Robinson+Cole

KENNETH C. BALDWIN

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Hartford, CT 06103-3597
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kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts and New York

May 22, 2023

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

Re: **Notice of Exempt Modification – Facility Modification**
**54 Waterbury Road, Prospect, Connecticut**

Dear Attorney Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility at the above-referenced address (the "Property"). Cellco's facility consists of antennas and remote radio heads attached to a tower. Equipment associated with the facility is located on the ground adjacent to the tower. The tower was approved by the Town of Prospect (the "Town"). Cellco representatives reached out to local officials in an effort to obtain copies of any local approvals. The Town indicated by email that it was unable to locate the original tower approval. Cellco's use of the Town's tower was approved by the Siting Council ("Council") in September of 2006 (EM-VER-115-060810). A copy of the Town's email and the Council's shared use approval are included in Attachment 1.

Cellco's proposed modification involves the installation of four (4) interference mitigation filters ("filters") on Cellco's existing antenna mounting assembly. The filter specification sheet is included in Attachment 2.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Prospect's Chief Elected Official and Land Use Officer. A copy of this letter is also being sent to the owners of the Property.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. The filters will be installed on Cellco's existing antenna mounting assembly.

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

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

4. The installation of Cellco's new filters will not result in a change to radio frequency (RF) emissions from the facility. Therefore, no new RF emissions information is included in this filing.

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

6. According to the attached Structural Analysis Report ("SA") and Antenna Mount Analysis Report ("MA"), the existing tower, foundation and antenna mounting assembly can support Cellco's proposed modifications. A copy of the SA and MA are included in Attachment 3.

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

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

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Robert Jr. Chatfield, Mayor
Mary Barton, Land Use Inspector
Estate of Charles and Averyll Bradshaw, Property Owners
Alex Tyurin, Verizon Wireless

# ATTACHMENT 1

**Archived:** Thursday, September 22, 2022 7:48:51 AM
**From:** Egor Evsuk
**Sent:** Wed, 21 Sep 2022 18:27:03 +0000ARC
**To:** Mayo, Rachel; Baldwin, Kenneth
**Subject:** Fwd: 54 Waterbury Rd / Prospect North CT
**Sensitivity:** Normal

---

Rachel,
FYI on request for original approvals for the Prospect North CT tower.
Thanks

Get Outlook for iOS

---

**From:** Rosalyn Moffo <rmoffo@townofprospect.org>
**Sent:** Wednesday, September 21, 2022 2:20 PM
**To:** Egor Evsuk
**Subject:** 54 Waterbury Rd



Good Afternoon,

After review of the files, it was found that we do not have any original approvals on the Tower on 54 Waterbury Rd. What we have been informed is to give notice to the Siting Council of the State of Connecticut on this and they will handle from here.

Thank you for time.

Rosalyn Moffo
Land Use Tech

# STATE OF CONNECTICUT

*CONNECTICUT SITING COUNCIL*

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc


September 1, 2006

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

RE: **EM-VER-115-060810** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 54 Waterbury Road, Prospect, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on August 31, 2006, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the condition that the modifications specified on drawing ST-1 and sealed by Jeffrey Kirby, P.E. are performed prior to the antenna installation and that a signed letter from a Professional Engineer is submitted to the Council to certify that the modifications have been properly completed.

The proposed modifications are to be implemented as specified here and in your notice dated August 10, 2006, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Colin C. Tait

Colin C. Tait
Vice Chairman
CCT/laf

c: The Honorable Robert J. Chatfield, Mayor, Town of Prospect
William J. Donovan, Zoning Enforcement Officer, Town of Prospect
Thomas F. Flynn III, Esq., Sprint Nextel Communications
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
Michele G. Briggs, New Cingular Wireless PCS, LLC
Christopher B. Fisher, Esq., Cuddy & Feder LLP

# ATTACHMENT 2

# KA-6030

## TWIN BANDSTOP 900MHZ INTERFERENCE MITIGATION FILTER

The KA-6030 is ideal for co-located 700, 850 and 900 networks. Utilising a 2.6MHz guardband the KA-6030 provides rejection of the 900 UL band while passing 700/850 UL and DL bands. Capable of being used in an outdoor environment the KA-6030 contains two identical bandstop filters, suitable for 2x2 MIMO configuration, offering excellent insertion loss, group delay and rejection.


### FEATURES

- Passes full 700 and 850 bands
- Low insertion loss
- Rejection of 900MHz uplink
- DC/AISG pass
- Twin unit
- Dual twin mounting available

### TECHNICAL SPECIFICATIONS

| BAND NAME | 700 PATH / 850 UPLINK PATH | 850 DOWNLINK PATH |
|---|---|---|
| Passband | 698 - 849MHz | 869 - 891.5MHz |
| Insertion loss | 0.1dB typical / 0.3dB maximum | 0.5dB typical, 1.45dB maximum |
| Return loss | 24dB typical, 18dB minimum | |
| Maximum input power (Per Port) | 100W average | 200W average and 66W per 5MHz |
| Rejection | 53dB minimum @ 894.1 - 896.5MHz | |
| **ELECTRICAL** | | |
| Impedance | 50Ohms | |
| Intermodulation products | -160dBc maximum in UL Band (assuming 20MHz Signal), with 2 x 43dBm carriers<br>-153dBc maximum with 2 x 43dBm | |
| **DC / AISG** | | |
| Passband | 0 - 13MHz | |
| Insertion loss | 0.3dB maximum | |
| Return loss | 15dB minimum | |
| Input voltage range | ± 33V | |
| DC current rating | 2A continuous, 4A peak | |
| Compliance | 3GPP TS 25.461 | |
| **ENVIRONMENTAL** | | |
| For further details of environmental compliance, please contact Kaelus. | | |
| Temperature range | -20°C to +60°C \| -4°F to +140°F | |
| Ingress protection | IP67 | |
| Altitude | 2600m \| 8530ft | |
| Lightning protection | RF port: ±5kA maximum (8/20us), IEC 61000-4-5 – Unit must be terminated with some lightning protection circuits. | |
| MTBF | >1,000,000 hours | |
| Compliance | ETSI EN 300 019 class 4.1H, RoHS, NEBS GR-487-CORE | |



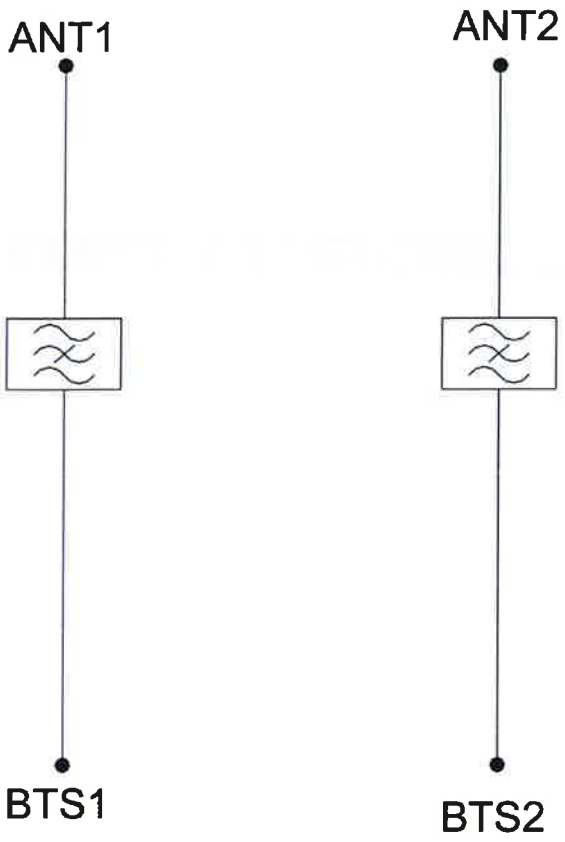

Contact Us: +1 303 768 8080 | +61 (0) 7 3907 1200 | www.kaelus.com

| MECHANICAL | |
|---|---|
| Dimensions H x D x W | 269 x 277 x 80mm \| 10.60 x 10.90 x 3.15in (Excluding brackets and connectors) |
| Weight | 8.0 kg \| 17.6 lbs (no bracket) |
| Finish | Powder coated, light grey (RAL7035) |
| Connectors | RF: 4.3-10 (F) x 4 |
| Mounting | Optional pole/wall bracket supplied with two metal clamps 45-178mm diameter poles or custom bracket. See ordering information. |

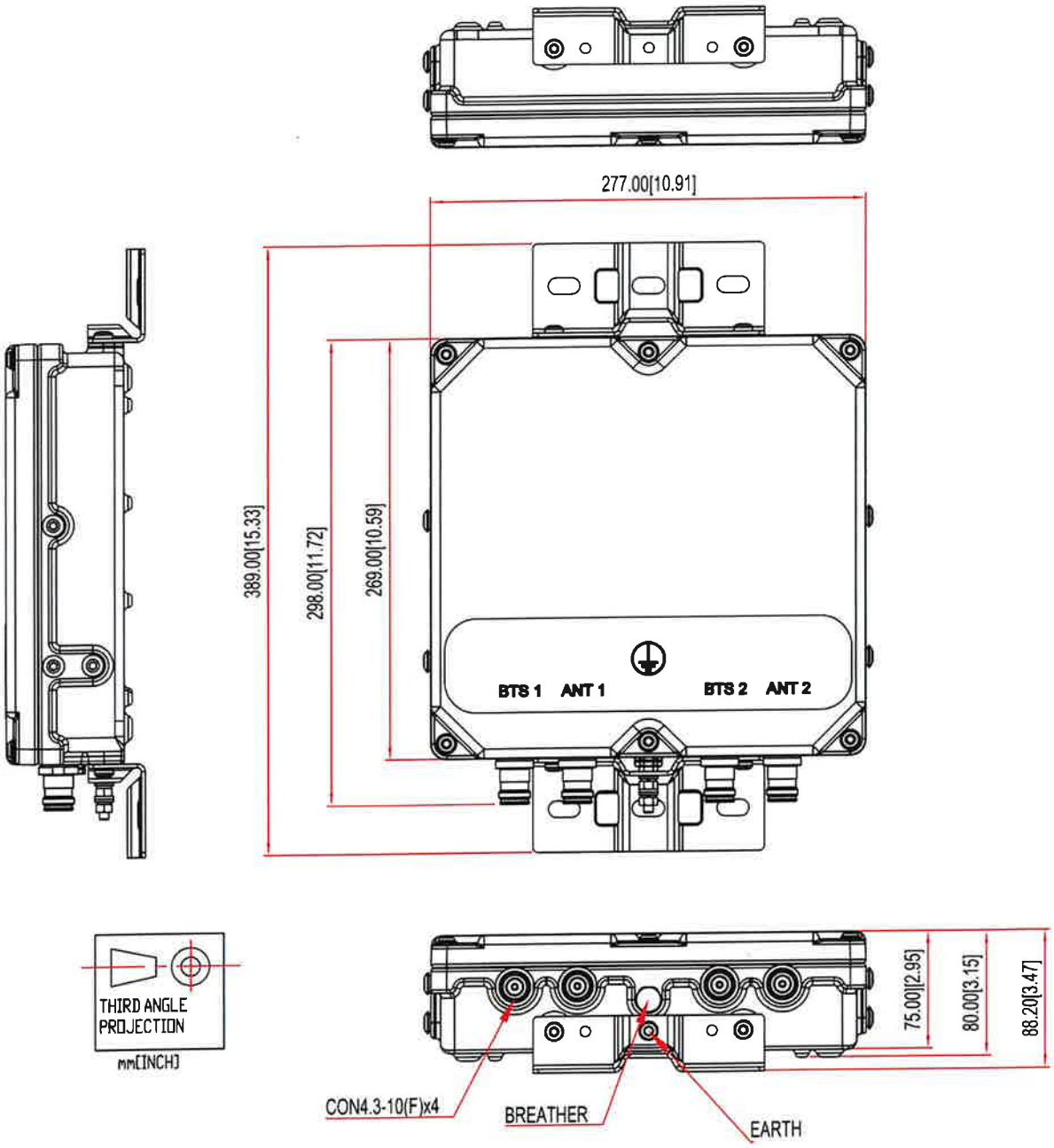
## ORDERING INFORMATION

| PART NUMBER | CONFIGURATION | OPTIONAL FEATURES | CONNECTORS |
|---|---|---|---|
| KA-6030-2032 | TWIN, 2 in / 2 out | DC/AISG PASS | 4.3-10 (F) |

**ELECTRICAL BLOCK DIAGRAM**



## MECHANICAL BLOCK DIAGRAM



# ATTACHMENT 3

ARMOR TOWER ENGINEERING

# Structural Analysis of a 160 ft Guyed Tower

**Verizon Site Name: Prospect North CT**
**FUZE# 17124002**
**County: New Haven**
**Location: Waterbury Rd, Prospect, CT**

Checked By:

Patrick Propert

Patrick Propert
Structural Design Engineer III

STATE OF CONNECTICUT
KENNETH T ANG
PEN.0034951
LICENSED
PROFESSIONAL ENGINEER

4/29/2024


**On Air Engineering, LLC**

88 Foundry Pond Rd

Cold Spring, NY 10516


**April 2024**


9 North Main Street, 2nd Floor, Cortland, NY 13045
(607)591-5381 Fax: (866)870-0840 www.ArmorTower.com

April 26, 2024

David Weinpahl, P.E.
On Air Engineering, LLC
88 Foundry Pond Rd
Cold Spring, NY 10516

RE: Verizon Wireless – FUZE #17124002 – Prospect North Tower
Waterbury Rd, Prospect, CT

David:

Armor Tower has completed the structural analysis of the subject tower and **have found it to be adequate within the scope of this analysis to support the proposed antenna loading**. The tower was analyzed according to the code-specified wind and ice parameters outlined in the Code Requirements section.

The subject tower is a 160' guyed tower consisting of all-welded sections with pipe legs and pipe bracing. The tower has been previously reinforced. Note that the recent design reinforcements for AT&T dated 3/30/2023 have not been installed and have been removed from this structural model. The AT&T reinforcements (140'-160') are no longer required due to the reduction in tower loading by the removal of the Sprint/T-Mobile equipment. Tower face dimension is 30" the full height above an 80" tapered base. The mast is laterally supported by three levels of guying attached to one set of three guy anchors. Foundation capacities are based on a foundation investigation and site observed soil characteristics completed by our office.

The loading used in the analysis consisted of the existing and proposed equipment and equipment changes shown in Table 1.

A synopsis of the analysis results is as follows:

- Tower legs: 60%
- Bracing/bolts: 97%/24%
- Guy cables 64%
- Guy anchors: 79%
- Tower Base 84%

We recommend a post-construction inspection be completed by a structural engineer to document that tower-mounted equipment has been placed in compliance with the requirements of this analysis. For a detailed listing of tower performance, please see pages 12 to 14 of the calculations.

9 North Main Street, 2nd Floor, Cortland, NY 13045
(607)591-5381 Fax: (866)870-0840 www.ArmorTower.com

We appreciate the opportunity to provide our professional services to Verizon Wireless and On Air Engineering and if you have any questions concerning this analysis, please contact us.

Sincerely,

ARMOR TOWER, INC.


Patrick Botimer
Structural Design Engineer V

9 North Main Street, 2nd Floor, Cortland, NY 13045
(607)591-5381 Fax: (866)870-0840 www.ArmorTower.com

TABLE 1 - Existing/**Proposed**/Reserved Antennas and Feed lines

| Status | Centerline Elev | | QTY | Antenna Model | Mount Type | Coax QTY/Size | Owner/ Tenant |
|---|---|---|---|---|---|---|---|
| | Mount | Equip | | | | | |
| Existing | 160 | 160+ | 4 | Omni antennas | Leg Mount | (4) 7/8" | Unknown |
| | | | 1 | DB404 | | | |
| Existing **Proposed** | 135 | 135 | 3 | MT6407-77A | (3) 12' Sector Frames | (1) 1-5/8" hybrid | VZW |
| | | | 6 | NHH-65B-R2B | | | |
| | | | 2 | SWCP 2x5514 (Sec 1&2) | | | |
| | | | 1 | LNX-8514DS-VTM (Sec3) | | | |
| | | | 3 | RF4439d-25A RRU | | | |
| | | | 3 | RF4440d-13A RRU | | | |
| | | | 1 | RVZD-6627-PF-48 | | | |
| | | | **4** | **Kaelus KA-6030** | | | |
| Existing | 126 | 126 | 3 | AIR64499 B77D | (3) 14' Sector Mounts | (6) 1-5/8" coax (1) 2" Innerduct | AT&T |
| | | | 3 | DMP65R-BU8D | | | |
| | | | 3 | RRUS-32 B2 | | | |
| | | | 3 | RRH 4478 B14 | | | |
| | | | 3 | Radio 4426 B66 | | | |
| | | | 3 | Radi9o 4449 B5/B12 | | | |
| | | | 3 | DC6-48-60-18-8F | | | |
| | | | 4 | KMM AM-X-CD-16-65-00T | | | |
| | | | 3 | HPA-65R-BUU-H8 | | | |
| | | | 3 | RRUS-11 | | | |
| | | | 3 | TPA65R-BU8DA-K | | | |
| | | | 3 | AIR 6419 B77G | | | |
| Existing | 52 | 52+ | 1 | DB224 | Standoff | 7/8" | Unknown |
| | | | 5 | 1/2" coax going to 52'-160', some cut | | | |

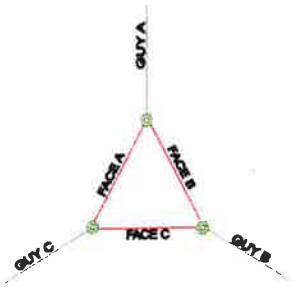
## CODE REQUIREMENTS

| | |
|---|---|
| **Governing code:** | 2022 CT State Building Code |
| **Code basis/adoption:** | 2021 International Building Code |
| **Referenced standard:** | ANSI/TIA 222-H |
| **Basic wind speed: (3-sec. gust):** | $V_{ult}$: 120 mph with no ice<br>50 mph with 1" concurrent ice |
| **County of site location:** | **New Haven** |
| **ASCE 7 Special wind region:** | No |
| **Risk Category:** | II |
| **Exposure Category:** | C |
| **Topographic Category: (Method 1)** | 1 - no topographic escalation |
| **Crest Height/Tower Base AMSL Elevation:** | 0 ft/ 872 ft |
| **Site Spectral Response:** | $S_s$=0.197, $S_1$=0.054 *EQ does not govern* |
| **Target Reliabilities of TIA Annex S considered:** | No |

## TABLE 2 - Source Documents Referenced for Analysis

| Document | Source | Date of Document |
|---|---|---|
| Foundation Mapping | Armor Tower, Inc | Mar 2022 |
| Prior Analysis | Armor Tower, Inc | Mar 2022 |
| Prior Modification Design | Armor Tower, Inc | Dec 2022 |
| Existing Inventory | On Air Engineering | Feb 2024 |
| Geotechnical report | NA | |

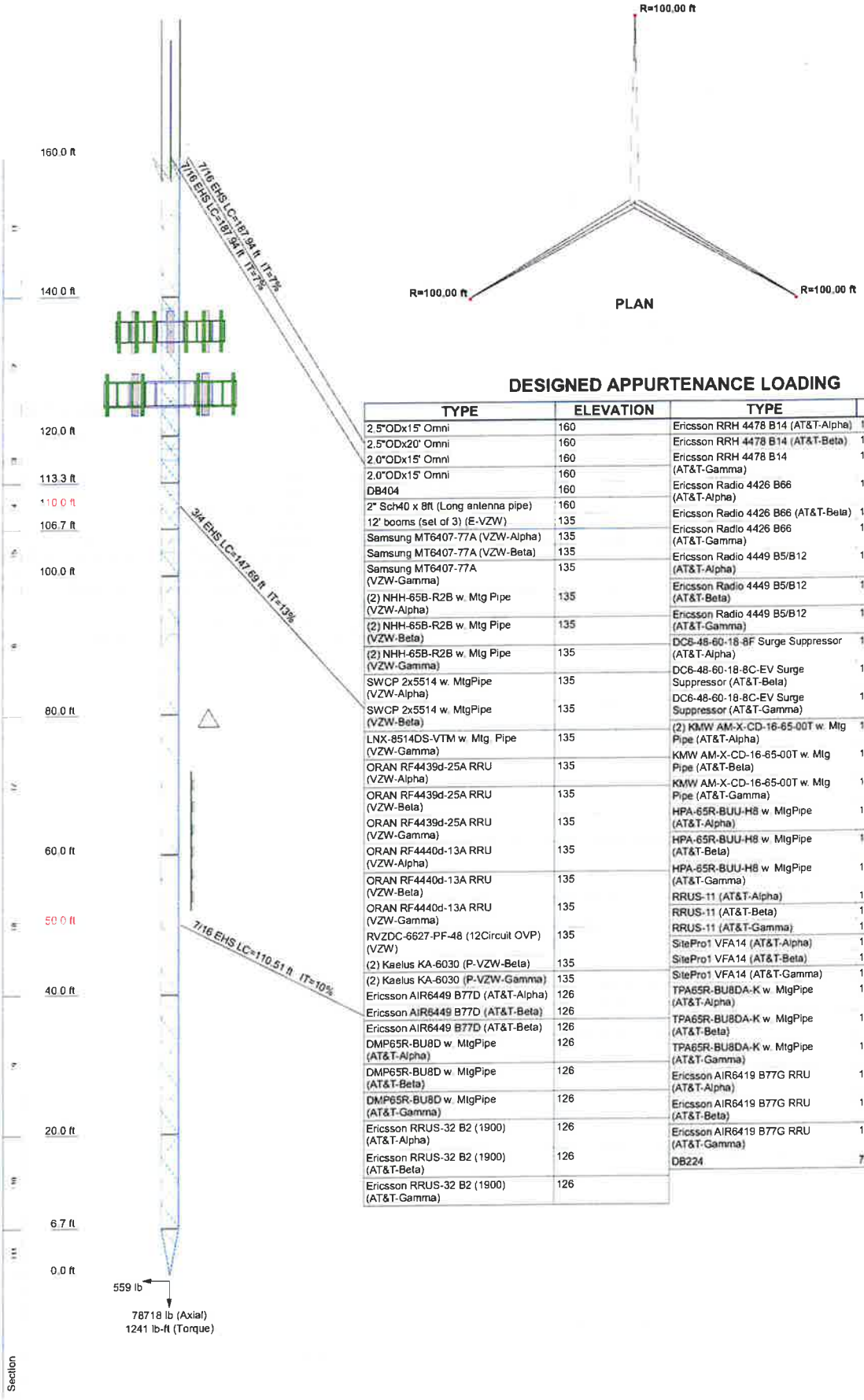
## PRIMARY ASSUMPTIONS CONSIDERED IN THIS PROJECT




1. Leg A is assumed to be oriented North.
2. Allowable steel stresses are defined by AISC-LRFD-99/360-16 and all welds conform to AWS D1.1 specification.
3. If reserved antennas/feed lines by other carriers or the tower owner are to be considered in this analysis, it is the responsibility of On Air Engineering and its affiliates to provide this information.
4. Any deviation from the analyzed antenna loading will require a re-analysis of the tower for verification of structural integrity. This analysis has considered the feed lines to be located as shown on drawing E-7.
5. This analysis assumes all tower members are galvanized adequately to prevent corrosion of the steel and that all tower members are in "like new" condition with no physical deterioration. This analysis also assumes the tower has been maintained properly per TIA 222-H Annex J recommended inspection and maintenance procedures for tower owners and is in a plumb condition. Armor Tower has not completed a condition assessment of the tower.
6. No accounting for residual stresses due to incorrect tower erection can be made. This analysis assumes all bolts are appropriately tightened providing necessary connection continuity and that the installation of the tower was performed by a qualified tower erector.
7. Foundation capacities are based on a foundation investigation completed by Armor Tower. Soil characteristics were observed and nominal bearing and unit weight properties were assigned. If more accurate data for soil properties is required, Armor Tower can assist the client in obtaining the appropriate boring logs.
8. No conclusions, expressed or implied, shall indicate that Armor Tower has made an evaluation of the original design, materials, fabrication, or potential installation or erection deficiencies. Any information contrary to that assumed for the purpose of preparing this analysis could alter the findings and conclusions stated herein.
9. It is our assumption that the supplied data is complete and accurately reflects the existing conditions of the tower and equipment. Armor Tower has not been commissioned to field-validate this data.

Armor Tower reserves the right to add to or modify this report as more information becomes available.

10. This analysis assumes that the structure modifications designed by this office in December 2022 for Verizon Wireless **have been** properly implemented. It also assumes that the bracing modification designed for AT&T in March 2023 have **NOT** been implemented.
11. The investigation of the load carrying capacities of the antenna supporting frames/mounts is outside the scope of this analysis. Antenna mount certification can be completed under a separate contract.
12. Armor Tower can assist the contractor in providing a Class IV rigging plan for safe equipment lifting.

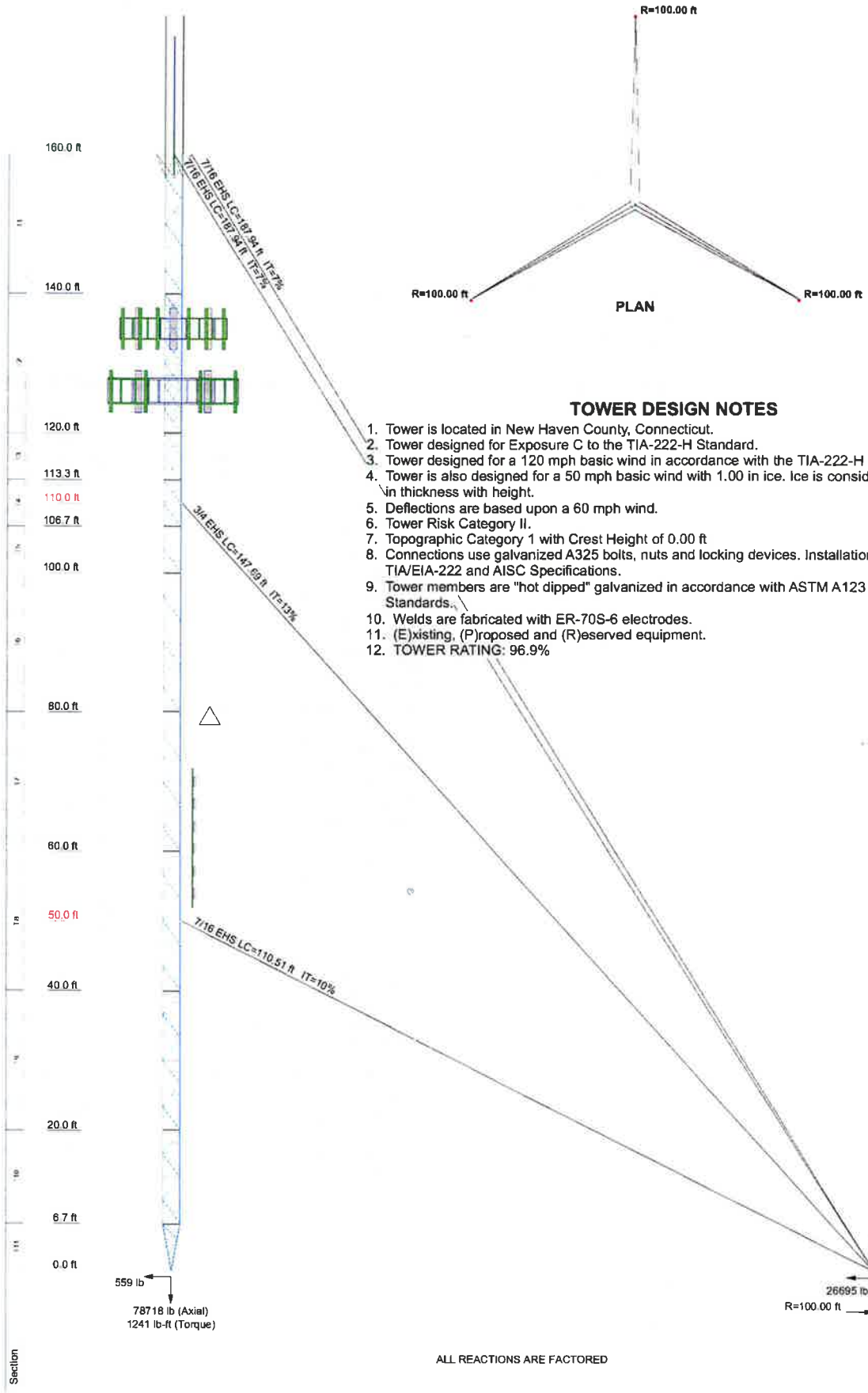



## DESIGNED APPURTENANCE LOADING

| TYPE | ELEVATION | TYPE | ELEVATION |
|---|---|---|---|
| 2.5"ODx15' Omni | 160 | Ericsson RRH 4478 B14 (AT&T-Alpha) | 126 |
| 2.5"ODx20' Omni | 160 | Ericsson RRH 4478 B14 (AT&T-Beta) | 126 |
| 2.0"ODx15' Omni | 160 | Ericsson RRH 4478 B14 (AT&T-Gamma) | 126 |
| 2.0"ODx15' Omni | 160 | Ericsson Radio 4426 B66 (AT&T-Alpha) | 126 |
| DB404 | 160 | Ericsson Radio 4426 B66 (AT&T-Beta) | 126 |
| 2" Sch40 x 8ft (Long antenna pipe) | 160 | Ericsson Radio 4426 B66 (AT&T-Gamma) | 126 |
| 12' booms (set of 3) (E-VZW) | 135 | Ericsson Radio 4449 B5/B12 (AT&T-Alpha) | 126 |
| Samsung MT6407-77A (VZW-Alpha) | 135 | Ericsson Radio 4449 B5/B12 (AT&T-Beta) | 126 |
| Samsung MT6407-77A (VZW-Beta) | 135 | Ericsson Radio 4449 B5/B12 (AT&T-Gamma) | 126 |
| Samsung MT6407-77A (VZW-Gamma) | 135 | DC6-48-60-18-8F Surge Suppressor (AT&T-Alpha) | 126 |
| (2) NHH-65B-R2B w. Mtg Pipe (VZW-Alpha) | 135 | DC6-48-60-18-8C-EV Surge Suppressor (AT&T-Beta) | 126 |
| (2) NHH-65B-R2B w. Mtg Pipe (VZW-Beta) | 135 | DC6-48-60-18-8C-EV Surge Suppressor (AT&T-Gamma) | 126 |
| (2) NHH-65B-R2B w. Mtg Pipe (VZW-Gamma) | 135 | (2) KMW AM-X-CD-16-65-00T w. Mtg Pipe (AT&T-Alpha) | 126 |
| SWCP 2x5514 w. MtgPipe (VZW-Alpha) | 135 | KMW AM-X-CD-16-65-00T w. Mtg Pipe (AT&T-Beta) | 126 |
| SWCP 2x5514 w. MtgPipe (VZW-Beta) | 135 | KMW AM-X-CD-16-65-00T w. Mtg Pipe (AT&T-Gamma) | 126 |
| LNX-8514DS-VTM w. Mtg. Pipe (VZW-Gamma) | 135 | HPA-65R-BUU-H8 w. MtgPipe (AT&T-Alpha) | 126 |
| ORAN RF4439d-25A RRU (VZW-Alpha) | 135 | HPA-65R-BUU-H8 w. MtgPipe (AT&T-Beta) | 126 |
| ORAN RF4439d-25A RRU (VZW-Beta) | 135 | HPA-65R-BUU-H8 w. MtgPipe (AT&T-Gamma) | 126 |
| ORAN RF4439d-25A RRU (VZW-Gamma) | 135 | RRUS-11 (AT&T-Alpha) | 126 |
| ORAN RF4440d-13A RRU (VZW-Alpha) | 135 | RRUS-11 (AT&T-Beta) | 126 |
| ORAN RF4440d-13A RRU (VZW-Beta) | 135 | RRUS-11 (AT&T-Gamma) | 126 |
| ORAN RF4440d-13A RRU (VZW-Gamma) | 135 | SitePro1 VFA14 (AT&T-Alpha) | 126 |
| RVZDC-6627-PF-48 (12Circuit OVP) (VZW) | 135 | SitePro1 VFA14 (AT&T-Beta) | 126 |
| (2) Kaelus KA-6030 (P-VZW-Beta) | 135 | SitePro1 VFA14 (AT&T-Gamma) | 126 |
| (2) Kaelus KA-6030 (P-VZW-Gamma) | 135 | TPA65R-BU8DA-K w. MtgPipe (AT&T-Alpha) | 126 |
| Ericsson AIR6449 B77D (AT&T-Alpha) | 126 | TPA65R-BU8DA-K w. MtgPipe (AT&T-Beta) | 126 |
| Ericsson AIR6449 B77D (AT&T-Beta) | 126 | TPA65R-BU8DA-K w. MtgPipe (AT&T-Gamma) | 126 |
| Ericsson AIR6449 B77D (AT&T-Beta) | 126 | Ericsson AIR6419 B77G RRU (AT&T-Alpha) | 126 |
| DMP65R-BU8D w. MtgPipe (AT&T-Alpha) | 126 | Ericsson AIR6419 B77G RRU (AT&T-Beta) | 126 |
| DMP65R-BU8D w. MtgPipe (AT&T-Beta) | 126 | Ericsson AIR6419 B77G RRU (AT&T-Gamma) | 126 |
| DMP65R-BU8D w. MtgPipe (AT&T-Gamma) | 126 | DB224 | 72 - 52 |
| Ericsson RRUS-32 B2 (1900) (AT&T-Alpha) | 126 | | |
| Ericsson RRUS-32 B2 (1900) (AT&T-Beta) | 126 | | |
| Ericsson RRUS-32 B2 (1900) (AT&T-Gamma) | 126 | | |


ARMOR TOWER
Armor Tower Inc
9 North Main St
Cortland, NY
Phone: 607-591-5381
FAX: 866-870-0840


| | | | |
|---|---|---|---|
| Job: | 160' GUYED TOWER ANALYSIS | | |
| Project: | Verizon Wireless - Bradshaw Twr,ProspectNorth, CT | | |
| Client: | On Air Engineering | Drawn by: PB | App'd: |
| Code: | TIA-222-H | Date: 04/26/24 | Scale: NTS |
| Path: | | | Dwg No. E-1 |




## TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
9. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
10. Welds are fabricated with ER-70S-6 electrodes.
11. (E)xisting, (P)roposed and (R)eserved equipment.
12. TOWER RATING: 96.9%

ALL REACTIONS ARE FACTORED

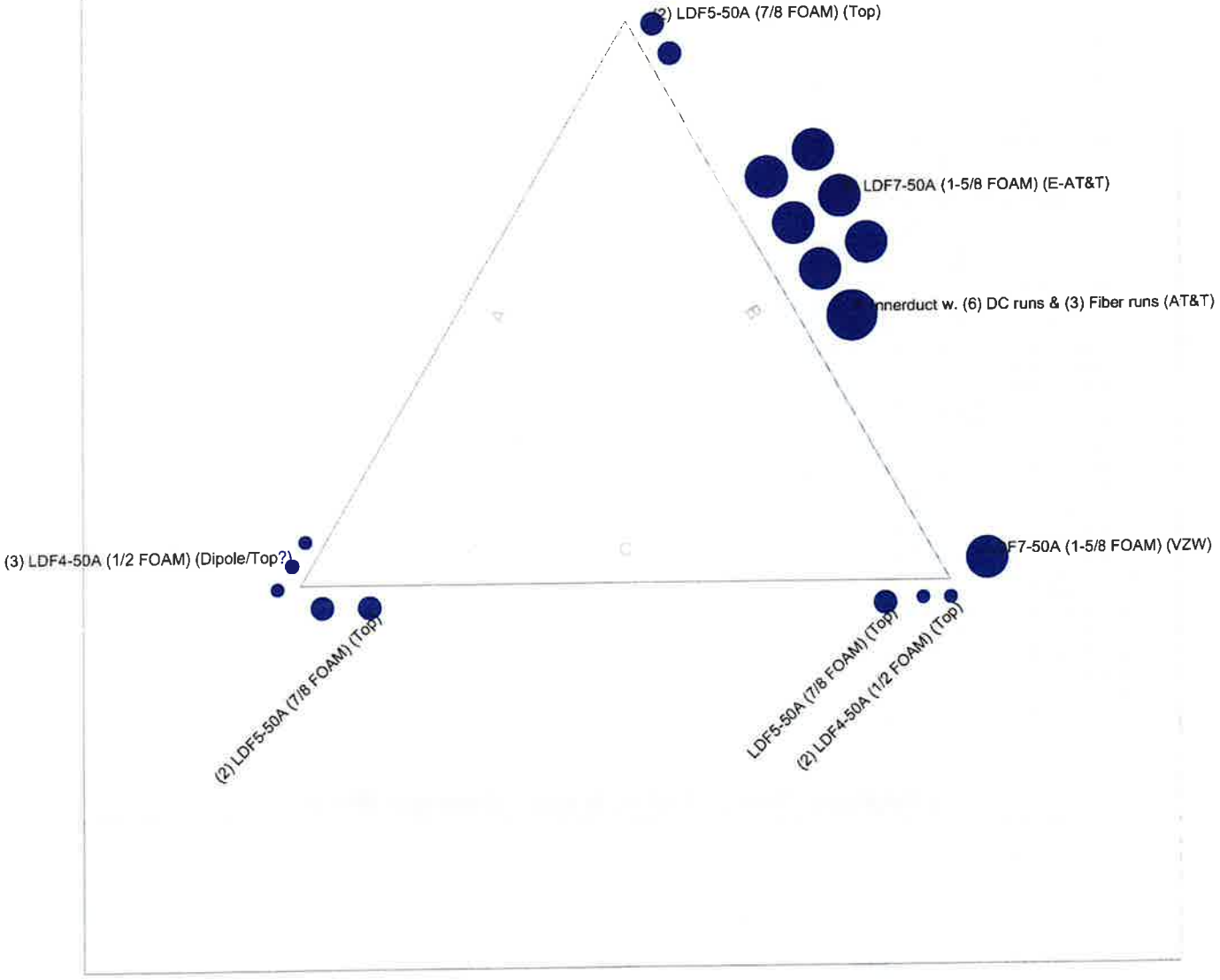

ARMOR TOWER
*Armor Tower Inc*
9 North Main St
Cortland, NY
Phone: 607-591-5381
FAX: 866-870-0840


| | | | |
|---|---|---|---|
| Job: | ***160' GUYED TOWER ANALYSIS*** | | |
| Project: | ***Verizon Wireless - Bradshaw Twr,ProspectNorth, CT*** | | |
| Client: On Air Engineering | | Drawn by: PB | App'd: |
| Code: TIA-222-H | | Date: 04/26/24 | Scale: NTS |
| Path: | | | Dwg No. E-1 |

# Feed Line Plan
## 20'

Round  Flat  App In Face  App Out Face

**Section @ 20'**




| | | | |
|---|---|---|---|
| ARMOR TOWER | Armor Tower Inc<br>9 North Main St<br>Cortland, NY<br>Phone: 607-591-5381<br>FAX: 866-870-0840 | Job: 160' GUYED TOWER ANALYSIS | |
| | | Project: Verizon Wireless - Bradshaw Twr,ProspectNorth, CT | |
| | | Client: On Air Engineering | Drawn by: PB / App'd: |
| | | Code: TIA-222-H | Date: 04/26/24 / Scale: NTS |
| | | Path: | Dwg No. E-7 |

ARMOR TOWER ENGINEERING

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| 160' GUYED TOWER ANALYSIS | 1 of 14 |
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| Verizon Wireless - Bradshaw Twr,ProspectNorth, CT | 14:26:54 04/26/24 |
| **Client** | **Designed by** |
| On Air Engineering | PB |

# Load Combinations

| *Comb. No.* | *Description* |
|---|---|
| 1 | Dead Only |
| 2 | 1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy |
| 3 | 1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy |
| 4 | 1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy |
| 5 | 1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy |
| 6 | 1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy |
| 7 | 1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy |
| 8 | 1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy |
| 9 | 1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy |
| 10 | 1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy |
| 11 | 1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy |
| 12 | 1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy |
| 13 | 1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy |
| 14 | 1.2 Dead+1.0 Ice+1.0 Temp+Guy |
| 15 | 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 16 | 1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 17 | 1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 18 | 1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 19 | 1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 20 | 1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 21 | 1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 22 | 1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 23 | 1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 24 | 1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 25 | 1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 26 | 1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy |
| 27 | Dead+Wind 0 deg - Service+Guy |
| 28 | Dead+Wind 30 deg - Service+Guy |
| 29 | Dead+Wind 60 deg - Service+Guy |
| 30 | Dead+Wind 90 deg - Service+Guy |
| 31 | Dead+Wind 120 deg - Service+Guy |
| 32 | Dead+Wind 150 deg - Service+Guy |
| 33 | Dead+Wind 180 deg - Service+Guy |
| 34 | Dead+Wind 210 deg - Service+Guy |
| 35 | Dead+Wind 240 deg - Service+Guy |
| 36 | Dead+Wind 270 deg - Service+Guy |
| 37 | Dead+Wind 300 deg - Service+Guy |
| 38 | Dead+Wind 330 deg - Service+Guy |

# Maximum Tower Deflections - Service Wind

| *Section No.* | *Elevation* | *Horz. Deflection* | *Gov. Load* | *Tilt* | *Twist* |
|---|---|---|---|---|---|
| | *ft* | *in* | *Comb.* | ° | ° |
| T1 | 160 - 140 | 1.759 | 29 | 0.0655 | 0.3734 |
| T2 | 140 - 120 | 1.887 | 29 | 0.0228 | 0.5870 |
| T3 | 120 - 113.3 | 1.548 | 29 | 0.1267 | 0.6530 |
| T4 | 113.3 - 106.7 | 1.348 | 29 | 0.1261 | 0.6425 |
| T5 | 106.7 - 100 | 1.187 | 29 | 0.1015 | 0.6330 |
| T6 | 100 - 80 | 1.072 | 29 | 0.0836 | 0.6311 |
| T7 | 80 - 60 | 0.805 | 35 | 0.0631 | 0.6072 |
| T8 | 60 - 40 | 0.544 | 35 | 0.0585 | 0.5586 |
| T9 | 40 - 20 | 0.352 | 35 | 0.0345 | 0.4986 |

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|---|---|---|---|---|---|
| T10 | 20 - 6.7 | 0.209 | 35 | 0.0419 | 0.4271 |
| T11 | 6.7 - 0 | 0.076 | 35 | 0.0510 | 0.3669 |

## Critical Deflections and Radius of Curvature - Service Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|---|---|---|---|---|---|---|
| 160.00 | Guy | 29 | 1.759 | 0.0655 | 0.3734 | 31275 |
| 135.00 | 12' booms (set of 3) | 29 | 1.851 | 0.0467 | 0.6195 | 8414 |
| 126.00 | (2) KMW AM-X-CD-16-65-00T w. Mtg Pipe | 29 | 1.701 | 0.1017 | 0.6506 | 9750 |
| 110.00 | Guy | 29 | 1.261 | 0.1147 | 0.6369 | 10001 |
| 72.00 | DB224 | 35 | 0.699 | 0.0627 | 0.5878 | 149554 |
| 67.00 | DB224 | 35 | 0.632 | 0.0621 | 0.5749 | 77539 |
| 62.00 | DB224 | 35 | 0.568 | 0.0599 | 0.5629 | 53129 |
| 57.00 | DB224 | 35 | 0.509 | 0.0555 | 0.5528 | 48222 |
| 52.00 | DB224 | 35 | 0.456 | 0.0489 | 0.5429 | 51416 |
| 50.00 | Guy | 35 | 0.437 | 0.0460 | 0.5383 | 52591 |

## Maximum Tower Deflections - Design Wind

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|---|---|---|---|---|---|
| T1 | 160 - 140 | 16.029 | 10 | 0.2930 | 1.6610 |
| T2 | 140 - 120 | 14.741 | 10 | 0.5259 | 2.3925 |
| T3 | 120 - 113.3 | 11.604 | 10 | 0.9316 | 2.5954 |
| T4 | 113.3 - 106.7 | 10.228 | 10 | 0.9174 | 2.5333 |
| T5 | 106.7 - 100 | 9.032 | 10 | 0.8038 | 2.4928 |
| T6 | 100 - 80 | 8.032 | 10 | 0.7120 | 2.4758 |
| T7 | 80 - 60 | 5.526 | 10 | 0.5503 | 2.3579 |
| T8 | 60 - 40 | 3.419 | 10 | 0.4388 | 2.1394 |
| T9 | 40 - 20 | 1.989 | 10 | 0.2593 | 1.8644 |
| T10 | 20 - 6.7 | 1.051 | 10 | 0.2343 | 1.5674 |
| T11 | 6.7 - 0 | 0.369 | 10 | 0.2544 | 1.3065 |

## Critical Deflections and Radius of Curvature - Design Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|---|---|---|---|---|---|---|
| 160.00 | Guy | 10 | 16.029 | 0.2930 | 1.6610 | 8044 |
| 135.00 | 12' booms (set of 3) | 10 | 14.147 | 0.6393 | 2.5041 | 2207 |
| 126.00 | (2) KMW AM-X-CD-16-65-00T w. Mtg Pipe | 10 | 12.745 | 0.8482 | 2.6038 | 2675 |
| 110.00 | Guy | 10 | 9.601 | 0.8651 | 2.5086 | 2215 |
| 72.00 | DB224 | 10 | 4.624 | 0.5097 | 2.2738 | 9112 |
| 67.00 | DB224 | 10 | 4.095 | 0.4841 | 2.2165 | 7260 |

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|---|---|---|---|---|---|---|
| 62.00 | DB224 | 10 | 3.603 | 0.4533 | 2.1606 | 6084 |
| 57.00 | DB224 | 10 | 3.158 | 0.4143 | 2.1092 | 5873 |
| 52.00 | DB224 | 10 | 2.761 | 0.3684 | 2.0576 | 6242 |
| 50.00 | Guy | 10 | 2.615 | 0.3492 | 2.0343 | 6410 |

## Bolt Design Data

| Section No. | Elevation ft | Component Type | Bolt Grade | Number Of Bolts | Maximum Load per Bolt lb | Allowable Load per Bolt lb | Ratio Load / Allowable | Allowable Ratio | Criteria |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 160 | Leg | A325N | 4 | 7064.91 | 30101.40 | 0.235 ✔ | 1 | Bolt Tension |
| T2 | 140 | Leg | A325N | 4 | 1719.44 | 30101.40 | 0.057 ✔ | 1 | Bolt Tension |
| T5 | 106.7 | Leg | A325N | 4 | 2946.49 | 30101.40 | 0.098 ✔ | 1 | Bolt Tension |
| T6 | 100 | Leg | A325N | 4 | 2336.31 | 30101.40 | 0.078 ✔ | 1 | Bolt Tension |
| T7 | 80 | Leg | A325N | 4 | 2613.81 | 30101.40 | 0.087 ✔ | 1 | Bolt Tension |
| T8 | 60 | Leg | A325N | 4 | 2474.55 | 30101.40 | 0.082 ✔ | 1 | Bolt Tension |
| T9 | 40 | Leg | A325N | 4 | 2272.75 | 30101.40 | 0.076 ✔ | 1 | Bolt Tension |
| T10 | 20 | Leg | A325N | 4 | 2248.92 | 30101.40 | 0.075 ✔ | 1 | Bolt Tension |
| T11 | 6.7 | Leg | A325N | 4 | 2307.72 | 30101.40 | 0.077 ✔ | 1 | Bolt Tension |

## Guy Design Data

| Section No. | Elevation ft | Size | Initial Tension lb | Breaking Load lb | Actual $T_u$ lb | Allowable $\phi T_n$ lb | Required S.F. | Actual S.F. |
|---|---|---|---|---|---|---|---|---|
| T1 | 160.00 (A) (457) | 7/16 EHS | 1456.00 | 20800.02 | 7315.24 | 12480.00 | 1.000 | 1.706 ✔ |
| | 160.00 (A) (458) | 7/16 EHS | 1456.00 | 20800.02 | 7281.71 | 12480.00 | 1.000 | 1.714 ✔ |
| | 160.00 (B) (451) | 7/16 EHS | 1456.00 | 20800.02 | 7187.48 | 12480.00 | 1.000 | 1.736 ✔ |
| | 160.00 (B) (452) | 7/16 EHS | 1456.00 | 20800.02 | 7321.94 | 12480.00 | 1.000 | 1.704 ✔ |
| | 160.00 (C) (445) | 7/16 EHS | 1456.00 | 20800.02 | 7298.94 | 12480.00 | 1.000 | 1.710 ✔ |
| | 160.00 (C) (446) | 7/16 EHS | 1456.00 | 20800.02 | 7199.55 | 12480.00 | 1.000 | 1.733 ✔ |
| T4 | 110.00 (A) (468) | 3/4 EHS | 7579.00 | 58299.91 | 22219.60 | 34980.00 | 1.000 | 1.574 ✔ |
| | 110.00 (B) (467) | 3/4 EHS | 7579.00 | 58299.91 | 21941.60 | 34980.00 | 1.000 | 1.594 ✔ |
| | 110.00 (C) (463) | 3/4 EHS | 7579.00 | 58299.91 | 22317.90 | 34980.00 | 1.000 | 1.567 ✔ |
| T8 | 50.00 (A) (474) | 7/16 EHS | 2080.00 | 20800.02 | 4823.44 | 12480.00 | 1.000 | 2.587 ✔ |

| Section No. | Elevation ft | Size | Initial Tension lb | Breaking Load lb | Actual $T_u$ lb | Allowable $\phi T_n$ lb | Required S.F. | Actual S.F. |
|---|---|---|---|---|---|---|---|---|
| | 50.00 (B) (473) | 7/16 EHS | 2080.00 | 20800.02 | 4753.74 | 12480.00 | 1.000 | 2.625 ✔ |
| | 50.00 (C) (469) | 7/16 EHS | 2080.00 | 20800.02 | 5034.10 | 12480.00 | 1.000 | 2.479 ✔ |

# Compression Checks

## Leg Design Data (Compression)

| Section No. | Elevation ft | L ft | $L_u$ ft | Kl/r | A $in^2$ | Mast Stability Index | $P_u$ lb | $\phi P_n$ lb | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 160 - 140 | 20.00 | 3.32 | 43.1<br>K=1.00 | 2.2535 | 1.00 | -40932.50 | 88147.10 | 0.464 [1] ✔ |
| T2 | 140 - 120 | 20.00 | 1.65 | 21.5<br>K=1.00 | 2.2535 | 0.98 | -46031.10 | 96559.10 | 0.477 [1] ✔ |
| T3 | 120 - 113.3 | 6.70 | 1.65 | 21.0<br>K=1.00 | 1.7040 | 0.95 | -20634.10 | 70364.70 | 0.293 [1] ✔ |
| T4 | 113.3 - 106.7 | 6.60 | 1.65 | 20.9<br>K=1.00 | 1.7040 | 0.95 | -37917.50 | 70518.00 | 0.538 [1] ✔ |
| T5 | 106.7 - 100 | 6.70 | 3.31 | 41.9<br>K=1.00 | 1.7040 | 0.95 | -38568.80 | 64100.80 | 0.602 [1] ✔ |
| T6 | 100 - 80 | 20.00 | 3.31 | 41.9<br>K=1.00 | 1.7040 | 0.94 | -35358.70 | 63708.90 | 0.555 [1] ✔ |
| T7 | 80 - 60 | 20.00 | 3.31 | 41.9<br>K=1.00 | 1.7040 | 0.94 | -31365.80 | 63105.90 | 0.497 [1] ✔ |
| T8 | 60 - 40 | 20.00 | 3.31 | 41.9<br>K=1.00 | 1.7040 | 0.98 | -35335.10 | 65915.30 | 0.536 [1] ✔ |
| T9 | 40 - 20 | 20.00 | 3.31 | 41.9<br>K=1.00 | 1.7040 | 0.97 | -29695.50 | 65409.10 | 0.454 [1] ✔ |
| T10 | 20 - 6.7 | 13.30 | 3.28 | 41.6<br>K=1.00 | 1.7040 | 0.95 | -27274.50 | 64108.50 | 0.425 [1] ✔ |
| T11 | 6.7 - 0 | 6.85 | 2.26 | 28.6<br>K=1.00 | 1.7040 | 0.89 | -27692.60 | 64215.70 | 0.431 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Diagonal Design Data (Compression)

| Section No. | Elevation ft | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ lb | $\phi P_n$ lb | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| T1 | 160 - 140 | 4.16 | 3.76 | 94.6<br>K=0.70 | 0.3326 | -6422.45 | 6628.48 | 0.969 [1] ✔ |
| T2 | 140 - 120 | 4.14 | 1.87 | 67.4 | 0.3326 | -6943.48 | 8305.34 | 0.836 [1] |

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| 160' GUYED TOWER ANALYSIS | 5 of 14 |
| **Project** | **Date** |
| Verizon Wireless - Bradshaw Twr,ProspectNorth, CT | 14:26:54 04/26/24 |
| **Client** | **Designed by** |
| On Air Engineering | PB |

| Section No. | Elevation ft | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ lb | $\phi P_n$ lb | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| T3 | 120 - 113.3 | 4.15 | 1.87 | 67.4<br>K=1.00 | 0.3326 | -7458.55 | 8303.28 | 0.898 [1] |
| T4 | 113.3 - 106.7 | 4.14 | 1.87 | 67.3<br>K=1.00 | 0.3326 | -7113.70 | 8309.47 | 0.856 [1] |
| T5 | 106.7 - 100 | 4.15 | 3.75 | 94.4<br>K=0.70 | 0.3326 | -3039.42 | 6641.43 | 0.458 [1] |
| T6 | 100 - 80 | 4.14 | 3.75 | 94.3<br>K=0.70 | 0.3326 | -2960.36 | 6644.67 | 0.446 [1] |
| T7 | 80 - 60 | 4.14 | 3.75 | 94.3<br>K=0.70 | 0.3326 | -2494.45 | 6644.67 | 0.375 [1] |
| T8 | 60 - 40 | 4.14 | 3.75 | 94.3<br>K=0.70 | 0.3326 | -2906.46 | 6644.67 | 0.437 [1] |
| T9 | 40 - 20 | 4.14 | 3.75 | 94.3<br>K=0.70 | 0.3326 | -2345.30 | 6644.67 | 0.353 [1] |
| T10 | 20 - 6.7 | 4.13 | 3.73 | 93.9<br>K=0.70 | 0.3326 | -2244.25 | 6670.52 | 0.336 [1] |
| T11 | 6.7 - 0 | 2.54 | 2.05 | 51.7<br>K=0.70 | 0.3326 | -3631.29 | 9136.94 | 0.397 [1] |

[1] $P_u / \phi P_n$ controls

## Horizontal Design Data (Compression)

| Section No. | Elevation ft | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ lb | $\phi P_n$ lb | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| T1 | 160 - 140 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -1354.07 | 7471.23 | 0.181 [1] |
| T2 | 140 - 120 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -1375.44 | 7471.23 | 0.184 [1] |
| T3 | 120 - 113.3 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -357.39 | 7471.23 | 0.048 [1] |
| T4 | 113.3 - 106.7 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -656.75 | 7471.23 | 0.088 [1] |
| T5 | 106.7 - 100 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -668.03 | 7471.23 | 0.089 [1] |
| T6 | 100 - 80 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -612.43 | 7471.23 | 0.082 [1] |
| T7 | 80 - 60 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -543.27 | 7471.23 | 0.073 [1] |
| T8 | 60 - 40 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -612.02 | 7471.23 | 0.082 [1] |
| T9 | 40 - 20 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -514.34 | 7471.23 | 0.069 [1] |
| T10 | 20 - 6.7 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -472.41 | 7471.23 | 0.063 [1] |
| T11 | 6.7 - 0 | 1.65 | 1.41 | 50.6<br>K=1.00 | 0.3326 | -487.83 | 9192.21 | 0.053 [1] |

| Section No. | Elevation<br>ft | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>lb | $\phi P_n$<br>lb | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|

[1] $P_u$ / $\phi P_n$ controls

## Secondary Horizontal Design Data (Compression)

| Section No. | Elevation<br>ft | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>lb | $\phi P_n$<br>lb | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| T1 | 160 - 140 | 1.25 | 1.13 | 40.7<br>K=1.00 | 0.3326 | -0.01 | 13264.70 | 0.000 [1] ✔ |
| T2 | 140 - 120 | 2.50 | 2.26 | 144.7<br>K=1.00 | 0.4418 | -917.85 | 4768.87 | 0.192 [1] ✔ |
| T3 | 120 - 113.3 | 2.50 | 2.26 | 144.7<br>K=1.00 | 0.4418 | -357.39 | 4768.87 | 0.075 [1] ✔ |
| T4 | 113.3 - 106.7 | 2.50 | 2.26 | 144.7<br>K=1.00 | 0.4418 | -656.75 | 4768.87 | 0.138 [1] ✔ |
| T5 | 106.7 - 100 | 1.25 | 1.13 | 72.3<br>K=1.00 | 0.4418 | -0.02 | 13558.40 | 0.000 [1] ✔ |
| T6 | 100 - 80 | 1.25 | 1.13 | 40.7<br>K=1.00 | 0.3326 | -0.01 | 13264.70 | 0.000 [1] ✔ |
| T7 | 80 - 60 | 1.25 | 1.13 | 40.7<br>K=1.00 | 0.3326 | -0.01 | 13264.70 | 0.000 [1] ✔ |
| T8 | 60 - 40 | 1.25 | 1.13 | 40.7<br>K=1.00 | 0.3326 | -0.01 | 9628.10 | 0.000 [1] ✔ |
| T9 | 40 - 20 | 1.25 | 1.13 | 40.7<br>K=1.00 | 0.3326 | -0.01 | 13264.70 | 0.000 [1] ✔ |
| T10 | 20 - 6.7 | 1.25 | 1.13 | 40.7<br>K=1.00 | 0.3326 | -0.01 | 13264.70 | 0.000 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Top Girt Design Data (Compression)

| Section No. | Elevation<br>ft | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>lb | $\phi P_n$<br>lb | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| T1 | 160 - 140 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -1458.97 | 7471.23 | 0.195 [1] ✔ |
| T2 | 140 - 120 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -797.28 | 7471.23 | 0.107 [1] ✔ |
| T3 | 120 - 113.3 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -357.39 | 7471.23 | 0.048 [1] ✔ |
| T4 | 113.3 - 106.7 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -656.75 | 7471.23 | 0.088 [1] ✔ |
| T5 | 106.7 - 100 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -668.03 | 7471.23 | 0.089 [1] ✔ |
| T6 | 100 - 80 | 2.50 | 2.26 | 81.3 | 0.3326 | -612.43 | 7471.23 | 0.082 [1] |

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| Verizon Wireless - Bradshaw Twr,ProspectNorth, CT | 14:26:54 04/26/24 |
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| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| | | | | K=1.00 | | | | ✔ |
| T7 | 80 - 60 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -543.27 | 7471.23 | 0.073 [1] ✔ |
| T8 | 60 - 40 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -612.02 | 7471.23 | 0.082 [1] ✔ |
| T9 | 40 - 20 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -514.34 | 7471.23 | 0.069 [1] ✔ |
| T10 | 20 - 6.7 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -472.41 | 7471.23 | 0.063 [1] ✔ |
| T11 | 6.7 - 0 | 2.47 | 2.23 | 80.2<br>K=1.00 | 0.3326 | -487.83 | 7540.59 | 0.065 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Bottom Girt Design Data (Compression)

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T1 | 160 - 140 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -745.95 | 7471.23 | 0.100 [1] ✔ |
| T2 | 140 - 120 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -797.28 | 7471.23 | 0.107 [1] ✔ |
| T5 | 106.7 - 100 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -668.03 | 7471.23 | 0.089 [1] ✔ |
| T6 | 100 - 80 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -612.43 | 7471.23 | 0.082 [1] ✔ |
| T7 | 80 - 60 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -543.27 | 7471.23 | 0.073 [1] ✔ |
| T8 | 60 - 40 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -612.02 | 7471.23 | 0.082 [1] ✔ |
| T9 | 40 - 20 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -514.34 | 7471.23 | 0.069 [1] ✔ |
| T10 | 20 - 6.7 | 2.50 | 2.26 | 81.3<br>K=1.00 | 0.3326 | -472.41 | 7471.23 | 0.063 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Torque-Arm Bottom Design Data

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T1 | 160 - 140 (449) | 4.16 | 3.96 | 80.9<br>K=1.00 | 2.1100 | -10664.50 | 60334.80 | 0.177 [1] ✔ |
| T1 | 160 - 140 (450) | 4.16 | 3.96 | 80.9<br>K=1.00 | 2.1100 | -10671.00 | 60334.80 | 0.177 [1] |

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T1 | 160 - 140 (455) | 4.16 | 3.96 | 80.9<br>K=1.00 | 2.1100 | -10515.50 | 60334.80 | 0.174 [1] |
| T1 | 160 - 140 (456) | 4.16 | 3.96 | 80.9<br>K=1.00 | 2.1100 | -10461.00 | 60334.80 | 0.173 [1] |
| T1 | 160 - 140 (461) | 4.16 | 3.96 | 80.9<br>K=1.00 | 2.1100 | -10840.00 | 60334.80 | 0.180 [1] |
| T1 | 160 - 140 (462) | 4.16 | 3.96 | 80.9<br>K=1.00 | 2.1100 | -10791.20 | 60334.80 | 0.179 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Tension Checks

## Leg Design Data (Tension)

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T1 | 160 - 140 | 20.00 | 3.32 | 43.1 | 2.2535 | 28259.70 | 101409.00 | 0.279 [1] |
| T2 | 140 - 120 | 20.00 | 1.65 | 21.5 | 2.2535 | 33653.40 | 101409.00 | 0.332 [1] |
| T3 | 120 - 113.3 | 6.70 | 1.65 | 21.0 | 1.7040 | 2338.97 | 76682.30 | 0.031 [1] |
| T4 | 113.3 - 106.7 | 6.60 | 1.65 | 20.9 | 1.7040 | 15827.70 | 76682.30 | 0.206 [1] |
| T5 | 106.7 - 100 | 6.70 | 3.31 | 41.9 | 1.7040 | 2560.88 | 76682.30 | 0.033 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Diagonal Design Data (Tension)

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T1 | 160 - 140 | 4.16 | 3.76 | 135.1 | 0.3326 | 6003.83 | 10478.00 | 0.573 [1] |
| T2 | 140 - 120 | 4.14 | 1.87 | 67.4 | 0.3326 | 5570.42 | 10478.00 | 0.532 [1] |
| T3 | 120 - 113.3 | 4.15 | 1.87 | 67.4 | 0.3326 | 5633.65 | 10478.00 | 0.538 [1] |
| T4 | 113.3 - 106.7 | 4.14 | 1.87 | 67.3 | 0.3326 | 5526.93 | 10478.00 | 0.527 [1] |

| Section No. | Elevation ft | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ lb | $\phi P_n$ lb | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| T5 | 106.7 - 100 | 4.15 | 3.75 | 134.8 | 0.3326 | 2154.99 | 10478.00 | 0.206 [1] ✓ |
| T6 | 100 80 | 4.14 | 3.75 | 134.8 | 0.3326 | 1690.23 | 10478.00 | 0.161 [1] ✓ |
| T7 | 80 - 60 | 4.14 | 3.75 | 134.8 | 0.3326 | 1141.93 | 10478.00 | 0.109 [1] ✓ |
| T8 | 60 - 40 | 4.14 | 3.75 | 134.8 | 0.3326 | 1394.61 | 10478.00 | 0.133 [1] ✓ |
| T9 | 40 - 20 | 4.14 | 3.75 | 134.8 | 0.3326 | 810.53 | 10478.00 | 0.077 [1] ✓ |
| T10 | 20 - 6.7 | 4.13 | 3.73 | 134.2 | 0.3326 | 1486.32 | 10478.00 | 0.142 [1] ✓ |
| T11 | 6.7 - 0 | 2.54 | 2.05 | 73.9 | 0.3326 | 528.19 | 10478.00 | 0.050 [1] ✓ |

[1] $P_u / \phi P_n$ controls

## Horizontal Design Data (Tension)

| Section No. | Elevation ft | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ lb | $\phi P_n$ lb | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| T1 | 160 - 140 | 2.50 | 2.26 | 81.3 | 0.3326 | 1311.27 | 10478.00 | 0.125 [1] ✓ |
| T2 | 140 - 120 | 2.50 | 2.26 | 81.3 | 0.3326 | 2535.32 | 10478.00 | 0.242 [1] ✓ |
| T3 | 120 - 113.3 | 2.50 | 2.26 | 81.3 | 0.3326 | 1298.01 | 10478.00 | 0.124 [1] ✓ |
| T4 | 113.3 - 106.7 | 2.50 | 2.26 | 81.3 | 0.3326 | 2243.64 | 10478.00 | 0.214 [1] ✓ |
| T5 | 106.7 - 100 | 2.50 | 2.26 | 81.3 | 0.3326 | 668.03 | 10478.00 | 0.064 [1] ✓ |
| T6 | 100 - 80 | 2.50 | 2.26 | 81.3 | 0.3326 | 612.43 | 10478.00 | 0.058 [1] ✓ |
| T7 | 80 - 60 | 2.50 | 2.26 | 81.3 | 0.3326 | 563.44 | 10478.00 | 0.054 [1] ✓ |
| T8 | 60 - 40 | 2.50 | 2.26 | 81.3 | 0.3326 | 863.33 | 10478.00 | 0.082 [1] ✓ |
| T9 | 40 - 20 | 2.50 | 2.26 | 81.3 | 0.3326 | 564.81 | 10478.00 | 0.054 [1] ✓ |
| T10 | 20 - 6.7 | 2.50 | 2.26 | 81.3 | 0.3326 | 615.64 | 10478.00 | 0.059 [1] ✓ |
| T11 | 6.7 - 0 | 0.82 | 0.58 | 21.0 | 0.3326 | 1131.60 | 10478.00 | 0.108 [1] ✓ |

[1] $P_u / \phi P_n$ controls

## Secondary Horizontal Design Data (Tension)

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T1 | 160 - 140 | 1.25 | 1.13 | 40.7 | 0.2495 | 0.01 | 12162.00 | 0.000 [1] ✔ |
| T2 | 140 - 120 | 2.50 | 2.26 | 144.7 | 0.4418 | 1004.44 | 19880.40 | 0.051 [1] ✔ |
| T3 | 120 - 113.3 | 2.50 | 2.26 | 144.7 | 0.4418 | 357.39 | 19880.40 | 0.018 [1] ✔ |
| T4 | 113.3 - 106.7 | 2.50 | 2.26 | 144.7 | 0.4418 | 656.75 | 19880.40 | 0.033 [1] ✔ |
| T5 | 106.7 - 100 | 1.25 | 1.13 | 72.3 | 0.4418 | 0.02 | 19880.40 | 0.000 [1] ✔ |
| T6 | 100 - 80 | 1.25 | 1.13 | 40.7 | 0.2495 | 0.01 | 11600.60 | 0.000 [1] ✔ |
| T7 | 80 - 60 | 1.25 | 1.13 | 40.7 | 0.2495 | 0.01 | 11600.60 | 0.000 [1] ✔ |
| T8 | 60 - 40 | 1.25 | 1.13 | 40.7 | 0.3326 | 0.01 | 10478.00 | 0.000 [1] ✔ |
| T9 | 40 - 20 | 1.25 | 1.13 | 40.7 | 0.2495 | 0.00 | 11600.60 | 0.000 [1] ✔ |
| T10 | 20 - 6.7 | 1.25 | 1.13 | 40.7 | 0.2495 | 0.01 | 11600.60 | 0.000 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Top Girt Design Data (Tension)

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T1 | 160 - 140 | 2.50 | 2.26 | 81.3 | 0.3326 | 1458.29 | 10478.00 | 0.139 [1] ✔ |
| T2 | 140 - 120 | 2.50 | 2.26 | 81.3 | 0.3326 | 803.77 | 10478.00 | 0.077 [1] ✔ |
| T3 | 120 - 113.3 | 2.50 | 2.26 | 81.3 | 0.3326 | 823.52 | 10478.00 | 0.079 [1] ✔ |
| T4 | 113.3 - 106.7 | 2.50 | 2.26 | 81.3 | 0.3326 | 1756.30 | 10478.00 | 0.168 [1] ✔ |
| T5 | 106.7 - 100 | 2.50 | 2.26 | 81.3 | 0.3326 | 2212.95 | 10478.00 | 0.211 [1] ✔ |
| T6 | 100 - 80 | 2.50 | 2.26 | 81.3 | 0.3326 | 612.43 | 10478.00 | 0.058 [1] ✔ |
| T7 | 80 - 60 | 2.50 | 2.26 | 81.3 | 0.3326 | 543.27 | 10478.00 | 0.052 [1] ✔ |
| T8 | 60 - 40 | 2.50 | 2.26 | 81.3 | 0.3326 | 612.02 | 10478.00 | 0.058 [1] ✔ |
| T9 | 40 - 20 | 2.50 | 2.26 | 81.3 | 0.3326 | 514.34 | 10478.00 | 0.049 [1] ✔ |
| T10 | 20 - 6.7 | 2.50 | 2.26 | 81.3 | 0.3326 | 472.41 | 10478.00 | 0.045 [1] ✔ |

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T11 | 6.7 - 0 | 2.47 | 2.23 | 80.2 | 0.3326 | 1777.33 | 10478.00 | 0.170 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Bottom Girt Design Data (Tension)

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T1 | 160 - 140 | 2.50 | 2.26 | 81.3 | 0.3326 | 971.38 | 10478.00 | 0.093 [1] |
| T2 | 140 - 120 | 2.50 | 2.26 | 81.3 | 0.3326 | 797.28 | 10478.00 | 0.076 [1] |
| T5 | 106.7 - 100 | 2.50 | 2.26 | 81.3 | 0.3326 | 668.03 | 10478.00 | 0.064 [1] |
| T6 | 100 - 80 | 2.50 | 2.26 | 81.3 | 0.3326 | 612.43 | 10478.00 | 0.058 [1] |
| T7 | 80 - 60 | 2.50 | 2.26 | 81.3 | 0.3326 | 543.27 | 10478.00 | 0.052 [1] |
| T8 | 60 - 40 | 2.50 | 2.26 | 81.3 | 0.3326 | 612.02 | 10478.00 | 0.058 [1] |
| T9 | 40 - 20 | 2.50 | 2.26 | 81.3 | 0.3326 | 514.34 | 10478.00 | 0.049 [1] |
| T10 | 20 - 6.7 | 2.50 | 2.26 | 81.3 | 0.3326 | 1827.81 | 10478.00 | 0.174 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Top Guy Pull-Off Design Data (Tension)

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T4 | 113.3 - 106.7 | 2.50 | 2.26 | 375.9 | 0.7500 | 5058.80 | 24300.00 | 0.208 [1] |
| T8 | 60 - 40 | 2.50 | 2.26 | 375.9 | 0.7500 | 1946.57 | 24300.00 | 0.080 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Torque-Arm Top Design Data

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T1 | 160 - 140 (447) | 2.50 | 2.38 | 31.3 | 2.1100 | 5387.21 | 68364.00 | 0.079 [1] ✔ |
| T1 | 160 - 140 (448) | 2.50 | 2.38 | 31.3 | 2.1100 | 5470.00 | 68364.00 | 0.080 [1] ✔ |
| T1 | 160 - 140 (453) | 2.50 | 2.38 | 31.3 | 2.1100 | 5508.63 | 68364.00 | 0.081 [1] ✔ |
| T1 | 160 - 140 (454) | 2.50 | 2.38 | 31.3 | 2.1100 | 5415.59 | 68364.00 | 0.079 [1] ✔ |
| T1 | 160 - 140 (459) | 2.50 | 2.38 | 31.3 | 2.1100 | 5439.86 | 68364.00 | 0.080 [1] ✔ |
| T1 | 160 - 140 (460) | 2.50 | 2.38 | 31.3 | 2.1100 | 5435.15 | 68364.00 | 0.080 [1] ✔ |

[1] $P_u / \phi P_n$ controls

## Torque-Arm Bottom Design Data

| Section No. | Elevation | L | $L_u$ | Kl/r | A | $P_u$ | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|
| | ft | ft | ft | | $in^2$ | lb | lb | |
| T1 | 160 - 140 (449) | 4.16 | 3.96 | 52.0 | 2.1100 | 2133.22 | 68364.00 | 0.031 [1] ✔ |
| T1 | 160 - 140 (450) | 4.16 | 3.96 | 52.0 | 2.1100 | 2109.10 | 68364.00 | 0.031 [1] ✔ |
| T1 | 160 - 140 (455) | 4.16 | 3.96 | 52.0 | 2.1100 | 2015.67 | 68364.00 | 0.029 [1] ✔ |
| T1 | 160 - 140 (456) | 4.16 | 3.96 | 52.0 | 2.1100 | 2059.33 | 68364.00 | 0.030 [1] ✔ |
| T1 | 160 - 140 (461) | 4.16 | 3.96 | 52.0 | 2.1100 | 2215.74 | 68364.00 | 0.032 [1] ✔ |
| T1 | 160 - 140 (462) | 4.16 | 3.96 | 52.0 | 2.1100 | 2258.62 | 68364.00 | 0.033 [1] ✔ |

[1] $P_u / \phi P_n$ controls

## Section Capacity Table

| Section No. | Elevation ft | Component Type | Critical Element | P lb | $\phi P_{allow}$ lb | % Capacity | Pass Fail |
|---|---|---|---|---|---|---|---|
| T1 | 160 - 140 | Leg | 1 | -40932.50 | 88147.10 | 46.4 | Pass |
| T2 | 140 - 120 | Leg | 49 | -46031.10 | 96559.10 | 47.7 | Pass |
| T3 | 120 - 113.3 | Leg | 129 | -20634.10 | 70364.70 | 29.3 | Pass |
| T4 | 113.3 - 106.7 | Leg | 156 | -37917.50 | 70518.00 | 53.8 | Pass |
| T5 | 106.7 - 100 | Leg | 182 | -38568.80 | 64100.80 | 60.2 | Pass |
| T6 | 100 - 80 | Leg | 203 | -35358.70 | 63708.90 | 55.5 | Pass |
| T7 | 80 - 60 | Leg | 250 | -31365.80 | 63105.90 | 49.7 | Pass |
| T8 | 60 - 40 | Leg | 299 | -35335.10 | 65915.30 | 53.6 | Pass |

ARMOR TOWER ENGINEERING

*Armor Tower Inc*
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*Phone: 607-591-5381*
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| Job | Page |
|---|---|
| 160' GUYED TOWER ANALYSIS | 13 of 14 |
| **Project** | **Date** |
| Verizon Wireless - Bradshaw Twr,ProspectNorth, CT | 14:26:54 04/26/24 |
| **Client** | **Designed by** |
| On Air Engineering | PB |

| Section No. | Elevation ft | Component Type | Critical Element | P lb | $\phi P_{allow}$ lb | % Capacity | Pass Fail |
|---|---|---|---|---|---|---|---|
| T9 | 40 - 20 | Leg | 346 | -29695.50 | 65409.10 | 45.4 | Pass |
| T10 | 20 - 6.7 | Leg | 394 | -27274.50 | 64108.50 | 42.5 | Pass |
| T11 | 6.7 - 0 | Leg | 428 | -27692.60 | 64215.70 | 43.1 | Pass |
| T1 | 160 - 140 | Diagonal | 32 | -6422.45 | 6628.48 | 96.9 | Pass |
| T2 | 140 - 120 | Diagonal | 62 | -6943.48 | 8305.34 | 83.6 | Pass |
| T3 | 120 - 113.3 | Diagonal | 149 | -7458.55 | 8303.28 | 89.8 | Pass |
| T4 | 113.3 - 106.7 | Diagonal | 176 | -7113.70 | 8309.47 | 85.6 | Pass |
| T5 | 106.7 - 100 | Diagonal | 190 | -3039.42 | 6641.43 | 45.8 | Pass |
| T6 | 100 - 80 | Diagonal | 246 | -2960.36 | 6644.67 | 44.6 | Pass |
| T7 | 80 - 60 | Diagonal | 260 | -2494.45 | 6644.67 | 37.5 | Pass |
| T8 | 60 - 40 | Diagonal | 328 | -2906.46 | 6644.67 | 43.7 | Pass |
| T9 | 40 - 20 | Diagonal | 389 | -2345.30 | 6644.67 | 35.3 | Pass |
| T10 | 20 - 6.7 | Diagonal | 403 | -2244.25 | 6670.52 | 33.6 | Pass |
| T11 | 6.7 - 0 | Diagonal | 437 | -3631.29 | 9136.94 | 39.7 | Pass |
| T1 | 160 - 140 | Horizontal | 42 | -1354.07 | 7471.23 | 18.1 | Pass |
| T2 | 140 - 120 | Horizontal | 76 | 2535.32 | 10478.00 | 24.2 | Pass |
| T3 | 120 - 113.3 | Horizontal | 141 | 1298.01 | 10478.00 | 12.4 | Pass |
| T4 | 113.3 - 106.7 | Horizontal | 167 | 2243.64 | 10478.00 | 21.4 | Pass |
| T5 | 106.7 - 100 | Horizontal | 194 | -668.03 | 7471.23 | 8.9 | Pass |
| T6 | 100 - 80 | Horizontal | 215 | -612.43 | 7471.23 | 8.2 | Pass |
| T7 | 80 - 60 | Horizontal | 262 | -543.27 | 7471.23 | 7.3 | Pass |
| T8 | 60 - 40 | Horizontal | 326 | 863.33 | 10478.00 | 8.2 | Pass |
| T9 | 40 - 20 | Horizontal | 358 | -514.34 | 7471.23 | 6.9 | Pass |
| T10 | 20 - 6.7 | Horizontal | 413 | -472.41 | 7471.23 | 6.3 | Pass |
| T11 | 6.7 - 0 | Horizontal | 434 | 1131.60 | 10478.00 | 10.8 | Pass |
| T1 | 160 - 140 | Secondary Horizontal | 41 | 0.01 | 12162.00 | 0.1 | Pass |
| T2 | 140 - 120 | Secondary Horizontal | 80 | -917.85 | 4768.87 | 19.2 | Pass |
| T3 | 120 - 113.3 | Secondary Horizontal | 152 | -357.39 | 4768.87 | 7.5 | Pass |
| T4 | 113.3 - 106.7 | Secondary Horizontal | 179 | -656.75 | 4768.87 | 13.8 | Pass |
| T5 | 106.7 - 100 | Secondary Horizontal | 193 | -0.02 | 13558.40 | 0.0 | Pass |
| T6 | 100 - 80 | Secondary Horizontal | 213 | -0.01 | 13264.70 | 0.1 | Pass |
| T7 | 80 - 60 | Secondary Horizontal | 261 | -0.01 | 13264.70 | 0.1 | Pass |
| T8 | 60 - 40 | Secondary Horizontal | 309 | -0.00 | 9628.10 | 0.1 | Pass |
| T9 | 40 - 20 | Secondary Horizontal | 357 | -0.01 | 13264.70 | 0.1 | Pass |
| T10 | 20 - 6.7 | Secondary Horizontal | 419 | -0.01 | 13264.70 | 0.1 | Pass |
| T1 | 160 - 140 | Top Girt | 5 | -1458.97 | 7471.23 | 19.5 | Pass |
| T2 | 140 - 120 | Top Girt | 52 | -797.28 | 7471.23 | 10.7 | Pass |
| T3 | 120 - 113.3 | Top Girt | 131 | 823.52 | 10478.00 | 7.9 | Pass |
| T4 | 113.3 - 106.7 | Top Girt | 158 | 1756.30 | 10478.00 | 16.8 | Pass |
| T5 | 106.7 - 100 | Top Girt | 185 | 2212.95 | 10478.00 | 21.1 | Pass |
| T6 | 100 - 80 | Top Girt | 205 | -612.43 | 7471.23 | 8.2 | Pass |
| T7 | 80 - 60 | Top Girt | 252 | -543.27 | 7471.23 | 7.3 | Pass |
| T8 | 60 - 40 | Top Girt | 301 | -612.02 | 7471.23 | 8.2 | Pass |
| T9 | 40 - 20 | Top Girt | 348 | -514.34 | 7471.23 | 6.9 | Pass |
| T10 | 20 - 6.7 | Top Girt | 396 | -472.41 | 7471.23 | 6.3 | Pass |
| T11 | 6.7 - 0 | Top Girt | 431 | 1777.33 | 10478.00 | 17.0 | Pass |
| T1 | 160 - 140 | Bottom Girt | 8 | -745.95 | 7471.23 | 10.0 | Pass |
| T2 | 140 - 120 | Bottom Girt | 55 | -797.28 | 7471.23 | 10.7 | Pass |
| T5 | 106.7 - 100 | Bottom Girt | 187 | -668.03 | 7471.23 | 8.9 | Pass |
| T6 | 100 - 80 | Bottom Girt | 208 | -612.43 | 7471.23 | 8.2 | Pass |
| T7 | 80 - 60 | Bottom Girt | 255 | -543.27 | 7471.23 | 7.3 | Pass |
| T8 | 60 - 40 | Bottom Girt | 304 | -612.02 | 7471.23 | 8.2 | Pass |
| T9 | 40 - 20 | Bottom Girt | 351 | -514.34 | 7471.23 | 6.9 | Pass |
| T10 | 20 - 6.7 | Bottom Girt | 400 | 1827.81 | 10478.00 | 17.4 | Pass |
| T1 | 160 - 140 | Guy A@160 | 457 | 7315.24 | 12480.00 | 58.6 | Pass |
| T4 | 113.3 - 106.7 | Guy A@110 | 468 | 22219.60 | 34980.00 | 63.5 | Pass |
| T8 | 60 - 40 | Guy A@50 | 474 | 4823.44 | 12480.00 | 38.6 | Pass |
| T1 | 160 - 140 | Guy B@160 | 452 | 7321.94 | 12480.00 | 58.7 | Pass |
| T4 | 113.3 - 106.7 | Guy B@110 | 467 | 21941.60 | 34980.00 | 62.7 | Pass |
| T8 | 60 - 40 | Guy B@50 | 473 | 4753.74 | 12480.00 | 38.1 | Pass |
| T1 | 160 - 140 | Guy C@160 | 445 | 7298.94 | 12480.00 | 58.5 | Pass |

| | | |
|---|---|---|
| ARMOR TOWER ENGINEERING<br>**Armor Tower Inc**<br>9 North Main St<br>Cortland, NY<br>Phone: 607-591-5381<br>FAX: 866-870-0840 | **Job**<br>160' GUYED TOWER ANALYSIS | **Page**<br>14 of 14 |
| | **Project**<br>Verizon Wireless - Bradshaw Twr,ProspectNorth, CT | **Date**<br>14:26:54 04/26/24 |
| | **Client**<br>On Air Engineering | **Designed by**<br>PB |

| Section No. | Elevation ft | Component Type | Critical Element | P lb | $\phi P_{allow}$ lb | % Capacity | Pass Fail |
|---|---|---|---|---|---|---|---|
| T4 | 113.3 - 106.7 | Guy C@110 | 463 | 22317.90 | 34980.00 | 63.8 | Pass |
| T8 | 60 - 40 | Guy C@50 | 469 | 5034.10 | 12480.00 | 40.3 | Pass |
| T4 | 113.3 - 106.7 | Top Guy Pull-Off@110 | 465 | 5058.80 | 24300.00 | 20.8 | Pass |
| T8 | 60 - 40 | Top Guy Pull-Off@50 | 472 | 1946.57 | 24300.00 | 8.0 | Pass |
| T1 | 160 - 140 | Torque Arm Top@160 | 453 | 5508.63 | 68364.00 | 8.1 | Pass |
| T1 | 160 - 140 | Torque Arm Bottom@160 | 461 | -10840.00 | 60334.80 | 18.0 | Pass |
| | | | | | | Summary | |
| | | | | | Leg (T5) | 60.2 | Pass |
| | | | | | Diagonal (T1) | 96.9 | Pass |
| | | | | | Horizontal (T2) | 24.2 | Pass |
| | | | | | Secondary Horizontal (T2) | 19.2 | Pass |
| | | | | | Top Girt (T5) | 21.1 | Pass |
| | | | | | Bottom Girt (T10) | 17.4 | Pass |
| | | | | | Guy A (T4) | 63.5 | Pass |
| | | | | | Guy B (T4) | 62.7 | Pass |
| | | | | | Guy C (T4) | 63.8 | Pass |
| | | | | | Top Guy Pull-Off (T4) | 20.8 | Pass |
| | | | | | Torque Arm Top (T1) | 8.1 | Pass |
| | | | | | Torque Arm Bottom (T1) | 18.0 | Pass |
| | | | | | Bolt Checks | 23.5 | Pass |
| | | | | | **RATING =** | **96.9** | **Pass** |

## Existing GUY ANCHOR ANALYSIS

Customer: OnAir Eng/Verizon
Project: Prospect, CT
4/26/24 2:36 PM

FACTORED REACTIONS:

| | |
|---|---|
| Vertical: | 30.0 kips |
| Horizontal: | 26.7 kips |
| Resultant: | 40.2 kips |
| Hor. Angle ϕ: | 48.3 ˚ |
| Submerged? | No |
| Depth to Water: | 3 ft |

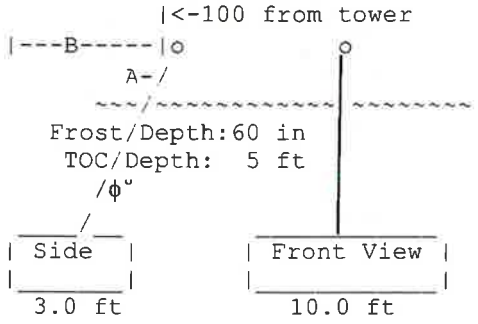
| | |
|---|---|
| Soil Unit Wt | 100 lb/ft³ |
| Soil Gs: | 2.65 |
| Sub.Soil Wt: | 62.3 lb/ft³ |
| Conc. Wt: | 150 lb/ft³ |
| Rebar Fy: | 60000 psi |
| Conc. f`c: | 3000 psi |

CONCRETE WEIGHT:

| | |
|---|---|
| Block Volume | 2.8 cu yds |
| Block Wt | 11.3 kips |
| 3-block Volume: | 8.3 cu yds |

SOIL FRUSTUM WEIGHT:

| | |
|---|---|
| Frustum: | 30 ˚ |
| Block: | 15.0 kips |
| Edges: | 18.8 kips |
| Corners: | 5.6 kips |
| Total Wt: | 39.3 kips |
| Excavatn: | 225 cuft |




HORIZONTAL CAPACITY:
Based on Normal Soils

| | |
|---|---|
| Load @ | 6.25 ft |
| Stress: | 5000 psf |
| Load: | 125.0 kip |

Check anchor shaft embedment? OK

| | Vertical | Horizontal | |
|---|---|---|---|
| Design Loads: | 30.0 | 26.7 | kips |
| TIA 9.4.1- ϕRn: | 37.9 | 93.8 | kips |
| % Loaded: | 79% | 28% | OK |

GUY ANCHOR SHAFT:

| | | |
|---|---|---|
| Hole QTY | 5 | holes |
| Bar Qty: | (1) | 1-7/16" Rod |
| Fy/Fu: | 50/72 | ksi |
| Shaft Ag: | 1.62 | in² |
| Capacity | 64.9 | kips TIA 4.6.3 |
| % Loaded | 61.9% | OK |

ANCHOR ROD LENGTH:

| | |
|---|---|
| Minimum: | 10.7 ft |
| Maximum: | 12.7 ft |
| Recommend: | 11.0 ft |
| Actual: | 14 ft |

BLOCK REINFORCEMENT:

ANCHOR DIMENSIONS: REBAR DIMENSIONS: MASTER CHECK: OK

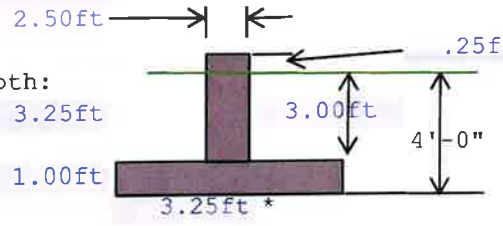
Codes: ACI 318, TIA 222-H

**SQUARE FOOTING AND PIER ANALYSIS**

Customer: OnAir Eng/Verizon
Project: Prospect, CT
4/26/24 2:35 PM

Factored Axial Load: 78.7 kips
Base Shear: 0.7 kips

DIMENSIONS:
Round Pier




Pier Area: 707 inch²

CONCRETE PROPERTIES:
f'c: 3000 psi
Fy: 60000 psi

SOIL PROPERTIES:
Dry Unit Wt: 100 pcf
Saturated Unit Wt: 120 pcf
Depth to Watertable: 6 ft

*BEARING CALCULATIONS* Based on site-observed soil at bearing elevation
Specified Allowable Bearing Capacity: 8.000 ksf
Concrete Wt: 3.79 kip Qu: 16.00 ksf
Soil Wt: 1.70 kip TIA 9.4.1 9.60 ksf $\phi_s$= 0.6
Total Overburder 5.49 kip
Total Bearing Stress: 8 ksf %Loaded: 84.1%

*CHECK PAD SHEAR* ACI 9.3.2.3 $\phi$: 0.75
Two Way Action: ßc=1 (L=W) Beam Action Load Area: -1.083 ft²
Vu: 33626 lbs Vu: -8747 lbs
fVc: 191456 lbs fVc: 30867 lbs
17.56% <= OK => -28.34%

MASTER CHECK: OK

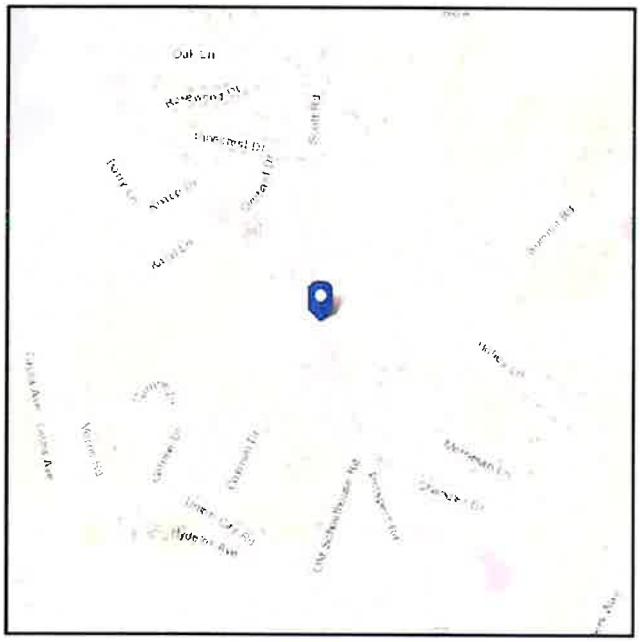
Codes: ACI 318, TIA 222-H

# 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:** 872.18 ft (NAVD 88)
**Latitude:** 41.511214
**Longitude:** -72.982527



## Wind

**Results:**

| | |
|---|---|
| Wind Speed | 118 Vmph |
| 10-year MRI | 75 Vmph |
| 25-year MRI | 84 Vmph |
| 50-year MRI | 90 Vmph |
| 100-year MRI | 97 Vmph |

120 per 2022 CTSBC
Municipality: Prospect

| | |
|---|---|
| Data Source: | ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2 |
| Date Accessed: | Wed Oct 19 2022 |

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 in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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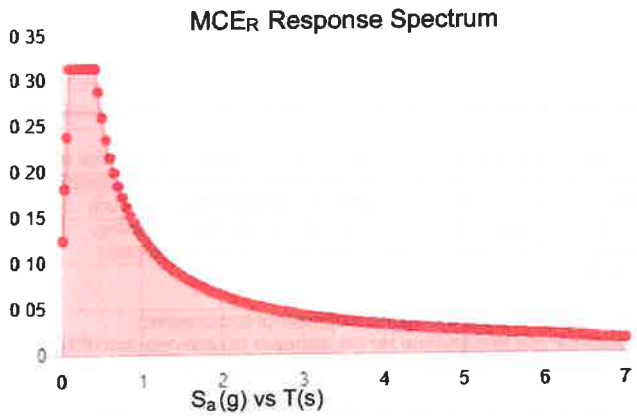
# Seismic

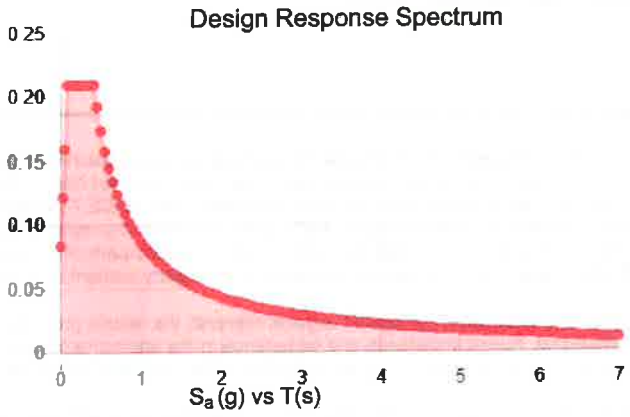
**Site Soil Class:** D - Default (see Section 11.4.3)

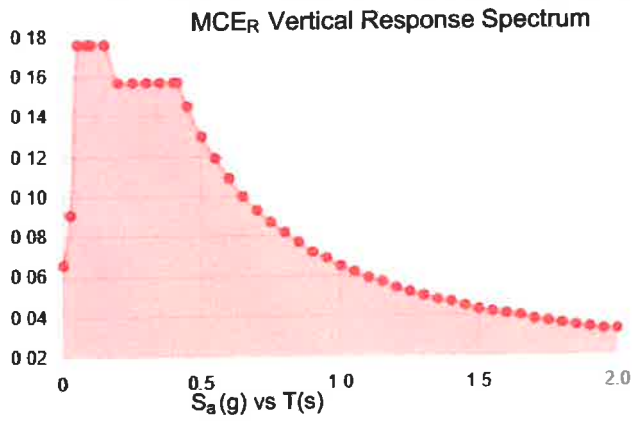
**Results:**

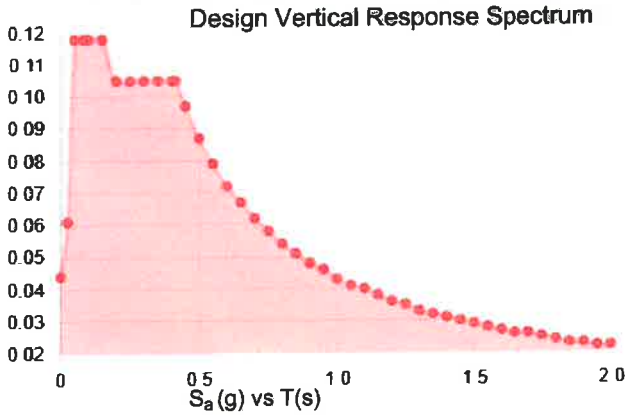
| | | | |
|---|---|---|---|
| $S_S$ : | 0.197 | $S_{D1}$ : | 0.087 |
| $S_1$ : | 0.054 | $T_L$ : | 6 |
| $F_a$ : | 1.6 | PGA : | 0.109 |
| $F_v$ : | 2.4 | $PGA_M$ : | 0.172 |
| $S_{MS}$ : | 0.315 | $F_{PGA}$ : | 1.582 |
| $S_{M1}$ : | 0.13 | $I_e$ : | 1 |
| $S_{DS}$ : | 0.21 | $C_v$ : | 0.7 |

**Seismic Design Category** B




**Data Accessed:** Wed Oct 19 2022

**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.**

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# Ice

**Results:**

| | |
|---|---|
| Ice Thickness: | 1.00 in. |
| Concurrent Temperature: | 15 F |
| Gust Speed | 50 mph |
| **Data Source:** | Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8 |
| **Date Accessed:** | Wed Oct 19 2022 |

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.

Colliers Engineering & Design CT, P.C.
1055 Washington Boulevard
Stamford, CT 06901
203.324.0800
peter.albano@collierseng.com

# Antenna Mount Analysis Report and PMI Requirements

Mount ReAnalysis

SMART Tool Project #: 10208979
Colliers Engineering & Design CT, P.C. Project: 23777255

September 1, 2023

| | | |
|---|---|---|
| ***Site Information*** | *Site ID:* | *5000383468-VZW / PROSPECT NORTH CT* |
| | *Site Name:* | *PROSPECT NORTH CT* |
| | *Carrier Name:* | *Verizon Wireless* |
| | *Address:* | *54 Watterbury Rd*<br>*Prospect, Connecticut 06712*<br>*New Haven County* |
| | *Latitude:* | *41.510930°* |
| | *Longitude:* | *-72.982330°* |
| ***Structure Information*** | *Tower Type:* | *160-Ft Self Support* |
| | *Mount Type:* | *12.50-Ft Sector Frame* |

**FUZE ID # 17124002**

## Analysis Results

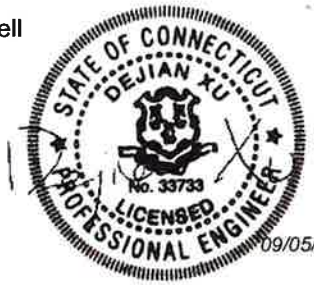
Sector Frame: **36.5% Pass***

***Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.**

***Contractor PMI Requirements:***
***Included at the end of this MA report***
***Available & Submitted via portal at https://pmi.vzwsmart.com***

***For additional questions and support, please reach out to:***
***pmisupport@colliersengineering.com***

Report Prepared By: Derek Hartzell



## Executive Summary:

The objective of this report is to determine the capacity of the antenna support mount at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

This analysis is inclusive of the mount structure only and does not address the structural capacity of the supporting structure. This mounting frame was not analyzed as an anchor attachment point for fall protection. All climbing activities are required to have a fall protection plan completed by a competent person.

## Sources of Information:

| Document Type | Remarks |
|---|---|
| *Radio Frequency Data Sheet (RFDS)* | *Verizon RFDS, dated October 25, 2021* |
| *Previous Mount Replacement Analysis* | *Maser Consulting Connecticut, Project #:21781146A, dated November 15, 2021* |
| *Passing Post-Modification Inspection (PMI)* | *Colliers Engineering & Design CT, P.C. Project#:21781146, dated August 17, 2023* |
| *Mount Specification* | *SitePro1 Part #: VFA12-HD* |

## Analysis Criteria:

| | | |
|---|---|---|
| Codes and Standards: | ANSI/TIA-222-H<br>2022 Connecticut State Building Code (CSBC),<br>Effective October 1, 2022 | |
| Wind Parameters: | Basic Wind Speed (Ultimate 3-sec. Gust), $V_{ULT}$: | 120 mph |
| | Ice Wind Speed (3-sec. Gust): | 50 mph |
| | Design Ice Thickness: | 1.00 in |
| | Risk Category: | II |
| | Exposure Category: | C |
| | Topographic Category: | 1 |
| | Topographic Feature Considered: | N/A |
| | Topographic Method: | N/A |
| | Ground Elevation Factor, $K_e$: | 0.969 |
| Seismic Parameters: | $S_S$: | 0.197 g |
| | $S_1$: | 0.054 g |
| Maintenance Parameters: | Wind Speed (3-sec. Gust): | 30 mph |
| | Maintenance Live Load, Lv: | 250 lbs. |
| | Maintenance Live Load, Lm: | 500 lbs. |
| Analysis Software: | RISA-3D (V17) | |

## Final Loading Configuration:

The following equipment has been considered for the analysis of the mounts:

| Mount Elevation (ft) | Equipment Elevation (ft) | Quantity | Manufacturer | Model | Status |
|---|---|---|---|---|---|
| 134.50 | 135.00 | 1 | Andrew | LNX-8514DS-VTM | Retained |
| | | 2 | Swedcom | SWCP2X5514 | |
| | | 6 | Commscope | NHH-65B-R2B | |
| | | 3 | Samsung | MT6407-77A | |
| | | 3 | Samsung | RF4439d-25A | |
| | | 3 | Samsung | RF4440d-13A | |
| | | 1 | Raycap | RVZDC-6627-PF-48 | |
| | | 4 | KAelus | KA-6030 | Added |

It is acceptable to install up to any three (3) of the OVP model numbers listed below as required at any location other than the mount face without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required unless replacing an existing OVP.

| Model Number | Ports | AKA |
|---|---|---|
| DB-B1-6C-12AB-0Z | 6 | OVP-6 |
| RVZDC-6627-PF-48 | 12 | OVP-12 |

## Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Colliers Engineering & Design and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Colliers Engineering & Design to verify deviation will not adversely impact the analysis.

2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

   Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping and reported in the Mount Mapping Report are assumed to be corrected and documented as part of the PMI process and are not considered in the mount analysis.

   The mount analysis and the mount mapping are not a condition assessment of the mount. Proper maintenance and condition assessments are still required post analysis.

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped in accordance with the NSTD-446 Standard, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

4. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Colliers Engineering & Design is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.

7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
   - Channel, Solid Round, Angle, Plate — ASTM A36 (Gr. 36)
   - HSS (Rectangular) — ASTM 500 (Gr. B-46)
   - Pipe — ASTM A53 (Gr. B-35)
   - Threaded Rod — F1554 (Gr. 36)
   - Bolts — ASTM A325

**Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Colliers Engineering & Design.**

## Analysis Results:

| Component | Utilization % | Pass/Fail |
|---|---|---|
| *Face Horizontal* | *30.5 %* | *Pass* |
| *Standoff Plate* | *36.5 %* | *Pass* |
| *Standoff Horizontal* | *23.6 %* | *Pass* |
| *Standoff Diagonal* | *6.0 %* | *Pass* |
| *Antenna Pipe* | *25.5 %* | *Pass* |
| *Standoff Vertical* | *10.8 %* | *Pass* |
| *Tieback* | *6.1 %* | *Pass* |
| *Mast Pipe* | *22.5 %* | *Pass* |
| *Connection Check* | *10.7%* | *Pass* |

| **Structure Rating – *(Controlling Utilization of all Components)*** | **36.5%** |
|---|---|

## Mount Steel (EPA)a per ANSI/TIA-222-H Section 2.6.11.2:

| Ice Thickness (In) | Mount Pipes Excluded | | Mount Pipes Included | |
|---|---|---|---|---|
| | Front (EPA)a (Sq. Ft.) | Side (EPA)a (Sq. Ft.) | Front (EPA)a (Sq. Ft.) | Side (EPA)a (Sq. Ft.) |
| 0 | 18.2 | 10.6 | 27.4 | 19.7 |
| 0.5 | 27.9 | 17.6 | 40.9 | 30.5 |
| 1 | 36.9 | 23.9 | 53.7 | 40.7 |

Notes:
- (EPA)a values listed above may be used in the absence of more precise information
- (EPA)a values in the table above include 1 sector(s).
- Ka factors included in (EPA)a calculations

## Requirements:

The existing mounts are **SUFFICIENT** for the final loading configuration shown in attachment 2 and do not require modifications. Additional requirements are noted below.

Contractor shall install (2) proposed filters each on Beta and Gamma sectors on a new Site Pro 1 Dual Swivel Mount Kit (Part #: RRUDSM or EOR approved equivalent) in the location shown in the placement diagrams.

If required, ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/TIA 322 are available for a Construction Class IV site or other. Separate review fees will apply.

## Attachments:

1. **Contractor Required Post Installation Inspection (PMI) Report Deliverables**
2. Antenna Placement Diagrams
3. Mount Photos
4. Mount Drawing (for reference only)
5. Analysis Calculations

# Mount Desktop – Post Modification Inspection (PMI) Report Requirements

## Documents & Photos Required from Contractor – Passing Mount Analysis

Passing Mount Analysis requires a PMI due to a modification in loading.

Electronic pdf version of this can be downloaded at https://pmi.vzwsmart.com.

For additional questions and support, please reach out to pmisupport@colliersengineering.com

---

MDG#: 5000383468 SMART Project #: 10208979 Fuze Project ID: 17124002

**Purpose** – to provide SMART Tool structural vendor 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 installation was completed in accordance with this Passing Mount Analysis.
- Contractor shall relay any data that can impact the performance of the mount, this includes safety issues.

**Base Requirements:**

- If installation will cause damage to the structure, the climbing facility, or safety climb if present or any installed system, SMART Tool vendor to be notified prior to install. Any special photos outside of the standard requirements will be indicated on the drawings.
- Provide "as built mount drawings" showing contractor's name, contact information, preparer's signature, and date. Any deviations from the drawings (Proposed modification) shall be shown. NOTE: If loading is different than what is conveyed in the passing mount analysis (MA) contact the SMART Tool vendor immediately.
- Each photo should be time and date stamped
- Photos should be high resolution.
- 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. If there is conflict, contact the SMART Tool engineer for recommendations.
- The PMI can be accessed at the following portal: ***https://pmi.vzwsmart.com***

**Photo Requirements:**

- *Photos taken at ground level*
  - Photo of Gate Signs showing the tower owner, site name, and number.
  - Overall tower structure after installation.
  - Photos of the mount after installation; if the mounts are at different rad elevations, pictures must be provided for all elevations that equipment was installed.
- *Photos taken at Mount Elevation*
  - Photos showing the safety climb wire rope above and below the mount prior to installation.
  - Photos showing the climbing facility and safety climb if present.
  - Photos showing each individual sector after installation. Each entire sector shall be in one photo to show the interconnection of members.

- These photos shall also certify that the placement and geometry of the equipment on the mount is as depicted in the antenna placement diagram in this form.
- Photos that show the model number of each antenna and piece of equipment installed per sector.

**Antenna & equipment placement and Geometry Confirmation:**

- The contractor shall certify that the antenna & equipment placement and geometry is in accordance with the sketch and table as included in the mount analysis and noted below.

☐ The contractor certifies that the photos support and the equipment on the mount is as depicted on the sketch and table included in this form and with the mount analysis provided.

OR

☐ The contractor notes that the equipment on the mount is not in accordance with the sketch and has noted the differences below and provided photo documentation of any alterations.

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

**Issue:**

Contractor shall install (2) proposed filters each on Beta and Gamma sectors on a new Site Pro 1 Dual Swivel Mount Kit (Part #: RRUDSM or EOR approved equivalent) in the locations shown in the placement diagrams.

**Response:**

**Special Instruction Confirmation:**

☐ The contractor has read and acknowledges the above special instructions.

☐ All hardware listed in the Special Instructions above (if applicable) has been properly installed, and the existing hardware was inspected.

☐ The material utilized was as specified in the SMART Tool engineering vendor Special Instructions above (if applicable) and included in the material certification folder is a packing list or invoice for these materials.

OR

☐ The material utilized was approved by a SMART Tool engineering vendor as an "equivalent" and this approval is included as part of the contractor submission.

**Comments:**

**Contractor certifies that the climbing facility / safety climb was not damaged prior to starting work:**

☐ Yes ☐ No

**Contractor certifies no new damage created during the current installation:**

☐ Yes ☐ No

**Contractor to certify the condition of the safety climb and verify no damage when leaving the site:**

☐ Safety Climb in Good Condition ☐ Safety Climb Damaged

**Certifying Individual:**

| | |
|---|---|
| Company: | |
| Employee Name: | |
| Contact Phone: | |
| Email: | |
| Date: | |

## Structure: 5000383468-VZW - PROSPECT NORTH CT

Sector: A

Structure Type: Self Support

Mount Elev: 134.50

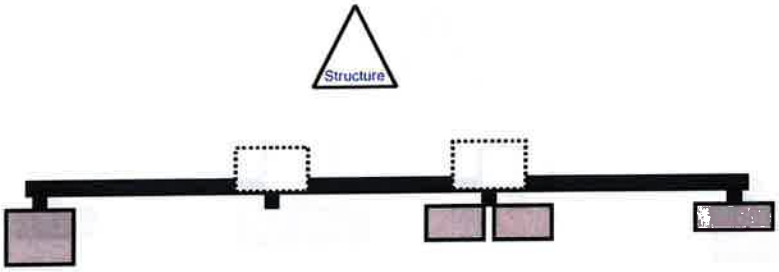
10208979

9/1/2023 1

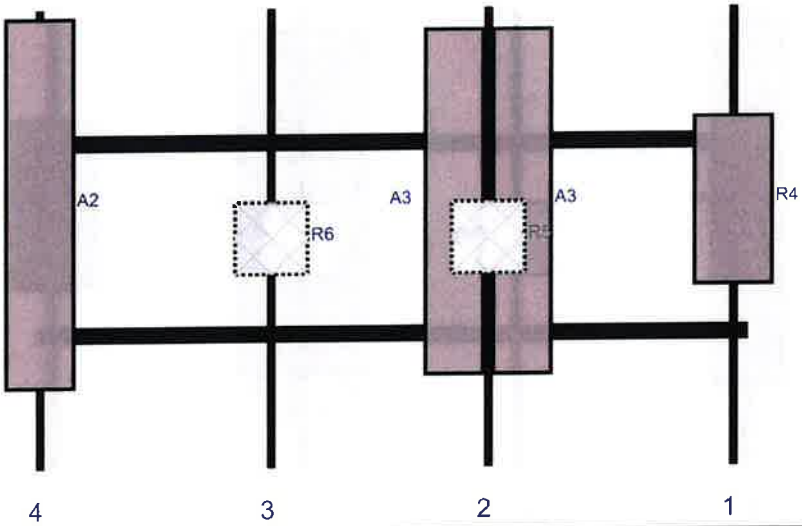
Page: 1

Colliers Engineering & Design

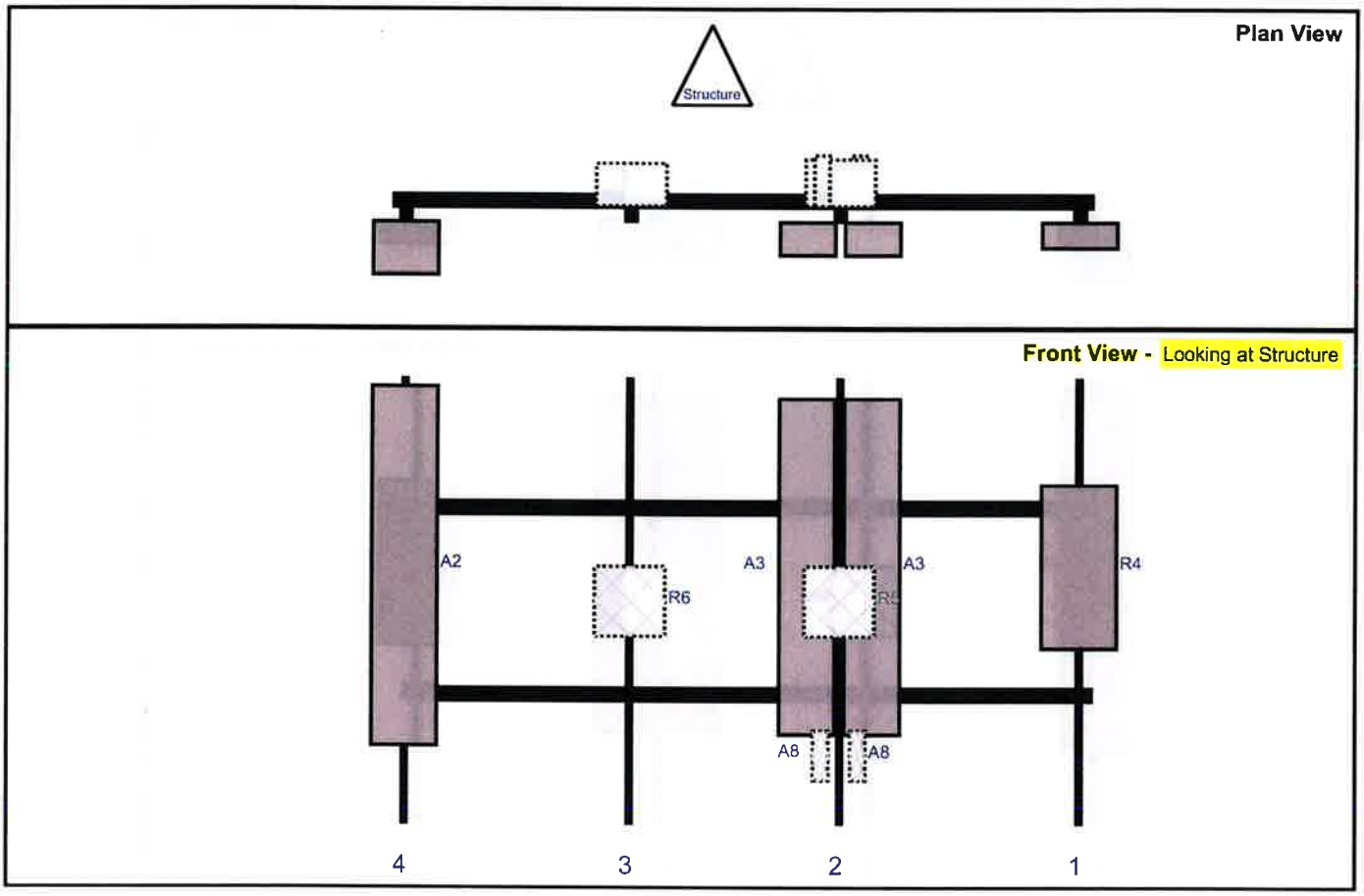
**Plan View**




**Front View -** Looking at Structure



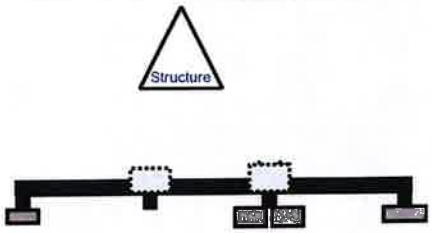

| Ref# | Model | Height (in) | Width (in) | H Dist Frm L. | Pipe # | Pipe Pos V | Ant Pos | C. Ant Frm T. | Ant H Off | Status | Validation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R4 | MT6407-77A | 35.1 | 16.1 | 147 | 1 | a | Front | 40.56 | 0 | Retained | 08/08/2023 |
| A3 | NHH-65B-R2B | 72 | 11.9 | 96 | 2 | a | Front | 40.56 | 7 | Retained | 08/08/2023 |
| A3 | NHH-65B-R2B | 72 | 11.9 | 96 | 2 | b | Front | 40.56 | -7 | Retained | 08/08/2023 |
| R5 | RF4439d-25A | 15 | 15 | 96 | 2 | a | Behind | 48 | 0 | Retained | 08/08/2023 |
| R6 | RF4440d-13A | 15 | 15 | 51 | 3 | a | Behind | 48 | 0 | Retained | 08/08/2023 |
| A2 | SWCP2X5514 | 77 | 14 | 3 | 4 | a | Front | 40.5 | 0 | Retained | 08/08/2023 |
| OVP1 | RVZDC-6627-PF-48 | 29.5 | 16.5 | | Member | | | | | Retained | 08/08/2023 |



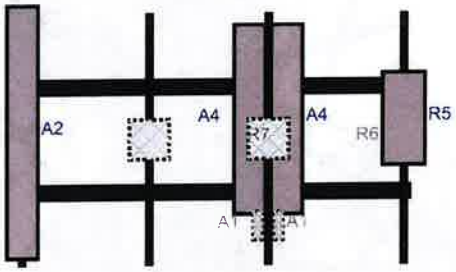

| Ref# | Model | Height (in) | Width (in) | H Dist Frm L. | Pipe # | Pipe Pos V | Ant Pos | C. Ant Frm T. | Ant H Off | Status | Validation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R4 | MT6407-77A | 35.1 | 16.1 | 147 | 1 | a | Front | 40.56 | 0 | Retained | 08/08/2023 |
| A3 | NHH-65B-R2B | 72 | 11.9 | 96 | 2 | a | Front | 40.56 | 7 | Retained | 08/08/2023 |
| A3 | NHH-65B-R2B | 72 | 11.9 | 96 | 2 | b | Front | 40.56 | -7 | Retained | 08/08/2023 |
| R5 | RF4439d-25A | 15 | 15 | 96 | 2 | a | Behind | 48 | 0 | Retained | 08/08/2023 |
| A8 | KA-6030 | 10.6 | 3.2 | 96 | 2 | a | Behind | 81 | -4 | Added | |
| A8 | KA-6030 | 10.6 | 3.2 | 96 | 2 | b | Behind | 81 | 4 | Added | |
| R6 | RF4440d-13A | 15 | 15 | 51 | 3 | a | Behind | 48 | 0 | Retained | 08/08/2023 |
| A2 | SWCP2X5514 | 77 | 14 | 3 | 4 | a | Front | 40.5 | 0 | Retained | 08/08/2023 |

Colliers Engineering & Design

**Plan View**



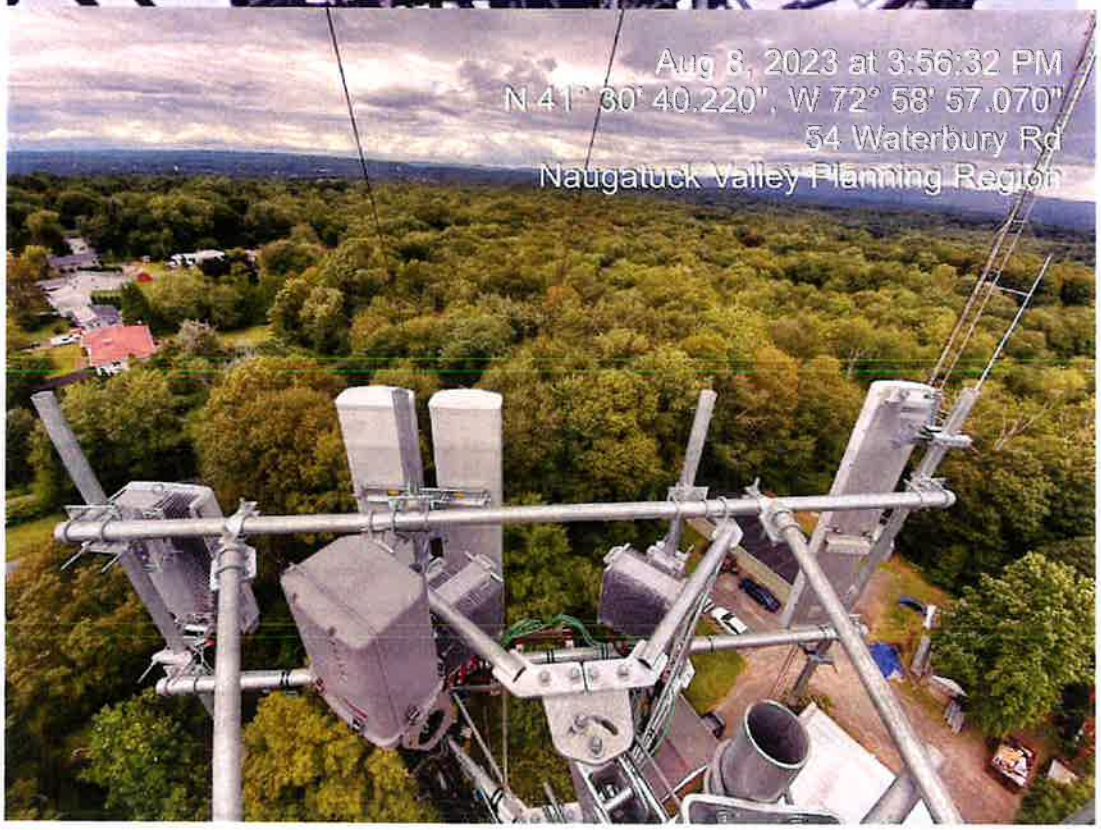

**Front View -** Looking at Structure

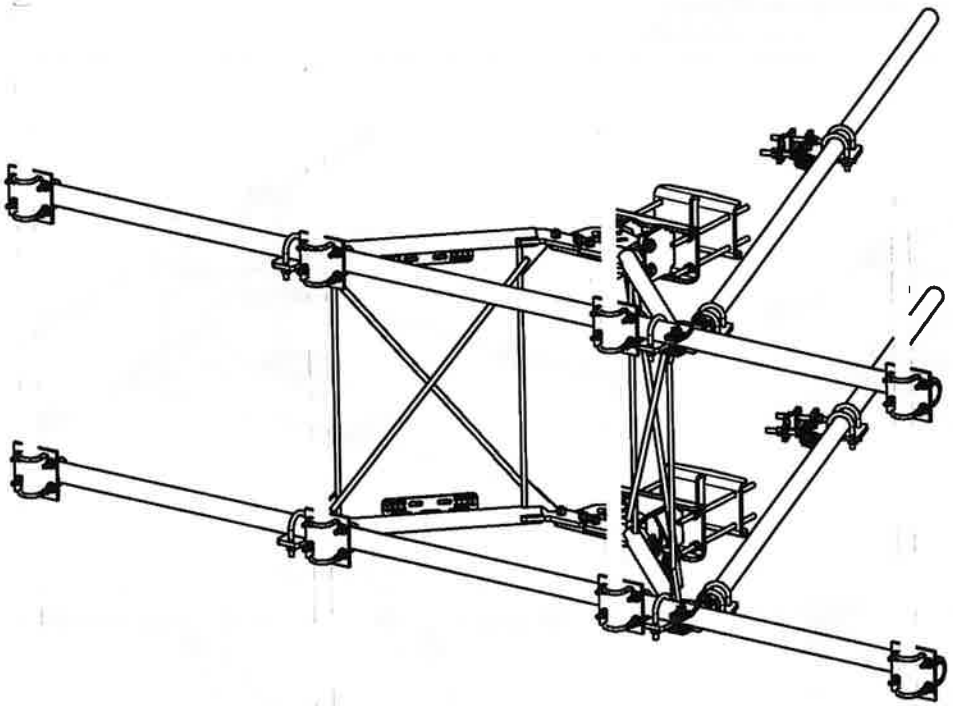



4 3 2 1

| Ref# | Model | Height (in) | Width (in) | H Dist Frm L. | Pipe # | Pipe Pos V | Ant Pos | C. Ant Frm T. | Ant H Off | Status | Validation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R5 | MT6407-77A | 35.1 | 16.1 | 147 | 1 | a | Front | 40.56 | 0 | Retained | 08/08/2023 |
| A4 | NHH-65B-R2B | 72 | 11.9 | 96 | 2 | a | Front | 40.56 | 7 | Retained | 08/08/2023 |
| A4 | NHH-65B-R2B | 72 | 11.9 | 96 | 2 | b | Front | 40.56 | -7 | Retained | 08/08/2023 |
| A1 | KA-6030 | 10.6 | 3.2 | 96 | 2 | a | Behind | 81 | -4 | Added | |
| A1 | KA-6030 | 10.6 | 3.2 | 96 | 2 | b | Behind | 81 | 4 | Added | |
| R6 | RF4439d-25A | 15 | 15 | 96 | 2 | a | Behind | 48 | 0 | Retained | 08/08/2023 |
| R7 | RF4440d-13A | 15 | 15 | 51 | 3 | a | Behind | 48 | 0 | Retained | 08/08/2023 |
| A2 | LNX-8514DS-VTM | 96 | 11.9 | 3 | 4 | a | Front | 45 | 0 | Retained | 08/08/2023 |


Aug 8, 2023 at 6:26:29 PM
N 41° 30' 40.167", W 72° 58' 57.471"
54 Waterbury Rd
Naugatuck Valley Planning Region


Aug 8, 2023 at 3:56:32 PM
N 41° 30' 40.220", W 72° 58' 57.070"
54 Waterbury Rd
Naugatuck Valley Planning Region



**PARTS LIST**

| ITEM | QTY | PART NO. | PART DESCRIPTION | LENGTH | UNIT WT. | NET WT. |
|---|---|---|---|---|---|---|
| 1 | 2 | X-VFAW | SUPPORT ARM | | 71.41 | 142.81 |
| 2 | 1 | X-HDCAMTBW | CLAMP WELDMENT FOR BCAM-HD | | 33.86 | 33.86 |
| 3 | 1 | X-MHTPHD | MULTI-HOLE TAPER PLATE WELDMENT | | 36.24 | 36.24 |
| 4 | 2 | X-VFAPL4 | VFA-HD PIVOT PLATE | 12 in | 15.88 | 31.77 |
| 5 | 2 | X-LCBP4 | BENT BACKING PLATE | 13 in | 19.00 | 38.01 |
| 6 | 1 | X-HDCAMSS | ANGLE ADJUSTMENT WELDMENT FOR BCAM-HD | | 16.39 | 16.39 |
| 7 | 4 | X-SPTB | SLIDING PIPE TIE BACK PLATE | 5 1/2 in | 5.87 | 23.49 |
| 8 | 1 | X-HDCAMSP | POSITIONING PLATE WELDMENT FOR BCAM-HD | | 2.58 | 2.58 |
| 9 | 4 | X-TBCA | TIE BACK CLIP ANGLE | | 2.01 | 8.02 |
| 10 | 8 | SCX2 | CROSSOVER PLATE | 7 in | 4.80 | 38.37 |
| 11 | 4 | MCP | CLAMP HALF 1/2" THICK, 11-5/8" LONG | 12 1/16 in | 3.59 | 14.37 |
| 12 | 8 | DCP | 1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF | 8 1/8 in | 2.36 | 18.90 |
| 13 | 2 | P2126 | 2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE | 126 in | 40.75 | 81.50 |
| 14 | 2 | P30150 | 2-7/8" X 150" (2-1/2" SCH. 40) GALVANIZED PIPE | 150 in | 76.94 | 153.87 |
| 15 | 4 | A34212 | 3/4" x 2-1/2" UNC HEX BOLT (A325) | 2 1/2 in | 0.48 | 1.92 |
| 16 | 4 | G34FW | 3/4" HDG USS FLATWASHER | | 0.06 | 0.24 |
| 17 | 4 | G34LW | 3/4" HDG LOCKWASHER | | 0.04 | 0.17 |
| 18 | 4 | G34NUT | 3/4" HDG HEAVY 2H HEX NUT | | 0.21 | 0.85 |
| 19 | 8 | G58R-18 | 5/8" x 18" THREADED ROD (HDG.) | 18 in | 0.40 | 3.19 |
| 20 | 4 | G58R-12 | 5/8" x 12" THREADED ROD (HDG.) | | 1.05 | 4.18 |
| 21 | 4 | G58R-8 | 5/8" x 8" THREADED ROD (HDG.) | | 0.70 | 2.79 |
| 22 | 4 | X-UB5300 | 5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.) | | 1.15 | 4.60 |
| 23 | 8 | X-UB5258 | 5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.) | | 1.00 | 8.00 |
| 24 | 2 | G5807 | 5/8" x 7" HDG HEX BOLT GR5 FULL THREAD | 7 in | 0.70 | 1.41 |
| 25 | 1 | G5806 | 5/8" x 6" HDG HEX BOLT GR5 FULL THREAD | 6 in | 0.62 | 0.62 |
| 26 | 8 | G5804 | 5/8" x 4" HDG HEX BOLT GR5 | | 0.44 | 3.55 |
| 27 | 4 | G5802 | 5/8" x 2" HDG HEX BOLT GR5 | | 0.27 | 1.08 |
| 28 | 8 | A582114 | 5/8" x 2-1/4" HDG A325 HEX BOLT | 2 1/4 in | 0.31 | 2.50 |
| 29 | 25 | G58FW | 5/8" HDG USS FLATWASHER | 1/8 in | 0.07 | 1.76 |
| 30 | 66 | G58LW | 5/8" HDG LOCKWASHER | | 0.03 | 1.72 |
| 31 | 71 | G58NUT | 5/8" HDG HEAVY 2H HEX NUT | | 0.13 | 9.22 |
| 32 | 32 | X-UB1300 | 1/2" X 3" X 5" X 2" GALV U-BOLT | | 0.74 | 23.64 |
| 33 | 16 | X-UB1212 | 1/2" X 2" X 3" X 1-1/4" U-BOLT (HDG.) | | 0.60 | 9.56 |
| 34 | 64 | G12FW | 1/2" HDG USS FLATWASHER | 3/32 in | 0.03 | 2.18 |
| 35 | 64 | G12LW | 1/2" HDG LOCKWASHER | 1/8 in | 0.01 | 0.89 |
| 36 | 64 | G12NUT | 1/2" HDG HEAVY 2H HEX NUT | | 0.07 | 4.58 |
| | | | | | TOTAL WT. # | 738.06 |

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REVISION HISTORY

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**BENDS ARE ± 1/2 DEGREE**
**ALL OTHER MACHINING *(± 0.030")***
**ALL OTHER ASSEMBLY *(± 0.060")***



DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

SITE PRO 1 — A valmont COMPANY

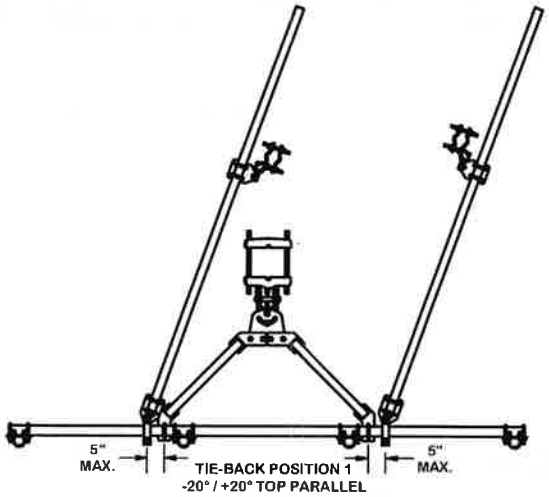
Engineering Support Team: 1-888-753-7446

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

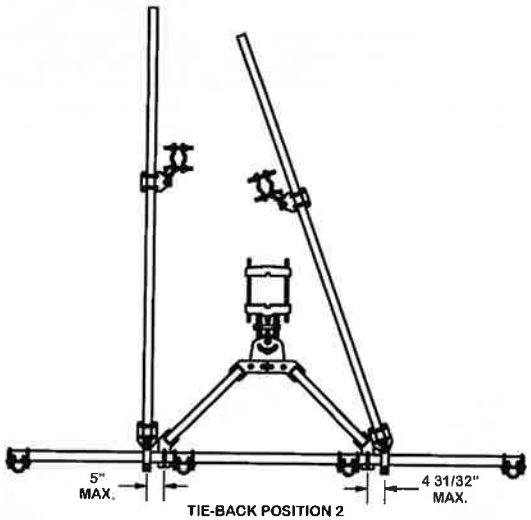
| CPD NO. | DRAWN BY | ENG. APPROVAL | PART NO. |
|---|---|---|---|
| | CEK 1/25/2017 | | VFA12-HD |

| CLASS | SUB | DRAWING USAGE | CHECKED BY | DWG. NO. |
|---|---|---|---|---|
| 81 | 02 | CUSTOMER | BMC 12/13/2017 | VFA12-HD |

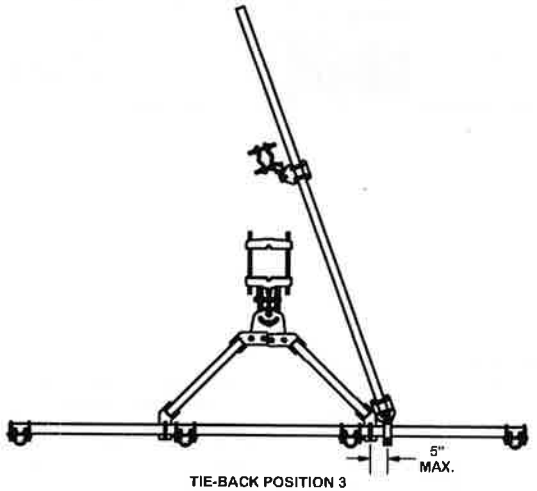
# TIE-BACK POSITIONS



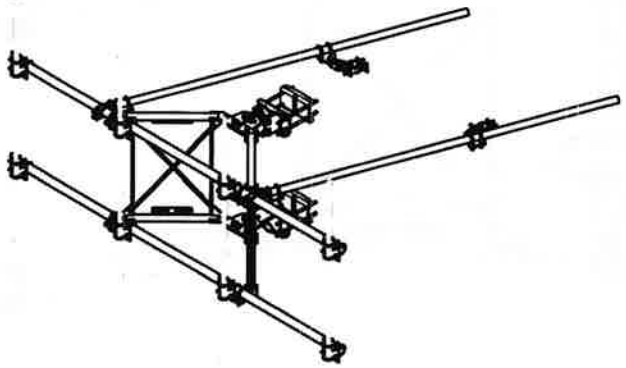

TIE-BACK POSITION 1
-20° / +20° TOP PARALLEL

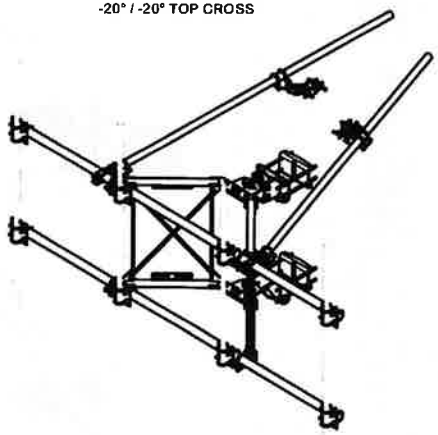


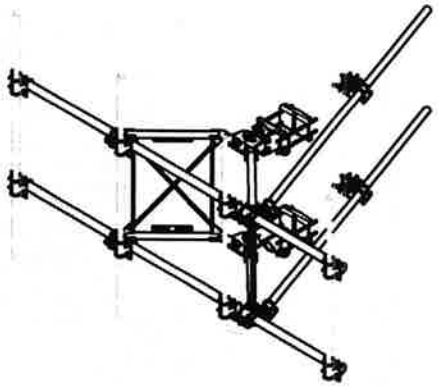

TIE-BACK POSITION 2
-20° / -20° TOP CROSS




TIE-BACK POSITION 3
-20° SAME SIDE STACKED







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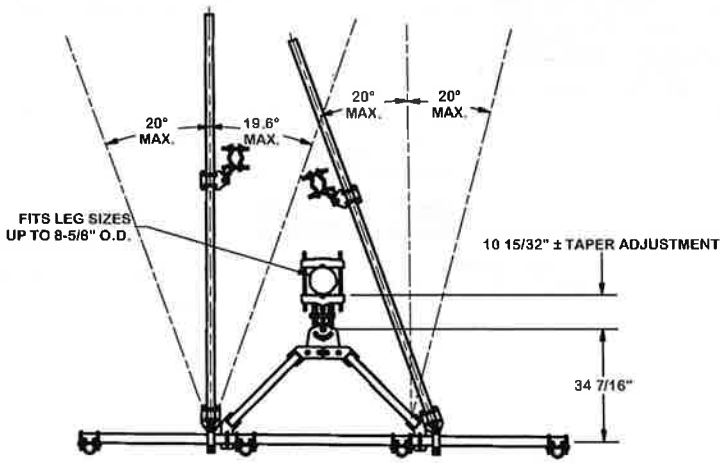
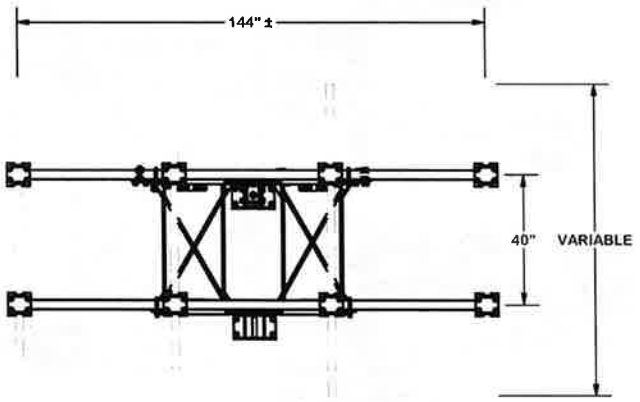
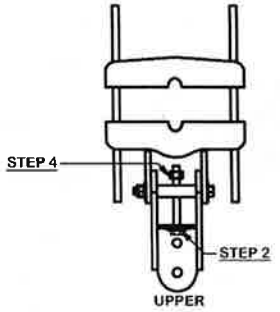
|---|---|---|---|---|
| | | CEK 1/25/2017 | | VFA12-HD |
| CLASS | SUB | DRAWING USAGE | CHECKED BY | DWG. NO. |
| 81 | 02 | CUSTOMER | BMC 12/13/2017 | VFA12-HD |

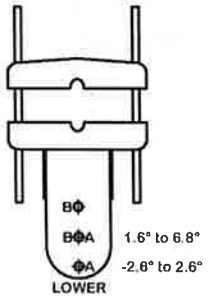


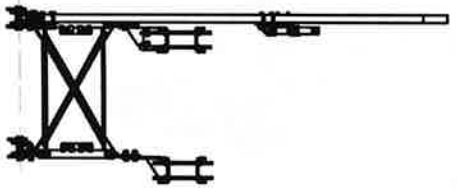




## ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
   - HOLE A = -2.6° TO 2.6°
   - HOLE B = 1.6° TO 6.8°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 100 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.



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REVISION HISTORY

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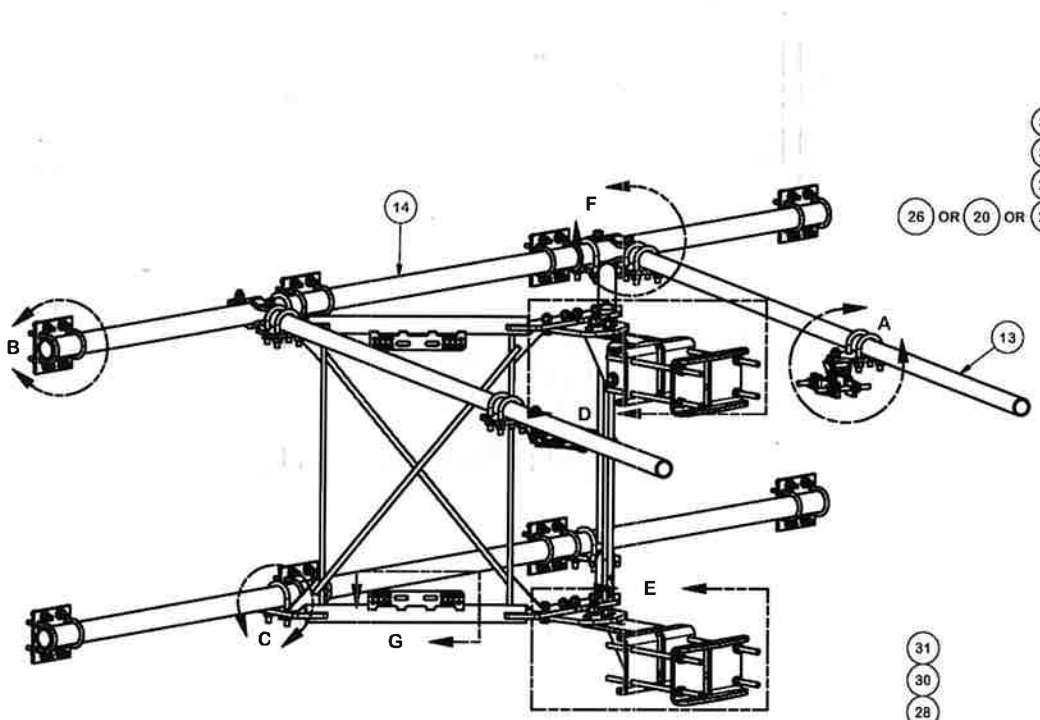


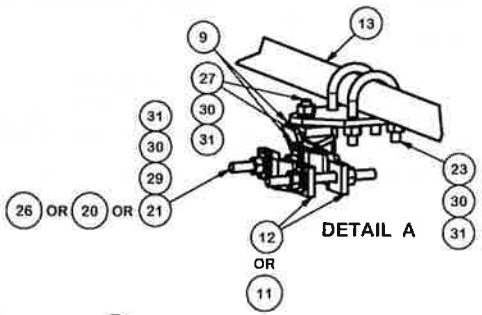


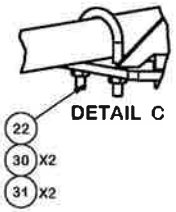


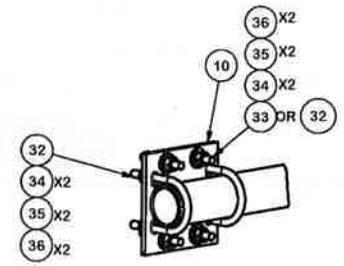


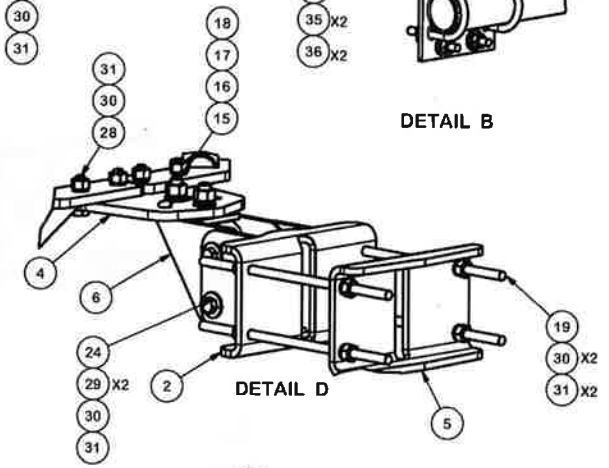


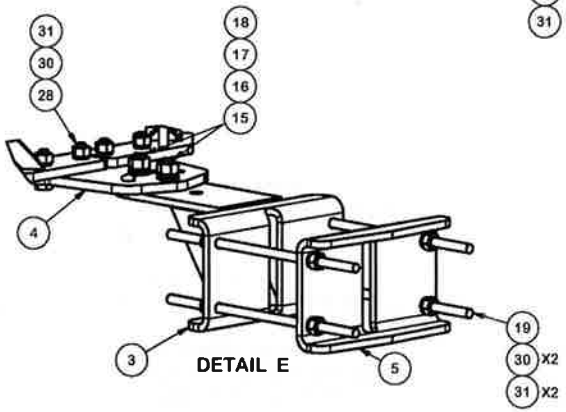


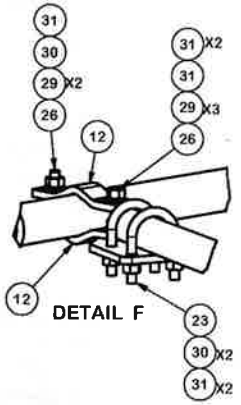


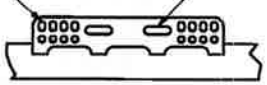


DETAIL G

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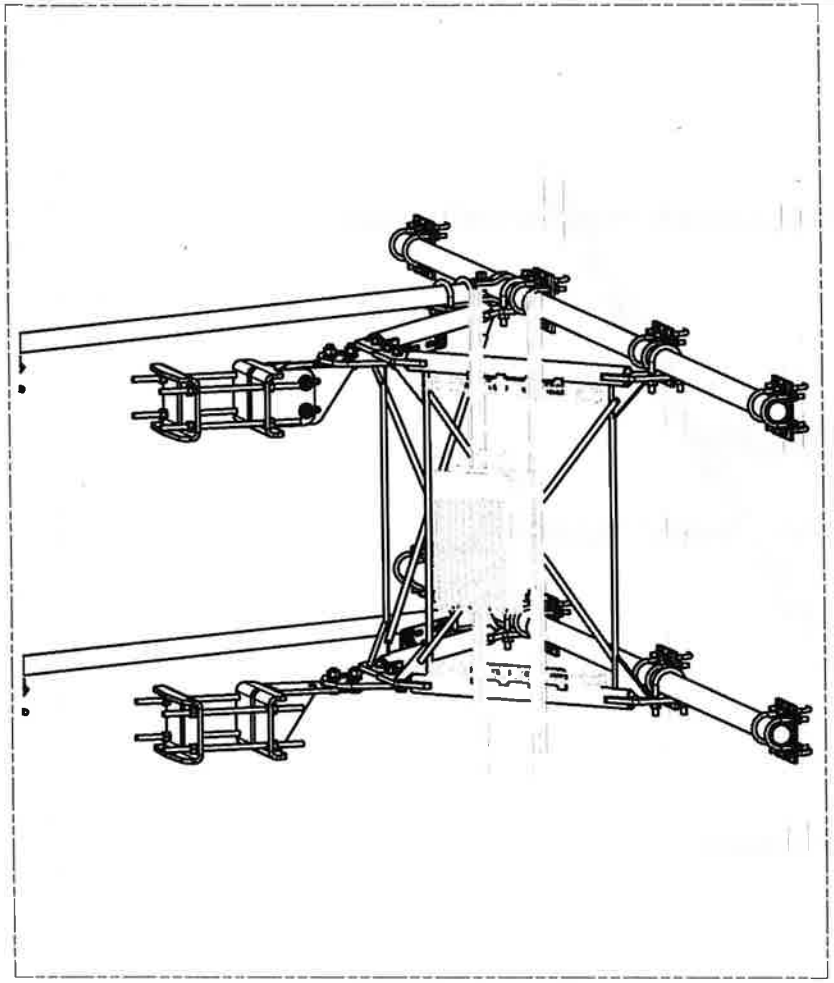
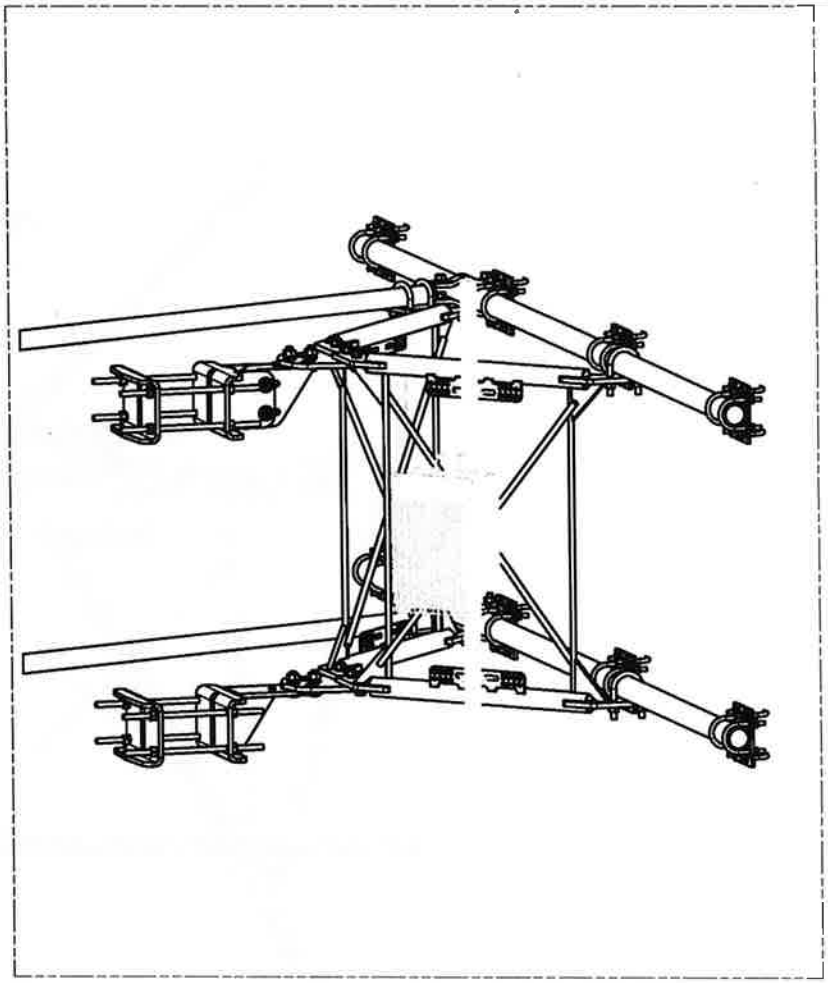
| CLASS / SUB | DRAWING USAGE | CHECKED BY | DWG. NO. |
| 81 / 02 | CUSTOMER | BMC 12/13/2017 | VFA12-HD |



UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

| REV | DESCRIPTION OF REVISIONS | CPD | BY | DATE |
|---|---|---|---|---|
| D | UPDATED BCAM VERSION 1 TO BCAM VERSION 2 | | CEK | 6/29/2018 |
| C | UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION | | CEK | 12/7/2017 |
| B | CHANGED TIE-BACK BACK CONNECTION | | CEK | 7/31/2017 |
| A | CHANGED TIE-BACK FRONT CONNECTION | | CEK | 2/2/2017 |

REVISION HISTORY

## TOLERANCE NOTES

**TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:**
**SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")***
**DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES**
**LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES**
**BENDS ARE ± 1/2 DEGREE**
**ALL OTHER MACHINING *(± 0.030")***
**ALL OTHER ASSEMBLY *(± 0.060")***



DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

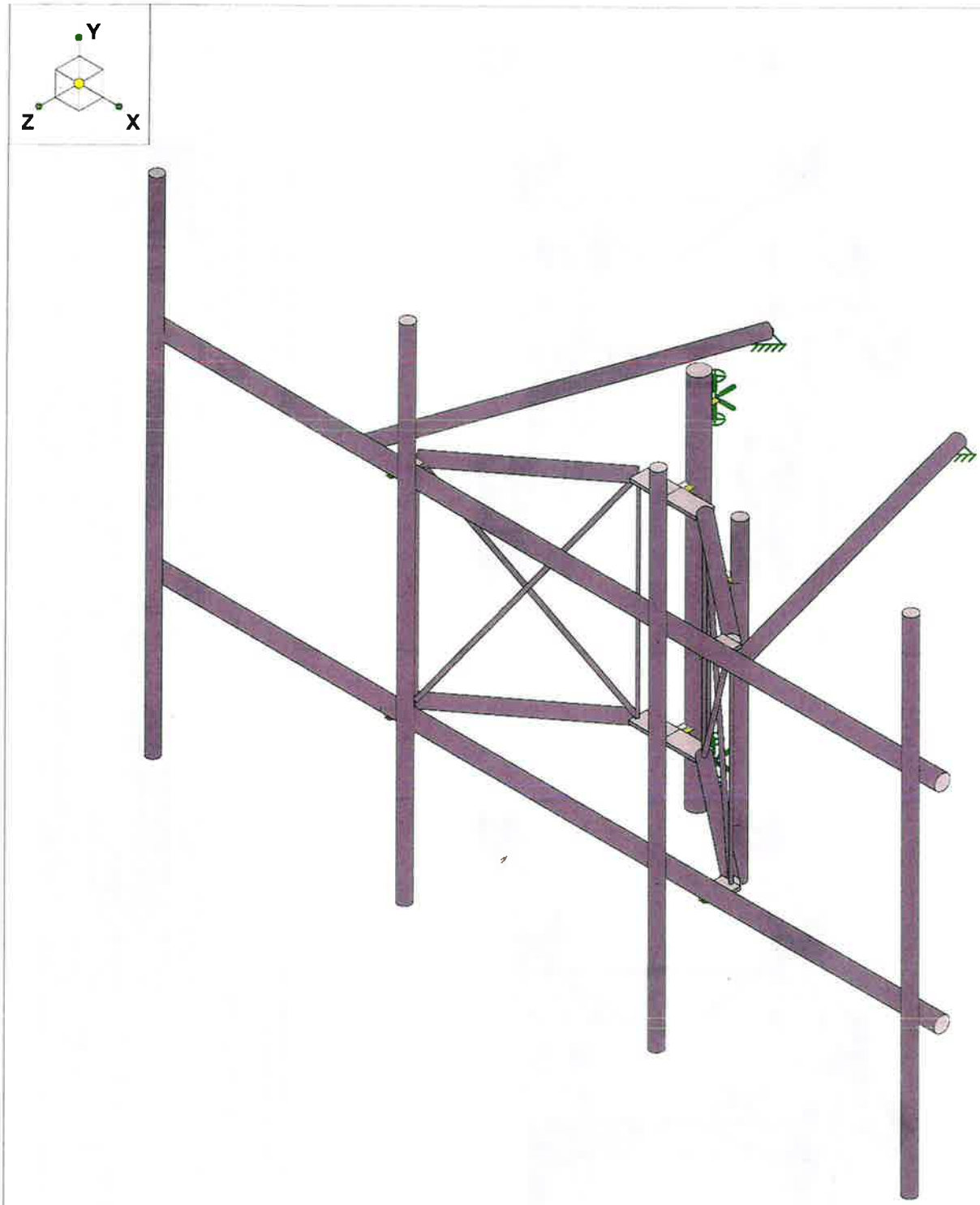
SITE PRO — A valmont COMPANY

Engineering Support Team: 1-888-753-7446

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

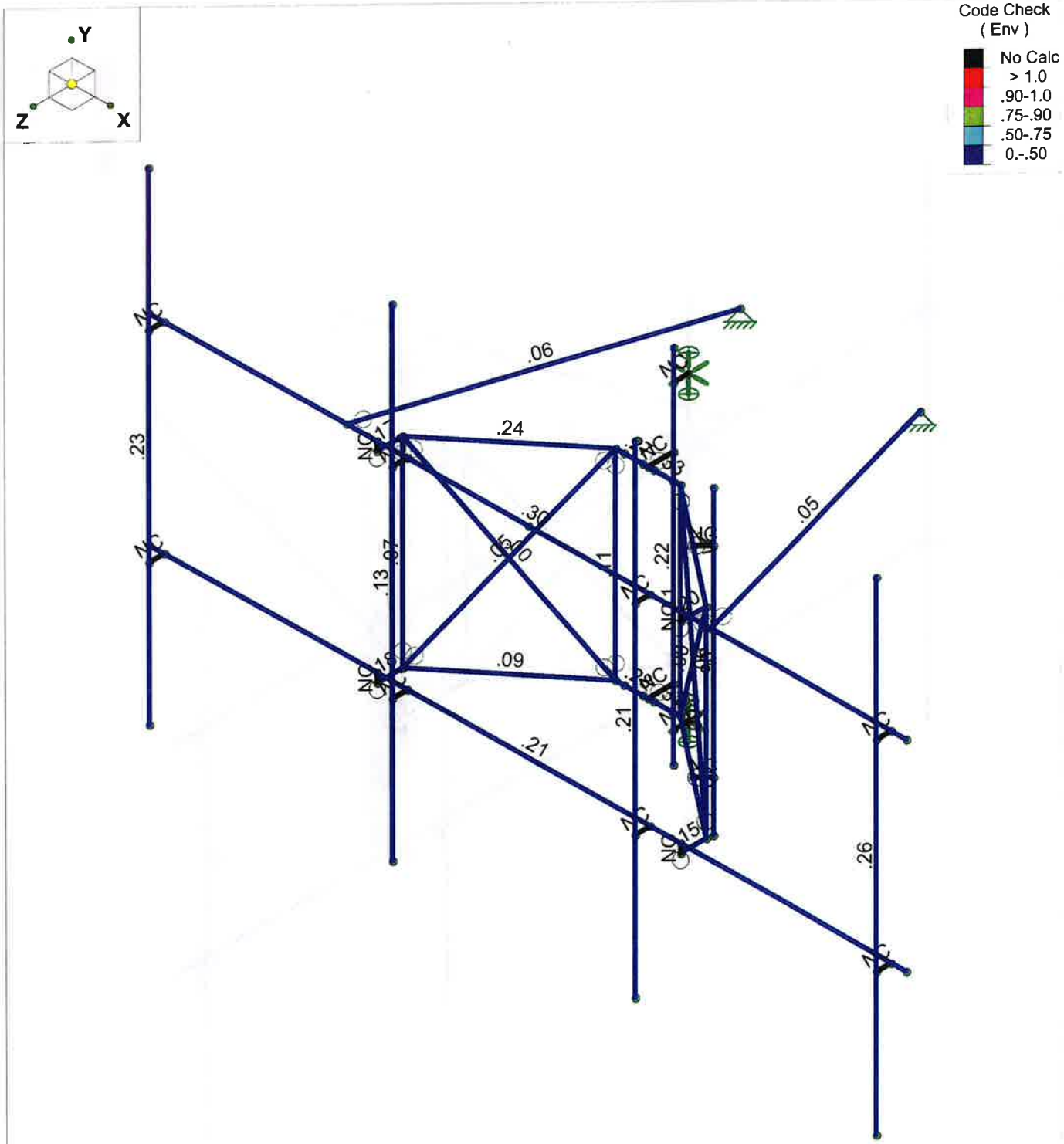
| CPD NO. | DRAWN BY | ENG. APPROVAL | PART NO. |
|---|---|---|---|
| | CEK 1/25/2017 | | VFA12-HD |

| CLASS | SUB | DRAWING USAGE | CHECKED BY | DWG. NO. |
|---|---|---|---|---|
| 81 | 02 | CUSTOMER | BMC 12/13/2017 | VFA12-HD |



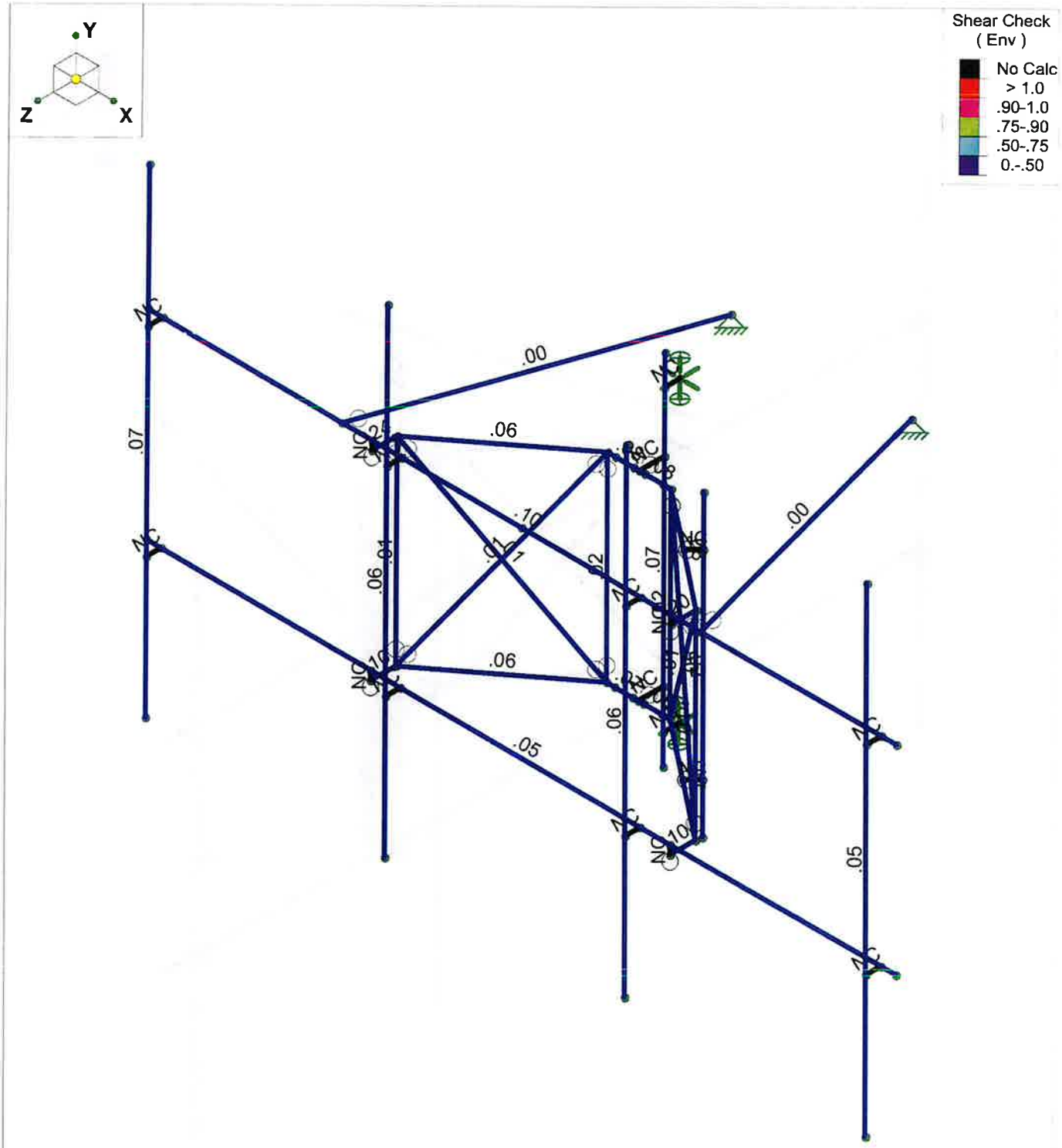

Envelope Only Solution

| | | |
|---|---|---|
| Colliers Engineering & De... | 5000383468-VZW_MT_LOT_SectorA_H | SK - 1 |
| NL | | Sept 1, 2023 at 3:49 PM |
| Project No. 10208979 | | 5000383468-VZW_MT_LOT_A_H.... |




Member Code Checks Displayed (Enveloped)
Envelope Only Solution

| | | |
|---|---|---|
| Colliers Engineering & De... | 5000383468-VZW_MT_LOT_SectorA_H | SK - 2 |
| NL | | Sept 1, 2023 at 3:50 PM |
| Project No. 10208979 | | 5000383468-VZW_MT_LOT_A_H.... |




Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

| | | |
|---|---|---|
| Colliers Engineering & De... | 5000383468-VZW_MT_LOT_SectorA_H | SK - 3 |
| NL | | Sept 1, 2023 at 3:51 PM |
| Project No. 10208979 | | 5000383468-VZW_MT_LOT_A_H.... |

## Basic Load Cases

| | BLC Description | Category | X Gravity | Y Gravity | Z Gravity | Joint | Point | Distributed Area(Me... | Surface(P... |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Antenna D | None | | | | | 33 | | |
| 2 | Antenna Di | None | | | | | 33 | | |
| 3 | Antenna Wo (0 Deg) | None | | | | | 33 | | |
| 4 | Antenna Wo (30 Deg) | None | | | | | 33 | | |
| 5 | Antenna Wo (60 Deg) | None | | | | | 33 | | |
| 6 | Antenna Wo (90 Deg) | None | | | | | 33 | | |
| 7 | Antenna Wo (120 Deg) | None | | | | | 33 | | |
| 8 | Antenna Wo (150 Deg) | None | | | | | 33 | | |
| 9 | Antenna Wo (180 Deg) | None | | | | | 33 | | |
| 10 | Antenna Wo (210 Deg) | None | | | | | 33 | | |
| 11 | Antenna Wo (240 Deg) | None | | | | | 33 | | |
| 12 | Antenna Wo (270 Deg) | None | | | | | 33 | | |
| 13 | Antenna Wo (300 Deg) | None | | | | | 33 | | |
| 14 | Antenna Wo (330 Deg) | None | | | | | 33 | | |
| 15 | Antenna Wi (0 Deg) | None | | | | | 33 | | |
| 16 | Antenna Wi (30 Deg) | None | | | | | 33 | | |
| 17 | Antenna Wi (60 Deg) | None | | | | | 33 | | |
| 18 | Antenna Wi (90 Deg) | None | | | | | 33 | | |
| 19 | Antenna Wi (120 Deg) | None | | | | | 33 | | |
| 20 | Antenna Wi (150 Deg) | None | | | | | 33 | | |
| 21 | Antenna Wi (180 Deg) | None | | | | | 33 | | |
| 22 | Antenna Wi (210 Deg) | None | | | | | 33 | | |
| 23 | Antenna Wi (240 Deg) | None | | | | | 33 | | |
| 24 | Antenna Wi (270 Deg) | None | | | | | 33 | | |
| 25 | Antenna Wi (300 Deg) | None | | | | | 33 | | |
| 26 | Antenna Wi (330 Deg) | None | | | | | 33 | | |
| 27 | Antenna Wm (0 Deg) | None | | | | | 33 | | |
| 28 | Antenna Wm (30 Deg) | None | | | | | 33 | | |
| 29 | Antenna Wm (60 Deg) | None | | | | | 33 | | |
| 30 | Antenna Wm (90 Deg) | None | | | | | 33 | | |
| 31 | Antenna Wm (120 Deg) | None | | | | | 33 | | |
| 32 | Antenna Wm (150 Deg) | None | | | | | 33 | | |
| 33 | Antenna Wm (180 Deg) | None | | | | | 33 | | |
| 34 | Antenna Wm (210 Deg) | None | | | | | 33 | | |
| 35 | Antenna Wm (240 Deg) | None | | | | | 33 | | |
| 36 | Antenna Wm (270 Deg) | None | | | | | 33 | | |
| 37 | Antenna Wm (300 Deg) | None | | | | | 33 | | |
| 38 | Antenna Wm (330 Deg) | None | | | | | 33 | | |
| 39 | Structure D | None | | -1 | | | | | |
| 40 | Structure Di | None | | | | | | 30 | |
| 41 | Structure Wo (0 Deg) | None | | | | | | 60 | |
| 42 | Structure Wo (30 Deg) | None | | | | | | 60 | |
| 43 | Structure Wo (60 Deg) | None | | | | | | 60 | |
| 44 | Structure Wo (90 Deg) | None | | | | | | 60 | |
| 45 | Structure Wo (120 D... | None | | | | | | 60 | |
| 46 | Structure Wo (150 D... | None | | | | | | 60 | |
| 47 | Structure Wo (180 D... | None | | | | | | 60 | |
| 48 | Structure Wo (210 D... | None | | | | | | 60 | |
| 49 | Structure Wo (240 D... | None | | | | | | 60 | |
| 50 | Structure Wo (270 D... | None | | | | | | 60 | |
| 51 | Structure Wo (300 D... | None | | | | | | 60 | |
| 52 | Structure Wo (330 D... | None | | | | | | 60 | |
| 53 | Structure Wi (0 Deg) | None | | | | | | 60 | |
| 54 | Structure Wi (30 Deg) | None | | | | | | 60 | |
| 55 | Structure Wi (60 Deg) | None | | | | | | 60 | |
| 56 | Structure Wi (90 Deg) | None | | | | | | 60 | |

## Basic Load Cases (Continued)

| | BLC Description | Category | X Gravity | Y Gravity | Z Gravity | Joint | Point | Distributed Area(Me... | Surface(P... |
|---|---|---|---|---|---|---|---|---|---|
| 57 | Structure Wi (120 De.. | None | | | | | | 60 | |
| 58 | Structure Wi (150 De.. | None | | | | | | 60 | |
| 59 | Structure Wi (180 De.. | None | | | | | | 60 | |
| 60 | Structure Wi (210 De.. | None | | | | | | 60 | |
| 61 | Structure Wi (240 De.. | None | | | | | | 60 | |
| 62 | Structure Wi (270 De.. | None | | | | | | 60 | |
| 63 | Structure Wi (300 De.. | None | | | | | | 60 | |
| 64 | Structure Wi (330 De.. | None | | | | | | 60 | |
| 65 | Structure Wm (0 Deg) | None | | | | | | 60 | |
| 66 | Structure Wm (30 De.. | None | | | | | | 60 | |
| 67 | Structure Wm (60 De.. | None | | | | | | 60 | |
| 68 | Structure Wm (90 De.. | None | | | | | | 60 | |
| 69 | Structure Wm (120 D.. | None | | | | | | 60 | |
| 70 | Structure Wm (150 D.. | None | | | | | | 60 | |
| 71 | Structure Wm (180 D.. | None | | | | | | 60 | |
| 72 | Structure Wm (210 D.. | None | | | | | | 60 | |
| 73 | Structure Wm (240 D.. | None | | | | | | 60 | |
| 74 | Structure Wm (270 D.. | None | | | | | | 60 | |
| 75 | Structure Wm (300 D.. | None | | | | | | 60 | |
| 76 | Structure Wm (330 D.. | None | | | | | | 60 | |
| 77 | Lm1 | None | | | | | 1 | | |
| 78 | Lm2 | None | | | | | 1 | | |
| 79 | Lv1 | None | | | | | 1 | | |
| 80 | Lv2 | None | | | | | 1 | | |
| 81 | Antenna Ev | None | | | | | 33 | | |
| 82 | Antenna Eh (0 Deg) | None | | | | | 22 | | |
| 83 | Antenna Eh (90 Deg) | None | | | | | 22 | | |
| 84 | Structure Ev | ELY | | -.042 | | | | | |
| 85 | Structure Eh (0 Deg) | ELZ | | | -.105 | | | | |
| 86 | Structure Eh (90 Deg) | ELX | .105 | | | | | | |

## Load Combinations

| | Description | So.. | P... | S... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.2D+1.0Wo (0 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 3 | 1 | 41 | 1 | | | | | | | | | | |
| 2 | 1.2D+1.0Wo (30 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 4 | 1 | 42 | 1 | | | | | | | | | | |
| 3 | 1.2D+1.0Wo (60 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 5 | 1 | 43 | 1 | | | | | | | | | | |
| 4 | 1.2D+1.0Wo (90 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 6 | 1 | 44 | 1 | | | | | | | | | | |
| 5 | 1.2D+1.0Wo (120 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 7 | 1 | 45 | 1 | | | | | | | | | | |
| 6 | 1.2D+1.0Wo (150 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 8 | 1 | 46 | 1 | | | | | | | | | | |
| 7 | 1.2D+1.0Wo (180 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 9 | 1 | 47 | 1 | | | | | | | | | | |
| 8 | 1.2D+1.0Wo (210 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 10 | 1 | 48 | 1 | | | | | | | | | | |
| 9 | 1.2D+1.0Wo (240 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 11 | 1 | 49 | 1 | | | | | | | | | | |
| 10 | 1.2D+1.0Wo (270 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 12 | 1 | 50 | 1 | | | | | | | | | | |
| 11 | 1.2D+1.0Wo (300 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 13 | 1 | 51 | 1 | | | | | | | | | | |
| 12 | 1.2D+1.0Wo (330 Deg) | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 14 | 1 | 52 | 1 | | | | | | | | | | |
| 13 | 1.2D + 1.0Di + 1.0Wi (0 ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 15 | 1 | 53 | 1 | | | | | | |
| 14 | 1.2D + 1.0Di + 1.0Wi (30... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 16 | 1 | 54 | 1 | | | | | | |
| 15 | 1.2D + 1.0Di + 1.0Wi (60... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 17 | 1 | 55 | 1 | | | | | | |
| 16 | 1.2D + 1.0Di + 1.0Wi (90... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 18 | 1 | 56 | 1 | | | | | | |
| 17 | 1.2D + 1.0Di + 1.0Wi (12... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 19 | 1 | 57 | 1 | | | | | | |
| 18 | 1.2D + 1.0Di + 1.0Wi (15... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 20 | 1 | 58 | 1 | | | | | | |
| 19 | 1.2D + 1.0Di + 1.0Wi (18... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 21 | 1 | 59 | 1 | | | | | | |
| 20 | 1.2D + 1.0Di + 1.0Wi (21... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 22 | 1 | 60 | 1 | | | | | | |
| 21 | 1.2D + 1.0Di + 1.0Wi (24... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 23 | 1 | 61 | 1 | | | | | | |
| 22 | 1.2D + 1.0Di + 1.0Wi (27... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 24 | 1 | 62 | 1 | | | | | | |

## Load Combinations (Continued)

| | Description | So.. | P... | S... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... | BLC | Fa... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 1.2D + 1.0Di + 1.0Wi (30... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 25 | 1 | 63 | 1 | | | | | | | | |
| 24 | 1.2D + 1.0Di + 1.0Wi (33... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 2 | 1 | 40 | 1 | 26 | 1 | 64 | 1 | | | | | | | | |
| 25 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 27 | 1 | 65 | 1 | | | | | | | | | | |
| 26 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 28 | 1 | 66 | 1 | | | | | | | | | | |
| 27 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 29 | 1 | 67 | 1 | | | | | | | | | | |
| 28 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 30 | 1 | 68 | 1 | | | | | | | | | | |
| 29 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 31 | 1 | 69 | 1 | | | | | | | | | | |
| 30 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 32 | 1 | 70 | 1 | | | | | | | | | | |
| 31 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 33 | 1 | 71 | 1 | | | | | | | | | | |
| 32 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 34 | 1 | 72 | 1 | | | | | | | | | | |
| 33 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 35 | 1 | 73 | 1 | | | | | | | | | | |
| 34 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 36 | 1 | 74 | 1 | | | | | | | | | | |
| 35 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 37 | 1 | 75 | 1 | | | | | | | | | | |
| 36 | 1.2D + 1.5Lm1 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 77 | 1.5 | 38 | 1 | 76 | 1 | | | | | | | | | | |
| 37 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 27 | 1 | 65 | 1 | | | | | | | | | | |
| 38 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 28 | 1 | 66 | 1 | | | | | | | | | | |
| 39 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 29 | 1 | 67 | 1 | | | | | | | | | | |
| 40 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 30 | 1 | 68 | 1 | | | | | | | | | | |
| 41 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 31 | 1 | 69 | 1 | | | | | | | | | | |
| 42 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 32 | 1 | 70 | 1 | | | | | | | | | | |
| 43 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 33 | 1 | 71 | 1 | | | | | | | | | | |
| 44 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 34 | 1 | 72 | 1 | | | | | | | | | | |
| 45 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 35 | 1 | 73 | 1 | | | | | | | | | | |
| 46 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 36 | 1 | 74 | 1 | | | | | | | | | | |
| 47 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 37 | 1 | 75 | 1 | | | | | | | | | | |
| 48 | 1.2D + 1.5Lm2 + 1.0Wm ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 78 | 1.5 | 38 | 1 | 76 | 1 | | | | | | | | | | |
| 49 | 1.2D + 1.5Lv1 | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 79 | 1.5 | | | | | | | | | | | | | | |
| 50 | 1.2D + 1.5Lv2 | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 80 | 1.5 | | | | | | | | | | | | | | |
| 51 | 1.4D | Yes | Y | | 1 | 1.4 | 39 | 1.4 | | | | | | | | | | | | | | | | |
| 52 | 1.2D + 1.0Ev + 1.0Eh (0 ... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | 1 | 83 | | ELZ | 1 | ELX | | | | | |
| 53 | 1.2D + 1.0Ev + 1.0Eh (3... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | .866 | 83 | .5 | ELZ | .866 | ELX | .5 | | | | |
| 54 | 1.2D + 1.0Ev + 1.0Eh (6... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | .5 | 83 | .866 | ELZ | .5 | ELX | .866 | | | | |
| 55 | 1.2D + 1.0Ev + 1.0Eh (9... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | | 83 | 1 | ELZ | | ELX | 1 | | | | |
| 56 | 1.2D + 1.0Ev + 1.0Eh (1... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | -.5 | 83 | .866 | ELZ | -.5 | ELX | .866 | | | | |
| 57 | 1.2D + 1.0Ev + 1.0Eh (1... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | -.866 | 83 | .5 | ELZ | -.866 | ELX | .5 | | | | |
| 58 | 1.2D + 1.0Ev + 1.0Eh (1... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | -1 | 83 | | ELZ | -1 | ELX | | | | | |
| 59 | 1.2D + 1.0Ev + 1.0Eh (2... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | -.866 | 83 | -.5 | ELZ | -.866 | ELX | -.5 | | | | |
| 60 | 1.2D + 1.0Ev + 1.0Eh (2... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | -.5 | 83 | -.866 | ELZ | -.5 | ELX | -.866 | | | | |
| 61 | 1.2D + 1.0Ev + 1.0Eh (2... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | | 83 | -1 | ELZ | | ELX | -1 | | | | |
| 62 | 1.2D + 1.0Ev + 1.0Eh (3... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | .5 | 83 | -.866 | ELZ | .5 | ELX | -.866 | | | | |
| 63 | 1.2D + 1.0Ev + 1.0Eh (3... | Yes | Y | | 1 | 1.2 | 39 | 1.2 | 81 | 1 | ELY | 1 | 82 | .866 | 83 | -.5 | ELZ | .866 | ELX | -.5 | | | | |
| 64 | 0.9D - 1.0Ev + 1.0Eh (0 ... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | 1 | 83 | | ELZ | 1 | ELX | | | | | |
| 65 | 0.9D - 1.0Ev + 1.0Eh (30... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | .866 | 83 | .5 | ELZ | .866 | ELX | .5 | | | | |
| 66 | 0.9D - 1.0Ev + 1.0Eh (60... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | .5 | 83 | .866 | ELZ | .5 | ELX | .866 | | | | |
| 67 | 0.9D - 1.0Ev + 1.0Eh (90... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | | 83 | 1 | ELZ | | ELX | 1 | | | | |
| 68 | 0.9D - 1.0Ev + 1.0Eh (12... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | -.5 | 83 | .866 | ELZ | -.5 | ELX | .866 | | | | |
| 69 | 0.9D - 1.0Ev + 1.0Eh (15... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | -.866 | 83 | .5 | ELZ | -.866 | ELX | .5 | | | | |
| 70 | 0.9D - 1.0Ev + 1.0Eh (18... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | -1 | 83 | | ELZ | -1 | ELX | | | | | |
| 71 | 0.9D - 1.0Ev + 1.0Eh (21... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | -.866 | 83 | -.5 | ELZ | -.866 | ELX | -.5 | | | | |
| 72 | 0.9D - 1.0Ev + 1.0Eh (24... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | -.5 | 83 | -.866 | ELZ | -.5 | ELX | -.866 | | | | |
| 73 | 0.9D - 1.0Ev + 1.0Eh (27... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | | 83 | -1 | ELZ | | ELX | -1 | | | | |
| 74 | 0.9D - 1.0Ev + 1.0Eh (30... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | .5 | 83 | -.866 | ELZ | .5 | ELX | -.866 | | | | |
| 75 | 0.9D - 1.0Ev + 1.0Eh (33... | Yes | Y | | 1 | .9 | 39 | .9 | 81 | -1 | ELY | -1 | 82 | .866 | 83 | -.5 | ELZ | .866 | ELX | -.5 | | | | |

## Joint Coordinates and Temperatures

| | Label | X [ft] | Y [ft] | Z [ft] | Temp [F] | Detach From Diap... |
|---|---|---|---|---|---|---|
| 1 | N1 | 6.25 | 0.145833 | 8.083333 | 0 | |
| 2 | N2 | -6.25 | 0.145833 | 8.083333 | 0 | |
| 3 | N3 | 6.25 | 3.479167 | 8.083333 | 0 | |
| 4 | N4 | -6.25 | 3.479167 | 8.083333 | 0 | |
| 5 | N5 | -6. | 0.145833 | 8.083333 | 0 | |
| 6 | N6 | -6. | 3.479167 | 8.083333 | 0 | |
| 7 | N7 | -2. | 0.145833 | 8.083333 | 0 | |
| 8 | N8 | -2. | 3.479167 | 8.083333 | 0 | |
| 9 | N9 | 2. | 0.145833 | 8.083333 | 0 | |
| 10 | N10 | 2. | 3.479167 | 8.083333 | 0 | |
| 11 | N11 | 6. | 0.145833 | 8.083333 | 0 | |
| 12 | N12 | 6. | 3.479167 | 8.083333 | 0 | |
| 13 | N13 | -6. | 0.145833 | 8.333333 | 0 | |
| 14 | N14 | -6. | 3.479167 | 8.333333 | 0 | |
| 15 | N15 | -2. | 0.145833 | 8.333333 | 0 | |
| 16 | N16 | -2. | 3.479167 | 8.333333 | 0 | |
| 17 | N17 | 2. | 0.145833 | 8.333333 | 0 | |
| 18 | N18 | 2. | 3.479167 | 8.333333 | 0 | |
| 19 | N19 | 6. | 0.145833 | 8.333333 | 0 | |
| 20 | N20 | 6. | 3.479167 | 8.333333 | 0 | |
| 21 | N21 | -2.5 | 0 | 8.083333 | 0 | |
| 22 | N22 | -2.5 | 3.333333 | 8.083333 | 0 | |
| 23 | N23 | 2.5 | 0 | 8.083333 | 0 | |
| 24 | N24 | 2.5 | 3.333333 | 8.083333 | 0 | |
| 25 | N25 | -2.5 | 0 | 7.661458 | 0 | |
| 26 | N26 | -2.5 | 3.333333 | 7.661458 | 0 | |
| 27 | N27 | 2.5 | 0 | 7.661458 | 0 | |
| 28 | N28 | 2.5 | 3.333333 | 7.661458 | 0 | |
| 29 | N29 | -0. | 0 | 6.119792 | 0 | |
| 30 | N30 | -0. | 3.333333 | 6.119792 | 0 | |
| 31 | N31 | -0.53125 | 0 | 6.119792 | 0 | |
| 32 | N32 | -0.53125 | 3.333333 | 6.119792 | 0 | |
| 33 | N33 | 0.53125 | 0 | 6.119792 | 0 | |
| 34 | N34 | 0.53125 | 3.333333 | 6.119792 | 0 | |
| 35 | N35 | -0. | 0 | 5.703125 | 0 | |
| 36 | N36 | -0. | 3.333333 | 5.703125 | 0 | |
| 37 | N39 | -6. | 5.8125 | 8.333333 | 0 | |
| 38 | N40 | -2. | 5.8125 | 8.333333 | 0 | |
| 39 | N41 | 2. | 5.8125 | 8.333333 | 0 | |
| 40 | N42 | 6. | 5.8125 | 8.333333 | 0 | |
| 41 | N43 | -6. | -2.1875 | 8.333333 | 0 | |
| 42 | N44 | -2. | -2.1875 | 8.333333 | 0 | |
| 43 | N45 | 2. | -2.1875 | 8.333333 | 0 | |
| 44 | N46 | 6. | -2.1875 | 8.333333 | 0 | |
| 45 | N58 | -2.5 | 3.333333 | 7.708333 | 0 | |
| 46 | N76 | -0.09375 | 0 | 6.119792 | 0 | |
| 47 | N77 | -0.395834 | 0 | 6.119792 | 0 | |
| 48 | N78 | 0.09375 | 0 | 6.119792 | 0 | |
| 49 | N79 | 0.395833 | 0 | 6.119792 | 0 | |
| 50 | N80 | -0.09375 | 3.333333 | 6.119792 | 0 | |
| 51 | N81 | -0.395834 | 3.333333 | 6.119792 | 0 | |
| 52 | N82 | 0.09375 | 3.333333 | 6.119792 | 0 | |
| 53 | N83 | 0.395833 | 3.333333 | 6.119792 | 0 | |
| 54 | N58A | -0. | 3.479167 | 8.083333 | 0 | |
| 55 | N59 | -2.5 | 0.145833 | 8.083333 | 0 | |
| 56 | N60 | -2.5 | 3.479167 | 8.083333 | 0 | |

## Joint Coordinates and Temperatures (Continued)

| | Label | X [ft] | Y [ft] | Z [ft] | Temp [F] | Detach From Diap... |
|---|---|---|---|---|---|---|
| 57 | N61 | 2.5 | 0.145833 | 8.083333 | 0 | |
| 58 | N62 | 2.5 | 3.479167 | 8.083333 | 0 | |
| 59 | N60A | 3. | 3.479167 | 8.083333 | 0 | |
| 60 | N61A | 1.5 | 3.333333 | 3.105049 | 0 | |
| 61 | N61B | -3. | 3.479167 | 8.083333 | 0 | |
| 62 | N62A | -1.5 | 3.333333 | 3.105049 | 0 | |
| 63 | N69 | -0. | 4.833333 | 5.703125 | 0 | |
| 64 | N70 | -0. | -1.166667 | 5.703125 | 0 | |
| 65 | N71 | -0. | 4.333333 | 5.703125 | 0 | |
| 66 | N72 | -0. | -0.666667 | 5.703125 | 0 | |
| 67 | N73 | 0 | 4.333333 | 5.453125 | 0 | |
| 68 | N74 | 0 | -0.666667 | 5.453125 | 0 | |
| 69 | N75 | 1.515625 | 3.333333 | 6.890625 | 0 | |
| 70 | N76A | 1.515625 | 0 | 6.890625 | 0 | |
| 71 | N77A | 1.682292 | 3.333333 | 6.723958 | 0 | |
| 72 | N78A | 1.682292 | 0 | 6.723958 | 0 | |
| 73 | N79A | 1.682292 | 4.166667 | 6.723958 | 0 | |
| 74 | N80A | 1.682292 | -0.833333 | 6.723958 | 0 | |

## Hot Rolled Steel Section Sets

| | Label | Shape | Type | Design Li... | Material | Design R... | A [in2] | Iyy [in4] | Izz [in4] | J [in4] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Antenna Pipe | PIPE_2.0 | Beam | Pipe | A53 Gr. B | Typical | 1.02 | .627 | .627 | 1.25 |
| 2 | Horizontal mount pipe | PIPE_2.5 | Beam | Pipe | Q235 | Typical | 1.61 | 1.45 | 1.45 | 2.89 |
| 3 | Standoff Horizontal | PIPE_2.0 | Beam | Pipe | Q235 | Typical | 1.02 | .627 | .627 | 1.25 |
| 4 | Standoff Diagonal | SR_0.75 | Beam | BAR | Q235 | Typical | .442 | .016 | .016 | .031 |
| 5 | Tieback | PIPE_2.0 | Beam | Pipe | Q235 | Typical | 1.02 | .627 | .627 | 1.25 |
| 6 | Standoff Vertical | SR_0.625 | Beam | BAR | Q235 | Typical | .307 | .007 | .007 | .015 |
| 7 | Standoff Plate | PL5/8X3.5 | Beam | BAR | Q235 | Typical | 2.188 | .071 | 2.233 | .253 |
| 8 | tower pipe | PIPE_3.0 | Column | Pipe | A53 Gr. B | Typical | 2.07 | 2.85 | 2.85 | 5.69 |
| 9 | MAst Pipe | PIPE_3.0 | Column | Pipe | A53 Gr. B | Typical | 2.07 | 2.85 | 2.85 | 5.69 |

## Hot Rolled Steel Properties

| | Label | E [ksi] | G [ksi] | Nu | Therm (/1E... | Density[k/ft... | Yield[ksi] | Ry | Fu[ksi] | Rt |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A36 Gr.36 | 29000 | 11154 | .3 | .65 | .49 | 36 | 1.5 | 58 | 1.2 |
| 2 | A53 Gr. B | 29000 | 11154 | .3 | .65 | .49 | 35 | 1.5 | 60 | 1.2 |
| 3 | A572 Gr.50 | 29000 | 11154 | .3 | .65 | .49 | 50 | 1.1 | 65 | 1.1 |
| 4 | A992 | 29000 | 11154 | .3 | .65 | .49 | 50 | 1.1 | 65 | 1.1 |
| 5 | A500 Gr. B 42 | 29000 | 11154 | .3 | .65 | .49 | 42 | 1.4 | 58 | 1.3 |
| 6 | A500 Gr. B 46 | 29000 | 11154 | .3 | .65 | .49 | 46 | 1.4 | 58 | 1.3 |
| 7 | Q235 | 29000 | 11154 | .3 | .65 | .49 | 35 | 1.5 | 58 | 1.2 |

## Member Primary Data

| | Label | I Joint | J Joint | K Joint | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rules |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M1 | N2 | N1 | | | Horizontal mou... | Beam | Pipe | Q235 | Typical |
| 2 | M2 | N4 | N3 | | | Horizontal mou... | Beam | Pipe | Q235 | Typical |
| 3 | M3 | N5 | N13 | | | RIGID | None | None | RIGID | Typical |
| 4 | M4 | N6 | N14 | | | RIGID | None | None | RIGID | Typical |
| 5 | M5 | N8 | N16 | | | RIGID | None | None | RIGID | Typical |
| 6 | M6 | N7 | N15 | | | RIGID | None | None | RIGID | Typical |
| 7 | M9 | N10 | N18 | | | RIGID | None | None | RIGID | Typical |
| 8 | M10 | N9 | N17 | | | RIGID | None | None | RIGID | Typical |
| 9 | M11 | N12 | N20 | | | RIGID | None | None | RIGID | Typical |

## Member Primary Data (Continued)

| | Label | I Joint | J Joint | K Joint | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rules |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | M12 | N11 | N19 | | | RIGID | None | None | RIGID | Typical |
| 11 | M13 | N22 | N26 | | 90 | Standoff Plate | Beam | BAR | Q235 | Typical |
| 12 | M14 | N21 | N25 | | 90 | Standoff Plate | Beam | BAR | Q235 | Typical |
| 13 | M15 | N23 | N27 | | 90 | Standoff Plate | Beam | BAR | Q235 | Typical |
| 14 | M16 | N24 | N28 | | 90 | Standoff Plate | Beam | BAR | Q235 | Typical |
| 15 | OVP | N26 | N32 | | | Standoff Horiz... | Beam | Pipe | Q235 | Typical |
| 16 | M18 | N25 | N31 | | | Standoff Horiz... | Beam | Pipe | Q235 | Typical |
| 17 | M19 | N27 | N33 | | | Standoff Horiz... | Beam | Pipe | Q235 | Typical |
| 18 | M20 | N28 | N34 | | | Standoff Horiz... | Beam | Pipe | Q235 | Typical |
| 19 | M21 | N32 | N30 | | 90 | Standoff Plate | Beam | BAR | Q235 | Typical |
| 20 | M22 | N34 | N30 | | 90 | Standoff Plate | Beam | BAR | Q235 | Typical |
| 21 | M23 | N31 | N29 | | 90 | Standoff Plate | Beam | BAR | Q235 | Typical |
| 22 | M24 | N33 | N29 | | 90 | Standoff Plate | Beam | BAR | Q235 | Typical |
| 23 | M25 | N31 | N26 | | | Standoff Diago... | Beam | BAR | Q235 | Typical |
| 24 | M26 | N32 | N25 | | | Standoff Diago... | Beam | BAR | Q235 | Typical |
| 25 | M27 | N33 | N28 | | | Standoff Diago... | Beam | BAR | Q235 | Typical |
| 26 | M28 | N27 | N34 | | | Standoff Diago... | Beam | BAR | Q235 | Typical |
| 27 | M29 | N29 | N35 | | | RIGID | None | None | RIGID | Typical |
| 28 | M30 | N30 | N36 | | | RIGID | None | None | RIGID | Typical |
| 29 | MP4A | N39 | N43 | | | Antenna Pipe | Beam | Pipe | A53 Gr. B | Typical |
| 30 | MP3A | N40 | N44 | | | Antenna Pipe | Beam | Pipe | A53 Gr. B | Typical |
| 31 | MP2A | N41 | N45 | | | Antenna Pipe | Beam | Pipe | A53 Gr. B | Typical |
| 32 | MP1A | N42 | N46 | | | Antenna Pipe | Beam | Pipe | A53 Gr. B | Typical |
| 33 | M44 | N25 | N26 | | | Standoff Vertical | Beam | BAR | Q235 | Typical |
| 34 | M45 | N31 | N32 | | | Standoff Vertical | Beam | BAR | Q235 | Typical |
| 35 | M46 | N33 | N34 | | | Standoff Vertical | Beam | BAR | Q235 | Typical |
| 36 | M47 | N27 | N28 | | | Standoff Vertical | Beam | BAR | Q235 | Typical |
| 37 | M47B | N22 | N60 | | | RIGID | None | None | RIGID | Typical |
| 38 | M48A | N21 | N59 | | | RIGID | None | None | RIGID | Typical |
| 39 | M49A | N24 | N62 | | | RIGID | None | None | RIGID | Typical |
| 40 | M50A | N23 | N61 | | | RIGID | None | None | RIGID | Typical |
| 41 | M51A | N30 | N36 | | | RIGID | None | None | RIGID | Typical |
| 42 | M52A | N29 | N35 | | | RIGID | None | None | RIGID | Typical |
| 43 | M44A | N60A | N61A | | | Tieback | Beam | Pipe | Q235 | Typical |
| 44 | M44B | N61B | N62A | | | Tieback | Beam | Pipe | Q235 | Typical |
| 45 | M48 | N71 | N73 | | | RIGID | None | None | RIGID | Typical |
| 46 | M49 | N72 | N74 | | | RIGID | None | None | RIGID | Typical |
| 47 | M50 | N69 | N70 | | | MAst Pipe | Column | Pipe | A53 Gr. B | Typical |
| 48 | OVP1 | N79A | N80A | | | Antenna Pipe | Beam | Pipe | A53 Gr. B | Typical |
| 49 | M52 | N75 | N77A | | | RIGID | None | None | RIGID | Typical |
| 50 | M53 | N76A | N78A | | | 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 | | | | None |
| 2 | M2 | | | | | | Yes | | | | None |
| 3 | M3 | | | | | | Yes | ** NA ** | | | None |
| 4 | M4 | | | | | | Yes | ** NA ** | | | None |
| 5 | M5 | | | | | | Yes | ** NA ** | | | None |
| 6 | M6 | | | | | | Yes | ** NA ** | | | None |
| 7 | M9 | | | | | | Yes | ** NA ** | | | None |
| 8 | M10 | | | | | | Yes | ** NA ** | | | None |
| 9 | M11 | | | | | | Yes | ** NA ** | | | None |
| 10 | M12 | | | | | | Yes | ** NA ** | | | None |
| 11 | M13 | | | | | | Yes | Default | | | None |

## Member Advanced Data (Continued)

| | Label | I Release | J Release | I Offset[in] | J Offset[in] | T/C Only | Physical | Defl Rat... | Analysis ... | Inactive | Seismic... |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | M14 | | | | | | Yes | Default | | | None |
| 13 | M15 | | | | | | Yes | | | | None |
| 14 | M16 | | | | | | Yes | | | | None |
| 15 | OVP | | | | | | Yes | Default | | | None |
| 16 | M18 | | | | | | Yes | | | | None |
| 17 | M19 | | | | | | Yes | | | | None |
| 18 | M20 | | | | | | Yes | Default | | | None |
| 19 | M21 | | | | | | Yes | Default | | | None |
| 20 | M22 | | | | | | Yes | | | | None |
| 21 | M23 | | | | | | Yes | | | | None |
| 22 | M24 | | | | | | Yes | | | | None |
| 23 | M25 | BenPIN | BenPIN | | | Euler Buc... | Yes | Default | | | None |
| 24 | M26 | BenPIN | BenPIN | | | Euler Buc... | Yes | Default | | | None |
| 25 | M27 | BenPIN | BenPIN | | | Euler Buc... | Yes | | | | None |
| 26 | M28 | BenPIN | BenPIN | | | Euler Buc... | Yes | | | | None |
| 27 | M29 | | | | | | Yes | ** NA ** | | Inactive | None |
| 28 | M30 | | | | | | Yes | ** NA ** | | Inactive | None |
| 29 | MP4A | | | | | | Yes | | | | None |
| 30 | MP3A | | | | | | Yes | | | | None |
| 31 | MP2A | | | | | | Yes | | | | None |
| 32 | MP1A | | | | | | Yes | | | | None |
| 33 | M44 | BenPIN | BenPIN | | | | Yes | | | | None |
| 34 | M45 | BenPIN | BenPIN | | | | Yes | | | | None |
| 35 | M46 | BenPIN | BenPIN | | | | Yes | | | | None |
| 36 | M47 | BenPIN | BenPIN | | | | Yes | Default | | | None |
| 37 | M47B | | OOOXOO | | | | Yes | ** NA ** | | | None |
| 38 | M48A | | OOOXOO | | | | Yes | ** NA ** | | | None |
| 39 | M49A | | OOOXOO | | | | Yes | ** NA ** | | | None |
| 40 | M50A | | OOOXOO | | | | Yes | ** NA ** | | | None |
| 41 | M51A | | OOOOOO | | | | Yes | ** NA ** | | | None |
| 42 | M52A | | OOOOOO | | | | Yes | ** NA ** | | | None |
| 43 | M44A | BenPIN | | | | | Yes | Default | | | None |
| 44 | M44B | BenPIN | | | | | Yes | Default | | | None |
| 45 | M48 | | | | | | Yes | ** NA ** | | | None |
| 46 | M49 | | | | | | Yes | ** NA ** | | | None |
| 47 | M50 | | | | | | Yes | ** NA ** | | | None |
| 48 | OVP1 | | | | | | Yes | | | | None |
| 49 | M52 | | OOOXOO | | | | Yes | ** NA ** | | | None |
| 50 | M53 | | OOOXOO | | | | Yes | ** NA ** | | | None |

## Member Area Loads

| Joint A | Joint B | Joint C | Joint D | Direction | Distribution | Magnitude[ksf] |
|---|---|---|---|---|---|---|
| No Data to Print ... | | | | | | |

## 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 | N61A | max | 348.313 | 2 | 44.558 | 2 | 1185.408 | 2 | 0 | 75 | 0 | 75 | 0 | 75 |
| 2 | | min | -397.597 | 8 | -28.383 | 8 | -1358.241 | 8 | 0 | 1 | 0 | 1 | 0 | 1 |
| 3 | N62A | max | 453.005 | 6 | 50.067 | 12 | 1366.337 | 12 | 0 | 75 | 0 | 75 | 0 | 75 |
| 4 | | min | -402.82 | 12 | -34.054 | 6 | -1543.736 | 6 | 0 | 1 | 0 | 1 | 0 | 1 |
| 5 | N73 | max | 993.253 | 11 | 1126.87 | 18 | 116.346 | 7 | 0 | 75 | .248 | 11 | 0 | 75 |
| 6 | | min | -1279.662 | 5 | 278.74 | 7 | -843.759 | 13 | 0 | 1 | -.32 | 5 | 0 | 1 |
| 7 | N74 | max | 860.15 | 11 | 1123.131 | 24 | 1377.817 | 13 | 0 | 75 | .215 | 11 | 0 | 75 |
| 8 | | min | -572.516 | 5 | 204.731 | 1 | -73.027 | 7 | 0 | 1 | -.143 | 5 | 0 | 1 |

## Envelope Joint Reactions (Continued)

| | Joint | | X [lb] | LC | Y [lb] | LC | Z [lb] | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | Totals: | max | 1413.406 | 10 | 2219.998 | 23 | 2150.05 | 1 | | | | | | |
| 10 | | min | -1413.405 | 4 | 709.821 | 66 | -2150.053 | 7 | | | | | | |

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

| | Member | Shape | Code Check | Loc[... | LC | Shea... | Loc[... | Dir | LC | phi*Pn... | phi*Pnt... | phi*Mn... | phi*Mn... | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M24 | PL5/8X3.5 | .365 | .531 | 23 | .061 | .531 | y | 2 | 67591... | 68906.... | .897 | 5.024 | 1... | H1-1b |
| 2 | M22 | PL5/8X3.5 | .332 | .531 | 3 | .079 | .443 | y | 3 | 67591... | 68906.... | .897 | 5.024 | 1... | H1-1b |
| 3 | M2 | PIPE_2.5 | .305 | 3.255 | 6 | .096 | 9.245 | | 8 | 14558... | 50715 | 3.596 | 3.596 | 2... | H1-1b |
| 4 | M23 | PL5/8X3.5 | .281 | .531 | 15 | .070 | .531 | y | 12 | 67591... | 68906.... | .897 | 5.024 | 1... | H1-1b |
| 5 | M21 | PL5/8X3.5 | .268 | .531 | 11 | .084 | 0 | y | 5 | 67591... | 68906.... | .897 | 5.024 | 1... | H1-1b |
| 6 | MP1A | PIPE_2.0 | .255 | 5.667 | 50 | .045 | 2.333 | | 6 | 14916... | 32130 | 1.872 | 1.872 | 4... | H1-1b |
| 7 | OVP | PIPE_2.0 | .236 | 0 | 5 | .056 | 0 | | 6 | 31128... | 32130 | 1.872 | 1.872 | 1... | H1-1b |
| 8 | MP4A | PIPE_2.0 | .226 | 5.667 | 49 | .072 | 2.333 | | 10 | 14916... | 32130 | 1.872 | 1.872 | 4... | H1-1b |
| 9 | M50 | PIPE_3.0 | .225 | 1.5 | 5 | .071 | 5.5 | | 13 | 53775... | 65205 | 5.749 | 5.749 | 1... | H1-1b |
| 10 | M1 | PIPE_2.5 | .210 | 3.776 | 1 | .054 | 4.167 | | 32 | 14558... | 50715 | 3.596 | 3.596 | 1... | H1-1b |
| 11 | MP2A | PIPE_2.0 | .209 | 2.333 | 7 | .062 | 5.667 | | 2 | 14916... | 32130 | 1.872 | 1.872 | 4... | H1-1b |
| 12 | M20 | PIPE_2.0 | .205 | 0 | 2 | .079 | 0 | | 45 | 31128... | 32130 | 1.872 | 1.872 | 2... | H1-1b |
| 13 | M16 | PL5/8X3.5 | .199 | 0 | 47 | .200 | .422 | y | 8 | 66184... | 68906.... | .897 | 5.024 | 1... | H1-1b |
| 14 | M14 | PL5/8X3.5 | .183 | 0 | 27 | .098 | .422 | y | 2 | 66184... | 68906.... | .897 | 5.024 | 1... | H1-1b |
| 15 | M13 | PL5/8X3.5 | .167 | .422 | 11 | .245 | .374 | y | 5 | 66184... | 68906.... | .897 | 5.024 | 1... | H1-1b |
| 16 | M15 | PL5/8X3.5 | .150 | 0 | 50 | .104 | .422 | y | 12 | 66184... | 68906.... | .897 | 5.024 | 1... | H1-1b |
| 17 | MP3A | PIPE_2.0 | .125 | 2.333 | 11 | .062 | 4.083 | | 11 | 14916... | 32130 | 1.872 | 1.872 | 3... | H1-1b |
| 18 | M45 | SR_0.625 | .108 | 0 | 5 | .020 | 0 | | 11 | 2158.2... | 9664.0... | .101 | .101 | 1... | H1-1b* |
| 19 | M46 | SR_0.625 | .107 | 0 | 9 | .019 | 0 | | 5 | 2158.2... | 9664.0... | .101 | .101 | 1... | H1-1b* |
| 20 | M19 | PIPE_2.0 | .100 | 0 | 12 | .074 | 0 | | 23 | 31128... | 32130 | 1.872 | 1.872 | 1... | H1-1b |
| 21 | M18 | PIPE_2.0 | .095 | 0 | 2 | .061 | 0 | | 26 | 31128... | 32130 | 1.872 | 1.872 | 1... | H1-1b |
| 22 | M47 | SR_0.625 | .089 | 0 | 2 | .008 | 0 | | 50 | 2158.2... | 9664.0... | .101 | .101 | 1... | H1-1b* |
| 23 | M44 | SR_0.625 | .068 | 1.667 | 11 | .007 | 0 | | 50 | 2158.2... | 9664.0... | .101 | .101 | 1... | H1-1b |
| 24 | OVP1 | PIPE_2.0 | .064 | 2.5 | 1 | .054 | 4.167 | | 2 | 23808... | 32130 | 1.872 | 1.872 | 1... | H1-1b |
| 25 | M44B | PIPE_2.0 | .061 | 5.201 | 12 | .003 | 5.201 | | 5 | 23229... | 32130 | 1.872 | 1.872 | 1... | H1-1b* |
| 26 | M28 | SR_0.75 | .060 | 4.167 | 42 | .018 | 4.167 | | 11 | 2863.9... | 13916.... | .174 | .174 | 1... | H1-1b* |
| 27 | M26 | SR_0.75 | .053 | 0 | 33 | .012 | 0 | | 3 | 2863.9... | 13916.... | .174 | .174 | 1... | H1-1b* |
| 28 | M44A | PIPE_2.0 | .053 | 5.201 | 2 | .003 | 5.201 | | 9 | 23229... | 32130 | 1.872 | 1.872 | 1... | H1-1b* |
| 29 | M25 | SR_0.75 | .000 | 4.167 | 11 | .009 | 0 | | 5 | 2863.9... | 13916.... | .174 | .174 | 1... | H1-1b* |
| 30 | M27 | SR_0.75 | .000 | 0 | 75 | .009 | 0 | | 8 | 2863.9... | 13916.... | .174 | .174 | 1... | H1-1a |

VzW SMART Tool© Vendor

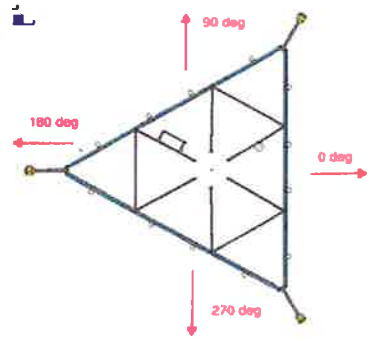
| | | | |
|---|---|---|---|
| Client: | Verizon Wireless | Date: | 9/01/2023 |
| Site Name: | PROSPECT NORTH CT | | |
| MDG #: | 5000383468 | | |
| Fuze ID #: | 17124002 | Page: | 1 |
| | | | Version 1.01 |

## I. Mount-to-Tower Connection Check

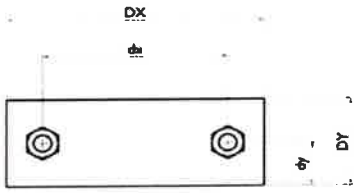
*MSK4 CONNECTION*

| | |
|---|---|
| *Custom Orientation Required* | Yes |

| Nodes (labeled per Risa) | Orientation (per graphic of typical platform) |
|---|---|
| N73 | 0 |
| N74 | 0 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |




| | |
|---|---|
| *Tower Connection Bolt Checks* | Yes |
| *Bolt Orientation* | Parallel |



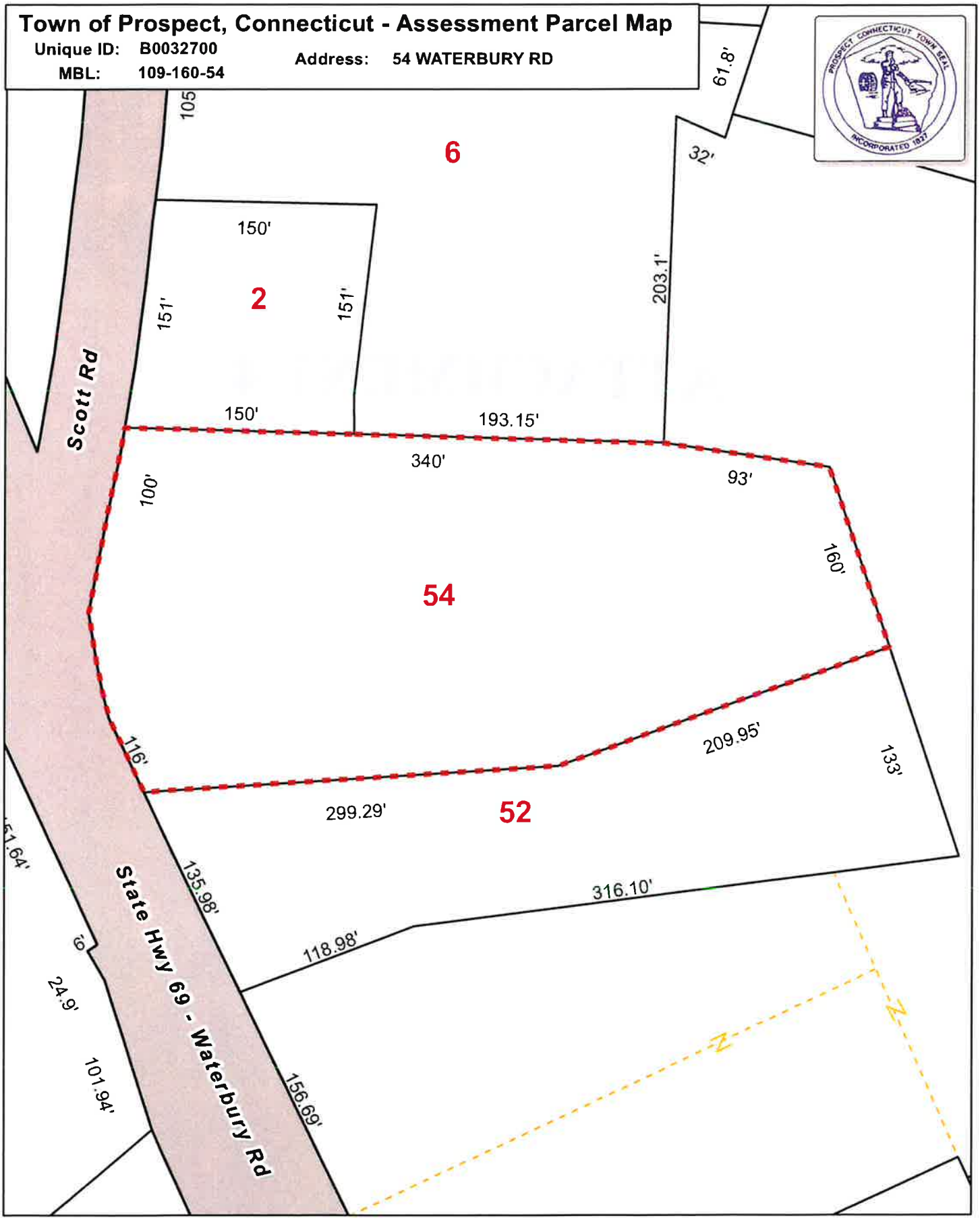

| | |
|---|---|
| Bolt Quantity per Reaction: | 2 (Horizontal) |
| $d_x$ (in) *(Delta X of typ. bolt config. sketch)* : | 10 |
| $d_y$ (in) *(Delta Y of typ. bolt config. sketch)* : | 1.25 |
| Bolt Type: | A307 |
| Bolt Diameter (in): | 0.625 |
| Required Tensile Strength / bolt (kips): | 0.6 |
| Required Shear Strength / bolt (kips): | 0.7 |
| Tensile Capacity / bolt (kips): | 10.4 |
| Shear Capacity / bolt (kips): | 6.2 |
| Bolt Overall Utilization: | 10.7% |

| | |
|---|---|
| *Tower Connection Baseplate Checks* | No |

# ATTACHMENT 4

# Town of Prospect, Connecticut - Assessment Parcel Map

**Unique ID:** B0032700
**MBL:** 109-160-54
**Address:** 54 WATERBURY RD




**Approximate Scale:**
1 inch = 100 feet

**Disclaimer:**
This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Prospect and its mapping contractors
assume no legal responsibility for the information contained herein.

**Map Produced**
**August 2021**

# Prospect

**Unique ID:** B0032700 **Card No:** 1 Of 2

| Location: | 54 WATERBURY RD | Map Id: | 109 160 54 | Zone: | B | Date Printed: | 5/13/2024 |
|---|---|---|---|---|---|---|---|
| | | Neighborhood: | 3H | | | Last Update: | 5/13/2024 |

| Owner Of Record | Volume/Page | Date | Sales Type | Valid | Sale Price |
|---|---|---|---|---|---|
| BRADSHAW CHARLES E EST OF & AVERYLL B | 0925/0751 | 1/2/2024 | Probate | No | 0 |
| AVERYLL B EST OF, LEO COMO EXEC, 75 JOHN ST , NAUGATUCK, CT 06770 | | | Exempt | | |
| **Prior Owner History** | | | | | |
| BRADSHAW CHARLES E EST OF & AVERYLL B EST OF | 0925/0462 | 12/1/2023 | Probate | No | 0 |
| BRADSHAW CHARLES E & AVERYLL B | 0040/0413 | 7/14/1966 | Quit Claim | No | 0 |

| Permit Number | Date | Permit Description |
|---|---|---|
| 23-126B | 5/12/2023 | REPLACING EXISTING MOUNT REPLACE 6 ANTENNAS |
| 22-259B | 12/16/2022 | PROPOSED VERIZON WIRELESS ANTENNA MODIFICATION TO EXISTING CELL TOWER INSTALLATION |
| 22-178B | 8/31/2022 | REMOVE ALL SPRINT ANTENNAS AND COAX FROM TOWER. REMOVE ALL SPRINT EQUIPMENT FROM COMPOUND. NOTHING B |
| 22-130E | 8/26/2022 | REPLACE WITH NEW 22KW GENERATOR |
| 21 130B | 5/24/2021 | INSTALL 4' X 10' CONCRETE PAD FOR EMERGENCY GENERATOR |
| 7734 | 3/3/2017 | UPGRADE ANTENNA ON TOWER INSTALL (3) ANTENNAS & (3) NEW REMOTE RADIO |

| Supplemental Data | | | |
|---|---|---|---|
| Census/Tract | 3471 | 490 Application Da | |
| Dev Map ID | | In Home Business | |
| GIS ID | | | |
| Route | B3-C5 | | |
| District | | | |
| Utilities | Well, Septic | | |

| Appraised Value | |
|---|---|
| Total Land Value | 106,722 |
| Total Building Value | 115,333 |
| Total Outbldg Value | 314,919 |
| Total Market Value | 536,974 |

**Acres**

| Land Type | Acres | 490 | Total Value |
|---|---|---|---|
| Excess | 0.98 | 0.00 | |
| House Lot | 0.92 | 0.00 | |
| Total | | | 106,722 |

**State Item Codes**

| Code | Quantity | Value |
|---|---|---|
| 14-Residential Outbuilding | 4.00 | 220.440 |
| 13-Residential Dwelling | 2.00 | 80.730 |
| 11-Residential Land | 0.92 | 67.920 |
| 12-Residential Excess Land | 0.98 | 6.790 |

**Assessment History (Prior Years as of Oct 1)**

| | 2024 | 2023 | 2022 | 2021 | 2020 |
|---|---|---|---|---|---|
| Land | 74,710 | 74,710 | 74,710 | 74,710 | 74,710 |
| Building | 80,730 | 80,730 | 80,730 | 84,970 | 84,970 |
| Outbuilding | 220,440 | 220,440 | 220,440 | 220,440 | 220,440 |
| Total | 375,880 | 375,880 | 375,880 | 380,120 | 380,120 |

**490 Appraised Totals**

| Type | Acres | Value | Type | Acres | Value |
|---|---|---|---|---|---|
| | | | Totals | 0.00 | 0 |

Application Date: Expiration Date:

**Comments**

3/30/2011 1 SKYLIGHT; GENERATOR



Revaluation Date: 10/1/2020

**Unique ID:** B0032700 Prospect **Card No:** 1 Of 2

| | |
|---|---|
| **Location:** | 54 WATERBURY RD |
| **Map Id:** | 109 160 54 |

### General Description

| | |
|---|---|
| **Building Use** | Single Family |
| **Units** | |
| **Overall Condition** | Average |
| **Class** | 07 |
| **Stories** | 1.00 |
| **Design (Style)** | Mobile Home |
| **Construction** | Wood Frame |
| **Year Built** | 1977 |
| **Percent Complete** | 100 |
| **Finished Area** | **792** |

### Foundation

| | |
|---|---|
| **Basement Area** | 0 |
| **Finished Basement** | 0 |
| **Garage Bays** | 0 |
| **Outside Entry** | No |
| **Sump Pump** | No |

### HVAC

| | |
|---|---|
| **Heating Type** | Forced Hot Air |
| **Fuel** | Oil |
| **Cooling Type** | Central |

### Interior

| | |
|---|---|
| **Floors** | Carpet/Laminate |
| **Attic Access** | No |
| **Walls** | |
| **Bath Cond** | |
| **Kitchen Cond** | |

### Exterior

| | |
|---|---|
| **Exterior** | Aluminum |
| **Roof Cover** | |
| **Roof Type** | |

### Special Features

| Type | Count/Area |
|---|---|
| Extra Fixtures | 1 |

### Room Summary

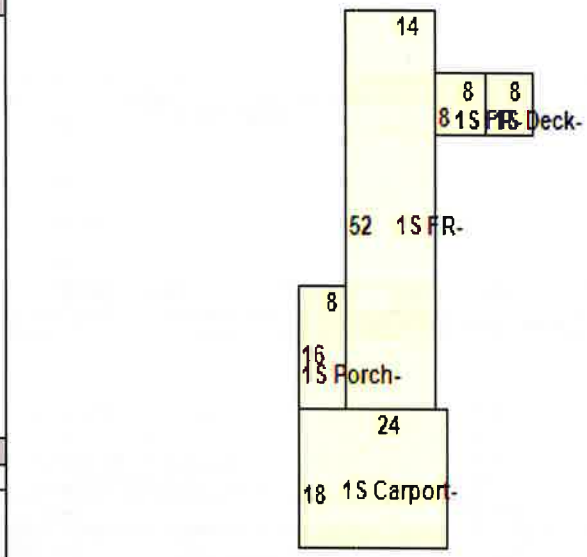
| Total | Bedroom | Kitchens | Full Baths | Half Baths |
|---|---|---|---|---|
| 4 | 1 | 1 | 1 | 0 |

| Description | Area/Qty |
|---|---|
| Base Rate | 792 |
| Central Air | 792 |
| Extra Fixtures | 1 |
| Full Baths | 1 |

### Attached Components

| Type | Year | Area |
|---|---|---|
| Wood Deck | 2010 | 64 |
| Open Porch | 1977 | 128 |
| Frame Carport | 1998 | 432 |

**Total Building Value: 37,737**




### Detached Component Computations

| Type | Year | Condition | Area/Qty |
|---|---|---|---|
| | | | |

| Type | Year | Condition | Area/Qty |
|---|---|---|---|
| | | | |

# Prospect

**Unique ID:** B0032700 **Card No:** 2 Of 2

| Location: | 54 WATERBURY RD | Map Id: | 109 160 54 | Zone: | B | Date Printed: | 5/13/2024 |
|---|---|---|---|---|---|---|---|
| | | Neighborhood: | 3H | | | Last Update: | 5/13/2024 |

| Owner Of Record | Volume/Page | Date | Sales Type | Valid | Sale Price |
|---|---|---|---|---|---|
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| AVERYLL B EST OF, LEO COMO EXEC, 75 JOHN ST , NAUGATUCK, CT 06770 | | | Exempt | | |
| **Prior Owner History** | | | | | |
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| BRADSHAW CHARLES E & AVERYLL B | 0040/0413 | 7/14/1966 | Quit Claim | No | 0 |

| Permit Number | Date | Permit Description |
|---|---|---|
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| Census/Tract | 3471 | 490 Application Da | |
| Dev Map ID | | In Home Business | |
| GIS ID | | | |
| Route | B3-C5 | | |
| District | | | |
| Utilities | Well, Septic | | |

| Appraised Value | |
|---|---|
| Total Land Value | 106,722 |
| Total Building Value | 115,333 |
| Total Outbldg Value | 314,919 |
| Total Market Value | 536,974 |

**Acres**

| Land Type | Acres | 490 | Total Value |
|---|---|---|---|
| Excess | 0.98 | 0.00 | |
| House Lot | 0.92 | 0.00 | |
| Total | | | 106,722 |

**State Item Codes**

| Code | Quantity | Value |
|---|---|---|
| 14-Residential Outbuilding | 4.00 | 220,440 |
| 13-Residential Dwelling | 2.00 | 80,730 |
| 11-Residential Land | 0.92 | 67,920 |
| 12-Residential Excess Land | 0.98 | 6,790 |

**Assessment History (Prior Years as of Oct 1)**

| | 2024 | 2023 | 2022 | 2021 | 2020 |
|---|---|---|---|---|---|
| Land | 74,710 | 74,710 | 74,710 | 74,710 | 74,710 |
| Building | 80,730 | 80,730 | 80,730 | 84,970 | 84,970 |
| Outbuilding | 220,440 | 220,440 | 220,440 | 220,440 | 220,440 |
| Total | 375,880 | 375,880 | 375,880 | 380,120 | 380,120 |

**490 Appraised Totals**

| Type | Acres | Value | Type | Acres | Value |
|---|---|---|---|---|---|
| | | | Totals | 0.00 | 0 |

Application Date: Expiration Date:

**Comments**

**3/30/2011** 1 SKYLIGHT; GENERATOR



Revaluation Date: 10/1/2020

**Unique ID:** B0032700 Prospect **Card No:** 2 Of 2

| | |
|---|---|
| **Location:** | 54 WATERBURY RD |
| **Map Id:** | 109 160 54 |

| General Description | |
|---|---|
| **Building Use** | Single Family |
| **Units** | |
| **Overall Condition** | Average |
| **Class** | 08 |
| **Stories** | 2.00 |
| **Design (Style)** | Colonial |
| **Construction** | Wood Frame |
| **Year Built** | 1850 |
| **Percent Complete** | 100 |
| **Finished Area** | **1964** |

| Foundation | |
|---|---|
| **Basement Area** | 737 |
| **Finished Basement** | 0 |
| **Garage Bays** | 0 |
| **Outside Entry** | Hatch |
| **Sump Pump** | Yes |

| HVAC | |
|---|---|
| **Heating Type** | Hot Water |
| **Fuel** | Natural Gas |
| **Cooling Type** | |

| Interior | |
|---|---|
| **Floors** | Carpet |
| **Attic Access** | No |
| **Walls** | |
| **Bath Cond** | |
| **Kitchen Cond** | |

| Exterior | |
|---|---|
| **Exterior** | Aluminum |
| **Roof Cover** | |
| **Roof Type** | |

**Special Features**

| Type | Count/Area |
|---|---|
| Extra Fixtures | 2 |
| Fireplace | 1 |
| Generator | 1 |

**Room Summary**

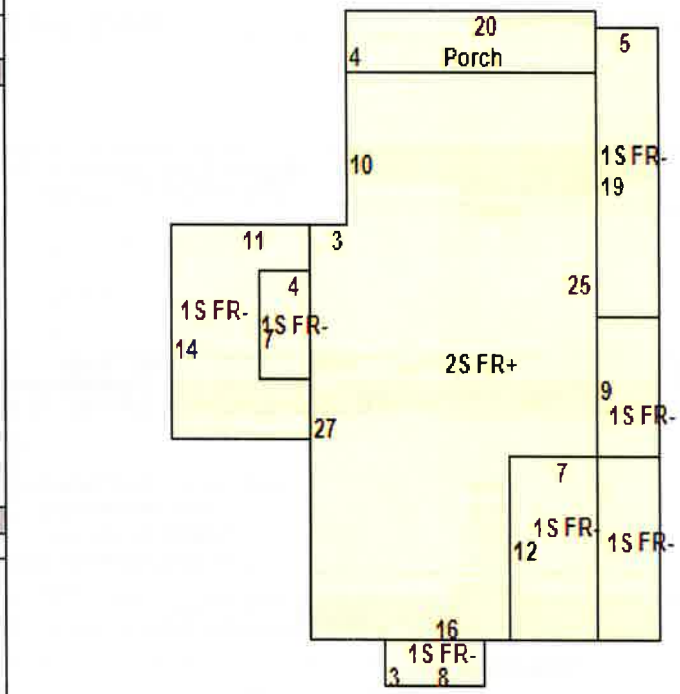
| Total | Bedroom | Kitchens | Full Baths | Half Baths |
|---|---|---|---|---|
| 9 | 2 | 2 | 2 | 0 |

| Description | Area/Qty |
|---|---|
| Base Rate | 1964 |
| Accessory Apt | 1 |
| Additional Kitchens | 1 |
| Extra Fixtures | 2 |
| Fireplace | 1 |
| Full Baths | 2 |

**Attached Components**

| Type | Year | Area |
|---|---|---|
| Open Porch | 1850 | 80 |

**Total Building Value: 77.596**




**Detached Component Computations**

| Type | Year | Condition | Area/Qty |
|---|---|---|---|
| 1.75 Garage | 1963 | Average | 748 |
| Cell Tower | 1988 | Average | 1 |
| Frame Shed | 1963 | Average | 306 |
| Plastic/Frame Greenhouse | 1963 | Average | 50 |

| Type | Year | Condition | Area/Qty |
|---|---|---|---|

# ATTACHMENT 5

Verizon/Prospect North

UNITED STATES POSTAL SERVICE®

# Certificate of Mailing — Firm

| Name and Address of Sender | TOTAL NO. of Pieces Listed by Sender | TOTAL NO. of Pieces Received at Post Office™ | Affix Stamp Here<br>*Postmark with Date of Receipt.* |
|---|---|---|---|
| Kenneth C. Baldwin, Esq.<br>Robinson & Cole LLP<br>280 Trumbull Street<br>Hartford, CT 06103 | 3 | 3 | quadient<br>CORRECTION<br>IMI<br>$003.34<br>US POSTAGE |
| | 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. | Robert J. Chatfield, Mayor<br>Town of Prospect<br>36 Center Street<br>Prospect, CT 06712 | | | | |
| 2. | Mary Barton, Land Use Inspector<br>Town of Prospect<br>36 Center Street<br>Prospect, CT 06712 | | | | |
| 3. | Estate of Charles and Averyll Bradshaw<br>c/o Leo Como, Exec.<br>75 John Street<br>Naugatuck, CT 06770 | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. | | | | | |

OLD STATE HOUSE POST OFFICE
MAY 22 2024
HARTFORD, CT 06103