	8	1473558.34	-20050.29	22.95
	Max. Torsion	24	601.58	10005.27	17329.64
	Min. Vert	25	26207.66	10005.27	17329.64
	Min. H _x	8	34943.54	-20050.29	22.95
	Min. H _z	14	34943.54	22.95	-20023.79
	Min. M _x	14	-1470827.92	22.95	-20023.79
	Min. M _z	20	-1473794.96	20050.29	-22.95
	Min. Torsion	12	-601.58	-10005.27	-17329.64

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead Only	29119.62	0.00	0.00	56.06	97.10	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	34943.54	22.95	-20023.79	-1470691.31	-2408.27	-520.98
0.9 Dead+1.6 Wind 0 deg - No Ice	26207.66	22.95	-20023.79	-1467450.59	-2431.73	-520.57
1.2 Dead+1.6 Wind 30 deg - No Ice	34943.54	10045.02	-17352.59	-1274909.85	-738908.05	-300.79
0.9 Dead+1.6 Wind 30 deg - No Ice	26207.66	10045.02	-17352.59	-1272102.41	-737299.68	-300.55
1.2 Dead+1.6 Wind 60 deg - No Ice	34943.54	17375.53	-10031.77	-737499.28	-1277386.22	-0.00
0.9 Dead+1.6 Wind 60 deg - No Ice	26207.66	17375.53	-10031.77	-735881.99	-1274585.00	-0.00

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<i>Load Combination</i>	<i>Vertical lb</i>	<i>Shear_x lb</i>	<i>Shear_z lb</i>	<i>Overturning Moment, M_x lb-ft</i>	<i>Overturning Moment, M_z lb-ft</i>	<i>Torque lb-ft</i>
Ice						
1.2 Dead+1.6 Wind 90 deg - No Ice	34943.54	20050.29	-22.95	-2458.22	-1473558.34	300.79
0.9 Dead+1.6 Wind 90 deg - No Ice	26207.66	20050.29	-22.95	-2469.05	-1470322.85	300.55
1.2 Dead+1.6 Wind 120 deg - No Ice	34943.54	17352.59	9992.03	733260.03	-1274860.17	520.98
0.9 Dead+1.6 Wind 120 deg - No Ice	26207.66	17352.59	9992.03	731619.35	-1272065.35	520.57
1.2 Dead+1.6 Wind 150 deg - No Ice	34943.54	10005.27	17329.64	1272520.31	-734532.36	601.58
0.9 Dead+1.6 Wind 150 deg - No Ice	26207.66	10005.27	17329.64	1269684.76	-732935.11	601.10
1.2 Dead+1.6 Wind 180 deg - No Ice	34943.54	-22.95	20023.79	1470827.92	2644.64	520.98
0.9 Dead+1.6 Wind 180 deg - No Ice	26207.66	-22.95	20023.79	1467552.65	2608.32	520.57
1.2 Dead+1.6 Wind 210 deg - No Ice	34943.54	-10045.02	17352.59	1275046.53	739144.54	300.79
0.9 Dead+1.6 Wind 210 deg - No Ice	26207.66	-10045.02	17352.59	1272204.53	737476.37	300.55
1.2 Dead+1.6 Wind 240 deg - No Ice	34943.54	-17375.53	10031.77	737635.89	1277622.84	-0.00
0.9 Dead+1.6 Wind 240 deg - No Ice	26207.66	-17375.53	10031.77	735984.05	1274761.78	-0.00
1.2 Dead+1.6 Wind 270 deg - No Ice	34943.54	-20050.29	22.95	2594.69	1473794.96	-300.79
0.9 Dead+1.6 Wind 270 deg - No Ice	26207.66	-20050.29	22.95	2571.00	1470499.63	-300.55
1.2 Dead+1.6 Wind 300 deg - No Ice	34943.54	-17352.59	-9992.03	-733123.64	1275096.66	-520.98
0.9 Dead+1.6 Wind 300 deg - No Ice	26207.66	-17352.59	-9992.03	-731517.45	1272242.04	-520.57
1.2 Dead+1.6 Wind 330 deg - No Ice	34943.54	-10005.27	-17329.64	-1272383.84	734768.73	-601.58
0.9 Dead+1.6 Wind 330 deg - No Ice	26207.66	-10005.27	-17329.64	-1269582.80	733111.70	-601.10
1.2 Dead+1.0 Ice+1.0 Temp	57353.08	0.00	0.00	420.97	729.14	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	57353.08	2.53	-3764.58	-269104.95	470.41	-72.85
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	57353.08	1885.94	-3261.48	-233134.09	-134423.55	-42.06
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	57353.08	3264.01	-1884.48	-134578.90	-233097.50	-0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	57353.08	3767.50	-2.53	152.83	-269111.82	42.06
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	57353.08	3261.48	1880.10	134959.86	-232816.51	72.85
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	57353.08	1881.56	3258.96	233720.75	-133936.87	84.12
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	57353.08	-2.53	3764.58	269972.60	1032.39	72.85
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	57353.08	-1885.94	3261.48	234001.74	135926.36	42.06
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	57353.08	-3264.01	1884.48	135446.55	234600.31	-0.00
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	57353.08	-3767.50	2.53	714.81	270614.63	-42.06
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	57353.08	-3261.48	-1880.10	-134092.22	234319.32	-72.85
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	57353.08	-1881.56	-3258.96	-232853.11	135439.67	-84.12

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Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	29119.62	4.62	-4031.11	-295600.01	-409.42	-104.85
Dead+Wind 30 deg - Service	29119.62	2022.22	-3493.35	-256243.39	-148462.95	-60.54
Dead+Wind 60 deg - Service	29119.62	3497.97	-2019.55	-148211.35	-256709.59	-0.00
Dead+Wind 90 deg - Service	29119.62	4036.44	-4.62	-450.99	-296144.76	60.54
Dead+Wind 120 deg - Service	29119.62	3493.35	2011.55	147445.43	-256201.83	104.85
Dead+Wind 150 deg - Service	29119.62	2014.22	3488.73	255849.19	-147583.47	121.07
Dead+Wind 180 deg - Service	29119.62	-4.62	4031.11	295713.57	606.12	104.85
Dead+Wind 210 deg - Service	29119.62	-2022.22	3493.35	256356.96	148659.64	60.54
Dead+Wind 240 deg - Service	29119.62	-3497.97	2019.55	148324.92	256906.29	-0.00
Dead+Wind 270 deg - Service	29119.62	-4036.44	4.62	564.55	296341.46	-60.54
Dead+Wind 300 deg - Service	29119.62	-3493.35	-2011.55	-147331.87	256398.52	-104.85
Dead+Wind 330 deg - Service	29119.62	-2014.22	-3488.73	-255735.63	147780.16	-121.07

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-29119.62	0.00	0.00	29119.62	0.00	0.000%
2	22.95	-34943.54	-20023.79	-22.95	34943.54	20023.79	0.000%
3	22.95	-26207.66	-20023.79	-22.95	26207.66	20023.79	0.000%
4	10045.02	-34943.54	-17352.59	-10045.02	34943.54	17352.59	0.000%
5	10045.02	-26207.66	-17352.59	-10045.02	26207.66	17352.59	0.000%
6	17375.53	-34943.54	-10031.77	-17375.53	34943.54	10031.77	0.000%
7	17375.53	-26207.66	-10031.77	-17375.53	26207.66	10031.77	0.000%
8	20050.29	-34943.54	-22.95	-20050.29	34943.54	22.95	0.000%
9	20050.29	-26207.66	-22.95	-20050.29	26207.66	22.95	0.000%
10	17352.59	-34943.54	9992.03	-17352.59	34943.54	-9992.03	0.000%
11	17352.59	-26207.66	9992.03	-17352.59	26207.66	-9992.03	0.000%
12	10005.27	-34943.54	17329.64	-10005.27	34943.54	-17329.64	0.000%
13	10005.27	-26207.66	17329.64	-10005.27	26207.66	-17329.64	0.000%
14	-22.95	-34943.54	20023.79	22.95	34943.54	-20023.79	0.000%
15	-22.95	-26207.66	20023.79	22.95	26207.66	-20023.79	0.000%
16	-10045.02	-34943.54	17352.59	10045.02	34943.54	-17352.59	0.000%
17	-10045.02	-26207.66	17352.59	10045.02	26207.66	-17352.59	0.000%
18	-17375.53	-34943.54	10031.77	17375.53	34943.54	-10031.77	0.000%
19	-17375.53	-26207.66	10031.77	17375.53	26207.66	-10031.77	0.000%
20	-20050.29	-34943.54	22.95	20050.29	34943.54	-22.95	0.000%
21	-20050.29	-26207.66	22.95	20050.29	26207.66	-22.95	0.000%
22	-17352.59	-34943.54	-9992.03	17352.59	34943.54	9992.03	0.000%
23	-17352.59	-26207.66	-9992.03	17352.59	26207.66	9992.03	0.000%
24	-10005.27	-34943.54	-17329.64	10005.27	34943.54	17329.64	0.000%
25	-10005.27	-26207.66	-17329.64	10005.27	26207.66	17329.64	0.000%
26	0.00	-57353.08	0.00	0.00	57353.08	0.00	0.000%
27	2.53	-57353.08	-3764.58	-2.53	57353.08	3764.58	0.000%
28	1885.94	-57353.08	-3261.48	-1885.94	57353.08	3261.48	0.000%
29	3264.01	-57353.08	-1884.48	-3264.01	57353.08	1884.48	0.000%
30	3767.50	-57353.08	-2.53	-3767.50	57353.08	2.53	0.000%
31	3261.48	-57353.08	1880.10	-3261.48	57353.08	-1880.10	0.000%
32	1881.56	-57353.08	3258.95	-1881.56	57353.08	-3258.96	0.000%
33	-2.53	-57353.08	3764.58	2.53	57353.08	-3764.58	0.000%
34	-1885.94	-57353.08	3261.48	1885.94	57353.08	-3261.48	0.000%
35	-3264.01	-57353.08	1884.48	3264.01	57353.08	-1884.48	0.000%
36	-3767.50	-57353.08	2.53	3767.50	57353.08	-2.53	0.000%
37	-3261.48	-57353.08	-1880.10	3261.48	57353.08	1880.10	0.000%
38	-1881.56	-57353.08	-3258.95	1881.56	57353.08	3258.96	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
39	4.62	-29119.62	-4031.11	-4.62	29119.62	4031.11	0.000%
40	2022.22	-29119.62	-3493.35	-2022.22	29119.62	3493.35	0.000%
41	3497.97	-29119.62	-2019.55	-3497.97	29119.62	2019.55	0.000%
42	4036.44	-29119.62	-4.62	-4036.44	29119.62	4.62	0.000%
43	3493.35	-29119.62	2011.55	-3493.35	29119.62	-2011.55	0.000%
44	2014.22	-29119.62	3488.73	-2014.22	29119.62	-3488.73	0.000%
45	-4.62	-29119.62	4031.11	4.62	29119.62	-4031.11	0.000%
46	-2022.22	-29119.62	3493.35	2022.22	29119.62	-3493.35	0.000%
47	-3497.97	-29119.62	2019.55	3497.97	29119.62	-2019.55	0.000%
48	-4036.44	-29119.62	4.62	4036.44	29119.62	-4.62	0.000%
49	-3493.35	-29119.62	-2011.55	3493.35	29119.62	2011.55	0.000%
50	-2014.22	-29119.62	-3488.73	2014.22	29119.62	3488.73	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00001107
3	Yes	4	0.00000001	0.00000710
4	Yes	4	0.00000001	0.00005018
5	Yes	4	0.00000001	0.00003262
6	Yes	4	0.00000001	0.00005269
7	Yes	4	0.00000001	0.00003433
8	Yes	4	0.00000001	0.00000738
9	Yes	4	0.00000001	0.00000001
10	Yes	4	0.00000001	0.00005766
11	Yes	4	0.00000001	0.00003773
12	Yes	4	0.00000001	0.00004773
13	Yes	4	0.00000001	0.00003099
14	Yes	4	0.00000001	0.00001147
15	Yes	4	0.00000001	0.00000737
16	Yes	4	0.00000001	0.00005571
17	Yes	4	0.00000001	0.00003637
18	Yes	4	0.00000001	0.00005275
19	Yes	4	0.00000001	0.00003436
20	Yes	4	0.00000001	0.00000773
21	Yes	4	0.00000001	0.00000001
22	Yes	4	0.00000001	0.00004818
23	Yes	4	0.00000001	0.00003128
24	Yes	4	0.00000001	0.00005857
25	Yes	4	0.00000001	0.00003835
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00011229
28	Yes	4	0.00000001	0.00011278
29	Yes	4	0.00000001	0.00011276
30	Yes	4	0.00000001	0.00011218
31	Yes	4	0.00000001	0.00011290
32	Yes	4	0.00000001	0.00011318
33	Yes	4	0.00000001	0.00011304
34	Yes	4	0.00000001	0.00011410
35	Yes	4	0.00000001	0.00011428
36	Yes	4	0.00000001	0.00011347
37	Yes	4	0.00000001	0.00011364
38	Yes	4	0.00000001	0.00011320
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001

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41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 80	2.2894	47	0.1631	0.0003
L2	86 - 46.08	1.4925	47	0.1497	0.0002
L3	53 - 1	0.5997	47	0.1009	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
110.00	(2) NHH-45C-R2B w/ Mount Pipe	47	2.2894	0.1631	0.0003	329066
107.50	RMQP-4096-HK Platform	47	2.2047	0.1622	0.0003	329066

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 80	11.3851	18	0.8110	0.0015
L2	86 - 46.08	7.4227	18	0.7444	0.0009
L3	53 - 1	2.9826	18	0.5021	0.0004

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
110.00	(2) NHH-45C-R2B w/ Mount Pipe	18	11.3851	0.8110	0.0015	66380
107.50	RMQP-4096-HK Platform	18	10.9638	0.8063	0.0014	66380

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	Client VERIZON	Designed by kw

Base Plate Design Data

Plate Thickness	Number of Anchor Bolts	Anchor Bolt Size	Actual	Actual	Actual	Actual	Controlling Condition	Ratio
			Allowable Ratio Bolt Tension	Allowable Ratio Bolt Compression	Allowable Ratio Plate Stress	Allowable Ratio Stiffener Stress		
in		in	lb	lb	ksi	ksi		
3.2500	18	2.2500	55592.90	59117.72	7.899		Bolt T	0.25
			223654.40	371266.30	45.000			✓
			0.25	0.16	0.18			

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	KL/r	A	P _u	φP _n	Ratio
									P _u
	ft		ft	ft		in ²	lb	lb	φP _n
L1	110 - 80 (1)	TP43.17x36.09x0.375	30.00	0.00	0.0	49.2514	-8846.25	3564790.00	0.002
L2	80 - 46.08 (2)	TP50.43x41.004x0.375	39.92	0.00	0.0	57.6331	-17259.80	3969820.00	0.004
L3	46.08 - 1 (3)	TP60.33x48.046x0.4375	52.00	0.00	0.0	83.1682	-34938.90	5608240.00	0.006

Pole Bending Design Data

Section No.	Elevation	Size	M _{ux}	φM _{ux}	Ratio	M _{uy}	φM _{uy}	Ratio
			lb-ft	lb-ft	M _{ux} / φM _{ux}		lb-ft	lb-ft
L1	110 - 80 (1)	TP43.17x36.09x0.375	195960.00	3029616.67	0.065	0.00	3029616.67	0.000
L2	80 - 46.08 (2)	TP50.43x41.004x0.375	587020.83	3953183.33	0.148	0.00	3953183.33	0.000
L3	46.08 - 1 (3)	TP60.33x48.046x0.4375	1475275.00	6910841.33	0.213	0.00	6910841.33	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual	φV _n	Ratio	Actual	φT _n	Ratio
			V _u	V _u	V _u / φV _n		T _u	T _u / φT _n
	ft		lb	lb		lb-ft	lb-ft	
L1	110 - 80 (1)	TP43.17x36.09x0.375	9785.16	1782390.00	0.005	0.00	6074933.33	0.000
L2	80 - 46.08 (2)	TP50.43x41.004x0.375	13916.30	1984910.00	0.007	0.00	7925291.33	0.000
L3	46.08 - 1 (3)	TP60.33x48.046x0.4375	20071.60	2804120.00	0.007	0.00	13853833.33	0.000

Pole Interaction Design Data

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (P) 978.557.5553 FAX: (F) 978.336.5586	Job CT5001	Page 10 of 10
	Project 110 ft Monopole	Date 10:17:08 06/11/20
	Client VERIZON	Designed by kw

Section No.	Elevation ft	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Ratio V_u	Ratio T_u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		ϕP_n	ϕM_{ux}	ϕM_{uy}	ϕV_n	ϕT_n			
L1	110 - 80 (1)	0.002	0.065	0.000	0.005	0.000	0.067	1.000	4.8.2 ✓
L2	80 - 46.08 (2)	0.004	0.148	0.000	0.007	0.000	0.153	1.000	4.8.2 ✓
L3	46.08 - 1 (3)	0.006	0.213	0.000	0.007	0.000	0.220	1.000	4.8.2 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	110 - 80	Pole	TP43.17x36.09x0.375	1	-8846.25	3564790.00	6.7	Pass
L2	80 - 46.08	Pole	TP50.43x41.004x0.375	2	-17259.80	3969820.00	15.3	Pass
L3	46.08 - 1	Pole	TP60.33x48.046x0.4375	3	-34938.90	5608240.00	22.0	Pass
Summary								
Pole (L3)							22.0	Pass
Base Plate							24.9	Pass
RATING =							24.9	Pass

ATTACHMENT 6

Report Date: May 28, 2020

Client: On Air Engineering, LLC
88 Foundry Pond Road
Cold Spring, NY 10516
Attn: David Weinpahl, P.E.
(201) 456-4624
dweinpahl@onaireng.com

Structure: Existing 110-ft Monopole
Carrier: Verizon Wireless
Carrier Site Name: Cornwall CT
Mount Type: (1) 12.5 Foot Platform Mount
Site Address: 16 Bell Road Extension
City, County, State: Cornwall, Litchfield County, CT
Latitude, Longitude: 41.845782, -73.364299

PJF Project: A42920-0005.001.7190

Paul J. Ford and Company is pleased to submit this "Mount Structural Analysis Report". The purpose of this analysis is to determine if the mount has sufficient capacity to support the equipment described herein. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point is not part of this document.

Analysis Criteria:

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 114 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Summary of Analysis Results:

Mounting Frames: **62.2%** **SUFFICIENT**

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



Deepesh Savla, PE
Project Manager
dsavla@pauljford.com

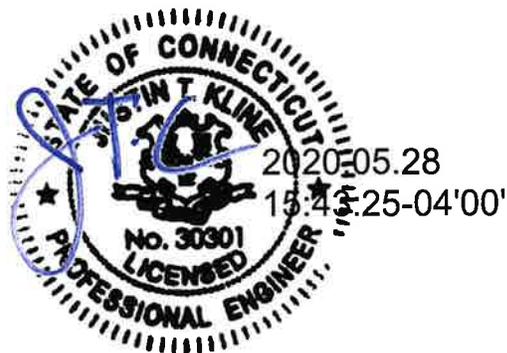


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10) APPENDIX E

POST MODIFICATION INSPECTION (PMI) REQUIREMENTS FOR DESKTOP REVIEW

1) INTRODUCTION

The proposed mount under consideration is (1) 12.5 Platform Mount installed at the 107.5' elevation on a 110' Monopole tower. The proposed mount considered in this analysis is a SitePro1 RMQP-4096-HK

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Ultimate Wind Speed: 114 mph
Exposure Category: C
Topographic Factor at Base: 1.00
Topographic Factor at Mount: 1.00
Ice Thickness: 1 in
Wind Speed with Ice: 40 mph
Maintenance Loading Wind Speed: 30 mph
Maintenance Load at Mid/End-Points, L_v: 250 lb
Maintenance Load at Mount Pipes, L_m: 500 lb

Table 1 – Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Status	Mount / Modification Details
107.5	110.0	6	Commscope	NHH-45C-R2B	Proposed	SitePro1 RMQP-4096- HK
		3	Commscope	BSAMNT-SBS-2-3		
		3	Samsung	B5/B13 RRH-BR04C (RF01U-D2A)		
		3	Samsung	B2/B66A RRH-BR049 (RF01U-D1A)		
		1	Raycap	DB-C1-12C-24AB-0Z		

3) ANALYSIS PROCEDURE

Table 2 – Documents Provided

Document	Remarks	Reference	Source
Mount Manufacturer Drawings	Sitepro1, dated 09/20/2019	RMQP-4096-HK Version B	SitePro1
Construction Drawings	On Air, dated 05/15/2020	-	On Air
Radio Frequency Data Sheet	Verizon, dated 03/04/2020	Fuze ID: 15323091, Rev. 0	On Air

3.1) Analysis Method

RISA-3D (version 17.0.3), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix C. In addition, this analysis is in accordance with Verizon's NSTD-446 *Antenna Mount Analysis and Modification Process* (dated 03/29/19).

3.2) Assumptions

- 1) *The analysis of the existing monopole tower or the effect of the mount attachment to the tower is not within the current scope of work.*
- 2) *The antenna mounting system was properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications and all bolts are tightened as specified by the manufacturer and AISC requirements.*
- 3) *The configuration of antennas, mounts, and other appurtenances are as specified in Table 1.*
- 4) *All member connections have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report. All U-Bolt connections have been properly tightened. This analysis will be required to be revised if the existing conditions in the field differ from those shown in the above referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.*
- 5) *Steel grades have been assumed as follows:*

a) Channel, Solid Round, Angle, Unistrut	ASTM A53 (GR 35)
b) Pipe	ASTM A53 (GR 35)
c) HSS (Rectangular), Plate	Q235 Gr B (Fy = 34 ksi, Fu = 58 ksi)
d) HSS (Round)	ASTM A53 (GR 35)
e) Connection Bolts	ASTM A325
f) Threaded Rods	SAE J429 (GR2)
g) U-Bolts	SAE J429 (GR2)
- 6) *Proposed equipment is to be installed in the locations specified in Appendix A. Any changes to the proposed equipment locations will render this report invalid.*
- 7) *The proposed mount will be installed in conformance with the referenced manufacturer drawings.*

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 3 – Mount Component Capacity

Notes	Component	% Capacity	Pass / Fail
1	Mount Pipes	44.7	Pass
1	Face Horizontal	14.3	Pass
1	Standoff Members	17.8	Pass
1	Bracing Members	17.0	Pass
1	Support Rail	62.2	Pass
1	Corner Plates	18.4	Pass
1	Kick-Brace	9.5	Pass
1	Grating Support Members	16.8	Pass
1	Mount to Tower Connection (bolts/welds)	17.0	Pass

Mount Rating (max from all components) =	62.2%
---	--------------

Notes:

- See additional documentation in "Appendix C – Software analysis Output" for calculations supporting the % capacity consumed.

4.1) Recommendations

The proposed mount listed below will have sufficient capacity to carry the proposed loading configuration.

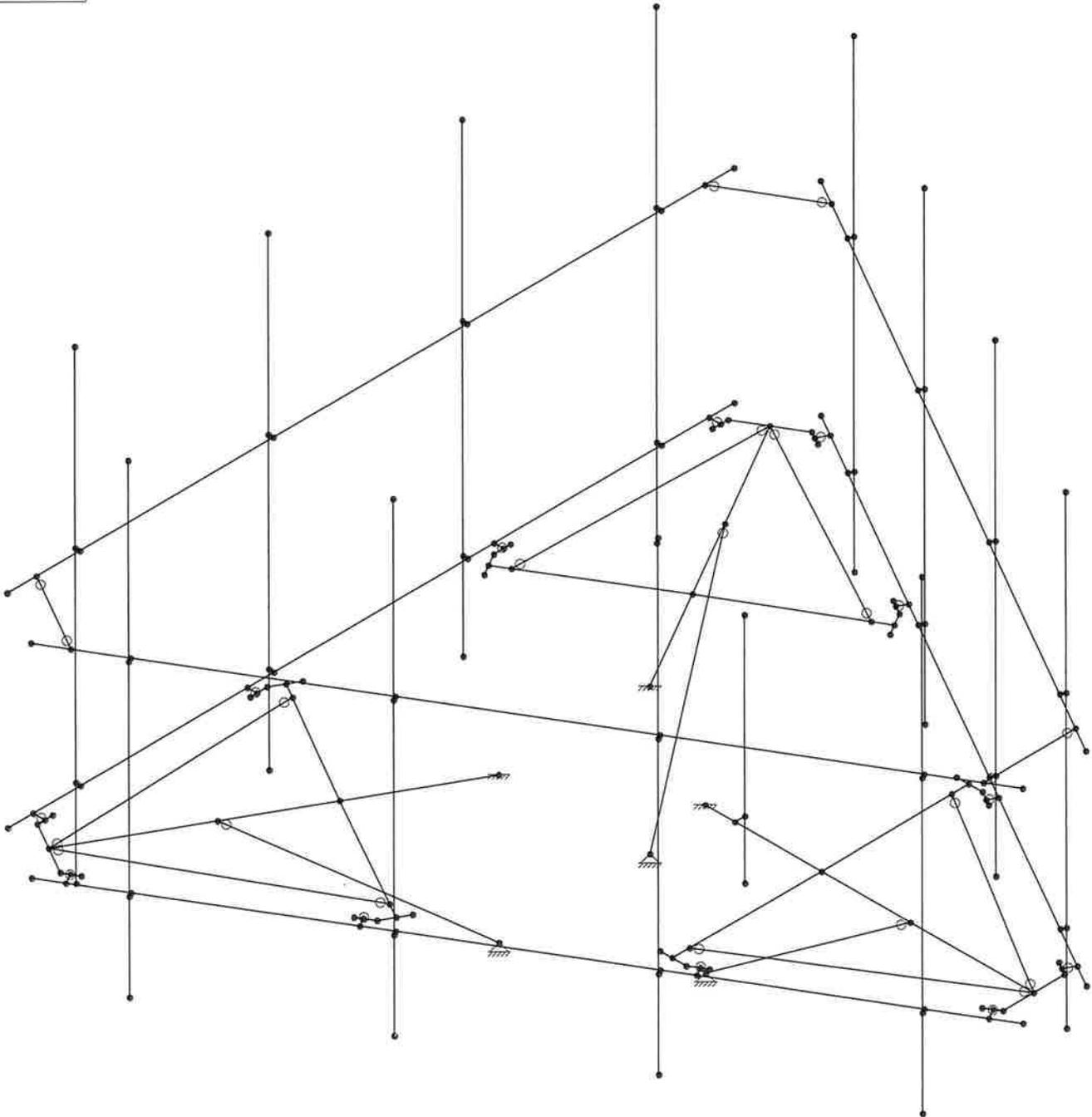
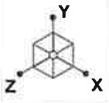
- Sitepro1 RMQP-4096-HK

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING MOUNTS 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 mount 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

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

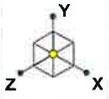
Paul J. Ford and Company
DS
A42920-0005

Cornwall CT

SK - 1

May 27, 2020 at 5:00 PM

RMQP-496-HK_Client.r3d



LEGEND
 EXISTING: BLUE
 PROPOSED: RED

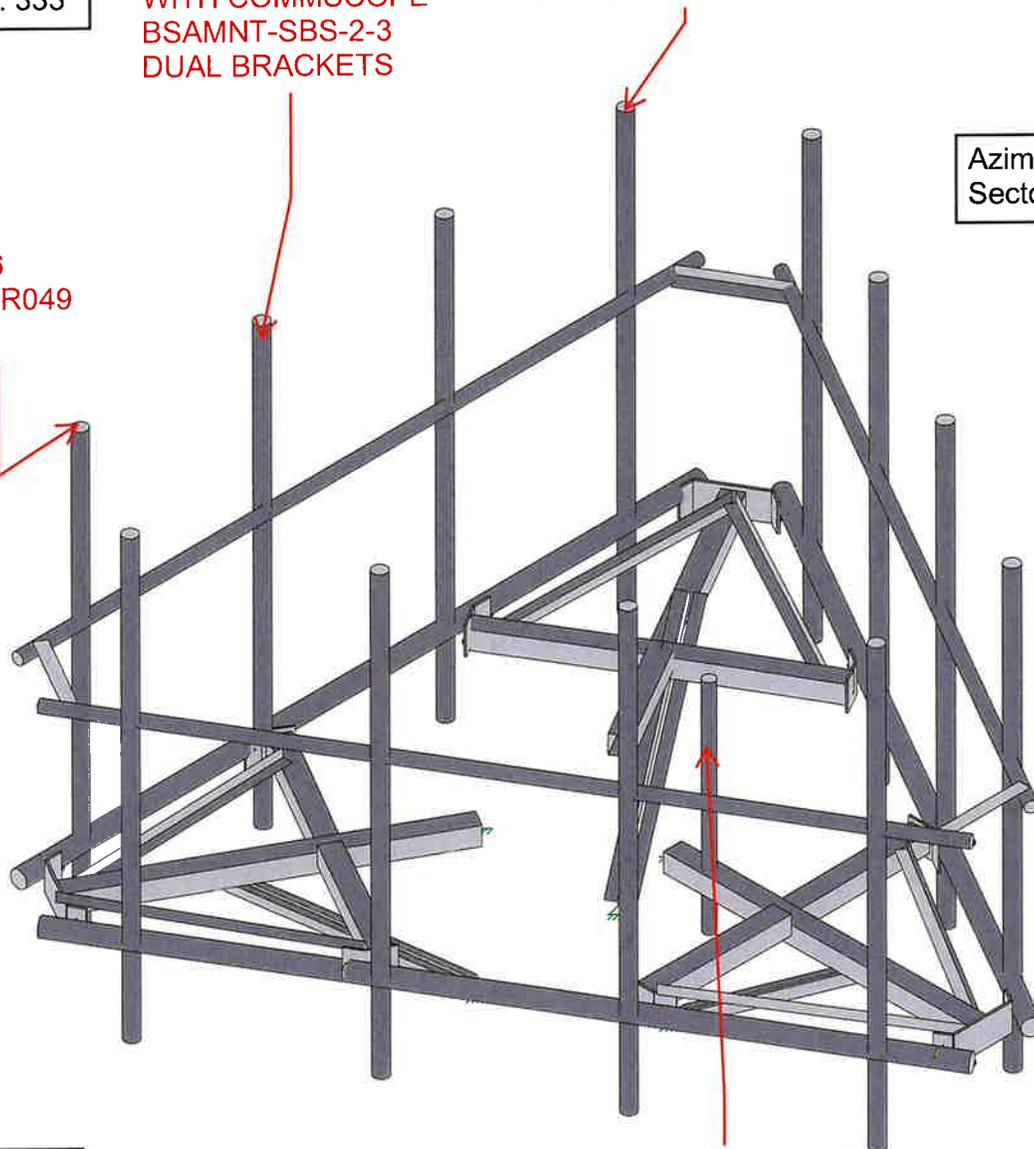
Azimuth:
 Sector A: 333°

(2) COMMSCOPE
 NHH-45C-R2B (TYP)
 WITH COMMSCOPE
 BSAMNT-SBS-2-3
 DUAL BRACKETS

B5/B13 RRH-BR04C
 (TYP)

Azimuth:
 Sector B: 105°

B2/B66
 RRH-BR049
 (TYP)



Azimuth:
 Sector C: 205°

DB-C1-12C-24AB-0Z
 ON 4' LONG, P2STD
 PIPE

NOTES:

- 1) A 6" VERTICAL TOLERANCE FOR PROPOSED EQUIPMENT IS ACCEPTABLE.
- 2) CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT. NOTIFY EOR FOR ANY DEVIATIONS.
- 3) INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.

Paul J. Ford and Company	Cornwall CT	SK - 2
DS		May 27, 2020 at 8:12 AM
A42920-0005		RMQP-496-HK_Client.r3d

Mount Loading per TIA-222-H

Structure & Wind Speed

Analysis Scope = Client
 Structure Type = Mount
 Mount Type = 3 Section
 Mount Centerline (c) = 107.5 ft
 C/L Y Coordinate = 0 ft
 Ultimate Wind Speed = 114 mph
 Service Wind Speed = 30 mph
 Ice Wind Speed = 40 mph
 Ice Thickness = 1 in
 Const. Duration = 110 in
 Non-Op Wind Speed = 250 mph
 Op Wind Speed = 250 mph

Risk Category = II
 Exposure Category = C
 Topographic Category = 1
 Structure Base Height (Z_s) = 985.24 ft
 Crest Height (H) = 110 ft

Maintenance Point Loads

Load	Label	Node #
L ₁ = 500 lbs	M125A	110
L ₂ = 500 lbs	N119	104
L ₃ = 500 lbs	N113	98
L ₄ = 500 lbs	N18	R0

Topography

Z₀ = 900 ft
 d = 9.50 ft
 K_z = 1.29
 K_{z,ref} = 0.85
 K_{z,ref} = 1.29
 K_{z,ref} = 2.01

K_d = 1.00
 K_s = 0.35
 K_g = 1.00
 K_g = 1.00
 Q_z = 39.19 psf

Velocity Pressure Coefficients

(Table 2-4)
 (Table 2-4)
 (Section 2.6.5.2)

(Section 2.6.6.2.1)
 (Section 16.8)
 (Section 2.6.6)
 (Annex S - Wind Force)
 (Section 2.6.1.8)

Ice Loading

(Table 2-3)
 (Annex S - Ice)
 (Section 2.6.11.6)
 (Section 2.6.10)
 (Section 2.6.10)
 (Bar Grating Height)
 (Grating Ice Weight)

Wind Pressure

Override

K_z = 0.9
 (b) (S_z) (K_z) = 39.19 psf (35.27 after K_z applied)
 (b) (S_z) (K_z) = 5.00 psf (Ice)

Antennas

Item	Status	Manufacturer	Antenna	Height (ft)	Width (ft)	Depth (ft)	Flat Round	Weight (lbs)	Spacer/Face	Position	Quantity	Orientation	Use Int/Temp C/A	Top/Bottom Mounting Spacing (ft)	Override Spacing (ft)	Max Antenna C/L (ft)	Min Antenna C/L (ft)	Antenna Top Mount Location from Mount Pipe Bottom (in)	Antenna Bottom Mount Location from Mount Pipe Bottom (in)	Override Top Antenna Mounting Location (ft)	Override Bottom Antenna Mounting Location (ft)	Normal Wind Force per Antenna (lbs)	Transverse Wind Force per Antenna (lbs)
1	P	COMMSCOPE	NHH-45C-R2B	95.9	18	7	Flat	142.1	A	2	1	Normal	89.80	89.80	110.254	107.746	92.99	3.05	92.99	92.99	503.533	366.834	
2	P	COMMSCOPE	NHH-45C-R2B	95.9	18	7	Flat	142.1	A	2	1	Normal	89.80	89.80	110.254	107.746	92.99	3.05	92.99	92.99	503.533	366.834	
3	P	COMMSCOPE	NHH-45C-R2B	95.9	18	7	Flat	142.1	B	2	1	Normal	89.80	89.80	110.254	107.746	92.99	3.05	92.99	92.99	503.533	366.834	
4	P	COMMSCOPE	NHH-45C-R2B	95.9	18	7	Flat	142.1	B	2	1	Normal	89.80	89.80	110.254	107.746	92.99	3.05	92.99	92.99	503.533	366.834	
5	P	COMMSCOPE	NHH-45C-R2B	95.9	18	7	Flat	142.1	C	2	1	Normal	89.80	89.80	110.254	107.746	92.99	3.05	92.99	92.99	503.533	366.834	
6	P	COMMSCOPE	NHH-45C-R2B	95.9	18	7	Flat	142.1	C	2	1	Normal	89.80	89.80	110.254	107.746	92.99	3.05	92.99	92.99	503.533	366.834	
7	P	SAMSUNG	B5B13 RRR-RR04C	15	15	8.1	Flat	70.3	A	1	1	Normal	9.00	9.00	111.825	108.375	84.58	42.58	84.58	42.58	68.134	39.173	
8	P	SAMSUNG	B5B13 RRR-RR04C	15	15	8.1	Flat	70.3	B	1	1	Normal	9.00	9.00	111.825	108.375	84.58	42.58	84.58	42.58	68.134	39.173	
9	P	SAMSUNG	B5B13 RRR-RR04C	15	15	8.1	Flat	70.3	C	1	1	Normal	9.00	9.00	111.825	108.375	84.58	42.58	84.58	42.58	68.134	39.173	
10	P	SAMSUNG	B2B6GA RRR-RR04B	15	15	8.1	Flat	70.3	A	4	1	Normal	9.00	9.00	111.825	108.375	84.58	42.58	84.58	42.58	68.134	39.173	
11	P	SAMSUNG	B2B6GA RRR-RR04B	15	15	8.1	Flat	70.3	B	4	1	Normal	9.00	9.00	111.825	108.375	84.58	42.58	84.58	42.58	68.134	39.173	
12	P	SAMSUNG	B2B6GA RRR-RR04B	15	15	8.1	Flat	70.3	C	4	1	Normal	9.00	9.00	111.825	108.375	84.58	42.58	84.58	42.58	68.134	39.173	
13	P	RAYCAP	DB-CT-12C-34B-02	29.5	16.5	12.5	Flat	70.3	C	5	1	Normal	23.50	23.50	109.371	107.478	29.79	6.25	29.79	6.25	63.071	109.254	

APPENDIX B

SOFTWARE INPUT CALCULATIONS

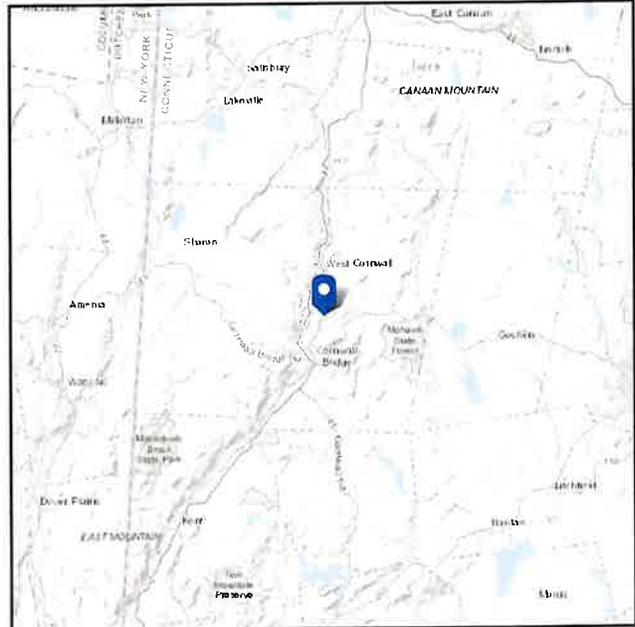
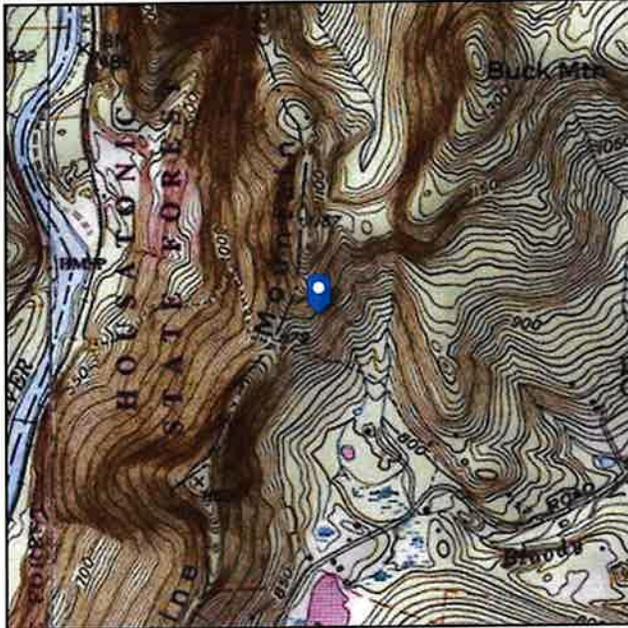


ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 979.42 ft (NAVD 88)
Latitude: 41.845782
Longitude: -73.364299



Wind

Results:

Wind Speed:	114 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	89 Vmph
100-year MRI	95 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4

Date Accessed: Thu May 28 2020

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

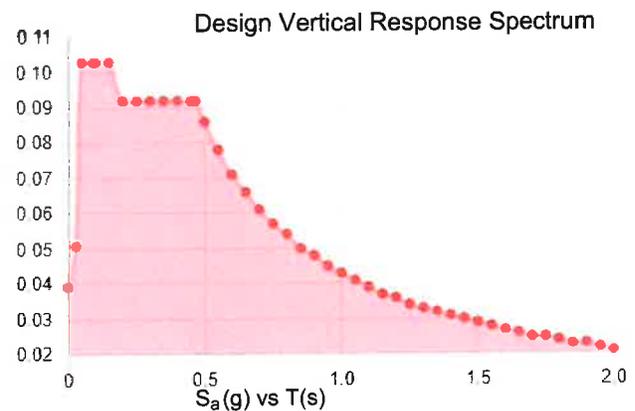
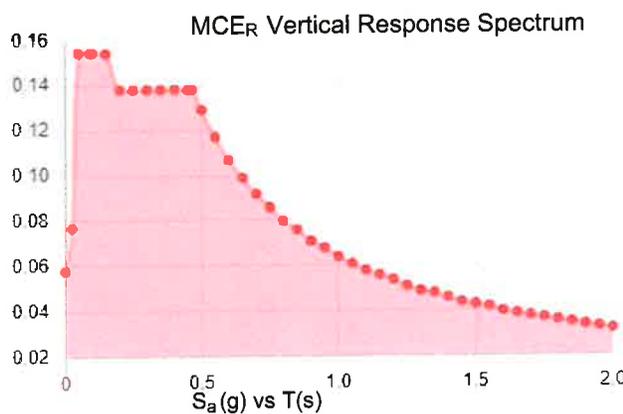
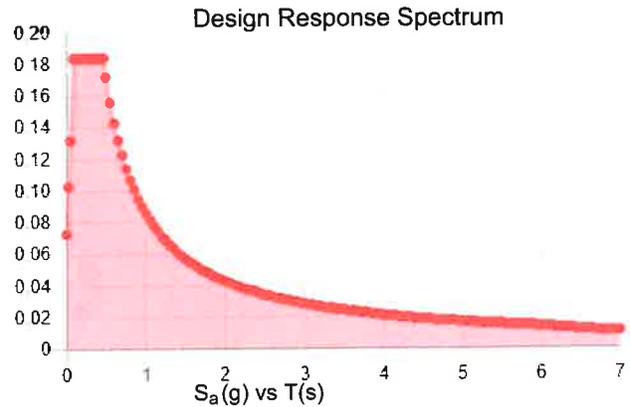
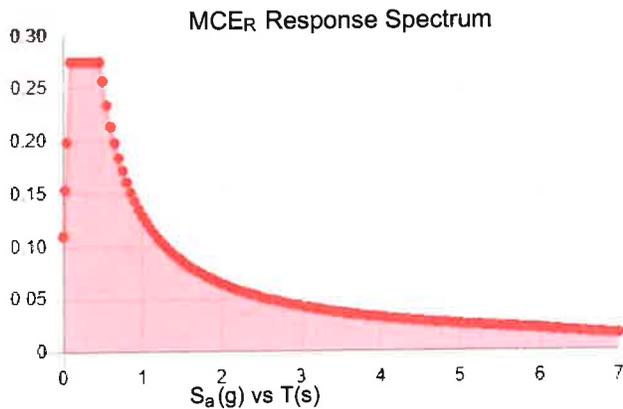
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_S :	0.172	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.091
F_v :	2.4	PGA _M :	0.146
S_{MS} :	0.275	F_{PGA} :	1.6
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.184	C_v :	0.7

Seismic Design Category B



Data Accessed:

Thu May 28 2020

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.



Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 5 F
Gust Speed: 40 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Thu May 28 2020

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

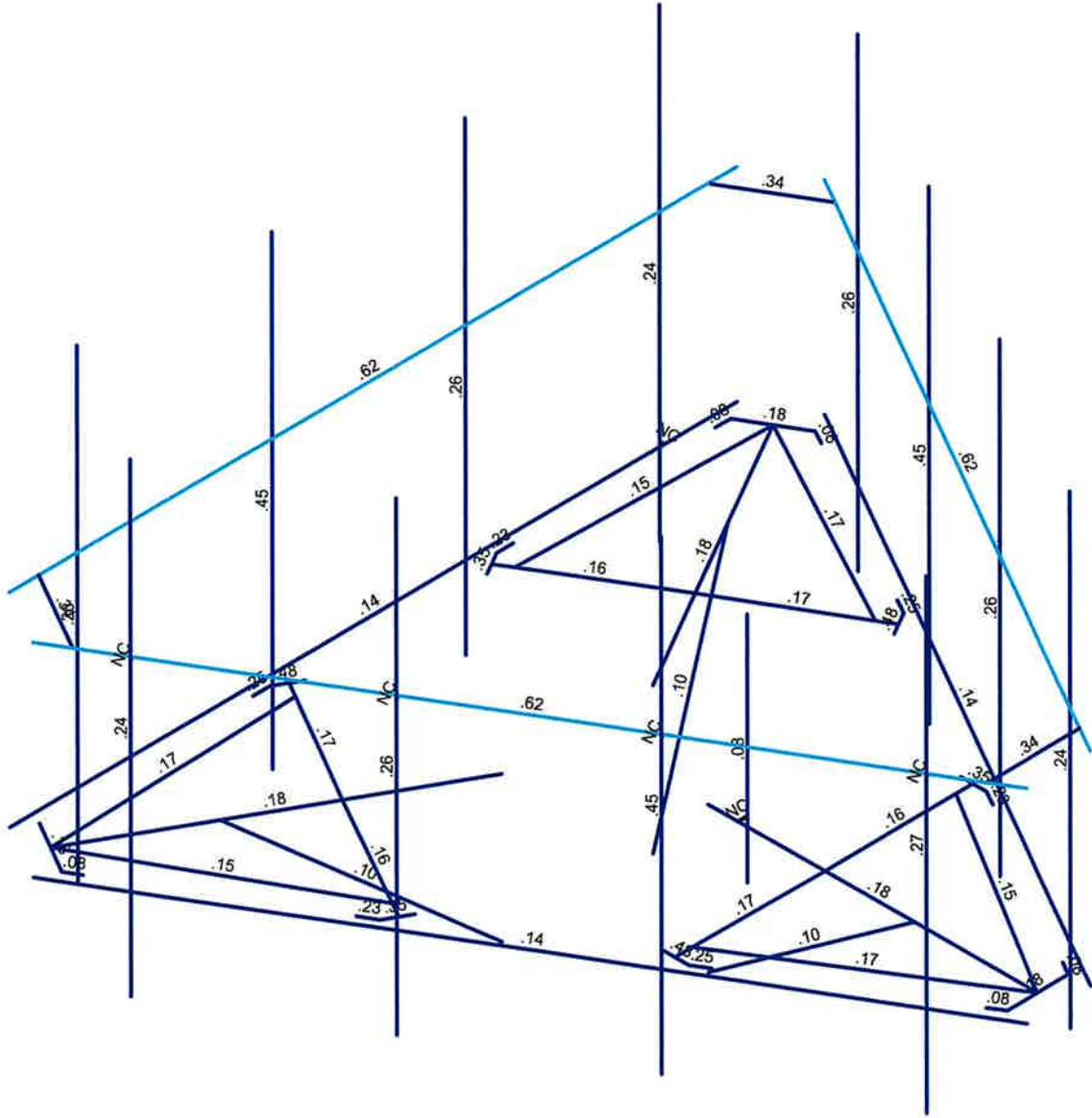
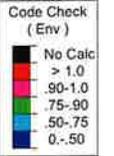
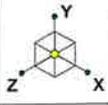
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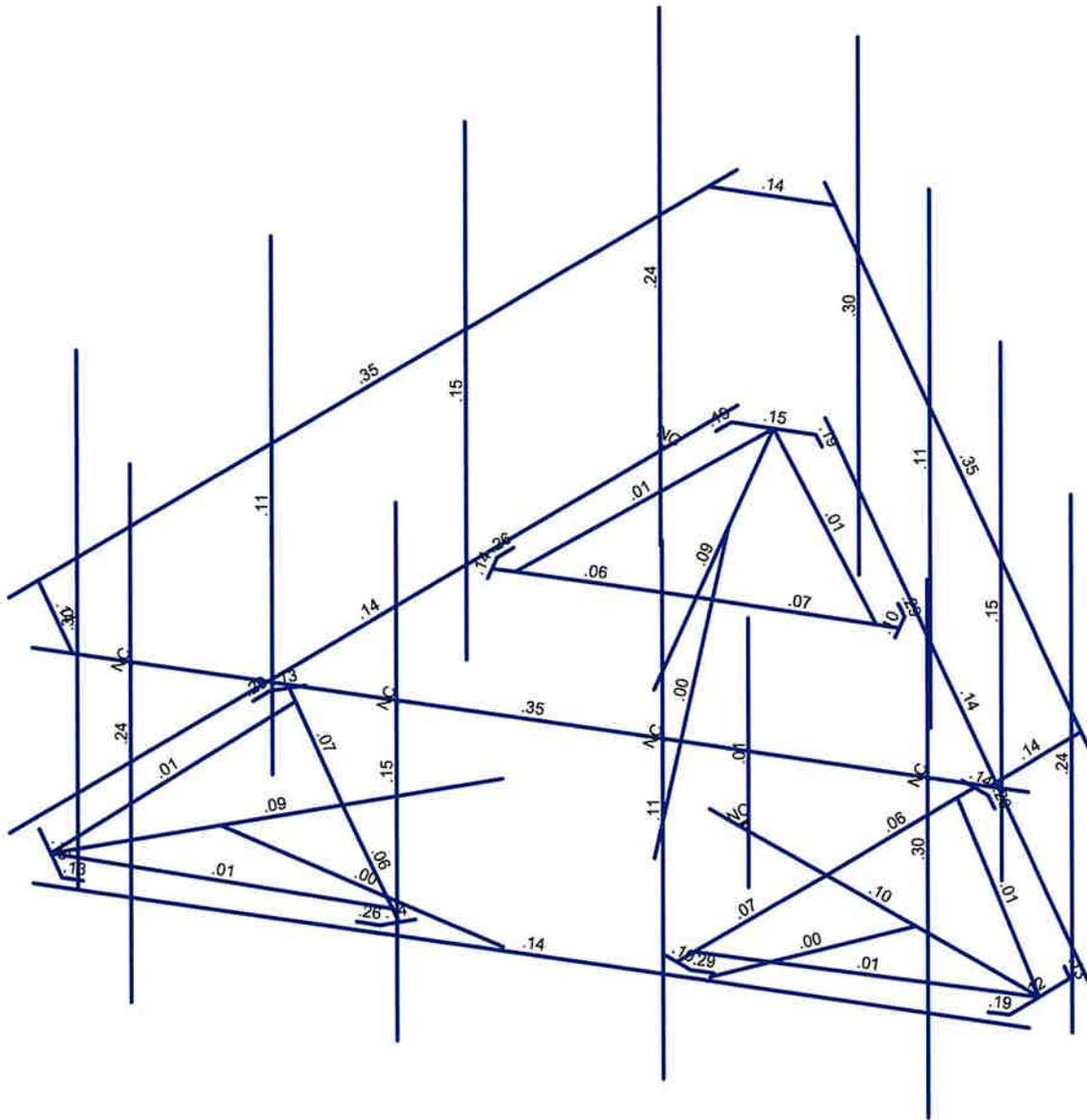
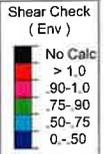
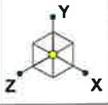
APPENDIX C

SOFTWARE ANALYSIS OUTPUT



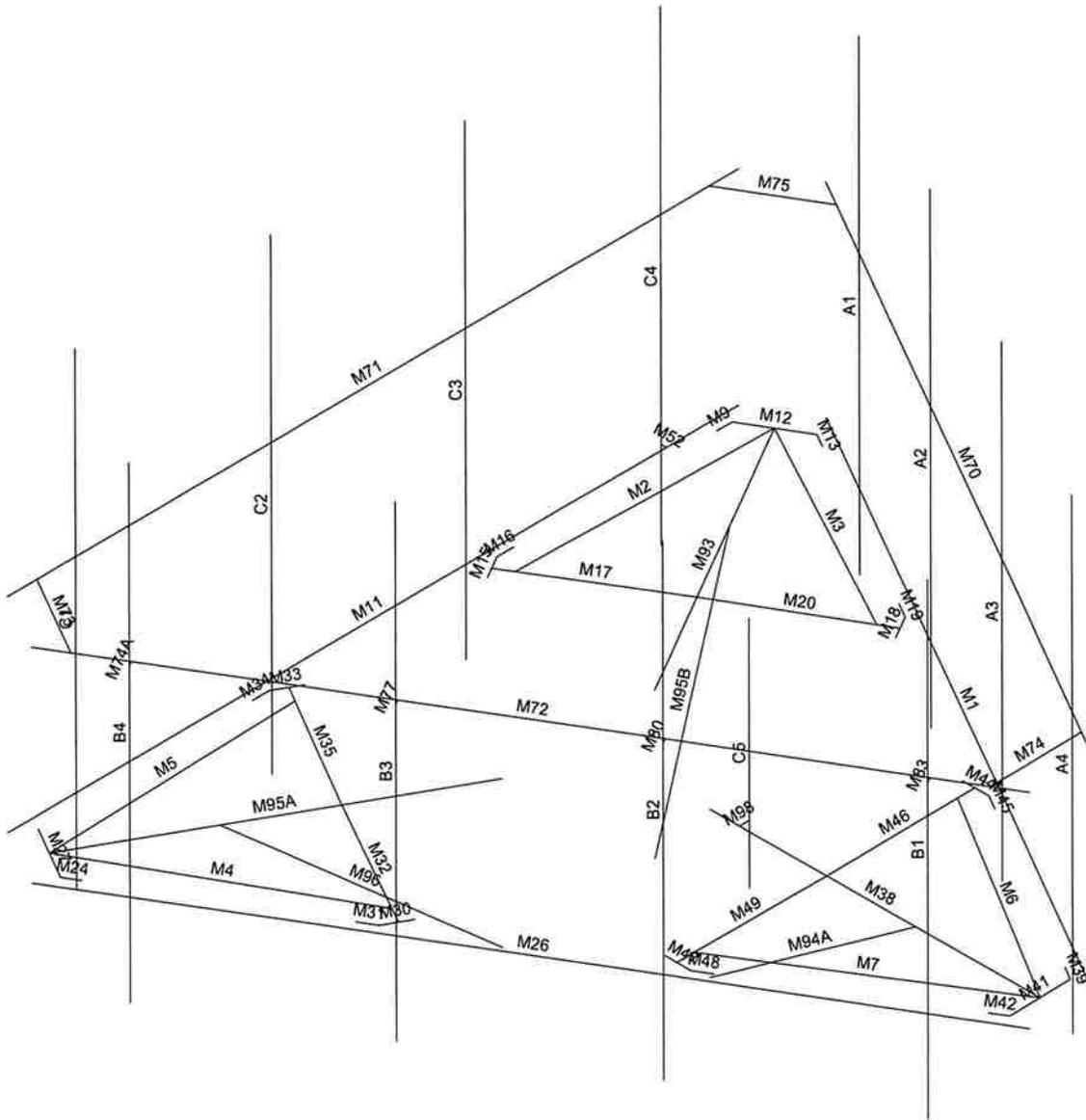
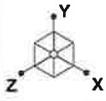
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Paul J. Ford and Company	Cornwall CT	SK - 3
DS		May 27, 2020 at 5:04 PM
A42920-0005		RMQP-496-HK_Client.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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DS		May 27, 2020 at 5:04 PM
A42920-0005		RMQP-496-HK_Client.r3d



Envelope Only Solution

Paul J. Ford and Company

DS

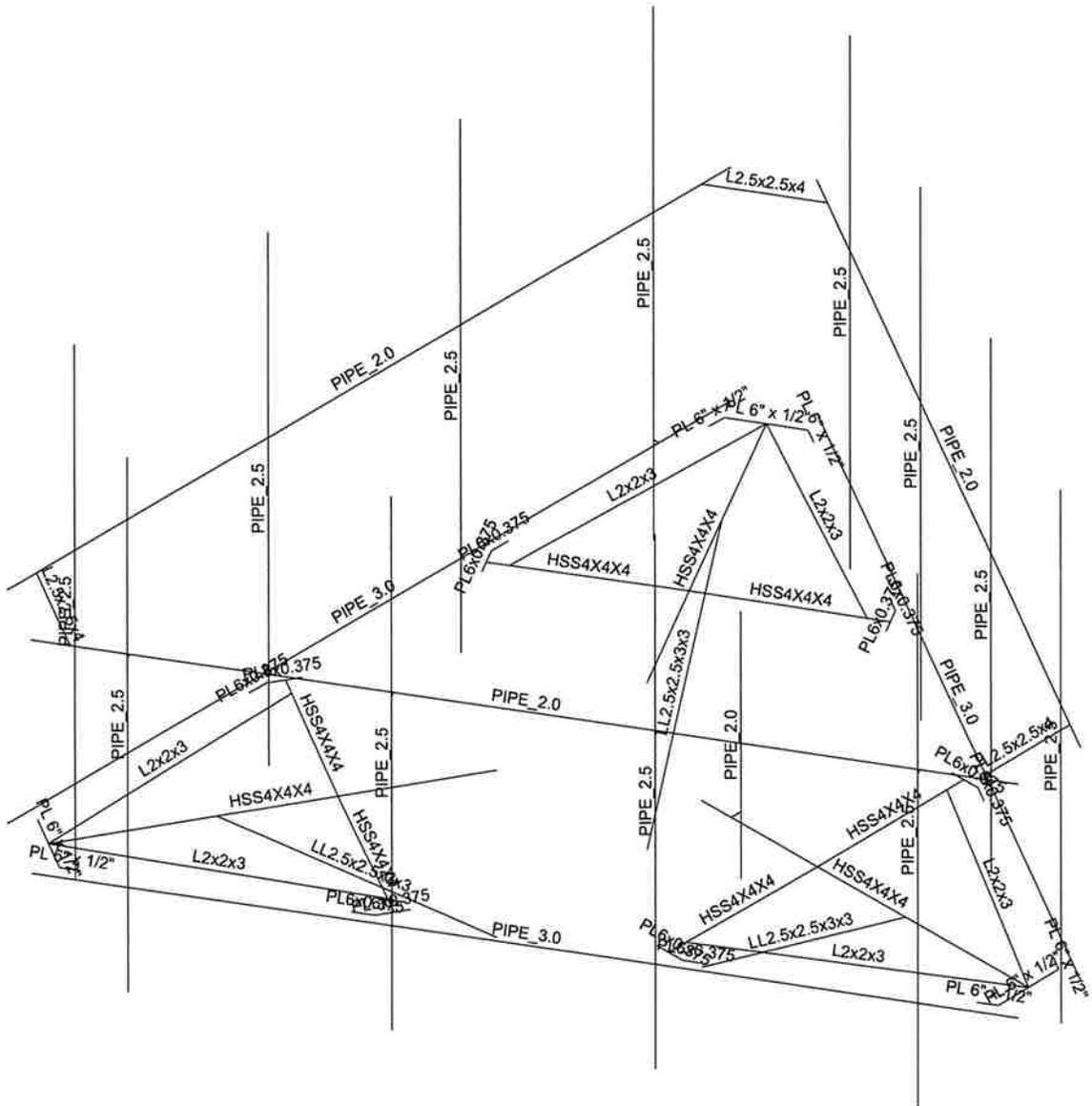
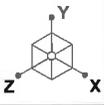
A42920-0005

Cornwall CT

SK - 5

May 27, 2020 at 5:04 PM

RMQP-496-HK_Client.r3d



Envelope Only Solution

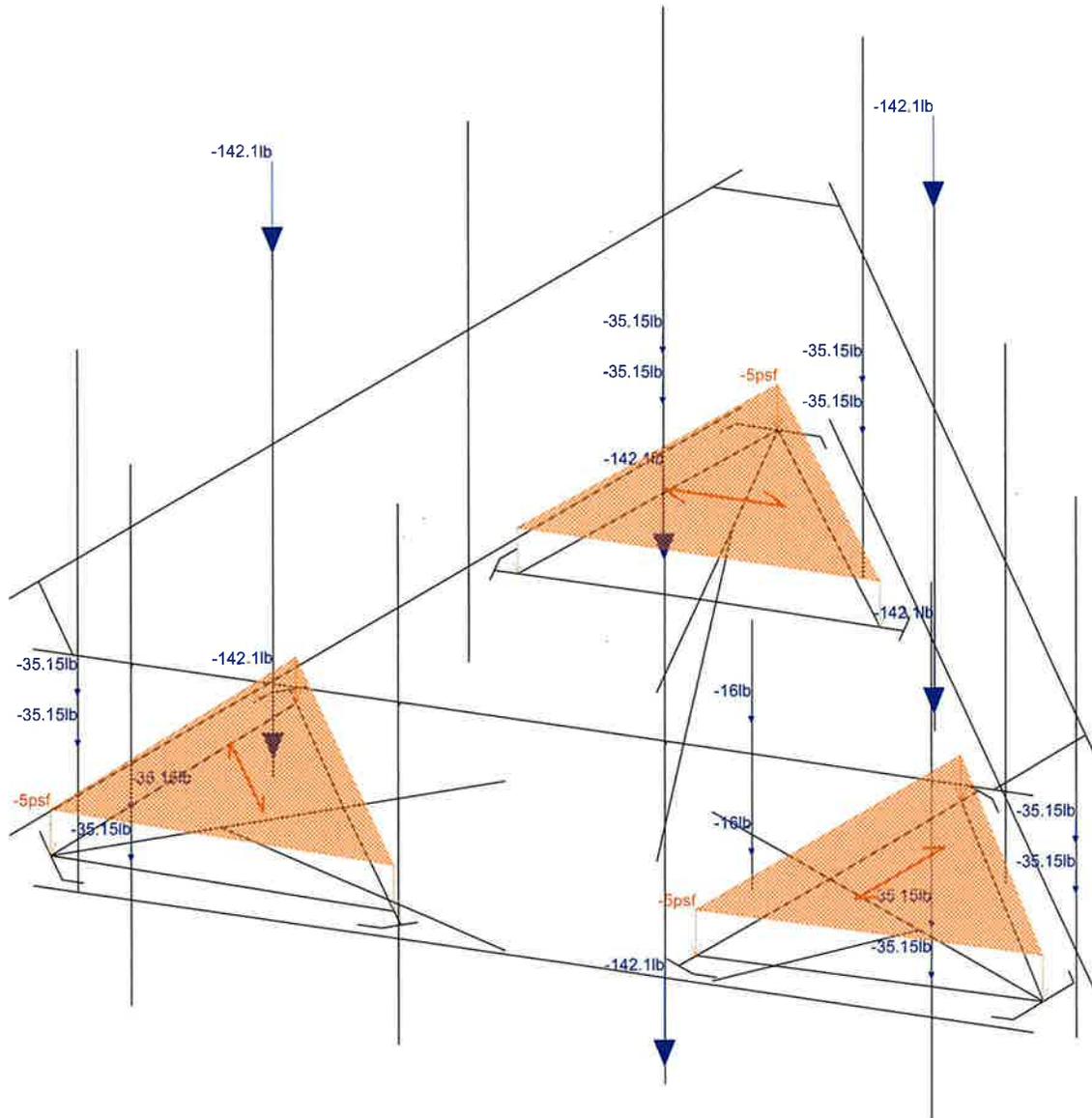
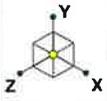
Paul J. Ford and Company
 DS
 A42920-0005

Cornwall CT

SK - 6

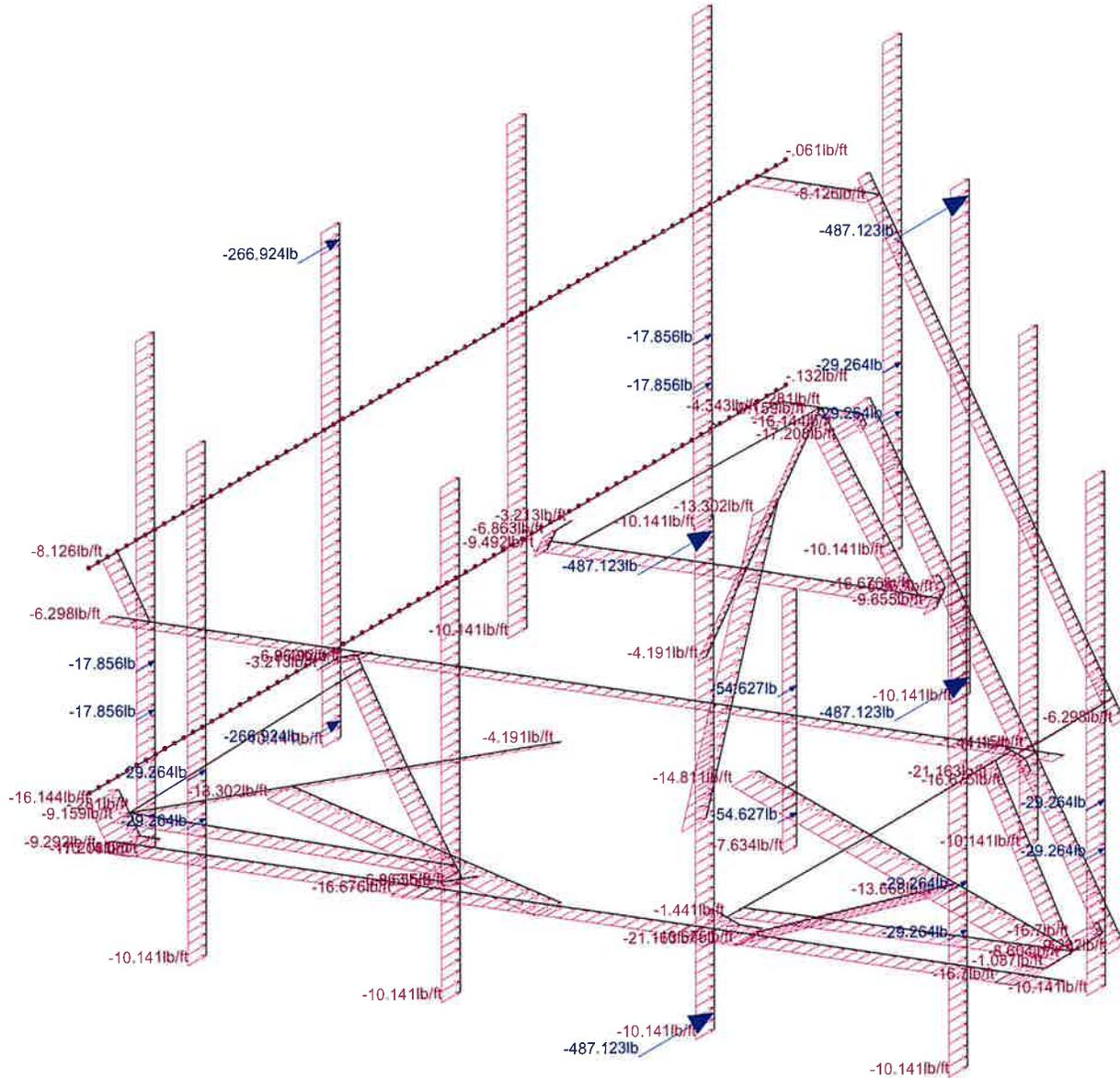
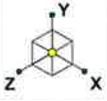
May 27, 2020 at 5:05 PM

RMQP-496-HK_Client.r3d



Loads: BLC 1, Dead
Envelope Only Solution

Paul J. Ford and Company	Cornwall CT	SK - 7
DS		May 27, 2020 at 5:05 PM
A42920-0005		RMQP-496-HK_Client.r3d



Loads: BLC 2, Wind 0
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DS
A42920-0005

Cornwall CT

SK - 8

May 27, 2020 at 5:05 PM

RMQP-496-HK_Client.r3d



Company : Paul J. Ford and Company
 Designer : DS
 Job Number : A42920-0005
 Model Name : Cornwall CT

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(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8



Company : Paul J. Ford and Company
 Designer : DS
 Job Number : A42920-0005
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(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Them (/1E...Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt	
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(de...	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			PIPE 3.0	None	None	A53 Gr.B	Typical
2	M2	N16	N4		270	L2x2x3	None	None	A53 Gr.B	Typical
3	M3	N16	N6			L2x2x3	None	None	A53 Gr.B	Typical
4	M4	N41	N8		270	L2x2x3	None	None	A53 Gr.B	Typical
5	M5	N41	N10			L2x2x3	None	None	A53 Gr.B	Typical
6	M6	N66	N12		270	L2x2x3	None	None	A53 Gr.B	Typical
7	M7	N66	N14			L2x2x3	None	None	A53 Gr.B	Typical
8	M9	N17	N22			PL 6" x 1/2"	None	None	A53 Gr.B	Typical
9	M10	N18	N19			RIGID	None	None	RIGID	Typical
10	M11	N20	N21			PIPE 3.0	None	None	A53 Gr.B	Typical
11	M12	N24	N22			PL 6" x 1/2"	None	None	A53 Gr.B	Typical
12	M13	N23	N24			PL 6" x 1/2"	None	None	A53 Gr.B	Typical
13	M14	N25	N26			RIGID	None	None	RIGID	Typical
14	M15	N29	N27			PL6x0.375	None	None	A53 Gr.B	Typical



Company : Paul J. Ford and Company
 Designer : DS
 Job Number : A42920-0005
 Model Name : Cornwall CT

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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(de...	Section/Shape	Type	Design List	Material	Design Rules
15	M16	N28	N29			PL6x0.375	None	None	A53 Gr.B	Typical
16	M17	N30	N35			HSS4X4X4	None	None	A53 Gr.B	Typical
17	M18	N33	N31			PL6x0.375	None	None	A53 Gr.B	Typical
18	M19	N32	N33			PL6x0.375	None	None	A53 Gr.B	Typical
19	M20	N34	N35			HSS4X4X4	None	None	A53 Gr.B	Typical
20	M21	N36	N37			RIGID	None	None	RIGID	Typical
21	M22	N39	N38			RIGID	None	None	RIGID	Typical
22	M24	N42	N47			PL 6" x 1/2"	None	None	A53 Gr.B	Typical
23	M25	N43	N44			RIGID	None	None	RIGID	Typical
24	M26	N45	N46			PIPE 3.0	None	None	A53 Gr.B	Typical
25	M27	N49	N47			PL 6" x 1/2"	None	None	A53 Gr.B	Typical
26	M28	N48	N49			PL 6" x 1/2"	None	None	A53 Gr.B	Typical
27	M29	N50	N51			RIGID	None	None	RIGID	Typical
28	M30	N54	N52			PL6x0.375	None	None	A53 Gr.B	Typical
29	M31	N53	N54			PL6x0.375	None	None	A53 Gr.B	Typical
30	M32	N55	N60			HSS4X4X4	None	None	A53 Gr.B	Typical
31	M33	N58	N56			PL6x0.375	None	None	A53 Gr.B	Typical
32	M34	N57	N58			PL6x0.375	None	None	A53 Gr.B	Typical
33	M35	N59	N60			HSS4X4X4	None	None	A53 Gr.B	Typical
34	M36	N62	N61			RIGID	None	None	RIGID	Typical
35	M37	N64	N63			RIGID	None	None	RIGID	Typical
36	M38	N65	N66			HSS4X4X4	None	None	A53 Gr.B	Typical
37	M39	N67	N70			PL 6" x 1/2"	None	None	A53 Gr.B	Typical
38	M40	N68	N69			RIGID	None	None	RIGID	Typical
39	M41	N72	N70			PL 6" x 1/2"	None	None	A53 Gr.B	Typical
40	M42	N71	N72			PL 6" x 1/2"	None	None	A53 Gr.B	Typical
41	M43	N73	N74			RIGID	None	None	RIGID	Typical
42	M44	N77	N75			PL6x0.375	None	None	A53 Gr.B	Typical
43	M45	N76	N77			PL6x0.375	None	None	A53 Gr.B	Typical
44	M46	N78	N83			HSS4X4X4	None	None	A53 Gr.B	Typical
45	M47	N81	N79			PL6x0.375	None	None	A53 Gr.B	Typical
46	M48	N80	N81			PL6x0.375	None	None	A53 Gr.B	Typical
47	M49	N82	N83			HSS4X4X4	None	None	A53 Gr.B	Typical
48	M50	N85	N84			RIGID	None	None	RIGID	Typical
49	M51	N86	N87			RIGID	None	None	RIGID	Typical
50	M52	N89	N88			RIGID	None	None	RIGID	Typical
51	M70	N124	N125			PIPE 2.0	None	None	A53 Gr.B	Typical
52	M71	N126	N127			PIPE 2.0	None	None	A53 Gr.B	Typical
53	M72	N128	N129			PIPE 2.0	None	None	A53 Gr.B	Typical
54	M73	N131	N130		90	L2.5x2.5x4	None	None	A53 Gr.B	Typical
55	M74	N133	N132		90	L2.5x2.5x4	None	None	A53 Gr.B	Typical
56	M75	N135	N134		90	L2.5x2.5x4	None	None	A53 Gr.B	Typical
57	M76	N137	N136			RIGID	None	None	RIGID	Typical
58	C4	N111	N112			PIPE 2.5	None	None	A53 Gr.B	Typical
59	M64	N114	N113			RIGID	None	None	RIGID	Typical
60	M65	N116	N115			RIGID	None	None	RIGID	Typical
61	C3	N117	N118			PIPE 2.5	None	None	A53 Gr.B	Typical
62	M67	N120	N119			RIGID	None	None	RIGID	Typical
63	M68	N122	N121			RIGID	None	None	RIGID	Typical
64	C2	N123	N124A			PIPE 2.5	None	None	A53 Gr.B	Typical
65	M70A	N126A	N125A			RIGID	None	None	RIGID	Typical
66	M71A	N128A	N127A			RIGID	None	None	RIGID	Typical



Company : Paul J. Ford and Company
 Designer : DS
 Job Number : A42920-0005
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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(de...)	Section/Shape	Type	Design List	Material	Design Rules
67	C1	N129A	N130A			PIPE 2.5	None	None	A53 Gr.B	Typical
68	M73A	N132A	N131A			RIGID	None	None	RIGID	Typical
69	M74A	N134A	N133A			RIGID	None	None	RIGID	Typical
70	B4	N135A	N136A			PIPE 2.5	None	None	A53 Gr.B	Typical
71	M76A	N138	N137A			RIGID	None	None	RIGID	Typical
72	M77	N140	N139			RIGID	None	None	RIGID	Typical
73	B3	N141	N142			PIPE 2.5	None	None	A53 Gr.B	Typical
74	M79	N144	N143			RIGID	None	None	RIGID	Typical
75	M80	N146	N145			RIGID	None	None	RIGID	Typical
76	B2	N147	N148			PIPE 2.5	None	None	A53 Gr.B	Typical
77	M82	N150	N149			RIGID	None	None	RIGID	Typical
78	M83	N152	N151			RIGID	None	None	RIGID	Typical
79	B1	N153	N154A			PIPE 2.5	None	None	A53 Gr.B	Typical
80	M85A	N156A	N155A			RIGID	None	None	RIGID	Typical
81	M86A	N158A	N157			RIGID	None	None	RIGID	Typical
82	A4	N159B	N160A			PIPE 2.5	None	None	A53 Gr.B	Typical
83	M88	N162	N161			RIGID	None	None	RIGID	Typical
84	M89	N164	N163			RIGID	None	None	RIGID	Typical
85	A3	N165	N166			PIPE 2.5	None	None	A53 Gr.B	Typical
86	M91	N168	N167			RIGID	None	None	RIGID	Typical
87	M92	N170	N169			RIGID	None	None	RIGID	Typical
88	A2	N171	N172			PIPE 2.5	None	None	A53 Gr.B	Typical
89	M94	N174	N173			RIGID	None	None	RIGID	Typical
90	M95	N176	N175			RIGID	None	None	RIGID	Typical
91	A1	N177	N178			PIPE 2.5	None	None	A53 Gr.B	Typical
92	M93	N172A	N16			HSS4X4X4	None	None	A53 Gr.B	Typical
93	M95A	N176A	N41			HSS4X4X4	None	None	A53 Gr.B	Typical
94	M94A	N167A	N166A			LL2.5x2.5x3x3	None	None	A53 Gr.B	Typical
95	M95B	N169A	N168A			LL2.5x2.5x3x3	None	None	A53 Gr.B	Typical
96	M96	N171A	N170A			LL2.5x2.5x3x3	None	None	A53 Gr.B	Typical
97	C5	N175A	N174A			PIPE 2.0	None	None	A53 Gr.B	Typical
98	M98	N173A	N172B			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2	BenPIN	BenPIN				Yes	** NA **			None
3	M3	BenPIN	BenPIN				Yes	** NA **			None
4	M4	BenPIN	BenPIN				Yes	** NA **			None
5	M5	BenPIN	BenPIN				Yes	** NA **			None
6	M6	BenPIN	BenPIN				Yes	** NA **			None
7	M7	BenPIN	BenPIN				Yes	** NA **			None
8	M9						Yes	** NA **			None
9	M10	BenPIN					Yes	** NA **			None
10	M11						Yes	** NA **			None
11	M12						Yes	** NA **			None
12	M13						Yes	** NA **			None
13	M14	BenPIN					Yes	** NA **			None
14	M15						Yes	** NA **			None
15	M16						Yes	** NA **			None



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 Designer : DS
 Job Number : A42920-0005
 Model Name : Cornwall CT

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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
16	M17						Yes	** NA **			None
17	M18						Yes	** NA **			None
18	M19						Yes	** NA **			None
19	M20						Yes	** NA **			None
20	M21		BenPIN				Yes	** NA **			None
21	M22	BenPIN					Yes	** NA **			None
22	M24						Yes	** NA **			None
23	M25	BenPIN					Yes	** NA **			None
24	M26						Yes	** NA **			None
25	M27						Yes	** NA **			None
26	M28						Yes	** NA **			None
27	M29	BenPIN					Yes	** NA **			None
28	M30						Yes	** NA **			None
29	M31						Yes	** NA **			None
30	M32						Yes	** NA **			None
31	M33						Yes	** NA **			None
32	M34						Yes	** NA **			None
33	M35						Yes	** NA **			None
34	M36	BenPIN					Yes	** NA **			None
35	M37	BenPIN					Yes	** NA **			None
36	M38						Yes	** NA **			None
37	M39						Yes	** NA **			None
38	M40	BenPIN					Yes	** NA **			None
39	M41						Yes	** NA **			None
40	M42						Yes	** NA **			None
41	M43	BenPIN					Yes	** NA **			None
42	M44						Yes	** NA **			None
43	M45						Yes	** NA **			None
44	M46						Yes	** NA **			None
45	M47						Yes	** NA **			None
46	M48						Yes	** NA **			None
47	M49						Yes	** NA **			None
48	M50	BenPIN					Yes	** NA **			None
49	M51		BenPIN				Yes	** NA **			None
50	M52						Yes	** NA **			None
51	M70						Yes	** NA **			None
52	M71						Yes	** NA **			None
53	M72						Yes	** NA **			None
54	M73	OOOOXO	OOOOXO				Yes	** NA **			None
55	M74	OOOOXO	OOOOXO				Yes	** NA **			None
56	M75	OOOOXO	OOOOXO				Yes	** NA **			None
57	M76						Yes	** NA **			None
58	C4						Yes	** NA **			None
59	M64						Yes	** NA **			None
60	M65						Yes	** NA **			None
61	C3						Yes	** NA **			None
62	M67						Yes	** NA **			None
63	M68						Yes	** NA **			None
64	C2						Yes	** NA **			None
65	M70A						Yes	** NA **			None
66	M71A						Yes	** NA **			None
67	C1						Yes	** NA **			None



Company : Paul J. Ford and Company
 Designer : DS
 Job Number : A42920-0005
 Model Name : Cornwall CT

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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
68	M73A						Yes	** NA **			None
69	M74A						Yes	** NA **			None
70	B4						Yes	** NA **			None
71	M76A						Yes	** NA **			None
72	M77						Yes	** NA **			None
73	B3						Yes	** NA **			None
74	M79						Yes	** NA **			None
75	M80						Yes	** NA **			None
76	B2						Yes	** NA **			None
77	M82						Yes	** NA **			None
78	M83						Yes	** NA **			None
79	B1						Yes	** NA **			None
80	M85A						Yes	** NA **			None
81	M86A						Yes	** NA **			None
82	A4						Yes	** NA **			None
83	M88						Yes	** NA **			None
84	M89						Yes	** NA **			None
85	A3						Yes	** NA **			None
86	M91						Yes	** NA **			None
87	M92						Yes	** NA **			None
88	A2						Yes	** NA **			None
89	M94						Yes	** NA **			None
90	M95						Yes	** NA **			None
91	A1						Yes	** NA **			None
92	M93						Yes	** NA **			None
93	M95A						Yes	** NA **			None
94	M94A	BenPIN					Yes	** NA **			None
95	M95B	BenPIN					Yes	** NA **			None
96	M96	BenPIN					Yes	** NA **			None
97	C5						Yes	** NA **			None
98	M98						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	PIPE 3.0	150			Lbyy						Lateral
2	M2	L2x2x3	51.837			Lbyy						Lateral
3	M3	L2x2x3	51.837			Lbyy						Lateral
4	M4	L2x2x3	51.837			Lbyy						Lateral
5	M5	L2x2x3	51.837			Lbyy						Lateral
6	M6	L2x2x3	51.837			Lbyy						Lateral
7	M7	L2x2x3	51.837			Lbyy						Lateral
8	M9	PL 6" x 1/2"	3.184			Lbyy						Lateral
9	M11	PIPE 3.0	150			Lbyy						Lateral
10	M12	PL 6" x 1/2"	12.707			Lbyy						Lateral
11	M13	PL 6" x 1/2"	3.184			Lbyy						Lateral
12	M15	PL6x0.375	5.363			Lbyy						Lateral
13	M16	PL6x0.375	3.499			Lbyy						Lateral
14	M17	HSS4X4X4	30.71			Lbyy						Lateral
15	M18	PL6x0.375	5.363			Lbyy						Lateral
16	M19	PL6x0.375	3.499			Lbyy						Lateral



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 Designer : DS
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Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
17	M20	HSS4X4X4	30.71			Lbyy						Lateral
18	M24	PL 6" x 1/2"	3.184			Lbyy						Lateral
19	M26	PIPE 3.0	150			Lbyy						Lateral
20	M27	PL 6" x 1/2"	12.707			Lbyy						Lateral
21	M28	PL 6" x 1/2"	3.184			Lbyy						Lateral
22	M30	PL6x0.375	5.363			Lbyy						Lateral
23	M31	PL6x0.375	3.499			Lbyy						Lateral
24	M32	HSS4X4X4	30.71			Lbyy						Lateral
25	M33	PL6x0.375	5.363			Lbyy						Lateral
26	M34	PL6x0.375	3.499			Lbyy						Lateral
27	M35	HSS4X4X4	30.71			Lbyy						Lateral
28	M38	HSS4X4X4	68.014			Lbyy						Lateral
29	M39	PL 6" x 1/2"	3.184			Lbyy						Lateral
30	M41	PL 6" x 1/2"	12.707			Lbyy						Lateral
31	M42	PL 6" x 1/2"	3.184			Lbyy						Lateral
32	M44	PL6x0.375	5.363			Lbyy						Lateral
33	M45	PL6x0.375	3.499			Lbyy						Lateral
34	M46	HSS4X4X4	30.71			Lbyy						Lateral
35	M47	PL6x0.375	5.363			Lbyy						Lateral
36	M48	PL6x0.375	3.499			Lbyy						Lateral
37	M49	HSS4X4X4	30.71			Lbyy						Lateral
38	M70	PIPE 2.0	150			Lbyy						Lateral
39	M71	PIPE 2.0	150			Lbyy						Lateral
40	M72	PIPE 2.0	150			Lbyy						Lateral
41	M73	L2.5x2.5x4	19.173									Lateral
42	M74	L2.5x2.5x4	19.173									Lateral
43	M75	L2.5x2.5x4	19.173									Lateral
44	C4	PIPE 2.5	96									Lateral
45	C3	PIPE 2.5	96									Lateral
46	C2	PIPE 2.5	96									Lateral
47	C1	PIPE 2.5	96									Lateral
48	B4	PIPE 2.5	96									Lateral
49	B3	PIPE 2.5	96									Lateral
50	B2	PIPE 2.5	96									Lateral
51	B1	PIPE 2.5	96									Lateral
52	A4	PIPE 2.5	96									Lateral
53	A3	PIPE 2.5	96									Lateral
54	A2	PIPE 2.5	96									Lateral
55	A1	PIPE 2.5	96									Lateral
56	M93	HSS4X4X4	68.014			Lbyy						Lateral
57	M95A	HSS4X4X4	68.014			Lbyy						Lateral
58	M94A	LL2.5x2.5x3..	52									Lateral
59	M95B	LL2.5x2.5x3..	52									Lateral
60	M96	LL2.5x2.5x3..	52									Lateral
61	C5	PIPE 2.0	48									Lateral

Basic Load Cases

	BLC Description	Category	X Gravi...	Y Gravi...	Z Gravity	Joint	Point	Distrib...	Area(M...Surfac...
1	Dead	None		-1.1			20		3
2	Wind 0	None					40	122	



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Basic Load Cases (Continued)

	BLC Description	Category	X Gravi...	Y Gravi...	Z Gravity	Joint	Point	Distrib...	Area(M...Surfac...
3	Wind 30	None					40	122	
4	Wind 60	None					40	122	
5	Wind 90	None					40	122	
6	Wind 120	None					40	122	
7	Wind 150	None					40	122	
8	Ice Load	None					20	61	3
9	Ice 0	None					40	122	
10	Ice 30	None					40	122	
11	Ice 60	None					40	122	
12	Ice 90	None					40	122	
13	Ice 120	None					40	122	
14	Ice 150	None					40	122	
15	Lm1	None				1			
16	Lm2	None				1			
17	Lm3	None				1			
18	Lm4	None				1			
19	Lv1	None				1			
20	Lv2	None				1			
21	Lv3	None				1			
22	Lv4	None				1			
23	BLC 1 Transient Area Loads	None						75	
24	BLC 8 Transient Area Loads	None						75	

Load Combinations

	Description	Solve PD...	SR...	BLC Fact...	B...Fa...B...Fa...B...Fa...B...Fa...B...Fa...B...Fa...B...Fa...
1	1.4 D	Yes	Y	1 1.4	
2	1.2 D + 1.0 Wo @ 0	Yes	Y	1 1.2 2 1	
3	1.2 D + 1.0 Wo @ 30	Yes	Y	1 1.2 3 1	
4	1.2 D + 1.0 Wo @ 60	Yes	Y	1 1.2 4 1	
5	1.2 D + 1.0 Wo @ 90	Yes	Y	1 1.2 5 1	
6	1.2 D + 1.0 Wo @ 120	Yes	Y	1 1.2 6 1	
7	1.2 D + 1.0 Wo @ 150	Yes	Y	1 1.2 7 1	
8	1.2 D + 1.0 Wo @ 180	Yes	Y	1 1.2 2 -1	
9	1.2 D + 1.0 Wo @ 210	Yes	Y	1 1.2 3 -1	
10	1.2 D + 1.0 Wo @ 240	Yes	Y	1 1.2 4 -1	
11	1.2 D + 1.0 Wo @ 270	Yes	Y	1 1.2 5 -1	
12	1.2 D + 1.0 Wo @ 300	Yes	Y	1 1.2 6 -1	
13	1.2 D + 1.0 Wo @ 330	Yes	Y	1 1.2 7 -1	
14	1.2 D + 1.0 Di + 1.0 Wi @ 0	Yes	Y	1 1.2 8 1 9 1	
15	1.2 D + 1.0 Di + 1.0 Wi @ 30	Yes	Y	1 1.2 8 1 10 1	
16	1.2 D + 1.0 Di + 1.0 Wi @ 60	Yes	Y	1 1.2 8 1 11 1	
17	1.2 D + 1.0 Di + 1.0 Wi @ 90	Yes	Y	1 1.2 8 1 12 1	
18	1.2 D + 1.0 Di + 1.0 Wi @ 120	Yes	Y	1 1.2 8 1 13 1	
19	1.2 D + 1.0 Di + 1.0 Wi @ 150	Yes	Y	1 1.2 8 1 14 1	
20	1.2 D + 1.0 Di + 1.0 Wi @ 180	Yes	Y	1 1.2 8 1 9 -1	
21	1.2 D + 1.0 Di + 1.0 Wi @ 210	Yes	Y	1 1.2 8 1 10 -1	
22	1.2 D + 1.0 Di + 1.0 Wi @ 240	Yes	Y	1 1.2 8 1 11 -1	
23	1.2 D + 1.0 Di + 1.0 Wi @ 270	Yes	Y	1 1.2 8 1 12 -1	
24	1.2 D + 1.0 Di + 1.0 Wi @ 300	Yes	Y	1 1.2 8 1 13 -1	
25	1.2 D + 1.0 Di + 1.0 Wi @ 330	Yes	Y	1 1.2 8 1 14 -1	



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Load Combinations (Continued)

	Description	Solve	PD	SR	BLC	Fact	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa
26	1.2 D + 1.5 Lm1 + 1.0 Wm @ 0	Yes	Y		1	1.2	15	1.5	2	.069										
27	1.2 D + 1.5 Lm1 + 1.0 Wm @ 30	Yes	Y		1	1.2	15	1.5	3	.069										
28	1.2 D + 1.5 Lm1 + 1.0 Wm @ 60	Yes	Y		1	1.2	15	1.5	4	.069										
29	1.2 D + 1.5 Lm1 + 1.0 Wm @ 90	Yes	Y		1	1.2	15	1.5	5	.069										
30	1.2 D + 1.5 Lm1 + 1.0 Wm @ 120	Yes	Y		1	1.2	15	1.5	6	.069										
31	1.2 D + 1.5 Lm1 + 1.0 Wm @ 150	Yes	Y		1	1.2	15	1.5	7	.069										
32	1.2 D + 1.5 Lm1 + 1.0 Wm @ 180	Yes	Y		1	1.2	15	1.5	2	.069										
33	1.2 D + 1.5 Lm1 + 1.0 Wm @ 210	Yes	Y		1	1.2	15	1.5	3	.069										
34	1.2 D + 1.5 Lm1 + 1.0 Wm @ 240	Yes	Y		1	1.2	15	1.5	4	.069										
35	1.2 D + 1.5 Lm1 + 1.0 Wm @ 270	Yes	Y		1	1.2	15	1.5	5	.069										
36	1.2 D + 1.5 Lm1 + 1.0 Wm @ 300	Yes	Y		1	1.2	15	1.5	6	.069										
37	1.2 D + 1.5 Lm1 + 1.0 Wm @ 330	Yes	Y		1	1.2	15	1.5	7	.069										
38	1.2 D + 1.5 Lm2 + 1.0 Wm @ 0	Yes	Y		1	1.2	16	1.5	2	.069										
39	1.2 D + 1.5 Lm2 + 1.0 Wm @ 30	Yes	Y		1	1.2	16	1.5	3	.069										
40	1.2 D + 1.5 Lm2 + 1.0 Wm @ 60	Yes	Y		1	1.2	16	1.5	4	.069										
41	1.2 D + 1.5 Lm2 + 1.0 Wm @ 90	Yes	Y		1	1.2	16	1.5	5	.069										
42	1.2 D + 1.5 Lm2 + 1.0 Wm @ 120	Yes	Y		1	1.2	16	1.5	6	.069										
43	1.2 D + 1.5 Lm2 + 1.0 Wm @ 150	Yes	Y		1	1.2	16	1.5	7	.069										
44	1.2 D + 1.5 Lm2 + 1.0 Wm @ 180	Yes	Y		1	1.2	16	1.5	2	.069										
45	1.2 D + 1.5 Lm2 + 1.0 Wm @ 210	Yes	Y		1	1.2	16	1.5	3	.069										
46	1.2 D + 1.5 Lm2 + 1.0 Wm @ 240	Yes	Y		1	1.2	16	1.5	4	.069										
47	1.2 D + 1.5 Lm2 + 1.0 Wm @ 270	Yes	Y		1	1.2	16	1.5	5	.069										
48	1.2 D + 1.5 Lm2 + 1.0 Wm @ 300	Yes	Y		1	1.2	16	1.5	6	.069										
49	1.2 D + 1.5 Lm2 + 1.0 Wm @ 330	Yes	Y		1	1.2	16	1.5	7	.069										
50	1.2 D + 1.5 Lm3 + 1.0 Wm @ 0	Yes	Y		1	1.2	17	1.5	2	.069										
51	1.2 D + 1.5 Lm3 + 1.0 Wm @ 30	Yes	Y		1	1.2	17	1.5	3	.069										
52	1.2 D + 1.5 Lm3 + 1.0 Wm @ 60	Yes	Y		1	1.2	17	1.5	4	.069										
53	1.2 D + 1.5 Lm3 + 1.0 Wm @ 90	Yes	Y		1	1.2	17	1.5	5	.069										
54	1.2 D + 1.5 Lm3 + 1.0 Wm @ 120	Yes	Y		1	1.2	17	1.5	6	.069										
55	1.2 D + 1.5 Lm3 + 1.0 Wm @ 150	Yes	Y		1	1.2	17	1.5	7	.069										
56	1.2 D + 1.5 Lm3 + 1.0 Wm @ 180	Yes	Y		1	1.2	17	1.5	2	.069										
57	1.2 D + 1.5 Lm3 + 1.0 Wm @ 210	Yes	Y		1	1.2	17	1.5	3	.069										
58	1.2 D + 1.5 Lm3 + 1.0 Wm @ 240	Yes	Y		1	1.2	17	1.5	4	.069										
59	1.2 D + 1.5 Lm3 + 1.0 Wm @ 270	Yes	Y		1	1.2	17	1.5	5	.069										
60	1.2 D + 1.5 Lm3 + 1.0 Wm @ 300	Yes	Y		1	1.2	17	1.5	6	.069										
61	1.2 D + 1.5 Lm3 + 1.0 Wm @ 330	Yes	Y		1	1.2	17	1.5	7	.069										
62	1.2 D + 1.5 Lm4 + 1.0 Wm @ 0	Yes	Y		1	1.2	18	1.5	2	.069										
63	1.2 D + 1.5 Lm4 + 1.0 Wm @ 30	Yes	Y		1	1.2	18	1.5	3	.069										
64	1.2 D + 1.5 Lm4 + 1.0 Wm @ 60	Yes	Y		1	1.2	18	1.5	4	.069										
65	1.2 D + 1.5 Lm4 + 1.0 Wm @ 90	Yes	Y		1	1.2	18	1.5	5	.069										
66	1.2 D + 1.5 Lm4 + 1.0 Wm @ 120	Yes	Y		1	1.2	18	1.5	6	.069										
67	1.2 D + 1.5 Lm4 + 1.0 Wm @ 150	Yes	Y		1	1.2	18	1.5	7	.069										
68	1.2 D + 1.5 Lm4 + 1.0 Wm @ 180	Yes	Y		1	1.2	18	1.5	2	-.0...										
69	1.2 D + 1.5 Lm4 + 1.0 Wm @ 210	Yes	Y		1	1.2	18	1.5	3	-.0...										
70	1.2 D + 1.5 Lm4 + 1.0 Wm @ 240	Yes	Y		1	1.2	18	1.5	4	-.0...										
71	1.2 D + 1.5 Lm4 + 1.0 Wm @ 270	Yes	Y		1	1.2	18	1.5	5	-.0...										
72	1.2 D + 1.5 Lm4 + 1.0 Wm @ 300	Yes	Y		1	1.2	18	1.5	6	-.0...										
73	1.2 D + 1.5 Lm4 + 1.0 Wm @ 330	Yes	Y		1	1.2	18	1.5	7	-.0...										
74	1.2 D + 1.5 Lv1	Yes	Y		1	1.2	19	1.5												
75	1.2 D + 1.5 Lv2	Yes	Y		1	1.2	20	1.5												
76	1.2 D + 1.5 Lv3	Yes	Y		1	1.2	21	1.5												
77	1.2 D + 1.5 Lv4	Yes	Y		1	1.2	22	1.5												



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 Designer : DS
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Load Combinations (Continued)

	Description	Solve PD...	SR...	BLC Fact...	B...	Fa...												
78	1.0 D	Yes	Y		1	1												

Envelope Joint Reactions

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	N65	max	2670.59	11	497.261	23	1212.11	2	.39	13	1.569	8	.553	23
2		min	-5648.897	5	-113.347	5	-1216.122	8	-.583	7	-1.563	2	.113	76
3	N172A	max	2660.121	13	428.578	7	4766.713	13	.579	17	1.504	4	.391	3
4		min	-1175.35	7	-153.557	13	-2190.988	7	-.097	71	-1.499	10	-.636	55
5	N176A	max	2901.901	10	428.377	3	2112.185	3	.188	32	1.5	12	.144	6
6		min	-1416.694	4	-153.744	9	-4685.482	9	-.438	4	-1.495	6	-.831	38
7	N166A	max	3382.395	5	2425.515	5	28.613	2	0	78	0	78	0	78
8		min	-319.88	11	-228.622	11	-28.574	8	0	1	0	1	0	1
9	N168A	max	153.085	7	2412.142	13	265.215	7	0	78	0	78	0	78
10		min	-1682.001	13	-218.976	7	-2912.664	13	0	1	0	1	0	1
11	N170A	max	153.141	3	2411.821	9	2912.584	9	0	78	0	78	0	78
12		min	-1681.231	9	-218.979	3	-265.188	3	0	1	0	1	0	1
13	Totals:	max	5030.093	11	7276.742	17	4997.206	2						
14		min	-5030.091	5	3136.858	78	-4997.211	8						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

Member	Shape	Code C...	Loc[in]	LC Shear ...	Loc[in]	Dir	LC phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn			
1	M70	PIPE 2.0	.622	14.063	13	.353	6.25	7	6295.422	32130	1.872	1.872	3...	H3-6	
2	M72	PIPE 2.0	.621	14.062	5	.353	6.25	11	6295.422	32130	1.872	1.872	3...	H3-6	
3	M71	PIPE 2.0	.621	14.063	9	.353	6.25	3	6295.422	32130	1.872	1.872	3...	H3-6	
4	M18	PL6x0.375	.476	2.849	4	.101	2.849	y	10	62396.731	70875	.554	8.859	1...	H1-1b
5	M47	PL6x0.375	.476	2.849	8	.102	2.849	y	2	62396.731	70875	.554	8.859	1...	H1-1b
6	M33	PL6x0.375	.475	2.849	12	.127	2.849	y	32	62396.731	70875	.554	8.859	1...	H1-1b
7	C2	PIPE 2.5	.447	60	5	.111	60	4	30038.461	50715	3.596	3.596	1...	H1-1b	
8	B2	PIPE 2.5	.447	60	7	.111	60	12	30038.461	50715	3.596	3.596	1...	H1-1b	
9	A2	PIPE 2.5	.447	60	3	.111	60	8	30038.461	50715	3.596	3.596	1...	H1-1b	
10	M15	PL6x0.375	.350	2.849	10	.141	2.849	y	18	62396.731	70875	.554	8.859	1...	H1-1b
11	M44	PL6x0.375	.349	2.849	2	.140	2.849	y	22	62396.731	70875	.554	8.859	1...	H1-1b
12	M30	PL6x0.375	.349	2.849	6	.140	2.849	y	14	62396.731	70875	.554	8.859	1...	H1-1b
13	M74	L2.5x2.5x4	.337	19.173	7	.144	0	z	8	34569.042	37485	1.083	2.467	2...	H2-1
14	M75	L2.5x2.5x4	.337	19.173	3	.144	0	z	4	34569.042	37485	1.083	2.467	2...	H2-1
15	M73	L2.5x2.5x4	.337	19.173	11	.144	0	z	12	34569.042	37485	1.083	2.467	2...	H2-1
16	B1	PIPE 2.5	.265	18	6	.298	60	7	30038.461	50715	3.596	3.596	1...	H3-6	
17	A1	PIPE 2.5	.265	18	2	.298	60	3	30038.461	50715	3.596	3.596	2...	H3-6	
18	C1	PIPE 2.5	.265	18	10	.298	60	11	30038.461	50715	3.596	3.596	2...	H3-6	
19	A3	PIPE 2.5	.265	18	7	.149	18	4	30038.461	50715	3.596	3.596	2...	H1-1b	
20	C3	PIPE 2.5	.265	18	3	.149	18	12	30038.461	50715	3.596	3.596	2...	H1-1b	
21	B3	PIPE 2.5	.264	18	11	.149	18	8	30038.461	50715	3.596	3.596	2...	H1-1b	
22	M48	PL6x0.375	.254	1.422	12	.285	3.499	y	17	67133.716	70875	.554	8.859	1...	H1-1b
23	M19	PL6x0.375	.254	1.422	8	.286	3.499	y	25	67133.716	70875	.554	8.859	1...	H1-1b
24	M34	PL6x0.375	.254	1.422	4	.285	3.499	y	21	67133.716	70875	.554	8.859	1...	H1-1b
25	C4	PIPE 2.5	.244	60	9	.237	60	11	30038.461	50715	3.596	3.596	2...	H1-1b	
26	B4	PIPE 2.5	.244	60	5	.237	60	7	30038.461	50715	3.596	3.596	2...	H1-1b	
27	A4	PIPE 2.5	.244	60	13	.237	60	3	30038.461	50715	3.596	3.596	2...	H1-1b	
28	M31	PL6x0.375	.235	1.422	2	.259	3.499	y	21	67133.716	70875	.554	8.859	1...	H1-1b



Company : Paul J. Ford and Company
 Designer : DS
 Job Number : A42920-0005
 Model Name : Cornwall CT

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Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y...	phi*Mn z...	Cb	Eqn
29	M16	PL6x0.375	.235	1.422	6	.264	3.499	y	56	67133.716	70875	.554	8.859	1... H1-1b
30	M45	PL6x0.375	.234	1.422	10	.258	3.499	y	17	67133.716	70875	.554	8.859	1... H1-1b
31	M12	PL 6" x 1/2"	.184	6.354	4	.148	6.354	y	72	63754.712	94500	.984	11.813	1... H1-1b
32	M41	PL 6" x 1/2"	.184	6.354	8	.116	6.354	y	17	63754.712	94500	.984	11.813	1... H1-1b
33	M27	PL 6" x 1/2"	.184	6.354	12	.158	6.354	y	37	63754.712	94500	.984	11.813	1... H1-1b
34	M38	HSS4X4X4	.178	41.8	5	.097	0	z	8	95832.85	106155	12.311	12.311	1... H1-1b
35	M93	HSS4X4X4	.178	41.8	13	.086	0	z	4	95832.85	106155	12.311	12.311	1... H1-1b
36	M95A	HSS4X4X4	.178	41.8	9	.089	41.8	y	37	95832.85	106155	12.311	12.311	1... H1-1b
37	M20	HSS4X4X4	.170	30.71	14	.069	3.519	z	2	103964.0...	106155	12.311	12.311	1... H1-1b
38	M35	HSS4X4X4	.170	30.71	22	.068	3.519	z	10	103964.0...	106155	12.311	12.311	1... H1-1b
39	M49	HSS4X4X4	.170	30.71	18	.068	3.519	z	6	103964.0...	106155	12.311	12.311	1... H1-1b
40	M3	L2x2x3	.168	25.918	2	.008	51.837	y	20	9165.131	22743	.542	1.05	1... H2-1
41	M5	L2x2x3	.168	25.918	10	.008	51.837	y	16	9165.131	22743	.542	1.05	1... H2-1
42	M7	L2x2x3	.168	25.918	6	.008	51.837	y	24	9165.131	22743	.542	1.05	1... H2-1
43	M17	HSS4X4X4	.158	30.71	24	.058	3.519	z	12	103964.0...	106155	12.311	12.311	1... H1-1b
44	M32	HSS4X4X4	.158	30.71	20	.058	3.519	z	8	103964.0...	106155	12.311	12.311	1... H1-1b
45	M46	HSS4X4X4	.157	30.71	16	.058	3.519	z	4	103964.0...	106155	12.311	12.311	1... H1-1b
46	M2	L2x2x3	.149	25.918	12	.009	51.837	y	17	9165.131	22743	.542	1.053	1... H2-1
47	M4	L2x2x3	.149	25.918	8	.009	51.837	z	25	9165.131	22743	.542	1.053	1... H2-1
48	M6	L2x2x3	.149	25.918	4	.009	51.837	z	21	9165.131	22743	.542	1.053	1... H2-1
49	M11	PIPE 3.0	.143	15.625	9	.139	50		12	28250.554	65205	5.749	5.749	3... H1-1b
50	M1	PIPE 3.0	.143	15.625	13	.139	50		4	28250.554	65205	5.749	5.749	3... H1-1b
51	M26	PIPE 3.0	.143	15.625	5	.139	50		8	28250.554	65205	5.749	5.749	3... H1-1b
52	M94A	LL2.5x2.5x3x3	.096	0	5	.002	52	y	17	43610.344	56700	3.844	2.479	1 H1-1b*
53	M95B	LL2.5x2.5x3x3	.096	0	13	.002	0	y	25	43610.344	56700	3.844	2.479	1 H1-1b*
54	M96	LL2.5x2.5x3x3	.095	0	9	.002	0	y	21	43610.344	56700	3.844	2.479	1 H1-1b*
55	M24	PL 6" x 1/2"	.084	1.659	9	.131	3.184	y	8	92193.012	94500	.984	11.813	2... H1-1b
56	M9	PL 6" x 1/2"	.084	1.659	13	.195	3.184	y	72	92193.012	94500	.984	11.813	2... H1-1b
57	M39	PL 6" x 1/2"	.083	1.659	5	.131	3.184	y	4	92193.012	94500	.984	11.813	2... H1-1b
58	M13	PL 6" x 1/2"	.077	1.659	13	.189	3.184	y	2	92193.012	94500	.984	11.813	2... H1-1b
59	M42	PL 6" x 1/2"	.077	1.659	5	.189	3.184	y	6	92193.012	94500	.984	11.813	2... H1-1b
60	M28	PL 6" x 1/2"	.077	1.659	9	.211	3.184	y	37	92193.012	94500	.984	11.813	2... H1-1b
61	C5	PIPE 2.0	.076	12	5	.010	12		5	26521.424	32130	1.872	1.872	1... H1-1b

MOUNT TO TOWER CONNECTION CHECKS-LRFD

TIA Rev.	H	AISC	15th
Mount Type	3-Sector	Checks	Bolts & Welds

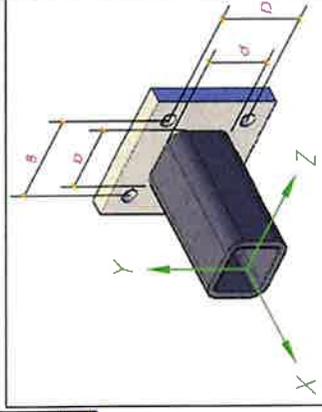
REACTIONS FROM RISA-3D

NODE	LC	Horizontal Shear (k)	Vertical Shear (k)	Axial along member(k)	Moment about horizontal axis (ft-k)	Moment about Vertical axis (ft-k)	Torque (ft-k)
N65	Envelope	1.21	0.49	5.64	0.55	1.56	0.58

Bolt Information	Type	Dia (in)	Quantity	Vertical Bolt spacing (D) (in)	Horizontal Bolt spacing (B) (in)
	A325N	0.625	4	6	6

CHECKS	Forces	Strength	Rating
	TENSION (K)	3.52	20.7
SHEAR (k)	0.74	12.4	5.9%

Note: Tension reduction not required if tension or shear capacity < 30%



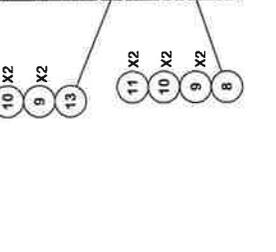
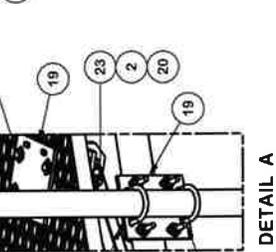
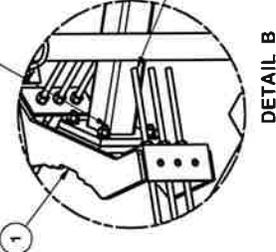
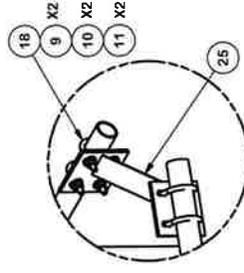
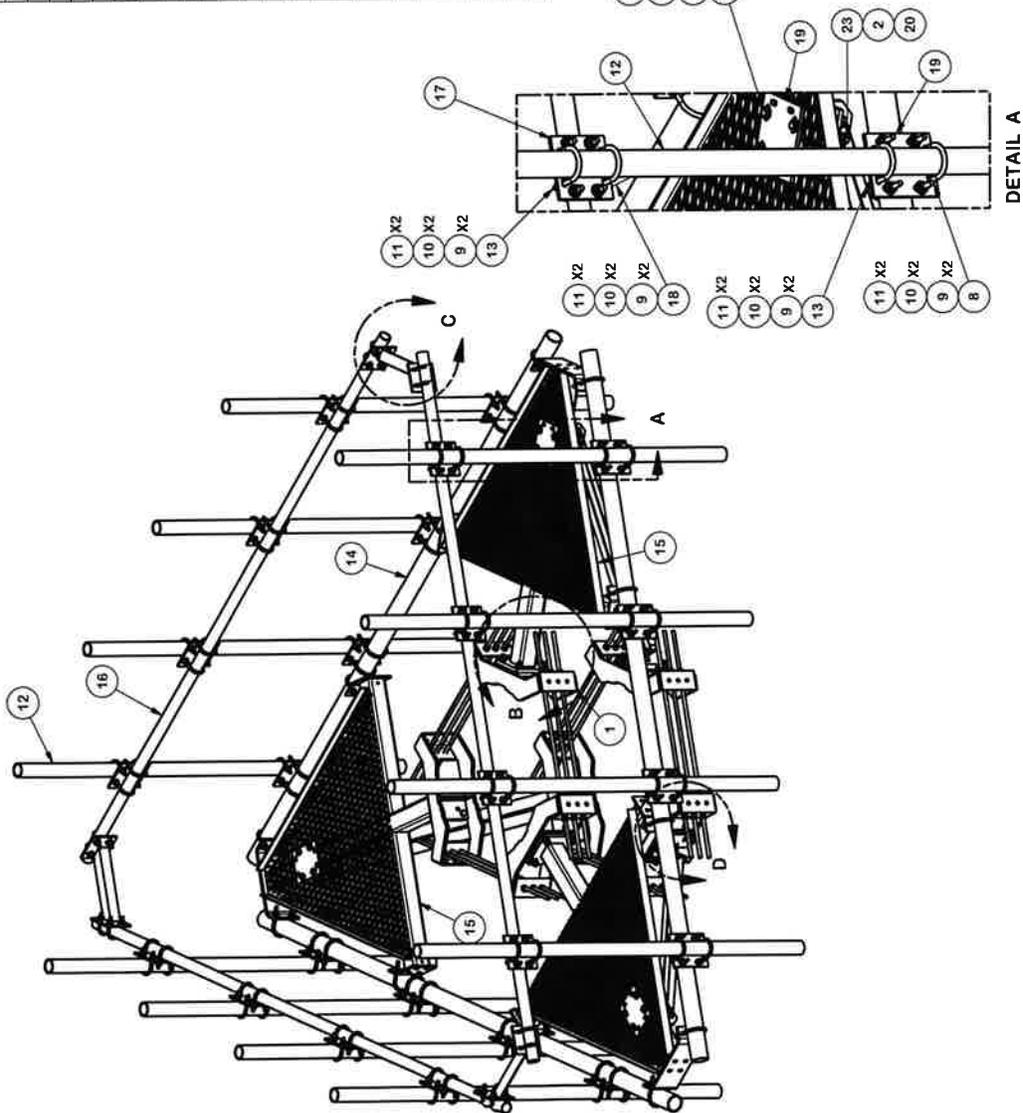
Standoff Member	Type	Width (b) (in)	Depth (d) (in)	thickness (in)	Weld Size	Stiffeners present
	Rectangle	4	4	0.25	0.375	No

WELDS CHECKS	Resultant (k)	Strength (k)	Rating
	1.12	8.35	13.4%

APPENDIX D

MANUFACTURER DRAWINGS
(FOR REFERENCE ONLY)

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	66	G5BLW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.79
4	18	G5BR-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
5	18	G5BR-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
6	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.54
7	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
8	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	29.82
9	284	G12LW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.00
10	252	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	3.50
11	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.05
12	12	P3096	2-7/8" OD X 96" SCH 40 GALVANIZED PIPE	96 in	49.24	590.88
13	48	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.67	32.11
14	3	P3150	3-1/2" X 150" (3" SCH 40) GALVANIZED PIPE	150 in	94.80	284.40
15	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
16	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
17	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
18	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.60	21.50
19	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
20	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
21	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
22	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
23	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
24	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	4.91
25	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2669.03



TOLERANCE NOTES
 TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES (±0.0307)
 DRILLED AND GAS CUT HOLES (±0.0307) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (±0.0107) - NO CONING OF HOLES
 BENDS ARE ±1/2 DEGREE
 ALL OTHER MACHINING (±0.0307)
 ALL OTHER ASSEMBLY (±0.0607)

PROPRIETARY NOTE: DIMENSIONS CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
12" 6" LOW PROFILE PLATFORM WITH TWELVE 2-7/8" ANTENNA MOUNTING PIPES, AND HANDRAIL

CPD NO. 4488 CLASS SUB 81 02

DRAWN BY CEK 3/24/2014

CHECKED BY BMC 7/14/2014

ENG. APPROVAL

PART NO. RMQP-4096-HK

DWG. NO. RMQP-4096-HK

REVISIONS

REV	DESCRIPTION	DATE
B	CHANGED X-253992 TO X-TBW	9/20/2018
A	REPLACED HCP WITH X-AHCP	7/14/2014

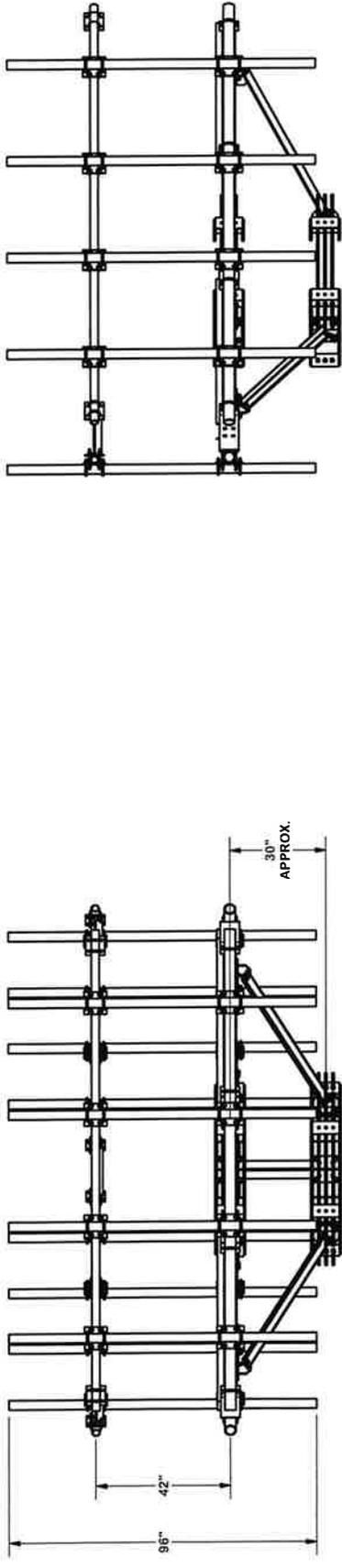
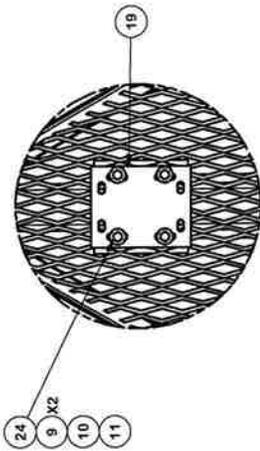
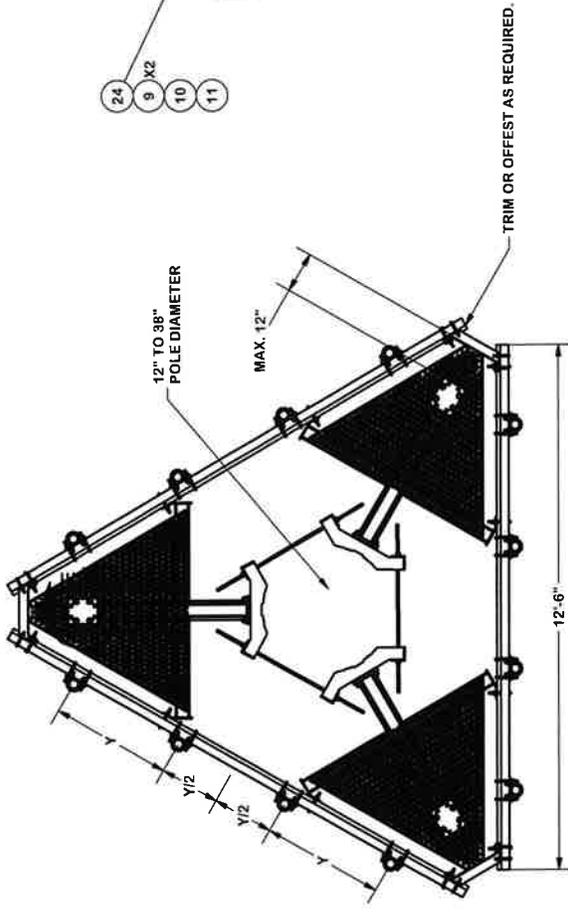
REVISION HISTORY

LOCATIONS:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Dallas, TX
 Dallas, TX

Engineering
 Support Team:
 1-888-753-7446

1 OF 3

PAGE



TOLERANCE NOTES
 TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES (± 0.0307)
 DRILLED AND GAS CUT HOLES (± 0.0307) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.0107) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING (± 0.0307)
 ALL OTHER ASSEMBLY (± 0.0607)

REV	DESCRIPTION OF REVISIONS	DATE	BY	DATE
B	CHANGED X-253992 TO X-TBW	9/20/2018	CEK	
A	REPLACED HCP WITH X-AHCP	7/14/2014	CEK	
			CPD	

REVISION HISTORY

DESCRIPTION	12" 6" LOW PROFILE PLATFORM WITH TWELVE 2-7/8" ANTENNA MOUNTING PIPES, AND HANDRAIL
CFD NO.	4488
DRAWN BY	CEK
ENG. APPROVAL	3/24/2014
CHECKED BY	BMC
DWG. NO.	7/14/2014
CLASS	81
SUB	02
CUSTOMER	CUSTOMER

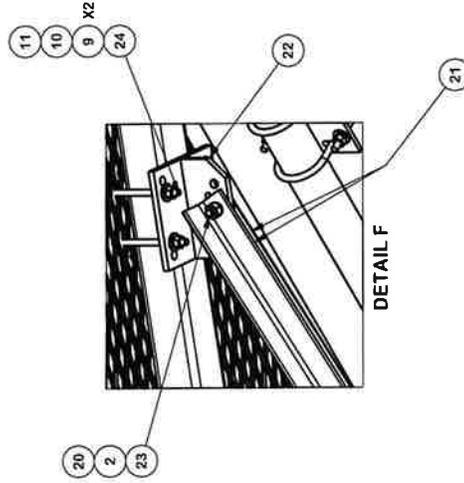
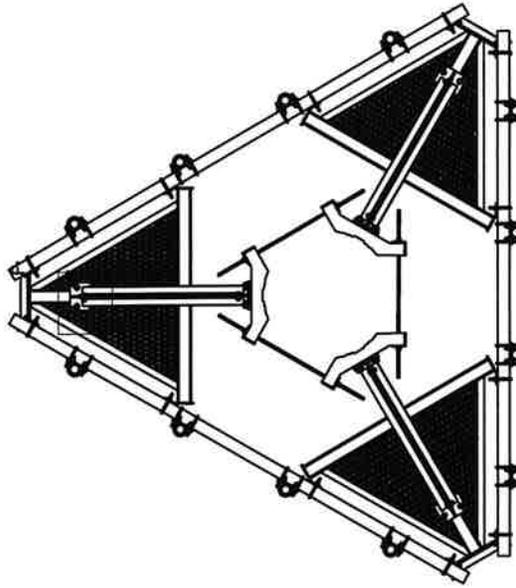
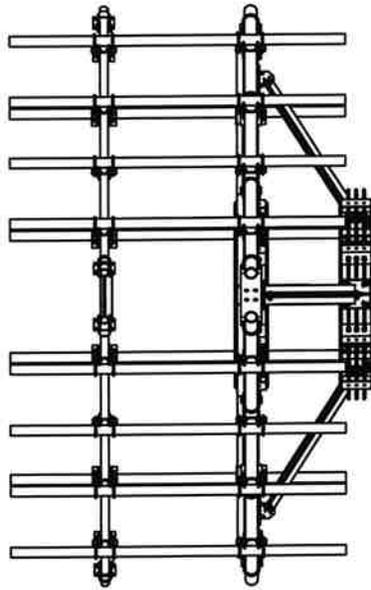
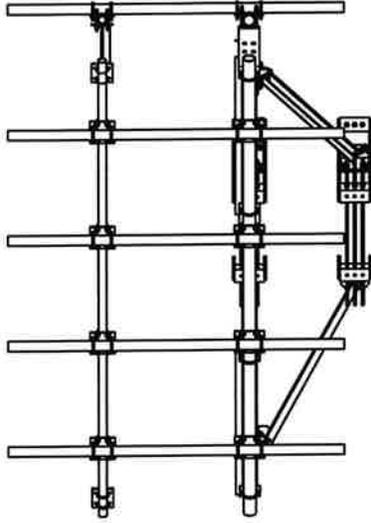
SITE PRO
 A valmetent COMPANY

Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Dallas, TX

Engineering
 Support Team:
 1-888-753-7446

PART NO. **RMQP-4096-HK**
 DWG. NO. **RMQP-4096-HK**

PAGE **2** OF **3**



DETAIL F

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES (± 0.0397)
 DRILLED AND GAS CUT HOLES (± 0.0397) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.0107) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING (± 0.0397)
 ALL OTHER ASSEMBLY (± 0.0697)

UNLESS OTHERWISE NOTED, THE PART AND TOLERANCES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION:
 12' 6" LOW PROFILE PLATFORM
 WITH TWELVE 2-7/8" ANTENNA MOUNTING
 PIPES, AND HANDRAIL

Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Dallas, TX

Engineering
 Support Team:
 1-888-753-7446

SITE PRO
 A valmont COMPANY

PART NO. **RMQP-4096-HK**
 DWG. NO. **RMQP-4096-HK**

PAGE
3 OF 3

CPD NO.	4488	ENG. APPROVAL	
CLASS	81	CHECKED BY	BMC
SUB	02	DRAWING USAGE	CUSTOMER
		DATE	7/14/2014

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
B	CHANGED X-253982 TO X-TBW	4488	CEK	9/20/2018
A	REPLACED HCP WITH X-AHCP	4488	CEK	7/14/2014

REVISION HISTORY

APPENDIX E

POST MODIFICATION INSPECTION (PMI) REQUIREMENTS FOR DESKTOP REVIEW

Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor

Purpose – to provide PJF the proper documentation in order to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for making certain the photos provided as noted below provide confirmation that the modification was completed in accordance with the modification drawings.
- Contractor shall relay any data that can impact the performance of the mount or the mount modification, this includes safety issues.

Base Requirements:

- Provide “as built drawings” showing contractor’s name, preparer’s signature, and date. Any deviations from the drawing (proposed modification) must be shown.
- Notation that all hardware was properly installed, and the existing hardware was inspected for any issues.
- Verification that loading is as communicated in the modification drawings. NOTE if loading is different than what is conveyed in the modification drawing contact PJF immediately.
- Each photo should be time and date stamped.
- Photos should be high resolution and submitted in a Zip File and should be organized in the file structure as depicted in Schedule A attached.
- Any special photos outside of the standard requirements will be indicated on the drawings.
- Contractor shall ensure that the safety climb wire rope is supported and not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope.
- The photos in the file structure should be uploaded to pjfmount@pauljford.com as depicted on the drawings.

Photo Requirements:

- Base and “During Installation Photos”
 - Base pictures include
 - Photo of Gate Signs showing the tower owner, site name, and number.
 - Photo of carrier shelter showing the carrier site name and number if available.
 - Photos of the galvanizing compound and/or paint used (if applicable), clearly showing the label and name.
 - “During Installation” Photos if provided – must be placed only in this folder
- Photos taken at ground level
 - Overall tower structure before and after installation of the modifications
 - Photos of the appropriate mount before and after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed.
- Photos taken at Mount Elevation
 - Photos showing each individual sector before and after installation of modifications. Each entire sector must be in one photo to show in the inter-connection of members.
 - Close-up photos of each installed modification per the modification drawings; pictures should also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)

Schedule A – Photo & Document File Structure

- VzW Site Number / Name
 - Base & "During Installation" Photos
 - Pre-Installation Photos
 - Alpha
 - Beta
 - Gamma
 - Ground Level
 - Tape Drop
 - Post-Installation Photos
 - Alpha
 - Beta
 - Gamma
 - Ground Level
 - Tape Drop
 - Material Certification – Submission of this document including executed certification on Page 2
 - Specific Required Additional Photos
 - Required Additional Photos

Special Instructions / Validation as required from the MA or any other information the contractor deems necessary to share that was identified:

Issue:

Response:

ATTACHMENT 7

General Power Density

Site Name: CORNWALL CT
 Cumulative Power Density

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm ²)	Maximum Permissible Exposure* (mW/cm ²)	Fraction of MPE (%)
5G 28GHz	28000	0	610	0	110	0.0000	1.0	0.00%
VZW CBRS	3600	0	50	0	110	0.0000	1.0	0.00%
VZW PCS	1970	1	2312	2312	110	0.0687	1.0	6.87%
VZW Cellular LTE	869	1	499	499	110	0.0148	0.5793333333	2.56%
VZW Cellular	869	0	499	0	110	0.0000	0.5793333333	0.00%
VZW AWS	2145	1	2570	2570	110	0.0764	1.0	7.64%
VZW 700	746	1	1472	1472	110	0.0437	0.4973333333	8.80%

Total Percentage of Maximum Permissible Exposure

25.87%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm² = 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 8



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		Postmaster, per (name of receiving employee)				
USPS® Tracking Number Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)					Postage Fee Special Handling Parcel Airlift
1.	Gordon Ridgway, First Selectman Town of Cornwall 26 Pine Street Cornwall, CT 06753					
2.	Karen Nelson, Zoning Enforcement Officer Town of Cornwall 26 Pine Street Cornwall, CT 06753					
3.	LEGULL LLC 24 Brattle Drive Yarmouth, MA 02675-2068					
4.						
5.						
6.						