

June 6, 2022

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

**Regarding: Notice of Exempt Modification – AT&T Site CT2091 / FA# 100035308**  
**Address: 401 Wakelee Avenue, Ansonia, CT 06401**

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC (“AT&T”) currently maintains a wireless telecommunications facility on an existing +/- 185’ self-support tower at the above-referenced address, latitude 41.3560750, longitude -73.0920269. Said self-support tower is operated by American Tower Asset Sub, LLC.

AT&T desires to modify its existing telecommunications facility by swapping nine (9) antennas, adding three (3) antennas, swapping three (3) remote radio units (RRUS), removing three (3) remote radio units (RRUS), and mount modifications as more particularly detailed and described on the enclosed Construction Drawings prepared by Hudson Design Group, LLC, last revised June 3, 2022. The centerline height of the existing antennas is and will remain at 167 feet. This modification may include B2, B5, B17, B14, B29, B30, B66, & n77 hardware that is 4G(LTE) and/or 5G NR capable through remote software configuration and either or both services may be turned off at various times.

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 the following individuals: The Honorable David S. Cassetti, Mayor of the City of Ansonia, as elected official, David Blackwell, Sr., Zoning Enforcement Officer of the City of Ansonia, David Elder, City Planner of the City of Ansonia, City of Ansonia as property owner, and American Tower Asset Sub, LLC., as tower operator. We have reached out to the Building and Zoning Departments for the City of Ansonia who conducted a search and could not locate the original tower approval.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require an 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 operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.*
5. The proposed modifications will not cause an ineligible change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated May 12, 2022, and prepared by American Tower Corporation, enclosed herewith.*

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

Sincerely,

*Evan Renwick*

Evan Renwick  
Site Acquisition Specialist  
Centerline Communications, LLC  
750 West Center Street, Suite 301  
West Bridgewater, MA 02379  
erenwick@clinellc.com

Enclosures:   Exhibit 1 – Construction Drawings  
                  Exhibit 2 – Property Card and GIS  
                  Exhibit 3 – Structural Analysis  
                  Exhibit 4 – Mount Analysis  
                  Exhibit 5 – RF Emissions Analysis Report Evaluation  
                  Exhibit 6 – Notice Delivery Confirmations

cc:           The Honorable David S. Cassetti, Mayor, as elected official  
              David Blackwell, Sr., Zoning Enforcement Officer, City of Ansonia  
              David Elder, City Planner, City of Ansonia  
              City of Ansonia, property owner  
              American Tower Asset Sub, LLC, tower operator

# EXHIBIT 1

**PROJECT INFORMATION**

SCOPE OF WORK: **ITEMS TO BE MOUNTED ON THE EXISTING SELF SUPPORT:**

- NEW AT&T ANTENNAS: QD6616-7 (TYP. OF 1 PER ALPHA & GAMMA, TOTAL OF 2).
- NEW AT&T ANTENNAS: QD8616-7 (TOTAL OF 1 PER BETA).
- NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: AIR6449 B77D (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNAS: TPA65R-BU6DA-K (TYP. OF 1 PER ALPHA & GAMMA SECTOR, TOTAL OF 2) (RELOCATED TO POS. 4).
- EXISTING AT&T ANTENNAS: TPA65R-BU8DA-K (BETA SECTOR, TOTAL OF 1) (RELOCATED TO POS. 4).
- NEW AT&T RRUS: 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- EXISTING AT&T RRUS: 8843 B2/B66A (TYP. OF 1 PER SECTOR, TOTAL OF 3) (RELOCATED TO POS. 2).
- EXISTING AT&T RRUS: 4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (RELOCATED TO POS. 2).
- EXISTING AT&T RRUS: E2 B29 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (RELOCATED TO POS. 2).
- NEW AT&T (6) Y-CABLES

**ITEMS TO BE MOUNTED IN EQUIPMENT LOCATION:**

- INSTALL (1) 6648 FRONTHAUL GATEWAY + IDLE XCEDE CABLE FINAL=1X6601, 1X5216, 1XXMU03, 1X6630 MIXED-MODEL + IDLE, 6648+IDLE XCEDE.
- INSTALL (4) -48V RECTIFIERS INSIDE EXISTING POWER PLANT

**ITEMS TO BE REMOVED:**

- EXISTING AT&T ANTENNA: OPA65R-BU6BA (TYP. OF 1 PER ALPHA & GAMMA SECTOR, TOTAL OF 2).
- EXISTING AT&T ANTENNA: OPA65R-BU8BA (TYP. OF 1 PER BETA SECTOR, TOTAL OF 1).
- EXISTING AT&T ANTENNA: OPA-65R-LCUU-H6 (TYP. OF 1 PER ALPHA & GAMMA SECTOR, TOTAL OF 2).
- EXISTING AT&T ANTENNA: OPA-65R-LCUU-H8 (TYP. OF 1 PER BETA SECTOR, TOTAL OF 1).
- EXISTING AT&T RRUS: 4478 B5 (850)(TYP. OF 1 PER SECTOR, TOTAL OF 3)
- EXISTING AT&T RRUS: RRUS-11 B12 (700)(TYP. OF 1 PER SECTOR, TOTAL OF 3)
- EXISTING AT&T DIPLEXERS: DBCT108F1V92-1 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T DIPLEXERS: CM1007-DBPXBC-003 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T 1-1/4" COAX CABLES (TYP. OF 2 PER SECTOR, TOTAL OF 6)

**ITEMS TO REMAIN:**

- (3) ANTENNAS, (12) RRU'S, (4) SURGE ARRESTOR, (6) 1-1/4" COAX CABLES (7) #6 AWG DC POWER & (3) 18 PAIR FIBER.

SITE ADDRESS: 401 WAKELEE AVENUE  
ANSONIA, CT 06401

LATITUDE: 41.356055° N, 41° 21' 21.8" N

LONGITUDE: 73.092° W, 73° 05' 31.2" W

TYPE OF SITE: SELF SUPPORT TOWER / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 199'-0"±

RAD CENTER: 167'-0"±

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY

**DRAWING INDEX**

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	B
GN-1	GENERAL NOTES	B
A-1	COMPOUND & EQUIPMENT PLANS	B
A-2	ANTENNA LAYOUT PLANS & ELEVATION	B
A-3	DETAILS	B
G-1	GROUNDING DETAILS	B
RF-1	RF PLUMBING DIAGRAM	B

**VICINITY MAP**

**DIRECTIONS TO SITE:**  
HEAD NORTHEAST TOWARD LEGGATT McCALL CONN. TURN LEFT ONTO LEGGATT McCALL CONN. CONTINUE ONTO BURR ST. TURN LEFT ONTO COCHITUATE RD. TAKE THE RAMP TO I-90 E/MASSPIKE W/SPRINGFIELD/BOSTON. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR I-90 W/MASSPIKE W/SPRINGFIELD/BOSTON AND MERGE ONTO I-90 W MASSPIKE. MERGE ONTO I-90W MASSPIKE .TAKE EXIT 9 FOR I-84 TOWARD US-20/HARTFORD/NYC. CONTINUE ONTO I-84. KEEP RIGHT TO STAY ON I-84 TAKE EXIT 19 ON THE LEFT TO MERGE ONTO CT-8 S TOWARD NAUGATUCK/BRIDGEPORT. TAKE EXIT 19 TOWARD CT-334/WAKELEE AVE/ANSONIA. TURN LEFT ONTO DERBY AVE. CONTINUE ONTO CT-334 E. TURN RIGHT END AT 401 WAKELEE AVE.



**SITE NUMBER: CT2091**  
**SITE NAME: ANSONIA NW SPECTRASITE TOWER**  
**FA CODE: T0035308**

**PACE ID: MRCTB054003, MRCTB053975, MRCTB054607, MRCTB056391, MRCTB055399, MRCTB055416**

**PROJECT: 5G NR 1SR CBAND, 5G NR RADIO, ANTENNA MODIFICATIONS, 4TXRX ANTENNA RETROFIT, 5G NR SOFTWARE RADIO, BBU RECONFIGURATION, 2022 UPGRADE**

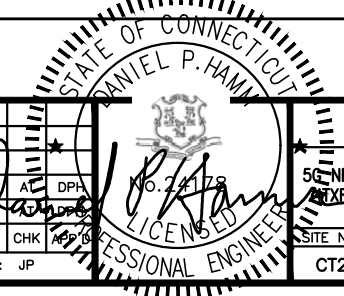
**GENERAL NOTES**

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

**UNDERGROUND SERVICE ALERT**



**WWW.DIGSAFE.COM**  
**72 HOURS PRIOR**



**HGD HUDSON Design Group LLC**  
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

**CENTERLINE COMMUNICATIONS**  
750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379

**SITE NUMBER: CT2091**  
**SITE NAME: ANSONIA NW SPECTRASITE TOWER**  
401 WAKELEE AVENUE  
ANSONIA, CT 06401  
NEW HAVEN COUNTY

**at&t**  
550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK
B	06/03/22	ISSUED FOR PERMITTING	JP	AT
A	03/02/22	ISSUED FOR REVIEW	JP	AT

SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: JP

AT&T		TITLE SHEET	
5G NR 1SR CBAND, 5G NR RADIO, ANTENNA MODIFICATIONS, 4TXRX ANTENNA RETROFIT, 5G NR SOFTWARE RADIO, BBU RECONFIGURATION		5G NR 1SR CBAND, 5G NR RADIO, ANTENNA MODIFICATIONS, 4TXRX ANTENNA RETROFIT, 5G NR SOFTWARE RADIO, BBU RECONFIGURATION	
SITE NUMBER	DRAWING NUMBER	SITE NUMBER	DRAWING NUMBER
CT2091	T-1	CT2091	T-1
REV		REV	
	B		B

**ISSUED FOR PERMITTING**

**GROUNDING NOTES**

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

**GENERAL NOTES**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
 CONTRACTOR – CENTERLINE  
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)  
 OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**  
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

**BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS  
 ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)**

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

**AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;**

**AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;**

**TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL**

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

**ABBREVIATIONS**

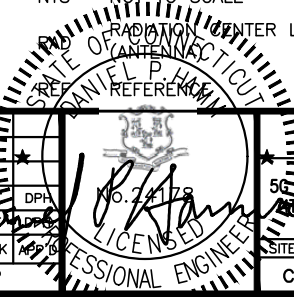
AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	CL	CENTER LINE	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

**HGD HUDSON Design Group LLC**  
 45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845  
 TEL: (978) 557-5553 FAX: (978) 336-5586

**CENTERLINE COMMUNICATIONS**  
 750 WEST CENTER STREET, SUITE #301 WEST BRIDGEWATER, MA 02379

**SITE NUMBER: CT2091  
 SITE NAME: ANSONIA NW\_SPECTRASITE TOWER**  
 401 WAKELEE AVENUE ANSONIA, CT 06401 NEW HAVEN COUNTY

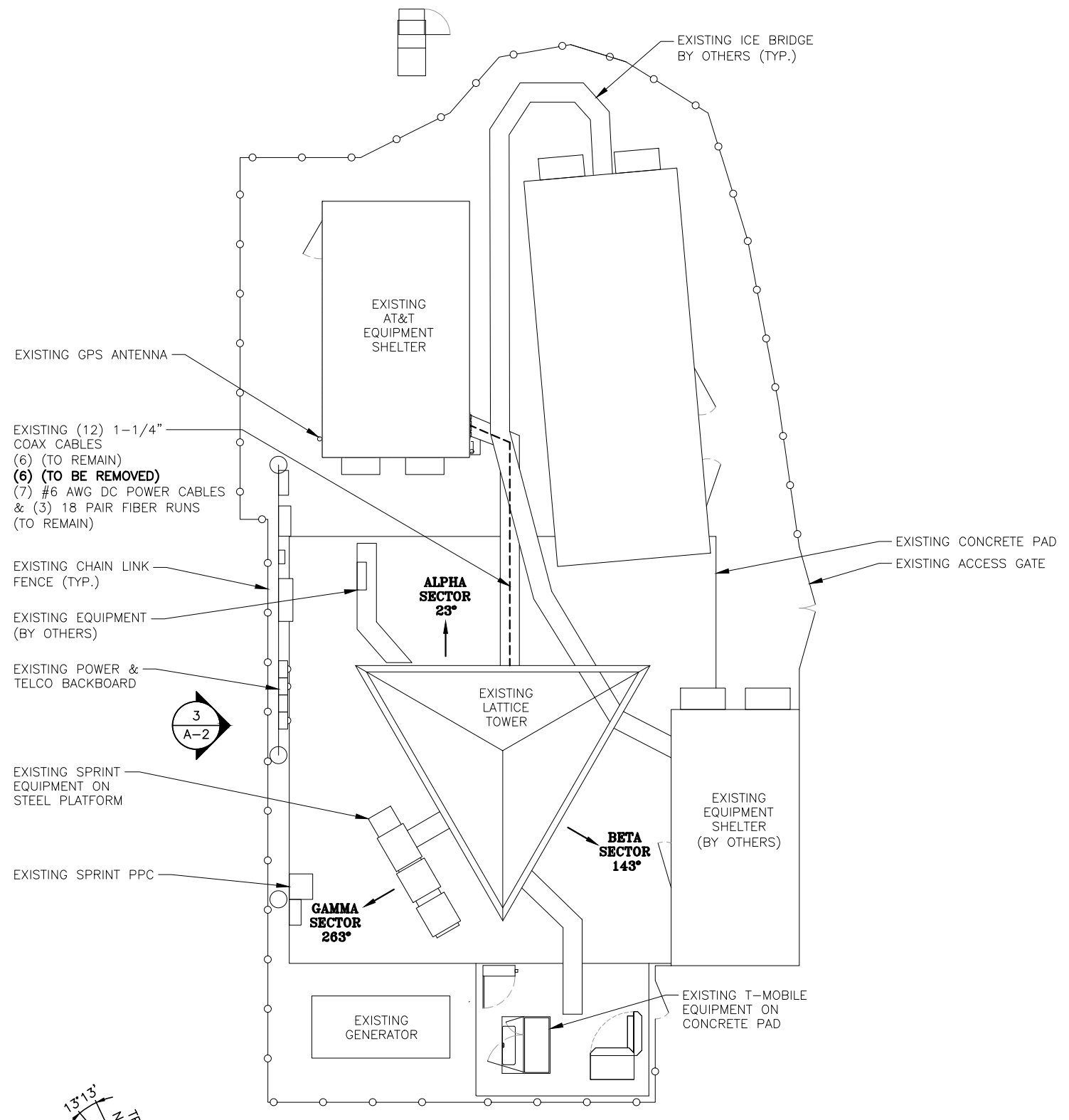
**at&t**  
 550 COCHITUATE ROAD FRAMINGHAM, MA 01701

NO.		DATE		REVISIONS		BY	CHK	APP			
B		06/03/22		ISSUED FOR PERMITTING		SG	AT	DPA	No. 22172		
A		03/02/22		ISSUED FOR REVIEW		JP	AT	DPA			
SCALE:		AS SHOWN		DESIGNED BY:		AT		DRAWN BY:		JP	
SITE NUMBER		DRAWING NUMBER		REV							
CT2091		GN-1		B							

**AT&T GENERAL NOTES**  
 5G NR 1SR CBAND, 5G NR RADIO, ANTENNA MODIFICATIONS, 5G NR ANTENNA RETROFIT, 5G NR SOFTWARE RADIO, BBU RECONFIGURATION

NOTE:  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

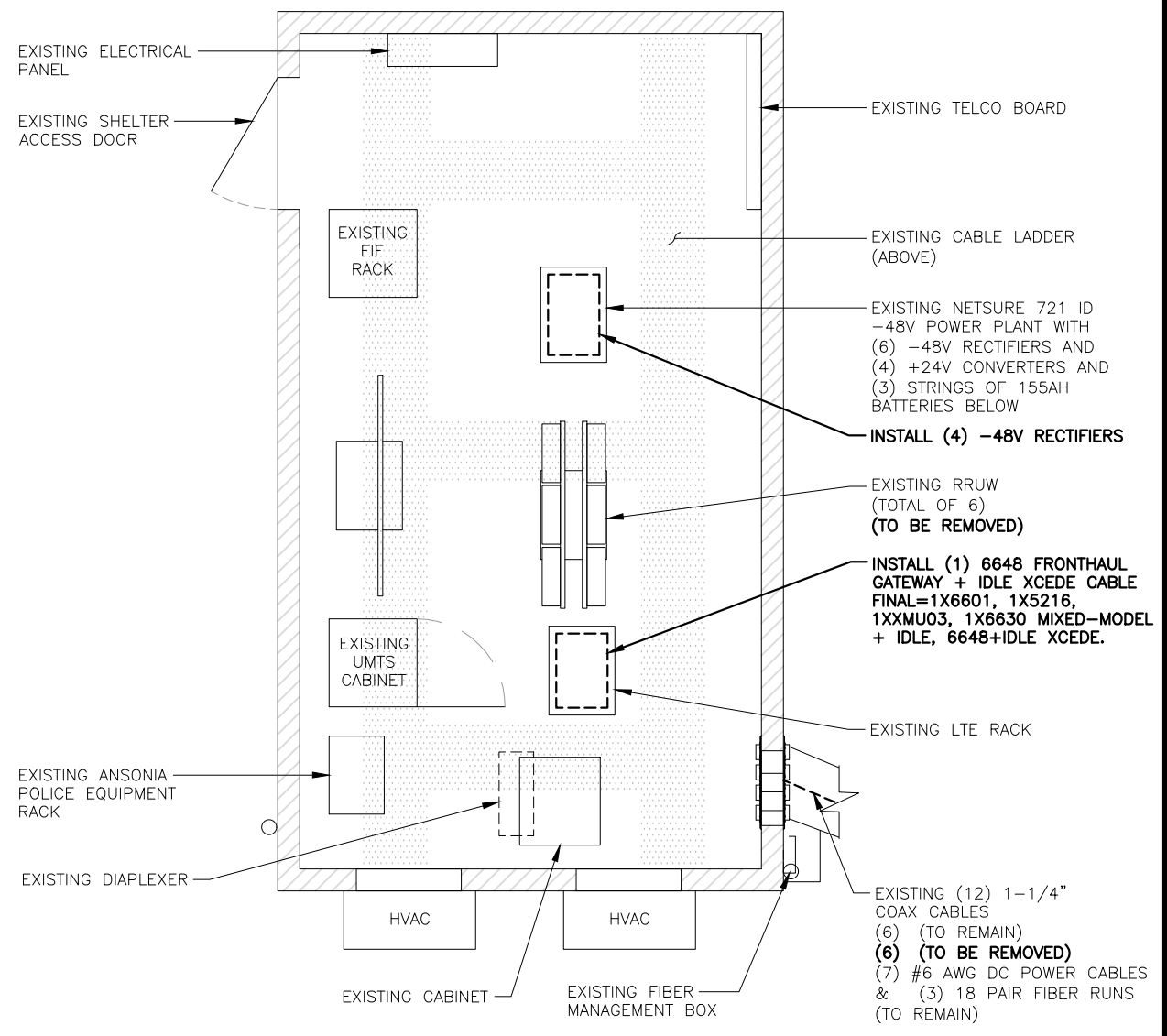
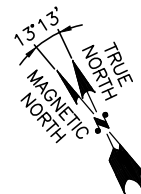


**COMPOUND PLAN**

22x34 SCALE: 3/16"=1'-0"  
11x17 SCALE: 3/32"=1'-0"

1  
A-1

0 2'-8" 5'-4" 10'-8" 16'-0"



**EQUIPMENT PLAN**

22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"

2  
A-1



**HG HUDSON Design Group LLC**  
45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553 FAX: (978) 336-5586

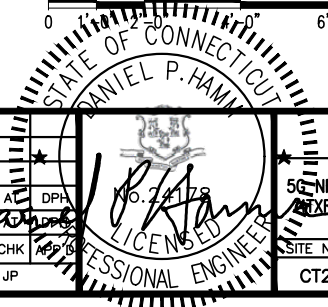
**CENTERLINE COMMUNICATIONS**  
750 WEST CENTER STREET, SUITE #301 WEST BRIDGEWATER, MA 02379

**SITE NUMBER: CT2091**  
**SITE NAME: ANSONIA NW\_SPECTRASITE TOWER**  
401 WAKELEE AVENUE ANSONIA, CT 06401 NEW HAVEN COUNTY

**at&t**  
550 COCHITUATE ROAD FRAMINGHAM, MA 01701

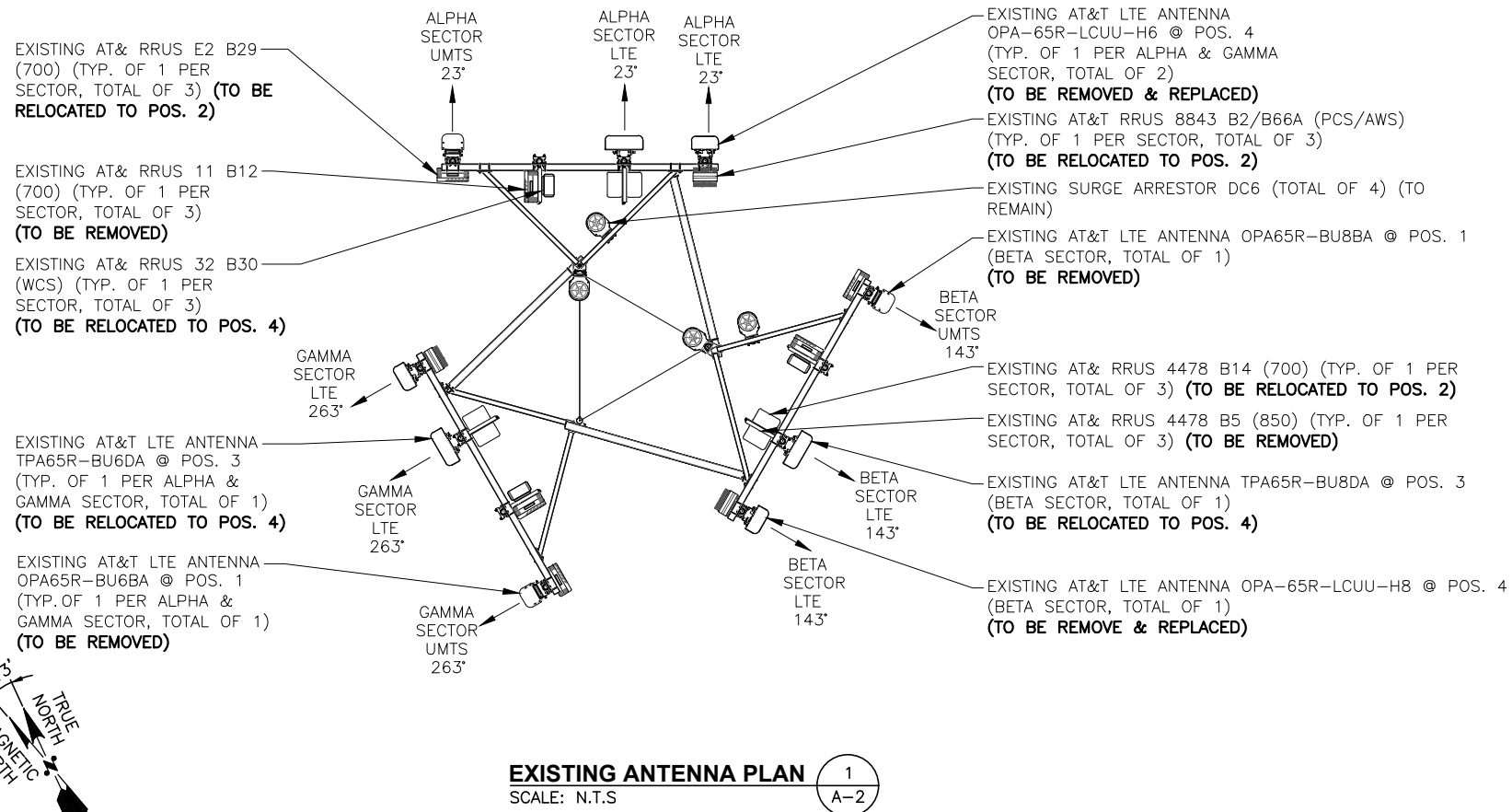
NO.	DATE	REVISIONS	BY	CHK	APP
B	06/03/22	ISSUED FOR PERMITTING	AT	DPA	No. 22-178
A	03/02/22	ISSUED FOR REVIEW	JP	DPA	

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: JP

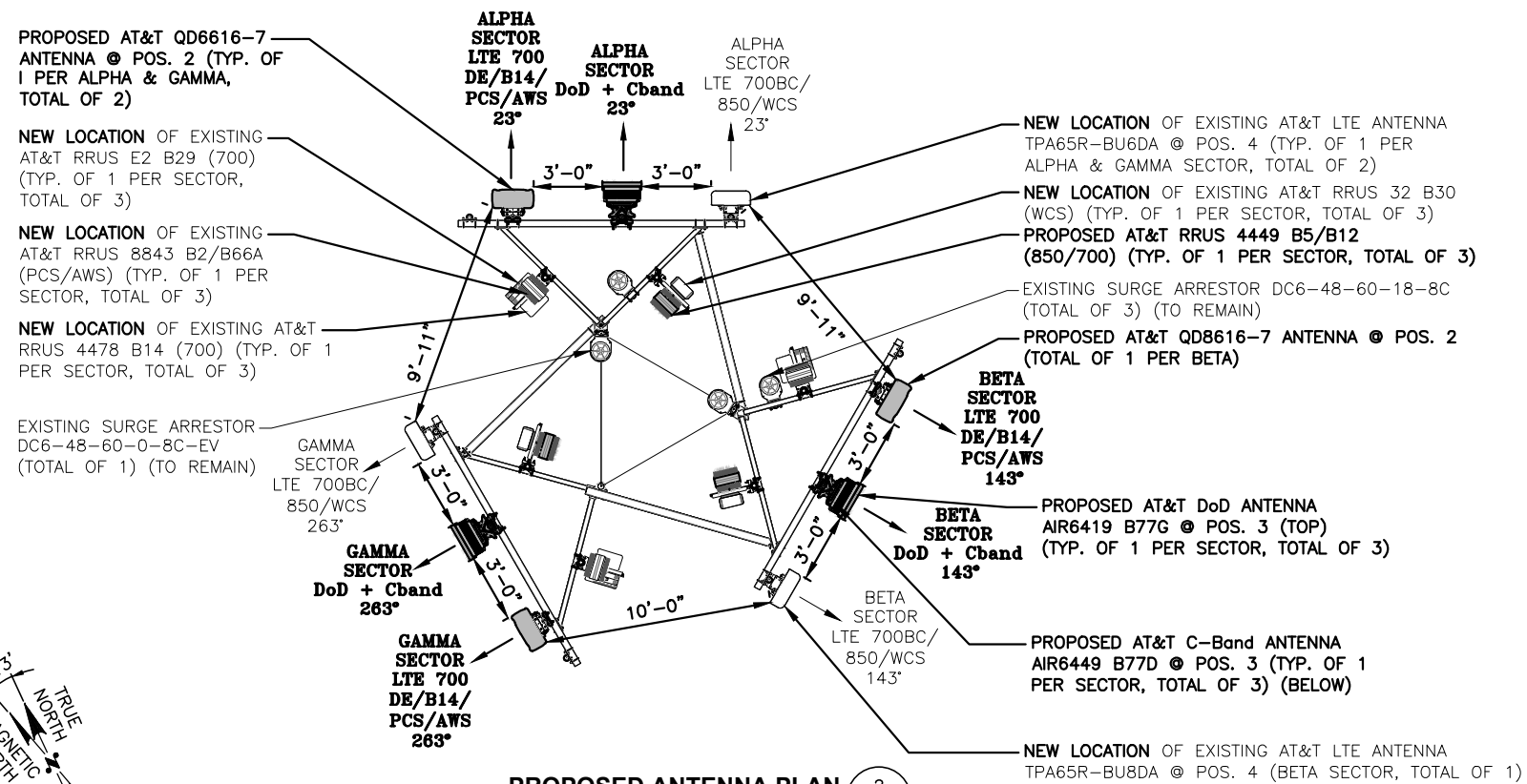


**AT&T**  
COMPOUND & EQUIPMENT PLANS  
5G NR 1SR CBAND, 5G NR RADIO, ANTENNA MODIFICATIONS, 5G NR ANTENNA RETROFIT, 5G NR SOFTWARE RADIO, BBU RECONFIGURATION

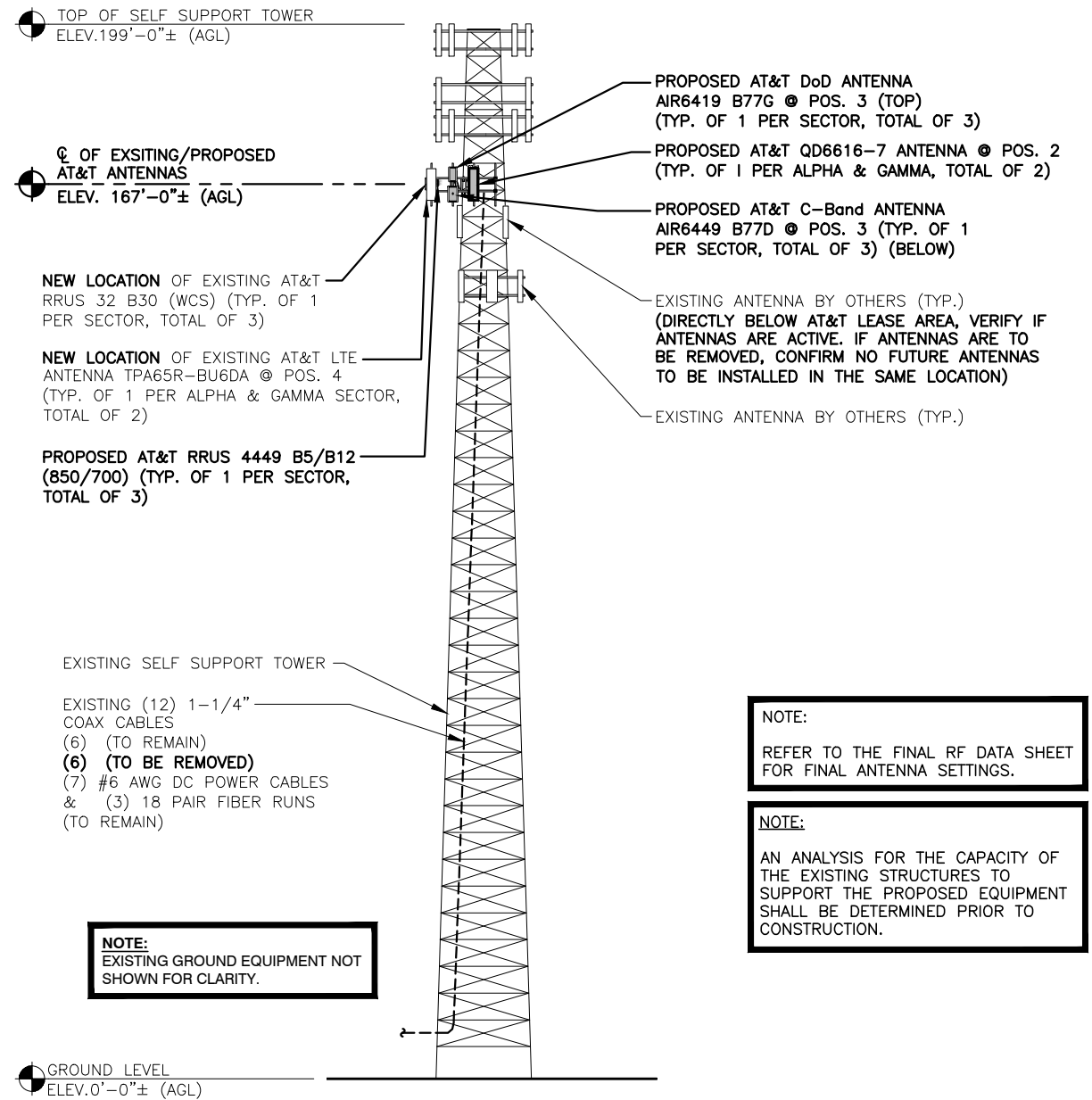
SITE NUMBER	DRAWING NUMBER	REV
CT2091	A-1	B



**EXISTING ANTENNA PLAN** 1  
SCALE: N.T.S. A-2



**PROPOSED ANTENNA PLAN** 2  
SCALE: N.T.S. A-2



**ELEVATION**  
22x34 SCALE: 1/16"=1'  
11x17 SCALE: 1/32"=1'

**HGD HUDSON Design Group LLC**  
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

**CENTERLINE COMMUNICATIONS**  
750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379

**SITE NUMBER: CT2091**  
**SITE NAME: ANSONIA NW\_SPECTRASITE TOWER**  
401 WAKELEE AVENUE  
ANSONIA, CT 06401  
NEW HAVEN COUNTY

**at&t**  
550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP
B	06/03/22	ISSUED FOR PERMITTING	AT	DPA	
A	03/02/22	ISSUED FOR REVIEW	JP	AT	

SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: JP

**AT&T**  
ANTENNA LAYOUT PLANS & ELEVATION  
5G NR 1SR CBAND, 5G NR RADIO, ANTENNA MODIFICATIONS,  
RETRY ANTENNA RETROFIT, 5G NR SOFTWARE RADIO, BBU  
RECONFIGURATION

SITE NUMBER	DRAWING NUMBER	REV
CT2091	A-2	B

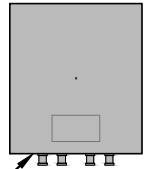
ANTENNA SCHEDULE												RRU CHART		
SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA Ø HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP	QUANTITY	MODEL	SIZE (L x W x D)
A1	-	-	-	-	-	-	-	-	-	-	-	E(3)	4478 B14 (700)	18.1"x13.4"x8.3"
A2	PROPOSED	LTE 700DE/B14/PCS/AWS	QD6616-7	72"x22"x9.6"	167'-0"±	23°	-	(E)(1)RRUS-4478 B14 (700) (E)(1)RRUS-8843 B2/B66A (PCS/AWS) (E)(1)RRUS-E2 B29 (700)	-	(E)(2) #6 AWG DC POWER (1) 18 PAIR FIBER (E)(2) 1-1/4" COAX CABLE (P)(1)(Y-CABLE)	(E)(1) RAYCAP DC6-48-60-18-8C	E(3)	8843 B2/B66A (PCS/AWS)	14.9"x13.2"x10.9"
A3	PROPOSED	DoD C-BAND	AIR6419 B77G AIR6449 B77D	31.1"x16.1"x7.3" 30.4"x15.9"x8.1"	167'-0"±	23°	-	-	-	-	-	E(3)	RRUS-E2 B29 (700)	20.4"x18.5"x7.5"
A4	EXSITING	LTE 700BC/850/WCS	TPA65R-BU6DA-K	71.2X20.7X7.7	167'-0"±	23°	-	(P)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-32 B30 (WCS)	-	(P)(1)(Y-CABLE)	-	P(3)	4449 B5/B12 (700)	17.9"x13.2"x10.4"
B1	-	-	-	-	-	-	-	-	-	-	-	E(3)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"
B2	PROPOSED	LTE 700DE/B14/PCS/AWS	QD6616-7	96"x22"x9.6"	167'-0"±	143°	-	(E)(1)RRUS-4478 B14 (700) (E)(1)RRUS-8843 B2/B66A (PCS/AWS) (E)(1)RRUS-E2 B29 (700)	-	(E)(2) #6 AWG DC POWER (1) 18 PAIR FIBER (E)(2) 1-1/4" COAX CABLE (P)(1)(Y-CABLE)	(E)(1) RAYCAP DC6-48-60-18-8C	E(3)	8843 B2/B66A (PCS/AWS)	14.9"x13.2"x10.9"
B3	PROPOSED	DoD C-BAND	AIR6419 B77G AIR6449 B77D	31.1"x16.1"x7.3" 30.4"x15.9"x8.1"	167'-0"±	143°	-	-	-	-	-	E(3)	RRUS-E2 B29 (700)	20.4"x18.5"x7.5"
B4	EXSITING	LTE 700BC/850/WCS	TPA65R-BU8DA-K	96X20.7X7.7	167'-0"±	143°	-	(P)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-32 B30 (WCS)	-	(P)(1)(Y-CABLE)	-	P(3)	4449 B5/B12 (700)	17.9"x13.2"x10.4"
C1	-	-	-	-	-	-	-	-	-	-	-	E(3)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"
C2	PROPOSED	LTE 700DE/B14/PCS/AWS	QD6616-7	72"x22"x9.6"	167'-0"±	263°	-	(E)(1)RRUS-4478 B14 (700) (E)(1)RRUS-8843 B2/B66A (PCS/AWS) (E)(1)RRUS-E2 B29 (700)	-	(E)(2) #6 AWG DC POWER (1) 18 PAIR FIBER (E)(2) 1-1/4" COAX CABLE (P)(1)(Y-CABLE)	(E)(1) RAYCAP DC6-48-60-18-8C (E)(1) RAYCAP DC6-48-60-0-8C-EV	E(3)	8843 B2/B66A (PCS/AWS)	14.9"x13.2"x10.9"
C3	PROPOSED	DoD C-BAND	AIR6419 B77G AIR6449 B77D	31.1"x16.1"x7.3" 30.4"x15.9"x8.1"	167'-0"±	263°	-	-	-	-	-	E(3)	RRUS-E2 B29 (700)	20.4"x18.5"x7.5"
C4	EXSITING	LTE 700BC/850/WCS	TPA65R-BU6DA-K	71.2X20.7X7.7	167'-0"±	263°	-	(P)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-32 B30 (WCS)	-	(P)(1)(Y-CABLE)	-	P(3)	4449 B5/B12 (700)	17.9"x13.2"x10.4"

NOTE:  
REFER TO THE FINAL RF DATA SHEET  
FOR FINAL ANTENNA SETTINGS.

NOTE:  
AN ANALYSIS FOR THE CAPACITY OF  
THE EXISTING STRUCTURES TO  
SUPPORT THE PROPOSED EQUIPMENT  
SHALL BE DETERMINED PRIOR TO  
CONSTRUCTION.

NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS

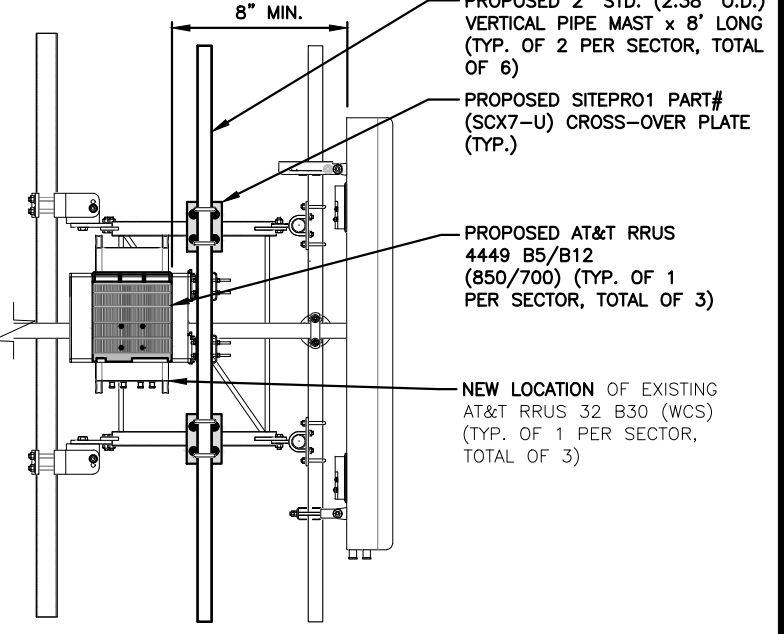
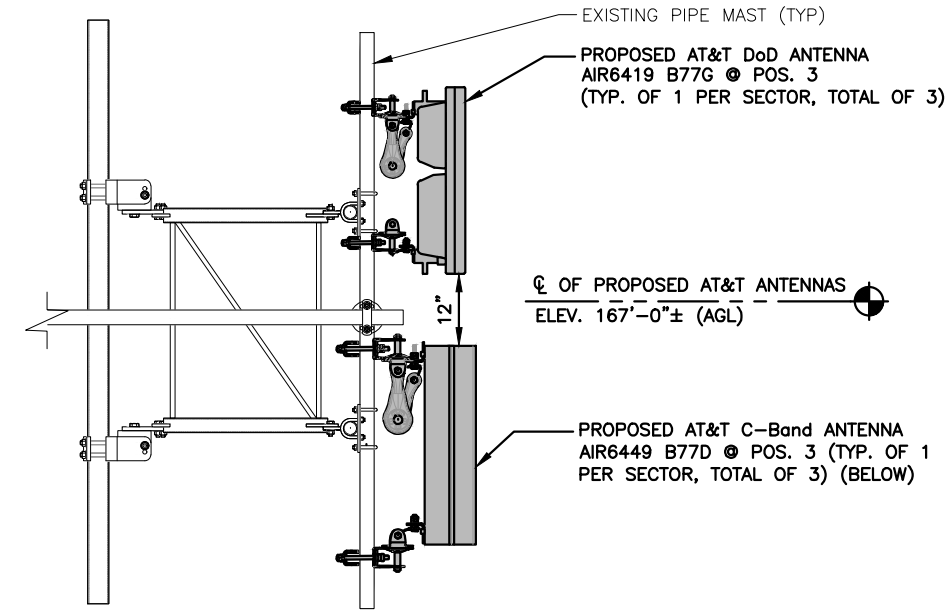
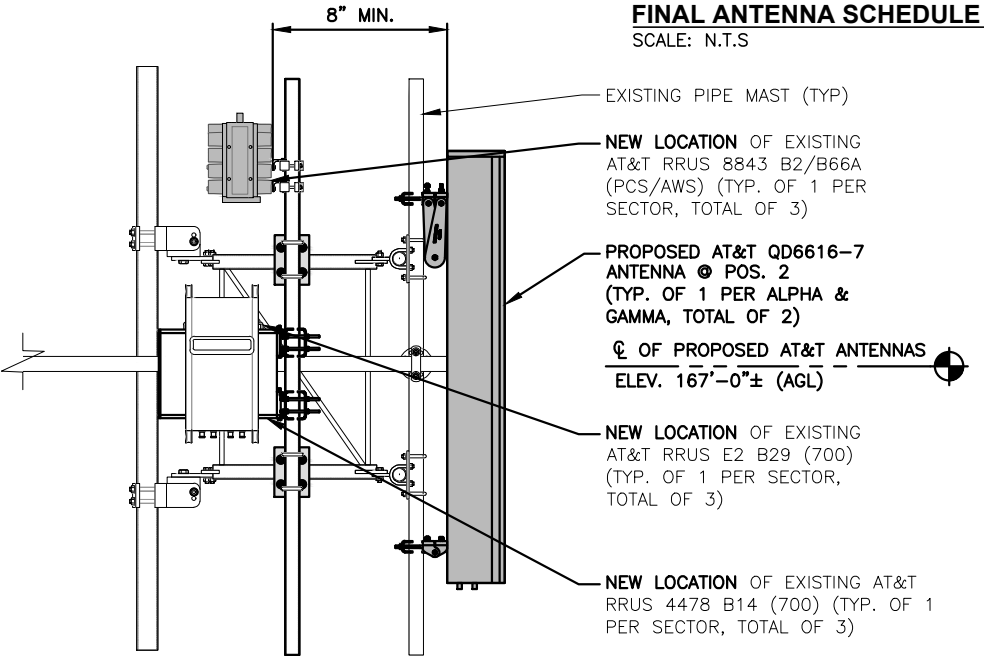
NOTE:  
SEE RFDS FOR RRH  
FREQUENCY AND  
MODEL NUMBER



PROPOSED RRU REFER TO THE  
FINAL RFDS AND CHART FOR  
QUANTITY, MODEL AND DIMENSIONS

NOTE:  
MOUNT PER MANUFACTURER'S  
SPECIFICATIONS.

PROPOSED RRU DETAIL  
SCALE: N.T.S



**PROPOSED ANTENNA @ POS. 2**  
22x34 SCALE: 3/4"=1'-0"  
11x17 SCALE: 3/8"=1'-0"

**PROPOSED ANTENNA @ POS. 3**  
22x34 SCALE: 3/4"=1'-0"  
11x17 SCALE: 3/8"=1'-0"

**PROPOSED RRU MOUNTING DETAIL**  
22x34 SCALE: 3/4"=1'-0"  
11x17 SCALE: 3/8"=1'-0"

**HG HUDSON Design Group LLC**  
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

**CENTERLINE COMMUNICATIONS**  
750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT2091  
SITE NAME: ANSONIA NW\_SPECTRASITE TOWER  
401 WAKELEE AVENUE  
ANSONIA, CT 06401  
NEW HAVEN COUNTY

**at&t**  
550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701

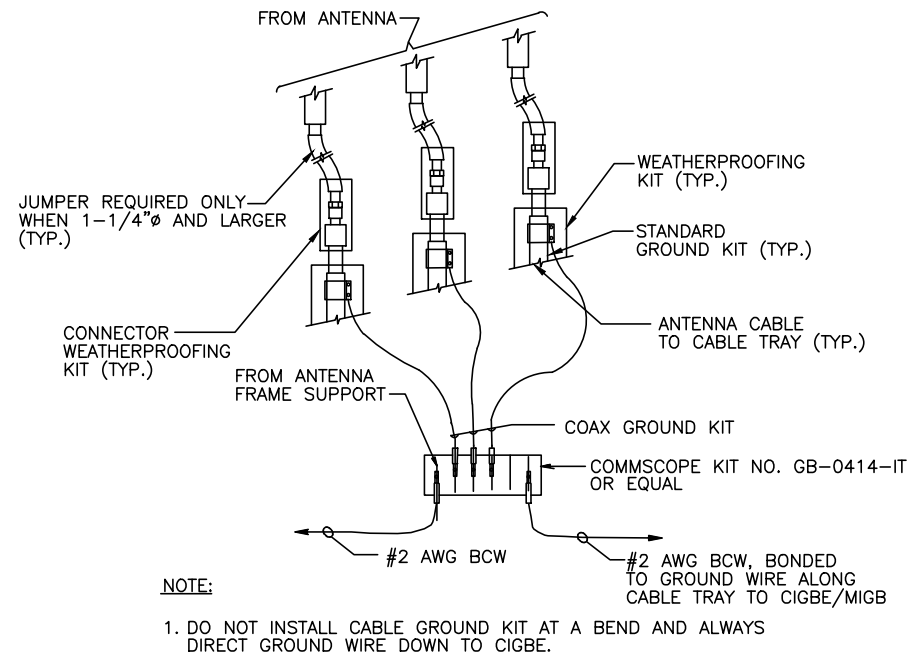
NO.	DATE	REVISIONS	BY	CHK
B	06/03/22	ISSUED FOR PERMITTING	AT	DPA
A	03/02/22	ISSUED FOR REVIEW	AT	DPA

SCALE: AS SHOWN  
DESIGNED BY: AT  
DRAWN BY: JP

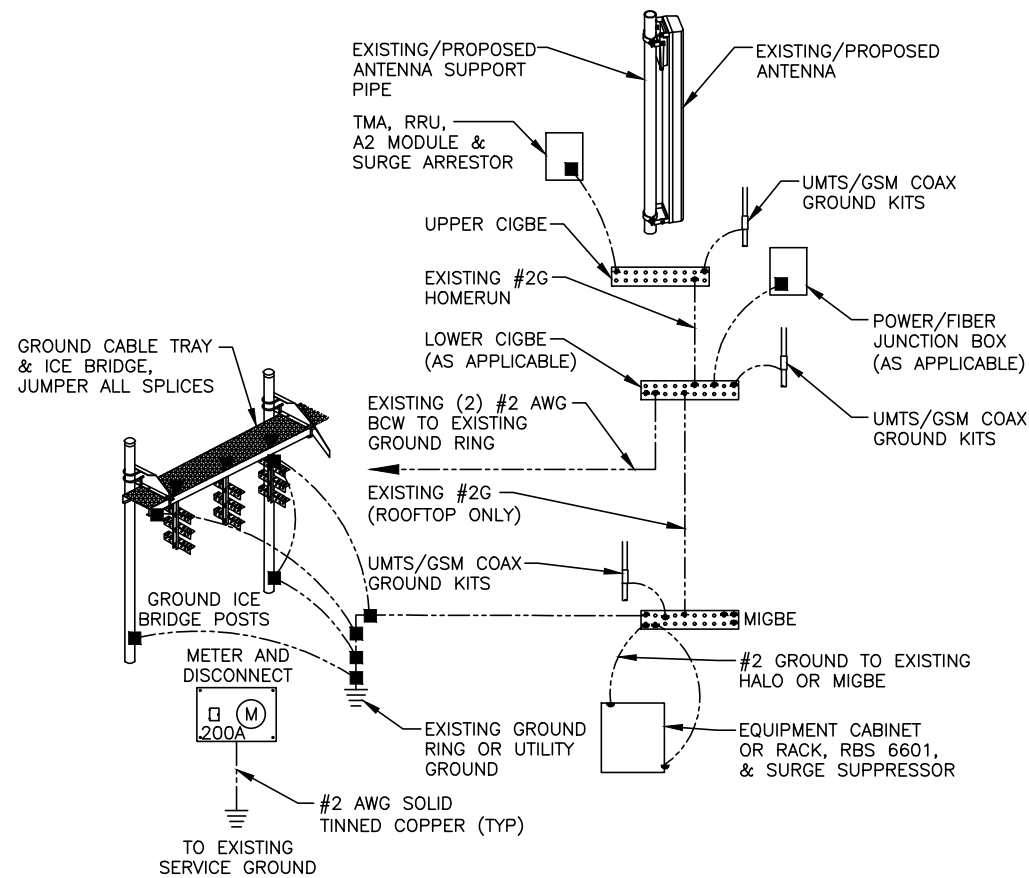
**AT&T DETAILS**  
5G NR 1SR CBAND, 5G NR RADIO, ANTENNA MODIFICATIONS,  
RRH ANTENNA RETROFIT, 5G NR SOFTWARE RADIO, BBU  
RECONFIGURATION

SITE NUMBER	DRAWING NUMBER	REV
CT2091	A-3	B

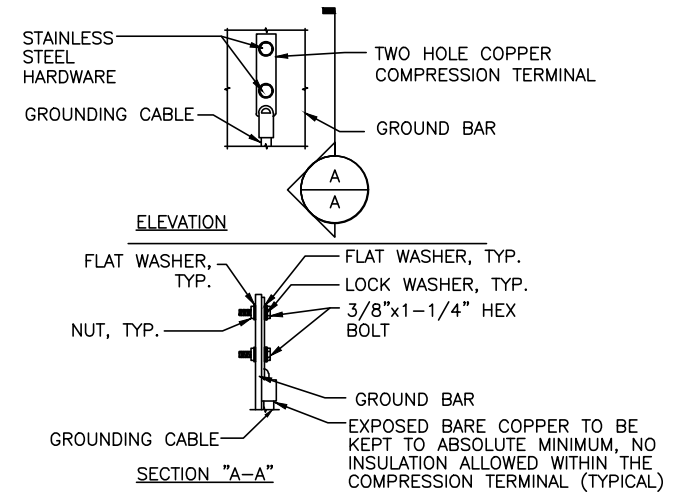




**GROUND WIRE TO GROUND BAR CONNECTION DETAIL** 1  
SCALE: N.T.S G-1



**GROUNDING RISER DIAGRAM** 2  
SCALE: N.T.S G-1



- NOTES:
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
  - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
  - CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

**TYPICAL GROUND BAR CONNECTION DETAIL** 3  
SCALE: N.T.S G-1

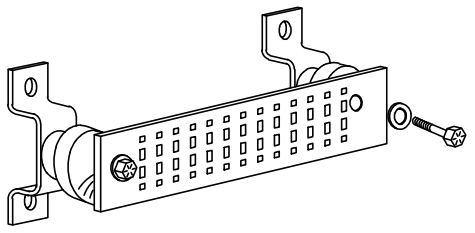
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PRODUCERS**

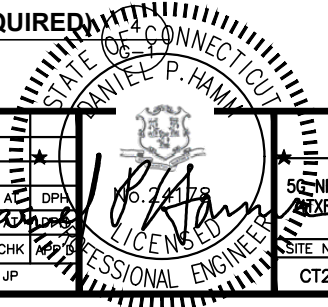
- CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
- +24V POWER SUPPLY RETURN BAR (#2 AWG)
- 48V POWER SUPPLY RETURN BAR (#2 AWG)
- RECTIFIER FRAMES.

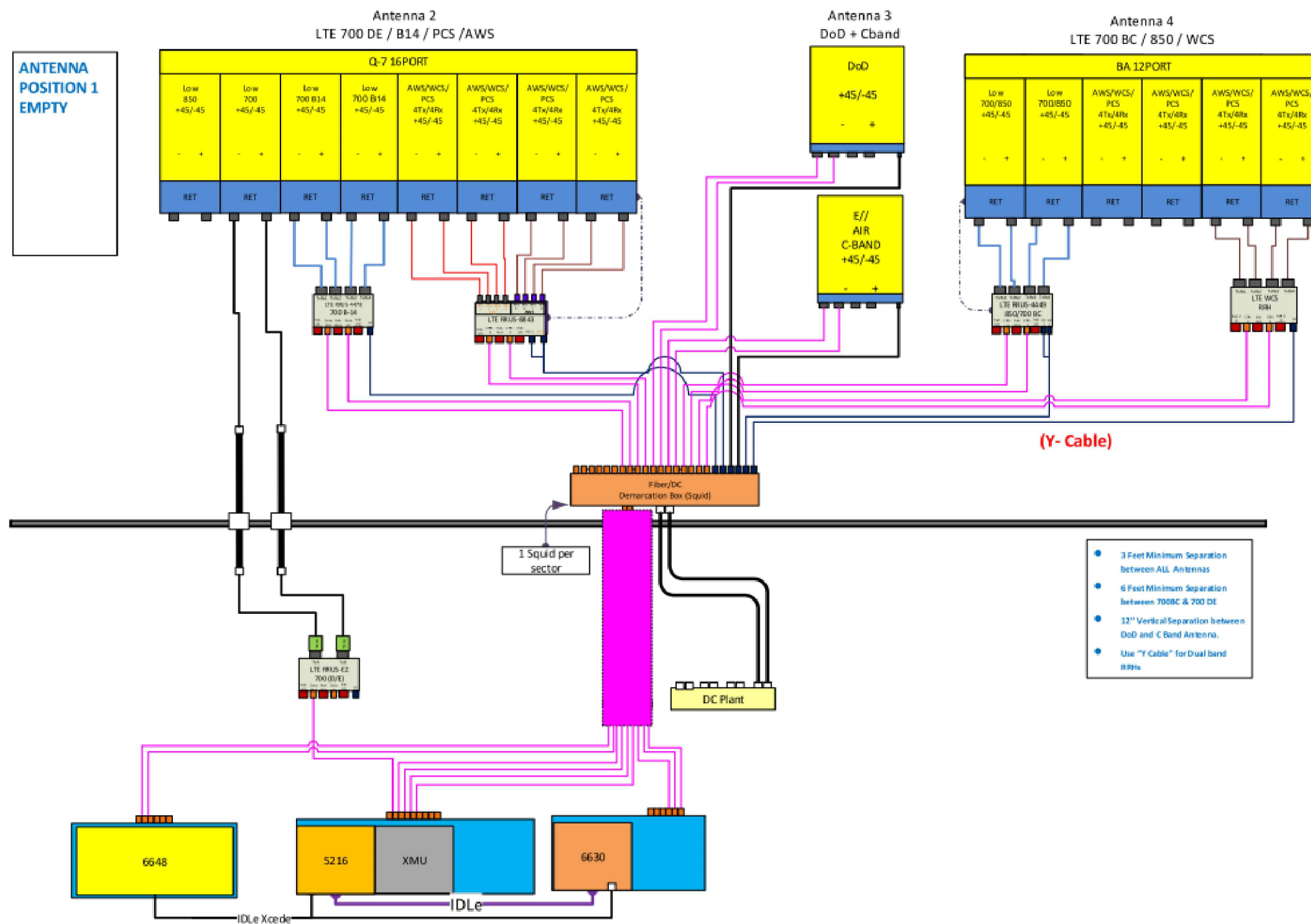
**SECTION "A" - SURGE ABSORBERS**

- INTERIOR GROUND RING (#2 AWG)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
- BUILDING STEEL (IF AVAILABLE) (#2 AWG)



**GROUND BAR - DETAIL (AS REQUIRED)**  
SCALE: N.T.S





RF PLUMBING DIAGRAM 1  
SCALE: N.T.S. RF-1

**NOTE:**  
 1. CONTRACTOR TO CONFIRM ALL PARTS.  
 2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

**NOTE:**  
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

B	06/03/22	ISSUED FOR PERMITTING	SG	AT	DPH
A	03/02/22	ISSUED FOR REVIEW	JP	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: JP		

<b>AT&amp;T</b>		
RF PLUMBING DIAGRAM		
5G NR 1SR CBAND, 5G NR RADIO, ANTENNA MODIFICATIONS, 4TXRX ANTENNA RETROFIT, 5G NR SOFTWARE RADIO, BBU RECONFIGURATION		
SITE NUMBER	DRAWING NUMBER	REV
CT2091	RF-1	B

# EXHIBIT 2



# Town of Ansonia, CT

## Property Listing Report

Map Block Lot

019 0003 0000

Building # 1

Unique Identifier

65440

### Property Information

Property Location	401 WAKELEE AVE
Mailing Address	401 WAKELEE AVE ANSONIA CT 06401
Land Use	Governmental Building
Zoning Code	A
Neighborhood	X11

Owner	CITY OF ANSONIA
Co-Owner	HILLSIDE HOME & NOLAN FIE
Book / Page	0005/0525
Land Class	Residential
Census Tract	1253
Acreage	16.5

### Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	643100	450200
Outbuildings	162300	113800
Land	996500	697600
<b>Total</b>	<b>1801900</b>	<b>1261600</b>

### Utility Information

Electric	No
Gas	No
Sewer	Yes
Public Water	Yes
Well	No



79
10 FOP
79
33 1S CLUB - HLTH+

### Primary Construction Details

Year Built	2001
Building Desc.	Commercial
Building Style	
Stories	1
Exterior Walls	Brick/Masonry
Exterior Walls 2	
Interior Walls	None/Minumum
Interior Walls 2	Drywall
Interior Floors 1	Ceramic Clay Tile
Interior Floors 2	

Heating Fuel	Natural Gas
Heating Type	Forced Hot Air
AC Type	None
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Building Use	Health Club
Building Condition	Average
Frame Type	B
Fireplaces	0
Bsmt Gar	0
Fin Bsmt Area	0
Fin Bsmt Quality	
Building Grade	0
Roof Style	Gable
Roof Cover	Asphalt

Report Created On

3/22/2022

# Town of Ansonia, CT

Property Listing Report

Map Block Lot

019 0003 0000

Building # 1

Unique Identifier

65440

## Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built
Shed	Better Quality	576	Average	2001
Poles		2	Average	2001
Tower	Cell Tower	1	Average	2012
Fence	5 Ft Chain	180	Average	2001
Patio	Det Flagstone	192	Average	2001
Courts	Tennis	3	Average	2012
Poles		2	Average	2001
Fence	8 Ft Chain	230	Average	0
Shed	Better Quality	480	Average	2001
Fence		1310	Average	0

## Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built
Porch	Open	790	Average	2001

## Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
CITY OF ANSONIA	0005_0525	1/1/1900	0



# EXHIBIT 3



**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 196 ft Self Support Tower  
**ATC Site Name** : Ansonia Wakelee,CT  
**ATC Site Number** : 302470  
**Engineering Number** : OAA777072\_C3\_01  
**Proposed Carrier** : AT&T MOBILITY  
**Carrier Site Name** : Ansonia NW\_Spectrasite Tower  
**Carrier Site Number** : CT2091  
**Site Location** : 401 Wakelee Ave  
Ansonia, CT 06401-1226  
41.3562, -73.0919  
**County** : New Haven  
**Date** : May 12, 2022  
**Max Usage** : 99%  
**Result** : Pass

Prepared By:

Tanner Putman  
Structural Engineer

Reviewed By:



**COA : PEC.0001553**





## Table of Contents

Introduction .....	3
Supporting Documents.....	3
Analysis.....	3
Conclusion .....	3
Existing and Reserved Equipment .....	4
Equipment to be Removed.....	5
Proposed Equipment.....	5
Structure Usages .....	6
Foundations.....	6
Deflection, Twist and Sway* .....	6
Standard Conditions.....	7
Calculations .....	Attached

## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 196 ft Self Support tower to reflect the change in loading by AT&T MOBILITY.

## Supporting Documents

<b>Tower Drawings</b>	Rohn Drawing #A991899, dated July 7, 1999
<b>Foundation Drawing</b>	Rohn Drawing #A992523-1, dated September 22, 1999
<b>Geotechnical Report</b>	Tectonic Engineering Consultants W.O. #1170.C754, dated May 20, 1999

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

<b>Basic Wind Speed:</b>	118 mph (3-second gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-second gust) w/ 1.00" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	C
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 1
<b>Topographic Category:</b>	1
<b>Crest Height (H):</b>	0 ft
<b>Crest Length (L):</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.20, S_i = 0.05$
<b>Site Class:</b>	D - Stiff Soil - Default

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

**Existing and Reserved Equipment**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
196.4	2	Generic 2' HP Dish	Leg	-	CLEARWIRE CORPORATION
195.0	2	Radio Waves HPD2-4.7NS	Side Arm	(4) 5/8" Coax	CITY OF ANSONIA, CT
193.7	3	Alcatel-Lucent 800 MHz RRH	Sector Frame	(4) 1 1/4" Hybriflex Cable	SPRINT NEXTEL
191.0	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
189.3	3	KMW ET-X-WM-18-65-8P			
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
185.0	2	Powerwave Allgon P40-16-XLPP-RRR			
	1	RFS APXVSP18-C-A20			
177.0	3	Samsung B5/B13 RRH-BR04C	Sector Frame	(6) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	2	RFS DB-T1-6Z-8AB-OZ			
	3	Amphenol Antel BXA-80080-4CF-EDIN-X			
	6	JMA Wireless MX10FRO660-xx			
	3	Samsung RT4401-48A			
	3	Samsung B2/B66A RRH-BR049			
167.0	6	Kaelus DBCT108F1V92-1	Sector Frame	(1) 2" conduit (2) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (12) 1 1/4" Coax	AT&T MOBILITY
	3	Raycap DC6-48-60-18-8F ("Squid")			
	3	Ericsson RRUS 4449 B5, B12			
	2	Quintel QD6616-7			
	1	Quintel QD8616-7			
	1	CCI TPA65R-BU8D			
	2	CCI TPA65R-BU6D			
	3	Ericsson AIR 6449 B77D/ C-Band			
	3	Ericsson AIR 6419 B77G			
	3	Ericsson RRUS-32 (77 lbs)			
	3	Ericsson RRUS E2 B29			
	3	Ericsson RRUS 11 (Band 12) (55 lb)			
	1	Raycap DC9-48-60-24-PC16-EV			
	6	Powerwave Allgon TT19-08BP111-001			
	3	Ericsson Radio 8843 - B2 + B66A (w/ protruding items)			
3	Ericsson RRUS 4478 B14				
157.0	3	Kathrein Scala 742 213	Leg	(6) 1 5/8" Coax	METRO PCS INC
148.0	3	Ericsson AIR-32 B2A/B66Aa	Sector Frame	(3) 1 1/4" (1.25"-31.8mm) Fiber (3) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax	T-MOBILE
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Ericsson Air6449 B41			
	3	Ericsson Radio 4449 B71 B85A			
	3	Ericsson KRY 112 144/1			
	3	RFS APXVAARR24_43-U-NA20			
	3	Ericsson RRUS 4415 B25			
130.0	1	Commander 620-3AN	Leg	(1) 1/2" Coax (1) 7/8" Coax	CITY OF ANSONIA, CT
115.0	3	JMA Wireless MX08FRO665-21	Sector Frame	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B604			
	3	Fujitsu TA08025-B605			
	1	Commscope RDIDC-9181-PF-48			
76.0	1	PCTEL GPS-TMG-HR-26N	Stand-Off	(1) 1/2" Coax	SPRINT NEXTEL

**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
167.0	-	-	-	(1) 0.39" (10mm) Fiber Trunk (6) 0.78" (19.7mm) 8 AWG 6	AT&T MOBILITY

**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
167.0	1	Raycap DC6-48-60-18-8F ("Squid")	Sector Frame	(4) 0.51" (13mm) Hybrid (8) 0.92" (23.4mm) Cable	AT&T MOBILITY

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines alongside existing AT&T MOBILITY lines.

### Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	94%	Pass
Diagonals	96%	Pass
Horizontals	13%	Pass
Anchor Bolts	68%	Pass
Leg Bolts	76%	Pass

### Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Uplift (Kips)	301.1	406.5	366.5	90%
Axial (Kips)	343.0	463.0	417.3	90%
Shear (Kips)	54.4	73.4	72.7	99%
* The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2				

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

### Deflection, Twist and Sway\*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
196.4	Generic 2' HP Dish	CLEARWIRE CORPORATION	0.547	0.012	0.285
195.0	Radio Waves HPD2-4.7NS	CITY OF ANSONIA, CT	0.547	0.012	0.285
167.0	Raycap DC6-48-60-18-8F ("Squid")	AT&T MOBILITY	0.409	0.012	0.283
115.0	Commscope RDIDC-9181-PF-48	DISH WIRELESS L.L.C.	0.181	0.009	0.188
	Fujitsu TA08025-B604				
	Fujitsu TA08025-B605				
	JMA Wireless MX08FRO665-21				

\*Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H

## **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

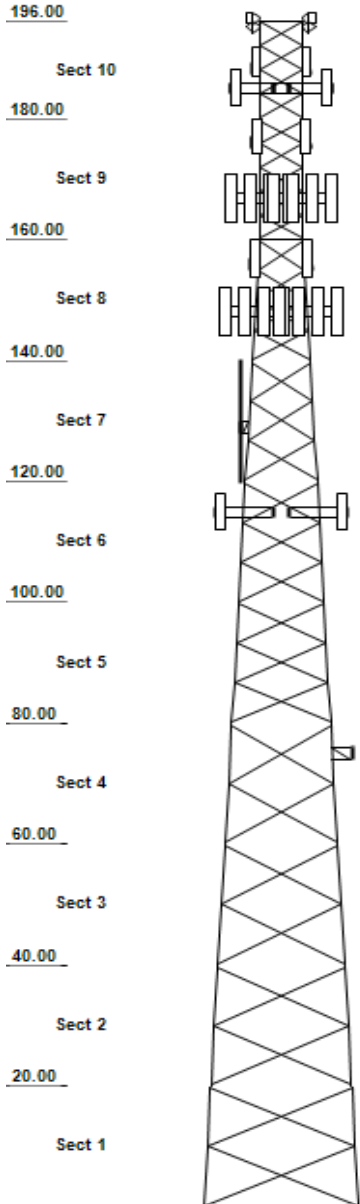
Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

Asset: 302470, Ansonia Wakelee  
 Client: AT&T MOBILITY  
 Code: ANSI/TIA-222-H

Height : 196 ft  
 Base Width : 23 ft  
 Shape : Triangle

Quadrant 1



SITE PARAMETERS

Nominal Wind : 118 mph wind with no ice Exposure : C Site Class : D  
 Ice Wind: 50 mph wind with 1" radial Topo Method: Method 1 Risk Cat : II  
 Service Wind : 60 mph Serviceability Topo Feature : S<sub>g</sub> : 0.202 S<sub>1</sub> : 0.054

SECTION PROPERTIES

Section	Leg Members	Diagonal Members	Horizontal Members
1	PX 50 ksi 8" DIA PIPE	SAE 50 ksi 4X4X0.25	
2	PSP 50 ksi ROHN 8 EHS	SAE 50 ksi 4X4X0.25	
3	PSP 50 ksi ROHN 8 EHS	SAE 50 ksi 3.5x3.5x0.25	
4	PX 50 ksi 6" DIA PIPE	SAE 50 ksi 3.5x3.5x0.25	
5	PSP 50 ksi ROHN 6 EHS	SAE 50 ksi 3X3X0.25	
6 - 7	PX 50 ksi 5" DIA PIPE	SAE 36 ksi 2.5X2.5X0.25	SAE 36 ksi 2X2X0.125
8	PX 50 ksi 4" DIA PIPE	SAE 36 ksi 2X2X0.25	
9	PX 50 ksi 3" DIA PIPE	SAE 36 ksi 2X2X0.1875	
10	PST 50 ksi 2-1/2" DIA	SAE 36 ksi 1.75X1.75X0.1875	SAE 36 ksi 2X2X0.125

REDUNDANT SECONDARY BRACING

Section	Sub Diag 1	Sub Horiz 1	Sub Diag 2	Sub Horiz 2	Sub Diag 3	Sub Horiz 3
1 - 10	-	-	-	-	-	-

DISCRETE APPURTENANCE

Elev (ft)	Type	Qty	Description
196.40	DISH-HP	2	Generic 2' HP Dish
195.00	DISH-HP	2	Radio Waves HPD2-4.7NS
193.70	RRU/RRH	3	Alcatel-Lucent 800 MHz RRH
191.00	RRU/RRH	3	Alcatel-Lucent TD-RRH8x20-25 w
189.30	PANEL	3	KMW ET-X-WM-18-65-8P
189.30	RRU/RRH	3	Alcatel-Lucent 1900 MHz 4X45 R
185.00	PANEL	1	RFS APXVSP18-C-A20
185.00	PANEL	2	Powerwave Allgon P40-16-XLPP-R
185.00	Sector Frame	3	Round Sector Frames
178.00	Sector Frame	3	Flat Light Sector Frames
177.00	BOB/SSB	2	RFS DB-T1-6Z-8AB-0Z
177.00	PANEL	3	Amphenol Antel BXA-80080-4CF-E
177.00	PANEL	6	JMA Wireless MX10FRO660-xx
177.00	RRU/RRH	3	Samsung B2/B66A RRH-BR049
177.00	RRU/RRH	3	Samsung RT4401-48A
177.00	RRU/RRH	3	Samsung B5/B13 RRH-BR04C
167.00	BOB/SSB	1	Raycap DC6-48-60-18-8F ("Squid
167.00	BOB/SSB	1	Raycap DC9-48-60-24-PC16-EV
167.00	BOB/SSB	3	Raycap DC6-48-60-18-8F ("Squid
167.00	DIPLEXER/DUAL COUPLER	6	Kaelus DBCT108F1V92-1
167.00	PANEL	1	Quintel QD8616-7
167.00	PANEL	1	CCI TPA65R-BU8D
167.00	PANEL	2	Quintel QD6616-7
167.00	PANEL	2	CCI TPA65R-BU6D
167.00	PANEL	3	Ericsson AIR 6449 B77D/ C-Band
167.00	PANEL	3	Ericsson AIR 6419 B77G
167.00	RRU/RRH	3	Ericsson RRUS-32 (77 lbs)
167.00	RRU/RRH	3	Ericsson RRUS E2 B29

Asset: 302470, Ansonia Wakelee  
 Client: AT&T MOBILITY  
 Code: ANSI/TIA-222-H

Height : 196 ft  
 Base Width : 23 ft  
 Shape : Triangle

## DISCRETE APPURTENANCE

Elev (ft)	Type	Qty	Description
167.00	RRU/RRH	3	Ericsson RRUS 11 (Band 12) (55
167.00	RRU/RRH	3	Ericsson RRUS 4449 B5, B12
167.00	RRU/RRH	3	Ericsson Radio 8843 - B2 + B66
167.00	RRU/RRH	3	Ericsson RRUS 4478 B14
167.00	Sector Frame	3	Round Sector Frames
167.00	TTA	6	Powerwave Allgon TT19-08BP111-
157.00	PANEL	3	Kathrein Scala 742 213
148.00	PANEL	3	RFS APXVAARR24_43-U-NA20
148.00	PANEL	3	Ericsson Air6449 B41
148.00	PANEL	3	Ericsson AIR 21, 1.3 M, B2A B4
148.00	PANEL	3	Ericsson AIR-32 B2A/B66Aa
148.00	RRU/RRH	3	Ericsson RRUS 4415 B25
148.00	RRU/RRH	3	Ericsson Radio 4449 B71 B85A
148.00	Sector Frame	3	Round Sector Frame
148.00	TTA	3	Ericsson KRY 112 144/1
130.00	OMNI	1	Commander 620-3AN
115.00	BOB/SSB	1	Commscope RDIDC-9181-PF-48
115.00	PANEL	3	JMA Wireless MX08FRO665-21
115.00	RRU/RRH	3	Fujitsu TA08025-B605
115.00	RRU/RRH	3	Fujitsu TA08025-B604
115.00	Sector Frame	3	Generic Flat Light Sector Fram
76.00	GPS	1	PCTEL GPS-TMG-HR-26N
76.00	T-Arm	1	Standoffs

## LINEAR APPURTENANCE

Elev (ft)		Qty	Description
From	To		
0.00	195.00	4	5/8" Coax
0.00	194.00	1	Wave Guide
0.00	189.10	4	1 1/4" Hybriflex Cable
0.00	185.00	1	Wave Guide
0.00	177.00	2	1 5/8" Hybriflex
0.00	177.00	6	1 5/8" Coax
0.00	172.90	1	2" conduit
0.00	167.00	1	Wave Guide
0.00	167.00	12	1 1/4" Coax
0.00	167.00	8	0.92" (23.4mm) Cable
0.00	167.00	2	0.78" (19.7mm) 8 AWG 6
0.00	167.00	4	0.51" (13mm) Hybrid
0.00	167.00	2	0.39" (10mm) Fiber Trunk
0.00	157.00	1	Waveguide
0.00	157.00	6	1 5/8" Coax
0.00	148.00	1	Wave Guide
0.00	148.00	6	1 5/8" Coax
0.00	148.00	3	1 5/8" (1.63"-41.3mm) Fiber
0.00	148.00	3	1 1/4" (1.25"- 31.8mm) Fiber
0.00	130.00	1	1/2" Coax
0.00	125.00	1	7/8" Coax
0.00	115.00	1	Waveguide
0.00	115.00	1	1.60" (40.6mm) Hybrid
0.00	76.00	1	1/2" Coax



Asset: 302470, Ansonia Wakelee  
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 Code: ANSI/TIA-222-H

Height : 196 ft  
 Base Width : 23 ft  
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GLOBAL BASE FOUNDATION DESIGN LOADS

Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL+WL	7902.02	61.63	72.66
DL+WL+IL	2796.47	132.04	27.41

INDIVIDUAL BASE FOUNDATION DESIGN LOADS

	Vertical (kip)	Uplift (kip)	Horizontal (kip)
	417.26	366.54	43.83

## ANALYSIS PARAMETERS

<b>Location:</b>	New Haven County, CT	<b>Height:</b>	196 ft
<b>Type and Shape:</b>	Self Support, Triangle	<b>Base Elevation:</b>	0.00 ft
<b>Manufacturer:</b>	Rohn	<b>Bottom Face Width:</b>	23.00 ft
<b>Kd</b>	0.85	<b>Top Face Width:</b>	6.65 ft
<b>Ke:</b>	1.00	<b>Anchor Bolt Detail Type:</b>	d

## ICE &amp; WIND PARAMETERS

<b>Exposure Category:</b>	C	<b>Design Wind Speed Without Ice:</b>	118 mph
<b>Risk Category:</b>	II	<b>Design Wind Speed with Ice:</b>	50 mph
<b>Topographic Factor Procedure:</b>	Method 1	<b>Operational Windspeed:</b>	60 mph
<b>Topographic Category:</b>	Flat	<b>Design Ice Thickness:</b>	1.00 in
<b>Crest Height:</b>	0 ft	<b>HMSL:</b>	129 ft

## SEISMIC PARAMETERS

<b>Analysis Method:</b>	Equivalent Lateral Force Method		
<b>Site Class:</b>	D - Stiff Soil	<b>Period Based on Rayleigh Method (sec):</b>	0.98
<b>T<sub>L</sub> (sec):</b>	6	<b>P:</b>	1.3
<b>S<sub>s</sub>:</b>	0.202	<b>S<sub>1</sub>:</b>	0.054
<b>F<sub>a</sub>:</b>	1.600	<b>F<sub>v</sub>:</b>	2.400
<b>S<sub>ds</sub>:</b>	0.215	<b>S<sub>d1</sub>:</b>	0.086
		<b>C<sub>s</sub>:</b>	0.030
		<b>C<sub>s, Max</sub>:</b>	0.030
		<b>C<sub>s, Min</sub>:</b>	0.030

## LOAD CASES

1.2D + 1.0W Normal	118 mph wind with no ice
1.2D + 1.0W 60°	118 mph wind with no ice
1.2D + 1.0W 90°	118 mph wind with no ice
1.2D + 1.0W 120°	118 mph wind with no ice
1.2D + 1.0W 180°	118 mph wind with no ice
1.2D + 1.0W 210°	118 mph wind with no ice
1.2D + 1.0W 240°	118 mph wind with no ice
1.2D + 1.0W 300°	118 mph wind with no ice
1.2D + 1.0W 330°	118 mph wind with no ice
0.9D + 1.0W Normal	118 mph wind with no ice
0.9D + 1.0W 60°	118 mph wind with no ice
0.9D + 1.0W 90°	118 mph wind with no ice
0.9D + 1.0W 120°	118 mph wind with no ice
0.9D + 1.0W 180°	118 mph wind with no ice
0.9D + 1.0W 210°	118 mph wind with no ice
0.9D + 1.0W 240°	118 mph wind with no ice
0.9D + 1.0W 300°	118 mph wind with no ice
0.9D + 1.0W 330°	118 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 60°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 90°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 120°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 180°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 210°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 240°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 300°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 330°	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
1.2D + 1.0Ev + 1.0Eh 60°	Seismic
1.2D + 1.0Ev + 1.0Eh 90°	Seismic
1.2D + 1.0Ev + 1.0Eh 120°	Seismic
1.2D + 1.0Ev + 1.0Eh 180°	Seismic
1.2D + 1.0Ev + 1.0Eh 210°	Seismic
1.2D + 1.0Ev + 1.0Eh 240°	Seismic

## LOAD CASES

1.2D + 1.0Ev + 1.0Eh 300°	Seismic
1.2D + 1.0Ev + 1.0Eh 330°	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 60°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 90°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 120°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 180°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 210°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 240°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 300°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 330°	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice
1.0D + 1.0W Service 60°	60 mph Wind with No Ice
1.0D + 1.0W Service 90°	60 mph Wind with No Ice
1.0D + 1.0W Service 120°	60 mph Wind with No Ice
1.0D + 1.0W Service 180°	60 mph Wind with No Ice
1.0D + 1.0W Service 210°	60 mph Wind with No Ice
1.0D + 1.0W Service 240°	60 mph Wind with No Ice
1.0D + 1.0W Service 300°	60 mph Wind with No Ice
1.0D + 1.0W Service 330°	60 mph Wind with No Ice

**TOWER LOADING**

Discrete Appurtenance Properties 1.2D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Width (in)	Depth (in)	K <sub>a</sub>	Orient Factor	Vert Ecc (ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)	
196.4	Generic 2' HP Dish	2	90	4.0	2.0	24.0	0.0	1.00	1.00	0.00	44.00	296	216	
195.0	Radio Waves HPD2-4.7NS	2	27	4.0	2.0	24.0	0.0	1.00	1.00	0.00	43.93	296	65	
193.7	Alcatel-Lucent 800 MHz RRH	3	53	2.1	1.6	13.0	10.8	0.80	0.50	0.00	43.87	95	191	
191.0	Alcatel-Lucent TD-RRH8x20-25 w	3	70	4.0	2.2	18.6	6.7	0.80	0.61	0.00	43.74	220	252	
189.3	Alcatel-Lucent 1900 MHz 4X45 R	3	60	2.3	2.1	11.1	10.7	0.80	0.50	0.00	43.66	103	216	
189.3	KMW ET-X-WM-18-65-8P	3	36	6.7	5.1	12.0	4.3	0.80	0.63	0.00	43.66	375	131	
185.0	RFS APXVSP18-C-A20	1	57	8.0	6.0	11.8	7.0	0.80	1.00	0.00	43.44	237	68	
185.0	Powerwave Allgon P40-16-XLPP-R	2	64	9.1	4.5	20.0	6.5	0.80	1.00	0.00	43.44	536	154	
185.0	Round Sector Frames	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.00	43.44	897	1080	
178.0	Flat Light Sector Frames	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.00	43.09	988	1440	
177.0	Samsung RT4401-48A	3	19	1.0	1.2	8.6	4.2	0.80	0.50	0.00	43.04	44	67	
177.0	Samsung B2/B66A RRH-BR049	3	84	1.9	1.3	15.0	10.0	0.80	0.50	0.00	43.04	82	304	
177.0	Samsung B5/B13 RRH-BR04C	3	70	1.9	1.3	15.0	8.1	0.80	0.50	0.00	43.04	82	253	
177.0	Amphenol Antel BXA-80080-4CF-E	3	12	3.6	4.0	8.0	5.9	0.80	0.72	0.00	43.04	226	43	
177.0	RFS DB-T1-6Z-8AB-OZ	2	44	4.8	2.0	24.0	10.0	0.80	0.72	1.0	202.55	43.09	203	106
177.0	JMA Wireless MX10FRO660-xx	6	57	9.6	5.9	15.0	7.4	0.80	0.66	0.00	43.04	1112	413	
167.0	Powerwave Allgon TT19-08BP111-	6	16	0.6	0.8	6.7	5.4	0.80	0.50	0.00	42.52	48	115	
167.0	Kaelus DBCT108F1V92-1	6	14	0.6	0.9	7.1	6.8	0.80	0.50	0.00	42.52	55	100	
167.0	Raycap DC6-48-60-18-8F ("Squid	3	32	1.5	2.0	11.0	11.0	0.80	0.50	0.00	42.52	64	114	
167.0	Raycap DC6-48-60-18-8F ("Squid	1	32	1.5	2.0	11.0	11.0	0.80	0.50	0.00	42.52	21	38	
167.0	Ericsson RRUS 4449 B5, B12	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.00	42.52	85	256	
167.0	Ericsson Radio 8843 - B2 + B66	3	75	2.0	1.5	13.2	11.3	0.80	0.50	0.00	42.52	86	270	
167.0	Ericsson RRUS 4478 B14	3	59	2.0	1.5	13.4	8.3	0.80	0.50	0.00	42.52	88	214	
167.0	Raycap DC9-48-60-24-PC16-EV	1	35	2.3	1.4	16.6	8.2	0.80	1.00	0.00	42.52	65	42	
167.0	Ericsson RRUS 11 (Band 12) (55	3	55	2.5	1.5	17.0	7.2	0.80	0.50	0.00	42.52	109	198	
167.0	Ericsson RRUS E2 B29	3	60	3.1	1.7	18.5	7.5	0.80	0.50	0.00	42.52	136	216	
167.0	Ericsson RRUS-32 (77 lbs)	3	77	3.3	2.5	13.3	9.5	0.80	0.50	0.00	42.52	144	277	
167.0	Ericsson AIR 6419 B77G	3	66	3.8	2.4	16.1	7.9	0.80	0.65	0.00	42.52	214	238	
167.0	Ericsson AIR 6449 B77D/ C-Band	3	82	4.0	2.5	15.9	10.6	0.80	0.70	0.00	42.52	245	294	
167.0	CCI TPA65R-BU6D	2	68	12.9	5.9	21.0	7.8	0.80	0.72	0.00	42.52	536	162	
167.0	Round Sector Frames	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.00	42.52	785	1080	
167.0	CCI TPA65R-BU8D	1	83	18.1	8.0	21.0	7.8	0.80	1.00	0.00	42.52	523	99	
167.0	Quintel QD8616-7	1	150	18.8	8.0	22.0	9.6	0.80	1.00	0.00	42.52	544	180	
167.0	Quintel QD6616-7	2	130	51.4	6.0	22.0	9.6	0.80	0.73	0.00	42.52	2170	312	
157.0	Kathrein Scala 742 213	3	22	5.1	6.4	6.1	2.7	1.00	0.67	0.00	41.97	368	79	
148.0	Ericsson KRY 112 144/1	3	11	0.4	0.6	6.1	2.7	0.80	0.50	0.00	41.45	15	40	
148.0	Ericsson Radio 4449 B71 B85A	3	75	1.6	1.3	13.2	10.5	0.80	0.50	0.00	41.45	70	270	
148.0	Ericsson RRUS 4415 B25	3	46	1.8	1.4	13.4	5.9	0.80	0.50	0.00	41.45	78	166	
148.0	Ericsson Air6449 B41	3	104	5.7	2.8	20.6	8.6	0.80	0.63	0.00	41.45	303	374	
148.0	Ericsson AIR 21, 1.3 M, B2A B4	3	83	6.0	4.7	12.0	8.0	0.80	0.71	0.00	41.45	363	299	
148.0	Ericsson AIR-32 B2A/B66Aa	3	132	6.5	4.7	12.9	8.7	0.80	0.71	0.00	41.45	391	476	
148.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.00	41.45	765	1080	
148.0	RFS APXVAARR24_43-U-NA20	3	128	20.2	8.0	24.0	8.7	0.80	0.63	0.00	41.45	1078	460	
130.0	Commander 620-3AN	1	53	2.5	20.7	1.2	1.2	1.00	1.00	0.00	40.33	85	64	
115.0	Commscope RDIDC-9181-PF-48	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.00	39.31	50	26	
115.0	Fujitsu TA08025-B605	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.00	39.31	79	270	
115.0	Fujitsu TA08025-B604	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.00	39.31	79	230	
115.0	JMA Wireless MX08FRO665-21	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.00	39.31	641	232	
115.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.00	39.31	1009	1440	
76.0	PCTEL GPS-TMG-HR-26N	1	1	0.1	0.4	3.2	3.2	1.00	1.00	0.00	36.02	3	1	
76.0	Standoffs	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.00	36.02	77	90	
<b>Totals</b>		<b>138</b>	<b>12,333</b>	<b>864.2</b>								<b>17,163</b>	<b>14,800</b>	

**TOWER LOADING**

Discrete Appurtenance Properties 0.9D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Width (in)	Depth (in)	K <sub>a</sub>	Orient Factor	Vert Ecc (ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
196.4	Generic 2' HP Dish	2	90	4.0	2.0	24.0	0.0	1.00	1.00	0.00	44.00	296	162
195.0	Radio Waves HPD2-4.7NS	2	27	4.0	2.0	24.0	0.0	1.00	1.00	0.00	43.93	296	49
193.7	Alcatel-Lucent 800 MHz RRH	3	53	2.1	1.6	13.0	10.8	0.80	0.50	0.00	43.87	95	143
191.0	Alcatel-Lucent TD-RRH8x20-25 w	3	70	4.0	2.2	18.6	6.7	0.80	0.61	0.00	43.74	220	189
189.3	Alcatel-Lucent 1900 MHz 4X45 R	3	60	2.3	2.1	11.1	10.7	0.80	0.50	0.00	43.66	103	162

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Width (in)	Depth (in)	K <sub>a</sub>	Orient Factor	Vert Ecc (ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)	
189.3	KMW ET-X-WM-18-65-8P	3	36	6.7	5.1	12.0	4.3	0.80	0.63	0.0	0.00	43.66	375	98
185.0	RFS APXVSP18-C-A20	1	57	8.0	6.0	11.8	7.0	0.80	1.00	0.0	0.00	43.44	237	51
185.0	Powerwave Allgon P40-16-XLPP-R	2	64	9.1	4.5	20.0	6.5	0.80	1.00	0.0	0.00	43.44	536	115
185.0	Round Sector Frames	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.00	43.44	897	810
178.0	Flat Light Sector Frames	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.00	43.09	988	1080
177.0	Samsung RT4401-48A	3	19	1.0	1.2	8.6	4.2	0.80	0.50	0.0	0.00	43.04	44	50
177.0	Samsung B2/B66A RRH-BR049	3	84	1.9	1.3	15.0	10.0	0.80	0.50	0.0	0.00	43.04	82	228
177.0	Samsung B5/B13 RRH-BR04C	3	70	1.9	1.3	15.0	8.1	0.80	0.50	0.0	0.00	43.04	82	190
177.0	Amphenol Antel BXA-80080-4CF-E	3	12	3.6	4.0	8.0	5.9	0.80	0.72	0.0	0.00	43.04	226	32
177.0	RFS DB-T1-6Z-8AB-0Z	2	44	4.8	2.0	24.0	10.0	0.80	0.72	1.0	202.55	43.09	203	79
177.0	JMA Wireless MX10FRO660-xx	6	57	9.6	5.9	15.0	7.4	0.80	0.66	0.0	0.00	43.04	1112	309
167.0	Powerwave Allgon TT19-08BP111-	6	16	0.6	0.8	6.7	5.4	0.80	0.50	0.0	0.00	42.52	48	86
167.0	Kaelus DBCT108F1V92-1	6	14	0.6	0.9	7.1	6.8	0.80	0.50	0.0	0.00	42.52	55	75
167.0	Raycap DC6-48-60-18-8F ("Squid	3	32	1.5	2.0	11.0	11.0	0.80	0.50	0.0	0.00	42.52	64	86
167.0	Raycap DC6-48-60-18-8F ("Squid	1	32	1.5	2.0	11.0	11.0	0.80	0.50	0.0	0.00	42.52	21	29
167.0	Ericsson RRUS 4449 B5, B12	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.00	42.52	85	192
167.0	Ericsson Radio 8843 - B2 + B66	3	75	2.0	1.5	13.2	11.3	0.80	0.50	0.0	0.00	42.52	86	202
167.0	Ericsson RRUS 4478 B14	3	59	2.0	1.5	13.4	8.3	0.80	0.50	0.0	0.00	42.52	88	160
167.0	Raycap DC9-48-60-24-PC16-EV	1	35	2.3	1.4	16.6	8.2	0.80	1.00	0.0	0.00	42.52	65	31
167.0	Ericsson RRUS 11 (Band 12) (55	3	55	2.5	1.5	17.0	7.2	0.80	0.50	0.0	0.00	42.52	109	148
167.0	Ericsson RRUS E2 B29	3	60	3.1	1.7	18.5	7.5	0.80	0.50	0.0	0.00	42.52	136	162
167.0	Ericsson RRUS-32 (77 lbs)	3	77	3.3	2.5	13.3	9.5	0.80	0.50	0.0	0.00	42.52	144	208
167.0	Ericsson AIR 6419 B77G	3	66	3.8	2.4	16.1	7.9	0.80	0.65	0.0	0.00	42.52	214	178
167.0	Ericsson AIR 6449 B77D/ C-Band	3	82	4.0	2.5	15.9	10.6	0.80	0.70	0.0	0.00	42.52	245	220
167.0	CCI TPA65R-BU6D	2	68	12.9	5.9	21.0	7.8	0.80	0.72	0.0	0.00	42.52	536	122
167.0	Round Sector Frames	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.00	42.52	785	810
167.0	CCI TPA65R-BU8D	1	83	18.1	8.0	21.0	7.8	0.80	1.00	0.0	0.00	42.52	523	74
167.0	Quintel QD8616-7	1	150	18.8	8.0	22.0	9.6	0.80	1.00	0.0	0.00	42.52	544	135
167.0	Quintel QD6616-7	2	130	51.4	6.0	22.0	9.6	0.80	0.73	0.0	0.00	42.52	2170	234
157.0	Kathrein Scala 742 213	3	22	5.1	6.4	6.1	2.7	1.00	0.67	0.0	0.00	41.97	368	59
148.0	Ericsson KRY 112 144/1	3	11	0.4	0.6	6.1	2.7	0.80	0.50	0.0	0.00	41.45	15	30
148.0	Ericsson Radio 4449 B71 B85A	3	75	1.6	1.3	13.2	10.5	0.80	0.50	0.0	0.00	41.45	70	202
148.0	Ericsson RRUS 4415 B25	3	46	1.8	1.4	13.4	5.9	0.80	0.50	0.0	0.00	41.45	78	124
148.0	Ericsson Air6449 B41	3	104	5.7	2.8	20.6	8.6	0.80	0.63	0.0	0.00	41.45	303	281
148.0	Ericsson AIR 21, 1.3 M, B2A B4	3	83	6.0	4.7	12.0	8.0	0.80	0.71	0.0	0.00	41.45	363	224
148.0	Ericsson AIR-32 B2A/B66Aa	3	132	6.5	4.7	12.9	8.7	0.80	0.71	0.0	0.00	41.45	391	357
148.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.00	41.45	765	810
148.0	RFS APXVAARR24_43-U-NA20	3	128	20.2	8.0	24.0	8.7	0.80	0.63	0.0	0.00	41.45	1078	345
130.0	Commander 620-3AN	1	53	2.5	20.7	1.2	1.2	1.00	1.00	0.0	0.00	40.33	85	48
115.0	Commscope RDIDC-9181-PF-48	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.0	0.00	39.31	50	20
115.0	Fujitsu TA08025-B605	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.0	0.00	39.31	79	202
115.0	Fujitsu TA08025-B604	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.0	0.00	39.31	79	173
115.0	JMA Wireless MX08FRO665-21	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.0	0.00	39.31	641	174
115.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	39.31	1009	1080
76.0	PCTEL GPS-TMG-HR-26N	1	1	0.1	0.4	3.2	3.2	1.00	1.00	0.0	0.00	36.02	3	1
76.0	Standoffs	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	36.02	77	68
Totals		138	12,333	864.2								17,163	11,100	

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elev (ft)	Description	Qty	Ice Wt (lb)	Ice EPA Length (sf)	Width (in)	Depth (in)	K <sub>a</sub>	Orient Factor	Vert Ecc (ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)	
196.4	Generic 2' HP Dish	2	147	4.8	2.0	24.0	0.0	1.00	1.00	0.0	0.00	7.90	64	330
195.0	Radio Waves HPD2-4.7NS	2	84	4.8	2.0	24.0	0.0	1.00	1.00	0.0	0.00	7.89	64	178
193.7	Alcatel-Lucent 800 MHz RRH	3	103	2.8	1.6	13.0	10.8	0.80	0.50	0.0	0.00	7.88	23	342
191.0	Alcatel-Lucent TD-RRH8x20-25 w	3	135	5.0	2.2	18.6	6.7	0.80	0.61	0.0	0.00	7.85	48	446
189.3	Alcatel-Lucent 1900 MHz 4X45 R	3	115	3.1	2.1	11.1	10.7	0.80	0.50	0.0	0.00	7.84	24	381
189.3	KMW ET-X-WM-18-65-8P	3	123	8.3	5.1	12.0	4.3	0.80	0.63	0.0	0.00	7.84	84	391
185.0	RFS APXVSP18-C-A20	1	175	9.9	6.0	11.8	7.0	0.80	1.00	0.0	0.00	7.80	53	186
185.0	Powerwave Allgon P40-16-XLPP-R	2	191	10.6	4.5	20.0	6.5	0.80	1.00	0.0	0.00	7.80	112	407
185.0	Round Sector Frames	3	514	21.3	0.0	0.0	0.0	0.75	0.75	0.0	0.00	7.80	238	1723
178.0	Flat Light Sector Frames	3	604	28.1	0.0	0.0	0.0	0.75	0.67	0.0	0.00	7.74	279	2051
177.0	Samsung RT4401-48A	3	37	1.5	1.2	8.6	4.2	0.80	0.50	0.0	0.00	7.73	11	122
177.0	Samsung B2/B66A RRH-BR049	3	128	2.5	1.3	15.0	10.0	0.80	0.50	0.0	0.00	7.73	20	433
177.0	Samsung B5/B13 RRH-BR04C	3	109	2.5	1.3	15.0	8.1	0.80	0.50	0.0	0.00	7.73	20	369
177.0	Amphenol Antel BXA-80080-4CF-E	3	72	4.8	4.0	8.0	5.9	0.80	0.72	0.0	0.00	7.73	55	222

Elev (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient Factor	Vert Ecc (ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
177.0	RFS DB-T1-6Z-8AB-OZ	2	129	5.8	2.0	24.0	10.0	0.80	0.72	1.0	43.65	7.74	44	276
177.0	JMA Wireless MX10FRO660-xx	6	194	11.4	5.9	15.0	7.4	0.80	0.66	0.0	0.00	7.73	238	1234
167.0	Powerwave Allgon TT19-08BP111-	6	30	0.9	0.8	6.7	5.4	0.80	0.50	0.0	0.00	7.63	14	197
167.0	Kaelus DBCT108F1V92-1	6	31	1.0	0.9	7.1	6.8	0.80	0.50	0.0	0.00	7.63	16	202
167.0	Raycap DC6-48-60-18-8F ("Squid	3	74	1.9	2.0	11.0	11.0	0.80	0.50	0.0	0.00	7.63	15	240
167.0	Raycap DC6-48-60-18-8F ("Squid	1	74	1.9	2.0	11.0	11.0	0.80	0.50	0.0	0.00	7.63	5	80
167.0	Ericsson RRUS 4449 B5, B12	3	115	2.6	1.5	13.2	9.4	0.80	0.50	0.0	0.00	7.63	20	386
167.0	Ericsson Radio 8843 - B2 + B66	3	123	2.6	1.5	13.2	11.3	0.80	0.50	0.0	0.00	7.63	20	415
167.0	Ericsson RRUS 4478 B14	3	101	2.7	1.5	13.4	8.3	0.80	0.50	0.0	0.00	7.63	21	338
167.0	Raycap DC9-48-60-24-PC16-EV	1	79	2.9	1.4	16.6	8.2	0.80	1.00	0.0	0.00	7.63	15	86
167.0	Ericsson RRUS 11 (Band 12) (55	3	101	3.2	1.5	17.0	7.2	0.80	0.50	0.0	0.00	7.63	25	335
167.0	Ericsson RRUS E2 B29	3	115	3.9	1.7	18.5	7.5	0.80	0.50	0.0	0.00	7.63	31	380
167.0	Ericsson RRUS-32 (77 lbs)	3	143	4.2	2.5	13.3	9.5	0.80	0.50	0.0	0.00	7.63	33	475
167.0	Ericsson AIR 6419 B77G	3	132	4.7	2.4	16.1	7.9	0.80	0.65	0.0	0.00	7.63	47	435
167.0	Ericsson AIR 6449 B77D/ C-Band	3	160	5.0	2.5	15.9	10.6	0.80	0.70	0.0	0.00	7.63	54	530
167.0	CCI TPA65R-BU6D	2	244	14.8	5.9	21.0	7.8	0.80	0.72	0.0	0.00	7.63	110	516
167.0	Round Sector Frames	3	512	21.2	0.0	0.0	0.0	0.75	0.67	0.0	0.00	7.63	207	1716
167.0	CCI TPA65R-BU8D	1	316	20.6	8.0	21.0	7.8	0.80	1.00	0.0	0.00	7.63	107	332
167.0	Quintel QD8616-7	1	408	21.3	8.0	22.0	9.6	0.80	1.00	0.0	0.00	7.63	111	438
167.0	Quintel QD6616-7	2	328	58.7	6.0	22.0	9.6	0.80	0.73	0.0	0.00	7.63	445	708
157.0	Kathrein Scala 742 213	3	89	6.0	6.4	6.1	2.7	1.00	0.67	0.0	0.00	7.54	77	281
148.0	Ericsson KRY 112 144/1	3	18	0.6	0.6	6.1	2.7	0.80	0.50	0.0	0.00	7.44	5	61
148.0	Ericsson Radio 4449 B71 B85A	3	115	2.2	1.3	13.2	10.5	0.80	0.50	0.0	0.00	7.44	17	391
148.0	Ericsson RRUS 4415 B25	3	79	2.4	1.4	13.4	5.9	0.80	0.50	0.0	0.00	7.44	19	264
148.0	Ericsson Air6449 B41	3	195	6.7	2.8	20.6	8.6	0.80	0.63	0.0	0.00	7.44	64	648
148.0	Ericsson AIR 21, 1.3 M, B2A B4	3	180	7.5	4.7	12.0	8.0	0.80	0.71	0.0	0.00	7.44	81	591
148.0	Ericsson AIR-32 B2A/B66Aa	3	239	8.0	4.7	12.9	8.7	0.80	0.71	0.0	0.00	7.44	86	796
148.0	Round Sector Frame	3	546	25.5	0.0	0.0	0.0	0.75	0.67	0.0	0.00	7.44	243	1817
148.0	RFS APXVAARR24_43-U-NA20	3	390	22.7	8.0	24.0	8.7	0.80	0.63	0.0	0.00	7.44	217	1247
130.0	Commander 620-3AN	1	103	7.3	20.7	1.2	1.2	1.00	1.00	0.0	0.00	7.24	45	113
115.0	Commscope RDIDC-9181-PF-48	1	59	2.4	1.3	14.0	8.0	0.80	1.00	0.0	0.00	7.06	12	63
115.0	Fujitsu TA08025-B605	3	116	2.6	1.3	15.0	9.1	0.80	0.50	0.0	0.00	7.06	18	392
115.0	Fujitsu TA08025-B604	3	102	2.6	1.3	15.0	7.9	0.80	0.50	0.0	0.00	7.06	18	343
115.0	JMA Wireless MX08FRO665-21	3	231	14.3	6.0	20.0	8.0	0.80	0.64	0.0	0.00	7.06	132	732
115.0	Generic Flat Light Sector Fram	3	595	27.7	0.0	0.0	0.0	0.75	0.75	0.0	0.00	7.06	280	2025
76.0	PCTEL GPS-TMG-HR-26N	1	4	0.2	0.4	3.2	3.2	1.00	1.00	0.0	0.00	6.47	1	4
76.0	Standoffs	1	91	2.7	0.0	0.0	0.0	1.00	1.00	0.0	0.00	6.47	15	106
Totals		138	24,307	1129.2									4000	26,773

TOWER LOADING

Discrete Appurtenance Properties 1.0D + 1.0W Service

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient Factor	Vert Ecc (ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
196.4	Generic 2' HP Dish	2	90	4.0	2.0	24.0	0.0	1.00	1.00	0.0	0.00	11.37	77	180
195.0	Radio Waves HPD2-4.7NS	2	27	4.0	2.0	24.0	0.0	1.00	1.00	0.0	0.00	11.36	76	54
193.7	Alcatel-Lucent 800 MHz RRH	3	53	2.1	1.6	13.0	10.8	0.80	0.50	0.0	0.00	11.34	25	159
191.0	Alcatel-Lucent TD-RRH8x20-25 w	3	70	4.0	2.2	18.6	6.7	0.80	0.61	0.0	0.00	11.31	57	210
189.3	Alcatel-Lucent 1900 MHz 4X45 R	3	60	2.3	2.1	11.1	10.7	0.80	0.50	0.0	0.00	11.29	27	180
189.3	KMW ET-X-WM-18-65-8P	3	36	6.7	5.1	12.0	4.3	0.80	0.63	0.0	0.00	11.29	97	109
185.0	RFS APXVSP18-C-A20	1	57	8.0	6.0	11.8	7.0	0.80	1.00	0.0	0.00	11.23	61	57
185.0	Powerwave Allgon P40-16-XLPP-R	2	64	9.1	4.5	20.0	6.5	0.80	1.00	0.0	0.00	11.23	139	128
185.0	Round Sector Frames	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.00	11.23	232	900
178.0	Flat Light Sector Frames	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.00	11.14	256	1200
177.0	Samsung RT4401-48A	3	19	1.0	1.2	8.6	4.2	0.80	0.50	0.0	0.00	11.13	11	56
177.0	Samsung B2/B66A RRH-BR049	3	84	1.9	1.3	15.0	10.0	0.80	0.50	0.0	0.00	11.13	21	253
177.0	Samsung B5/B13 RRH-BR04C	3	70	1.9	1.3	15.0	8.1	0.80	0.50	0.0	0.00	11.13	21	211
177.0	Amphenol Antel BXA-80080-4CF-E	3	12	3.6	4.0	8.0	5.9	0.80	0.72	0.0	0.00	11.13	58	36
177.0	RFS DB-T1-6Z-8AB-OZ	2	44	4.8	2.0	24.0	10.0	0.80	0.72	1.0	52.37	11.14	52	88
177.0	JMA Wireless MX10FRO660-xx	6	57	9.6	5.9	15.0	7.4	0.80	0.66	0.0	0.00	11.13	287	344
167.0	Powerwave Allgon TT19-08BP111-	6	16	0.6	0.8	6.7	5.4	0.80	0.50	0.0	0.00	10.99	12	96
167.0	Kaelus DBCT108F1V92-1	6	14	0.6	0.9	7.1	6.8	0.80	0.50	0.0	0.00	10.99	14	83
167.0	Raycap DC6-48-60-18-8F ("Squid	3	32	1.5	2.0	11.0	11.0	0.80	0.50	0.0	0.00	10.99	16	95
167.0	Raycap DC6-48-60-18-8F ("Squid	1	32	1.5	2.0	11.0	11.0	0.80	0.50	0.0	0.00	10.99	5	32
167.0	Ericsson RRUS 4449 B5, B12	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.00	10.99	22	213
167.0	Ericsson Radio 8843 - B2 + B66	3	75	2.0	1.5	13.2	11.3	0.80	0.50	0.0	0.00	10.99	22	225

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient Factor	Vert Ecc (ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
167.0	Ericsson RRUS 4478 B14	3	59	2.0	1.5	13.4	8.3	0.80	0.50	0.0	0.00	10.99	23	178
167.0	Raycap DC9-48-60-24-PC16-EV	1	35	2.3	1.4	16.6	8.2	0.80	1.00	0.0	0.00	10.99	17	35
167.0	Ericsson RRUS 11 (Band 12) (55	3	55	2.5	1.5	17.0	7.2	0.80	0.50	0.0	0.00	10.99	28	165
167.0	Ericsson RRUS E2 B29	3	60	3.1	1.7	18.5	7.5	0.80	0.50	0.0	0.00	10.99	35	180
167.0	Ericsson RRUS-32 (77 lbs)	3	77	3.3	2.5	13.3	9.5	0.80	0.50	0.0	0.00	10.99	37	231
167.0	Ericsson AIR 6419 B77G	3	66	3.8	2.4	16.1	7.9	0.80	0.65	0.0	0.00	10.99	55	198
167.0	Ericsson AIR 6449 B77D/ C-Band	3	82	4.0	2.5	15.9	10.6	0.80	0.70	0.0	0.00	10.99	63	245
167.0	CCI TPA65R-BU6D	2	68	12.9	5.9	21.0	7.8	0.80	0.72	0.0	0.00	10.99	139	135
167.0	Round Sector Frames	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.00	10.99	203	900
167.0	CCI TPA65R-BU8D	1	83	18.1	8.0	21.0	7.8	0.80	1.00	0.0	0.00	10.99	135	82
167.0	Quintel QD8616-7	1	150	18.8	8.0	22.0	9.6	0.80	1.00	0.0	0.00	10.99	141	150
167.0	Quintel QD6616-7	2	130	51.4	6.0	22.0	9.6	0.80	0.73	0.0	0.00	10.99	561	260
157.0	Kathrein Scala 742 213	3	22	5.1	6.4	6.1	2.7	1.00	0.67	0.0	0.00	10.85	95	66
148.0	Ericsson KRY 112 144/1	3	11	0.4	0.6	6.1	2.7	0.80	0.50	0.0	0.00	10.72	4	33
148.0	Ericsson Radio 4449 B71 B85A	3	75	1.6	1.3	13.2	10.5	0.80	0.50	0.0	0.00	10.72	18	225
148.0	Ericsson RRUS 4415 B25	3	46	1.8	1.4	13.4	5.9	0.80	0.50	0.0	0.00	10.72	20	138
148.0	Ericsson Air6449 B41	3	104	5.7	2.8	20.6	8.6	0.80	0.63	0.0	0.00	10.72	78	312
148.0	Ericsson AIR 21, 1.3 M, B2A B4	3	83	6.0	4.7	12.0	8.0	0.80	0.71	0.0	0.00	10.72	94	249
148.0	Ericsson AIR-32 B2A/B66Aa	3	132	6.5	4.7	12.9	8.7	0.80	0.71	0.0	0.00	10.72	101	397
148.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.00	10.72	198	900
148.0	RFS APXVAARR24_43-U-NA20	3	128	20.2	8.0	24.0	8.7	0.80	0.63	0.0	0.00	10.72	279	384
130.0	Commander 620-3AN	1	53	2.5	20.7	1.2	1.2	1.00	1.00	0.0	0.00	10.43	22	53
115.0	Commscope RDIDC-9181-PF-48	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.0	0.00	10.16	13	22
115.0	Fujitsu TA08025-B605	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.0	0.00	10.16	20	225
115.0	Fujitsu TA08025-B604	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.0	0.00	10.16	20	192
115.0	JMA Wireless MX08FRO665-21	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.0	0.00	10.16	166	194
115.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	10.16	261	1200
76.0	PCTEL GPS-TMG-HR-26N	1	1	0.1	0.4	3.2	3.2	1.00	1.00	0.0	0.00	9.31	1	1
76.0	Standoffs	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	9.31	20	75
<b>Totals</b>		<b>138</b>	<b>12,333</b>	<b>864.2</b>									<b>4,437</b>	<b>12,333</b>

TOWER LOADING

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	% In Wind	Spread On Faces	Bundling	Cluster Dia (in)	Out of Zone	Spacing (in)	Orient Factor	K <sub>a</sub> Override
0.0	195.0	5/8" Coax	4	0.86	0.15	100	None	Individual	0.00	N	1.00	1.00	0.00
0.0	194.0	Wave Guide	1	1.25	5.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	189.1	1 1/4" Hybriflex Cable	1	1.54	1.00	100	2	Individual	0.00	N	1.00	1.00	0.00
0.0	189.1	1 1/4" Hybriflex Cable	3	1.54	1.00	100	2	Individual	0.00	N	1.00	1.00	0.00
0.0	185.0	Wave Guide	1	1.25	5.00	100	2	Individual	0.00	N	1.00	1.00	0.00
0.0	177.0	1 5/8" Coax	6	1.98	0.82	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	177.0	1 5/8" Hybriflex	2	1.98	1.30	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	172.9	2" conduit	1	2.38	3.65	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	167.0	0.51" (13mm) Hybrid	4	0.51	0.14	100	None	Individual	0.00	N	1.00	1.00	0.00
0.0	167.0	0.92" (23.4mm) Cable	8	0.92	0.89	100	None	Individual	0.00	N	1.00	1.00	0.00
0.0	167.0	0.78" (19.7mm) 8 AWG 6	2	0.78	0.59	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	167.0	1 1/4" Coax	12	1.55	0.63	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	167.0	0.39" (10mm) Fiber Trunk	2	0.39	0.06	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	167.0	Wave Guide	1	1.25	5.00	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	157.0	1 5/8" Coax	6	1.98	0.82	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	157.0	Waveguide	1	1.50	6.00	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	148.0	1 5/8" (1.63"-41.3mm) Fiber	3	1.63	1.61	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	148.0	1 1/4" (1.25"- 31.8mm) Fiber	3	1.25	1.05	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	148.0	1 5/8" Coax	6	1.98	0.82	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	148.0	Wave Guide	1	1.25	5.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	130.0	1/2" Coax	1	0.63	0.15	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	125.0	7/8" Coax	1	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	115.0	1.60" (40.6mm) Hybrid	1	1.60	2.34	100	2	Individual	0.00	N	1.00	1.00	0.00
0.0	115.0	Waveguide	1	2.00	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	76.0	1/2" Coax	1	0.63	0.15	100	2	Individual	0.00	N	1.00	1.00	0.00



**SECTION FORCES**

1.2D + 1.0W Normal  
118 mph wind with no ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	1.00	1.00	0.0	14.18	38.88	0.00	1014	0	1440	327	1768
9	170	42.68	12.471	11.667	0.00	0.172	2.69	1.00	1.00	0.0	19.06	51.32	0.00	2162	0	1862	1746	3608
8	150	41.57	12.833	15.027	0.00	0.170	2.70	1.00	1.00	0.0	20.74	55.94	0.00	3496	0	1977	3633	5609
7	130	40.33	14.162	18.574	0.00	0.159	2.74	1.00	1.00	0.0	23.12	63.32	0.00	4374	0	2171	4196	6367
6	110	38.94	16.348	18.577	0.00	0.142	2.80	1.00	1.00	0.0	25.29	70.89	0.00	4687	0	2346	4243	6589
5	90	37.33	22.171	22.118	0.00	0.153	2.76	1.00	1.00	0.0	32.09	88.54	0.00	5309	0	2809	4114	6923
4	70	35.41	21.084	22.121	0.00	0.132	2.84	1.00	1.00	0.0	31.02	88.11	0.00	5658	0	2652	3920	6572
3	50	32.99	22.985	28.804	0.00	0.139	2.81	1.00	1.00	0.0	34.88	98.13	0.00	6133	0	2751	3656	6408
2	30	29.62	28.712	28.798	0.00	0.139	2.81	1.00	1.00	0.0	40.61	114.24	0.00	6542	0	2876	3284	6160
1	10	25.63	31.130	28.798	0.00	0.132	2.84	1.00	1.00	0.0	42.93	121.89	0.00	7459	0	2656	2841	5497
														46,834	0			55,501

1.2D + 1.0W 60°  
118 mph wind with no ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.80	1.00	0.0	12.22	33.49	0.00	1014	0	1241	327	1568
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.80	1.00	0.0	16.57	44.61	0.00	2162	0	1618	1746	3365
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.80	1.00	0.0	18.17	49.02	0.00	3496	0	1732	3633	5365
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.80	1.00	0.0	20.29	55.56	0.00	4374	0	1905	4196	6101
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.80	1.00	0.0	22.02	61.72	0.00	4687	0	2043	4243	6286
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.80	1.00	0.0	27.66	76.30	0.00	5309	0	2421	4114	6535
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.80	1.00	0.0	26.80	76.13	0.00	5658	0	2291	3920	6211
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.80	1.00	0.0	30.29	85.20	0.00	6133	0	2389	3656	6045
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.80	1.00	0.0	34.87	98.08	0.00	6542	0	2470	3284	5753
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.80	1.00	0.0	36.70	104.21	0.00	7459	0	2271	2841	5112
														46,834	0			52,341

1.2D + 1.0W 90°  
118 mph wind with no ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.85	1.00	0.0	12.71	34.84	0.00	1014	0	1291	327	1618
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.85	1.00	0.0	17.19	46.29	0.00	2162	0	1679	1746	3425
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.85	1.00	0.0	18.81	50.75	0.00	3496	0	1793	3633	5426
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.85	1.00	0.0	21.00	57.50	0.00	4374	0	1971	4196	6167
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.85	1.00	0.0	22.84	64.01	0.00	4687	0	2119	4243	6361
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.85	1.00	0.0	28.76	79.36	0.00	5309	0	2518	4114	6632
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.85	1.00	0.0	27.86	79.12	0.00	5658	0	2381	3920	6301
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.85	1.00	0.0	31.44	88.43	0.00	6133	0	2479	3656	6136
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.85	1.00	0.0	36.30	102.12	0.00	6542	0	2571	3284	5855
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.85	1.00	0.0	38.26	108.63	0.00	7459	0	2367	2841	5208
														46,834	0			53,131

1.2D + 1.0W 120°  
118 mph wind with no ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	1.00	1.00	0.0	14.18	38.88	0.00	1014	0	1440	327	1768
9	170	42.68	12.471	11.667	0.00	0.172	2.69	1.00	1.00	0.0	19.06	51.32	0.00	2162	0	1862	1746	3608

**SECTION FORCES**

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
8	150	41.57	12.833	15.027	0.00	0.170	2.70	1.00	1.00	0.0	20.74	55.94	0.00	3496	0	1977	3633	5609
7	130	40.33	14.162	18.574	0.00	0.159	2.74	1.00	1.00	0.0	23.12	63.32	0.00	4374	0	2171	4196	6367
6	110	38.94	16.348	18.577	0.00	0.142	2.80	1.00	1.00	0.0	25.29	70.89	0.00	4687	0	2346	4243	6589
5	90	37.33	22.171	22.118	0.00	0.153	2.76	1.00	1.00	0.0	32.09	88.54	0.00	5309	0	2809	4114	6923
4	70	35.41	21.084	22.121	0.00	0.132	2.84	1.00	1.00	0.0	31.02	88.11	0.00	5658	0	2652	3920	6572
3	50	32.99	22.985	28.804	0.00	0.139	2.81	1.00	1.00	0.0	34.88	98.13	0.00	6133	0	2751	3656	6408
2	30	29.62	28.712	28.798	0.00	0.139	2.81	1.00	1.00	0.0	40.61	114.24	0.00	6542	0	2876	3284	6160
1	10	25.63	31.130	28.798	0.00	0.132	2.84	1.00	1.00	0.0	42.93	121.89	0.00	7459	0	2656	2841	5497
														46,834	0			55,501

1.2D + 1.0W 180°  
118 mph wind with no ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.80	1.00	0.0	12.22	33.49	0.00	1014	0	1241	327	1568
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.80	1.00	0.0	16.57	44.61	0.00	2162	0	1618	1746	3365
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.80	1.00	0.0	18.17	49.02	0.00	3496	0	1732	3633	5365
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.80	1.00	0.0	20.29	55.56	0.00	4374	0	1905	4196	6101
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.80	1.00	0.0	22.02	61.72	0.00	4687	0	2043	4243	6286
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.80	1.00	0.0	27.66	76.30	0.00	5309	0	2421	4114	6535
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.80	1.00	0.0	26.80	76.13	0.00	5658	0	2291	3920	6211
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.80	1.00	0.0	30.29	85.20	0.00	6133	0	2389	3656	6045
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.80	1.00	0.0	34.87	98.08	0.00	6542	0	2470	3284	5753
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.80	1.00	0.0	36.70	104.21	0.00	7459	0	2271	2841	5112
														46,834	0			52,341

1.2D + 1.0W 210°  
118 mph wind with no ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.85	1.00	0.0	12.71	34.84	0.00	1014	0	1291	327	1618
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.85	1.00	0.0	17.19	46.29	0.00	2162	0	1679	1746	3425
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.85	1.00	0.0	18.81	50.75	0.00	3496	0	1793	3633	5426
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.85	1.00	0.0	21.00	57.50	0.00	4374	0	1971	4196	6167
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.85	1.00	0.0	22.84	64.01	0.00	4687	0	2119	4243	6361
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.85	1.00	0.0	28.76	79.36	0.00	5309	0	2518	4114	6632
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.85	1.00	0.0	27.86	79.12	0.00	5658	0	2381	3920	6301
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.85	1.00	0.0	31.44	88.43	0.00	6133	0	2479	3656	6136
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.85	1.00	0.0	36.30	102.12	0.00	6542	0	2571	3284	5855
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.85	1.00	0.0	38.26	108.63	0.00	7459	0	2367	2841	5208
														46,834	0			53,131

1.2D + 1.0W 240°  
118 mph wind with no ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	1.00	1.00	0.0	14.18	38.88	0.00	1014	0	1440	327	1768
9	170	42.68	12.471	11.667	0.00	0.172	2.69	1.00	1.00	0.0	19.06	51.32	0.00	2162	0	1862	1746	3608
8	150	41.57	12.833	15.027	0.00	0.170	2.70	1.00	1.00	0.0	20.74	55.94	0.00	3496	0	1977	3633	5609
7	130	40.33	14.162	18.574	0.00	0.159	2.74	1.00	1.00	0.0	23.12	63.32	0.00	4374	0	2171	4196	6367
6	110	38.94	16.348	18.577	0.00	0.142	2.80	1.00	1.00	0.0	25.29	70.89	0.00	4687	0	2346	4243	6589
5	90	37.33	22.171	22.118	0.00	0.153	2.76	1.00	1.00	0.0	32.09	88.54	0.00	5309	0	2809	4114	6923
4	70	35.41	21.084	22.121	0.00	0.132	2.84	1.00	1.00	0.0	31.02	88.11	0.00	5658	0	2652	3920	6572
3	50	32.99	22.985	28.804	0.00	0.139	2.81	1.00	1.00	0.0	34.88	98.13	0.00	6133	0	2751	3656	6408
2	30	29.62	28.712	28.798	0.00	0.139	2.81	1.00	1.00	0.0	40.61	114.24	0.00	6542	0	2876	3284	6160
1	10	25.63	31.130	28.798	0.00	0.132	2.84	1.00	1.00	0.0	42.93	121.89	0.00	7459	0	2656	2841	5497

**SECTION FORCES**

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
														46,834	0			55,501

1.2D + 1.0W 30° Gust Response Factor (Gh): 0.85  
 118 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.80	1.00	0.0	12.22	33.49	0.00	1014	0	1241	327	1568
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.80	1.00	0.0	16.57	44.61	0.00	2162	0	1618	1746	3365
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.80	1.00	0.0	18.17	49.02	0.00	3496	0	1732	3633	5365
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.80	1.00	0.0	20.29	55.56	0.00	4374	0	1905	4196	6101
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.80	1.00	0.0	22.02	61.72	0.00	4687	0	2043	4243	6286
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.80	1.00	0.0	27.66	76.30	0.00	5309	0	2421	4114	6535
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.80	1.00	0.0	26.80	76.13	0.00	5658	0	2291	3920	6211
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.80	1.00	0.0	30.29	85.20	0.00	6133	0	2389	3656	6045
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.80	1.00	0.0	34.87	98.08	0.00	6542	0	2470	3284	5753
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.80	1.00	0.0	36.70	104.21	0.00	7459	0	2271	2841	5112
														46,834	0			52,341

1.2D + 1.0W 330° Gust Response Factor (Gh): 0.85  
 118 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.85	1.00	0.0	12.71	34.84	0.00	1014	0	1291	327	1618
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.85	1.00	0.0	17.19	46.29	0.00	2162	0	1679	1746	3425
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.85	1.00	0.0	18.81	50.75	0.00	3496	0	1793	3633	5426
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.85	1.00	0.0	21.00	57.50	0.00	4374	0	1971	4196	6167
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.85	1.00	0.0	22.84	64.01	0.00	4687	0	2119	4243	6361
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.85	1.00	0.0	28.76	79.36	0.00	5309	0	2518	4114	6632
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.85	1.00	0.0	27.86	79.12	0.00	5658	0	2381	3920	6301
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.85	1.00	0.0	31.44	88.43	0.00	6133	0	2479	3656	6136
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.85	1.00	0.0	36.30	102.12	0.00	6542	0	2571	3284	5855
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.85	1.00	0.0	38.26	108.63	0.00	7459	0	2367	2841	5208
														46,834	0			53,131

0.9D + 1.0W Normal Gust Response Factor (Gh): 0.85  
 118 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	1.00	1.00	0.0	14.18	38.88	0.00	761	0	1440	327	1768
9	170	42.68	12.471	11.667	0.00	0.172	2.69	1.00	1.00	0.0	19.06	51.32	0.00	1622	0	1862	1746	3608
8	150	41.57	12.833	15.027	0.00	0.170	2.70	1.00	1.00	0.0	20.74	55.94	0.00	2622	0	1977	3633	5609
7	130	40.33	14.162	18.574	0.00	0.159	2.74	1.00	1.00	0.0	23.12	63.32	0.00	3280	0	2171	4196	6367
6	110	38.94	16.348	18.577	0.00	0.142	2.80	1.00	1.00	0.0	25.29	70.89	0.00	3515	0	2346	4243	6589
5	90	37.33	22.171	22.118	0.00	0.153	2.76	1.00	1.00	0.0	32.09	88.54	0.00	3981	0	2809	4114	6923
4	70	35.41	21.084	22.121	0.00	0.132	2.84	1.00	1.00	0.0	31.02	88.11	0.00	4243	0	2652	3920	6572
3	50	32.99	22.985	28.804	0.00	0.139	2.81	1.00	1.00	0.0	34.88	98.13	0.00	4600	0	2751	3656	6408
2	30	29.62	28.712	28.798	0.00	0.139	2.81	1.00	1.00	0.0	40.61	114.24	0.00	4907	0	2876	3284	6160
1	10	25.63	31.130	28.798	0.00	0.132	2.84	1.00	1.00	0.0	42.93	121.89	0.00	5594	0	2656	2841	5497
														35,126	0			55,501

0.9D + 1.0W 60° Gust Response Factor (Gh): 0.85  
 118 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.80	1.00	0.0	12.22	33.49	0.00	761	0	1241	327	1568

**SECTION FORCES**

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>f</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.80	1.00	0.0	16.57	44.61	0.00	1622	0	1618	1746	3365
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.80	1.00	0.0	18.17	49.02	0.00	2622	0	1732	3633	5365
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.80	1.00	0.0	20.29	55.56	0.00	3280	0	1905	4196	6101
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.80	1.00	0.0	22.02	61.72	0.00	3515	0	2043	4243	6286
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.80	1.00	0.0	27.66	76.30	0.00	3981	0	2421	4114	6535
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.80	1.00	0.0	26.80	76.13	0.00	4243	0	2291	3920	6211
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.80	1.00	0.0	30.29	85.20	0.00	4600	0	2389	3656	6045
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.80	1.00	0.0	34.87	98.08	0.00	4907	0	2470	3284	5753
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.80	1.00	0.0	36.70	104.21	0.00	5594	0	2271	2841	5112
														35,126	0			52,341

0.9D + 1.0W 90°

118 mph wind with no ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>f</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.85	1.00	0.0	12.71	34.84	0.00	761	0	1291	327	1618
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.85	1.00	0.0	17.19	46.29	0.00	1622	0	1679	1746	3425
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.85	1.00	0.0	18.81	50.75	0.00	2622	0	1793	3633	5426
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.85	1.00	0.0	21.00	57.50	0.00	3280	0	1971	4196	6167
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.85	1.00	0.0	22.84	64.01	0.00	3515	0	2119	4243	6361
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.85	1.00	0.0	28.76	79.36	0.00	3981	0	2518	4114	6632
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.85	1.00	0.0	27.86	79.12	0.00	4243	0	2381	3920	6301
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.85	1.00	0.0	31.44	88.43	0.00	4600	0	2479	3656	6136
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.85	1.00	0.0	36.30	102.12	0.00	4907	0	2571	3284	5855
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.85	1.00	0.0	38.26	108.63	0.00	5594	0	2367	2841	5208
														35,126	0			53,131

0.9D + 1.0W 120°

118 mph wind with no ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>f</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	1.00	1.00	0.0	14.18	38.88	0.00	761	0	1440	327	1768
9	170	42.68	12.471	11.667	0.00	0.172	2.69	1.00	1.00	0.0	19.06	51.32	0.00	1622	0	1862	1746	3608
8	150	41.57	12.833	15.027	0.00	0.170	2.70	1.00	1.00	0.0	20.74	55.94	0.00	2622	0	1977	3633	5609
7	130	40.33	14.162	18.574	0.00	0.159	2.74	1.00	1.00	0.0	23.12	63.32	0.00	3280	0	2171	4196	6367
6	110	38.94	16.348	18.577	0.00	0.142	2.80	1.00	1.00	0.0	25.29	70.89	0.00	3515	0	2346	4243	6589
5	90	37.33	22.171	22.118	0.00	0.153	2.76	1.00	1.00	0.0	32.09	88.54	0.00	3981	0	2809	4114	6923
4	70	35.41	21.084	22.121	0.00	0.132	2.84	1.00	1.00	0.0	31.02	88.11	0.00	4243	0	2652	3920	6572
3	50	32.99	22.985	28.804	0.00	0.139	2.81	1.00	1.00	0.0	34.88	98.13	0.00	4600	0	2751	3656	6408
2	30	29.62	28.712	28.798	0.00	0.139	2.81	1.00	1.00	0.0	40.61	114.24	0.00	4907	0	2876	3284	6160
1	10	25.63	31.130	28.798	0.00	0.132	2.84	1.00	1.00	0.0	42.93	121.89	0.00	5594	0	2656	2841	5497
														35,126	0			55,501

0.9D + 1.0W 180°

118 mph wind with no ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>f</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.80	1.00	0.0	12.22	33.49	0.00	761	0	1241	327	1568
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.80	1.00	0.0	16.57	44.61	0.00	1622	0	1618	1746	3365
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.80	1.00	0.0	18.17	49.02	0.00	2622	0	1732	3633	5365
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.80	1.00	0.0	20.29	55.56	0.00	3280	0	1905	4196	6101
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.80	1.00	0.0	22.02	61.72	0.00	3515	0	2043	4243	6286
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.80	1.00	0.0	27.66	76.30	0.00	3981	0	2421	4114	6535
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.80	1.00	0.0	26.80	76.13	0.00	4243	0	2291	3920	6211
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.80	1.00	0.0	30.29	85.20	0.00	4600	0	2389	3656	6045
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.80	1.00	0.0	34.87	98.08	0.00	4907	0	2470	3284	5753

**SECTION FORCES**

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.80	1.00	0.0	36.70	104.21	0.00	5594	0	2271	2841	5112
															35,126	0	52,341	

0.9D + 1.0W 210° Gust Response Factor (Gh): 0.85  
 118 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.85	1.00	0.0	12.71	34.84	0.00	761	0	1291	327	1618
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.85	1.00	0.0	17.19	46.29	0.00	1622	0	1679	1746	3425
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.85	1.00	0.0	18.81	50.75	0.00	2622	0	1793	3633	5426
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.85	1.00	0.0	21.00	57.50	0.00	3280	0	1971	4196	6167
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.85	1.00	0.0	22.84	64.01	0.00	3515	0	2119	4243	6361
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.85	1.00	0.0	28.76	79.36	0.00	3981	0	2518	4114	6632
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.85	1.00	0.0	27.86	79.12	0.00	4243	0	2381	3920	6301
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.85	1.00	0.0	31.44	88.43	0.00	4600	0	2479	3656	6136
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.85	1.00	0.0	36.30	102.12	0.00	4907	0	2571	3284	5855
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.85	1.00	0.0	38.26	108.63	0.00	5594	0	2367	2841	5208
															35,126	0	53,131	

0.9D + 1.0W 240° Gust Response Factor (Gh): 0.85  
 118 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	1.00	1.00	0.0	14.18	38.88	0.00	761	0	1440	327	1768
9	170	42.68	12.471	11.667	0.00	0.172	2.69	1.00	1.00	0.0	19.06	51.32	0.00	1622	0	1862	1746	3608
8	150	41.57	12.833	15.027	0.00	0.170	2.70	1.00	1.00	0.0	20.74	55.94	0.00	2622	0	1977	3633	5609
7	130	40.33	14.162	18.574	0.00	0.159	2.74	1.00	1.00	0.0	23.12	63.32	0.00	3280	0	2171	4196	6367
6	110	38.94	16.348	18.577	0.00	0.142	2.80	1.00	1.00	0.0	25.29	70.89	0.00	3515	0	2346	4243	6589
5	90	37.33	22.171	22.118	0.00	0.153	2.76	1.00	1.00	0.0	32.09	88.54	0.00	3981	0	2809	4114	6923
4	70	35.41	21.084	22.121	0.00	0.132	2.84	1.00	1.00	0.0	31.02	88.11	0.00	4243	0	2652	3920	6572
3	50	32.99	22.985	28.804	0.00	0.139	2.81	1.00	1.00	0.0	34.88	98.13	0.00	4600	0	2751	3656	6408
2	30	29.62	28.712	28.798	0.00	0.139	2.81	1.00	1.00	0.0	40.61	114.24	0.00	4907	0	2876	3284	6160
1	10	25.63	31.130	28.798	0.00	0.132	2.84	1.00	1.00	0.0	42.93	121.89	0.00	5594	0	2656	2841	5497
															35,126	0	55,501	

0.9D + 1.0W 300° Gust Response Factor (Gh): 0.85  
 118 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.80	1.00	0.0	12.22	33.49	0.00	761	0	1241	327	1568
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.80	1.00	0.0	16.57	44.61	0.00	1622	0	1618	1746	3365
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.80	1.00	0.0	18.17	49.02	0.00	2622	0	1732	3633	5365
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.80	1.00	0.0	20.29	55.56	0.00	3280	0	1905	4196	6101
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.80	1.00	0.0	22.02	61.72	0.00	3515	0	2043	4243	6286
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.80	1.00	0.0	27.66	76.30	0.00	3981	0	2421	4114	6535
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.80	1.00	0.0	26.80	76.13	0.00	4243	0	2291	3920	6211
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.80	1.00	0.0	30.29	85.20	0.00	4600	0	2389	3656	6045
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.80	1.00	0.0	34.87	98.08	0.00	4907	0	2470	3284	5753
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.80	1.00	0.0	36.70	104.21	0.00	5594	0	2271	2841	5112
															35,126	0	52,341	

0.9D + 1.0W 330° Gust Response Factor (Gh): 0.85  
 118 mph wind with no ice Wind Importance Factor (Iw): 1.00

**SECTION FORCES**

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	43.59	9.823	7.667	0.00	0.158	2.74	0.85	1.00	0.0	12.71	34.84	0.00	761	0	1291	327	1618
9	170	42.68	12.471	11.667	0.00	0.172	2.69	0.85	1.00	0.0	17.19	46.29	0.00	1622	0	1679	1746	3425
8	150	41.57	12.833	15.027	0.00	0.170	2.70	0.85	1.00	0.0	18.81	50.75	0.00	2622	0	1793	3633	5426
7	130	40.33	14.162	18.574	0.00	0.159	2.74	0.85	1.00	0.0	21.00	57.50	0.00	3280	0	1971	4196	6167
6	110	38.94	16.348	18.577	0.00	0.142	2.80	0.85	1.00	0.0	22.84	64.01	0.00	3515	0	2119	4243	6361
5	90	37.33	22.171	22.118	0.00	0.153	2.76	0.85	1.00	0.0	28.76	79.36	0.00	3981	0	2518	4114	6632
4	70	35.41	21.084	22.121	0.00	0.132	2.84	0.85	1.00	0.0	27.86	79.12	0.00	4243	0	2381	3920	6301
3	50	32.99	22.985	28.804	0.00	0.139	2.81	0.85	1.00	0.0	31.44	88.43	0.00	4600	0	2479	3656	6136
2	30	29.62	28.712	28.798	0.00	0.139	2.81	0.85	1.00	0.0	36.30	102.12	0.00	4907	0	2571	3284	5855
1	10	25.63	31.130	28.798	0.00	0.132	2.84	0.85	1.00	0.0	38.26	108.63	0.00	5594	0	2367	2841	5208
														35,126	0			53,131

1.2D + 1.0Di + 1.0Wi Normal  
50 mph wind with 1" radial ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00  
Ice Importance Factor: 1.00  
Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	7.83	7.858	23.629	15.96	0.277	2.36	1.00	1.00	1.2	20.94	49.40	15.96	2591	1577	329	208	537
9	170	7.66	9.977	30.162	18.50	0.278	2.36	1.00	1.00	1.2	26.46	62.34	18.50	5707	3545	406	1001	1407
8	150	7.46	12.833	38.383	23.36	0.306	2.28	1.00	1.00	1.2	35.89	81.84	23.36	9394	5898	519	1994	2229 **
7	130	7.24	14.162	39.759	21.18	0.257	2.42	1.00	1.00	1.1	37.49	90.60	21.18	11049	6676	558	2393	2712 **
6	110	6.99	16.348	41.385	22.81	0.230	2.50	1.00	1.00	1.1	40.37	100.83	22.81	11571	6884	599	2461	3060
5	90	6.70	22.171	46.450	24.33	0.235	2.48	1.00	1.00	1.1	49.18	122.17	24.33	12538	7230	696	2339	3035
4	70	6.36	21.084	42.706	20.59	0.192	2.62	1.00	1.00	1.1	45.56	119.47	20.59	12559	6901	646	2313	2959
3	50	5.92	22.985	49.958	21.15	0.194	2.62	1.00	1.00	1.0	51.63	135.13	21.15	13033	6900	680	2113	2793
2	30	5.32	28.712	50.107	21.31	0.189	2.63	1.00	1.00	1.0	57.40	151.21	21.31	13334	6792	684	1851	2535
1	10	4.60	31.130	48.963	20.16	0.175	2.68	1.00	1.00	0.9	59.07	158.37	20.16	13489	6030	620	1527	2147
														105,267	58,433			23,413

\*\* = Section Force Exceeds Solidity Ratio Criteria

1.2D + 1.0Di + 1.0Wi 60°  
50 mph wind with 1" radial ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00  
Ice Importance Factor: 1.00  
Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	7.83	7.858	23.629	15.96	0.277	2.36	0.80	1.00	1.2	19.37	45.70	15.96	2591	1577	304	208	512
9	170	7.66	9.977	30.162	18.50	0.278	2.36	0.80	1.00	1.2	24.47	57.64	18.50	5707	3545	375	1001	1376
8	150	7.46	12.833	38.383	23.36	0.306	2.28	0.80	1.00	1.2	33.33	75.98	23.36	9394	5898	482	1994	2229 **
7	130	7.24	14.162	39.759	21.18	0.257	2.42	0.80	1.00	1.1	34.66	83.75	21.18	11049	6676	516	2393	2712 **
6	110	6.99	16.348	41.385	22.81	0.230	2.50	0.80	1.00	1.1	37.10	92.66	22.81	11571	6884	551	2461	3012
5	90	6.70	22.171	46.450	24.33	0.235	2.48	0.80	1.00	1.1	44.74	111.15	24.33	12538	7230	633	2339	2972
4	70	6.36	21.084	42.706	20.59	0.192	2.62	0.80	1.00	1.1	41.34	108.42	20.59	12559	6901	586	2313	2899
3	50	5.92	22.985	49.958	21.15	0.194	2.62	0.80	1.00	1.0	47.03	123.10	21.15	13033	6900	620	2113	2732
2	30	5.32	28.712	50.107	21.31	0.189	2.63	0.80	1.00	1.0	51.66	136.08	21.31	13334	6792	615	1851	2466
1	10	4.60	31.130	48.963	20.16	0.175	2.68	0.80	1.00	0.9	52.84	141.67	20.16	13489	6030	554	1527	2082
														105,267	58,433			22,992

\*\* = Section Force Exceeds Solidity Ratio Criteria

1.2D + 1.0Di + 1.0Wi 90°  
50 mph wind with 1" radial ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00  
Ice Importance Factor: 1.00  
Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	7.83	7.858	23.629	15.96	0.277	2.36	0.85	1.00	1.2	19.76	46.62	15.96	2591	1577	310	208	518
9	170	7.66	9.977	30.162	18.50	0.278	2.36	0.85	1.00	1.2	24.97	58.81	18.50	5707	3545	383	1001	1384
8	150	7.46	12.833	38.383	23.36	0.306	2.28	0.85	1.00	1.2	33.97	77.45	23.36	9394	5898	491	1994	2229 **
7	130	7.24	14.162	39.759	21.18	0.257	2.42	0.85	1.00	1.1	35.37	85.46	21.18	11049	6676	526	2393	2712 **
6	110	6.99	16.348	41.385	22.81	0.230	2.50	0.85	1.00	1.1	37.92	94.70	22.81	11571	6884	563	2461	3024
5	90	6.70	22.171	46.450	24.33	0.235	2.48	0.85	1.00	1.1	45.85	113.91	24.33	12538	7230	649	2339	2988
4	70	6.36	21.084	42.706	20.59	0.192	2.62	0.85	1.00	1.1	42.40	111.18	20.59	12559	6901	601	2313	2914
3	50	5.92	22.985	49.958	21.15	0.194	2.62	0.85	1.00	1.0	48.18	126.11	21.15	13033	6900	635	2113	2748

**SECTION FORCES**

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
2	30	5.32	28.712	50.107	21.31	0.189	2.63	0.85	1.00	1.0	53.10	139.86	21.31	13334	6792	632	1851	2483
1	10	4.60	31.130	48.963	20.16	0.175	2.68	0.85	1.00	0.9	54.40	145.85	20.16	13489	6030	571	1527	2098
** = Section Force Exceeds Solidity Ratio Criteria														105,267	58,433	23,097		

1.2D + 1.0Di + 1.0Wi 120° Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00  
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	7.83	7.858	23.629	15.96	0.277	2.36	1.00	1.00	1.2	20.94	49.40	15.96	2591	1577	329	208	537
9	170	7.66	9.977	30.162	18.50	0.278	2.36	1.00	1.00	1.2	26.46	62.34	18.50	5707	3545	406	1001	1407
8	150	7.46	12.833	38.383	23.36	0.306	2.28	1.00	1.00	1.2	35.89	81.84	23.36	9394	5898	519	1994	2229 **
7	130	7.24	14.162	39.759	21.18	0.257	2.42	1.00	1.00	1.1	37.49	90.60	21.18	11049	6676	558	2393	2712 **
6	110	6.99	16.348	41.385	22.81	0.230	2.50	1.00	1.00	1.1	40.37	100.83	22.81	11571	6884	599	2461	3060
5	90	6.70	22.171	46.450	24.33	0.235	2.48	1.00	1.00	1.1	49.18	122.17	24.33	12538	7230	696	2339	3035
4	70	6.36	21.084	42.706	20.59	0.192	2.62	1.00	1.00	1.1	45.56	119.47	20.59	12559	6901	646	2313	2959
3	50	5.92	22.985	49.958	21.15	0.194	2.62	1.00	1.00	1.0	51.63	135.13	21.15	13033	6900	680	2113	2793
2	30	5.32	28.712	50.107	21.31	0.189	2.63	1.00	1.00	1.0	57.40	151.21	21.31	13334	6792	684	1851	2535
1	10	4.60	31.130	48.963	20.16	0.175	2.68	1.00	1.00	0.9	59.07	158.37	20.16	13489	6030	620	1527	2147
** = Section Force Exceeds Solidity Ratio Criteria														105,267	58,433	23,413		

1.2D + 1.0Di + 1.0Wi 180° Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00  
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	7.83	7.858	23.629	15.96	0.277	2.36	0.80	1.00	1.2	19.37	45.70	15.96	2591	1577	304	208	512
9	170	7.66	9.977	30.162	18.50	0.278	2.36	0.80	1.00	1.2	24.47	57.64	18.50	5707	3545	375	1001	1376
8	150	7.46	12.833	38.383	23.36	0.306	2.28	0.80	1.00	1.2	33.33	75.98	23.36	9394	5898	482	1994	2229 **
7	130	7.24	14.162	39.759	21.18	0.257	2.42	0.80	1.00	1.1	34.66	83.75	21.18	11049	6676	516	2393	2712 **
6	110	6.99	16.348	41.385	22.81	0.230	2.50	0.80	1.00	1.1	37.10	92.66	22.81	11571	6884	551	2461	3012
5	90	6.70	22.171	46.450	24.33	0.235	2.48	0.80	1.00	1.1	44.74	111.15	24.33	12538	7230	633	2339	2972
4	70	6.36	21.084	42.706	20.59	0.192	2.62	0.80	1.00	1.1	41.34	108.42	20.59	12559	6901	586	2313	2899
3	50	5.92	22.985	49.958	21.15	0.194	2.62	0.80	1.00	1.0	47.03	123.10	21.15	13033	6900	620	2113	2732
2	30	5.32	28.712	50.107	21.31	0.189	2.63	0.80	1.00	1.0	51.66	136.08	21.31	13334	6792	615	1851	2466
1	10	4.60	31.130	48.963	20.16	0.175	2.68	0.80	1.00	0.9	52.84	141.67	20.16	13489	6030	554	1527	2082
** = Section Force Exceeds Solidity Ratio Criteria														105,267	58,433	22,992		

1.2D + 1.0Di + 1.0Wi 210° Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00  
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	7.83	7.858	23.629	15.96	0.277	2.36	0.85	1.00	1.2	19.76	46.62	15.96	2591	1577	310	208	518
9	170	7.66	9.977	30.162	18.50	0.278	2.36	0.85	1.00	1.2	24.97	58.81	18.50	5707	3545	383	1001	1384
8	150	7.46	12.833	38.383	23.36	0.306	2.28	0.85	1.00	1.2	33.97	77.45	23.36	9394	5898	491	1994	2229 **
7	130	7.24	14.162	39.759	21.18	0.257	2.42	0.85	1.00	1.1	35.37	85.46	21.18	11049	6676	526	2393	2712 **
6	110	6.99	16.348	41.385	22.81	0.230	2.50	0.85	1.00	1.1	37.92	94.70	22.81	11571	6884	563	2461	3024
5	90	6.70	22.171	46.450	24.33	0.235	2.48	0.85	1.00	1.1	45.85	113.91	24.33	12538	7230	649	2339	2988
4	70	6.36	21.084	42.706	20.59	0.192	2.62	0.85	1.00	1.1	42.40	111.18	20.59	12559	6901	601	2313	2914
3	50	5.92	22.985	49.958	21.15	0.194	2.62	0.85	1.00	1.0	48.18	126.11	21.15	13033	6900	635	2113	2748
2	30	5.32	28.712	50.107	21.31	0.189	2.63	0.85	1.00	1.0	53.10	139.86	21.31	13334	6792	632	1851	2483
1	10	4.60	31.130	48.963	20.16	0.175	2.68	0.85	1.00	0.9	54.40	145.85	20.16	13489	6030	571	1527	2098
** = Section Force Exceeds Solidity Ratio Criteria														105,267	58,433	23,097		

1.2D + 1.0Di + 1.0Wi 240° Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00  
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

**SECTION FORCES**

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	7.83	7.858	23.629	15.96	0.277	2.36	1.00	1.00	1.2	20.94	49.40	15.96	2591	1577	329	208	537
9	170	7.66	9.977	30.162	18.50	0.278	2.36	1.00	1.00	1.2	26.46	62.34	18.50	5707	3545	406	1001	1407
8	150	7.46	12.833	38.383	23.36	0.306	2.28	1.00	1.00	1.2	35.89	81.84	23.36	9394	5898	519	1994	2229 **
7	130	7.24	14.162	39.759	21.18	0.257	2.42	1.00	1.00	1.1	37.49	90.60	21.18	11049	6676	558	2393	2712 **
6	110	6.99	16.348	41.385	22.81	0.230	2.50	1.00	1.00	1.1	40.37	100.83	22.81	11571	6884	599	2461	3060
5	90	6.70	22.171	46.450	24.33	0.235	2.48	1.00	1.00	1.1	49.18	122.17	24.33	12538	7230	696	2339	3035
4	70	6.36	21.084	42.706	20.59	0.192	2.62	1.00	1.00	1.1	45.56	119.47	20.59	12559	6901	646	2313	2959
3	50	5.92	22.985	49.958	21.15	0.194	2.62	1.00	1.00	1.0	51.63	135.13	21.15	13033	6900	680	2113	2793
2	30	5.32	28.712	50.107	21.31	0.189	2.63	1.00	1.00	1.0	57.40	151.21	21.31	13334	6792	684	1851	2535
1	10	4.60	31.130	48.963	20.16	0.175	2.68	1.00	1.00	0.9	59.07	158.37	20.16	13489	6030	620	1527	2147
** = Section Force Exceeds Solidity Ratio Criteria														105,267	58,433			23,413

1.2D + 1.0Di + 1.0Wi 300°  
50 mph wind with 1" radial ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00  
Ice Importance Factor: 1.00  
Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	7.83	7.858	23.629	15.96	0.277	2.36	0.80	1.00	1.2	19.37	45.70	15.96	2591	1577	304	208	512
9	170	7.66	9.977	30.162	18.50	0.278	2.36	0.80	1.00	1.2	24.47	57.64	18.50	5707	3545	375	1001	1376
8	150	7.46	12.833	38.383	23.36	0.306	2.28	0.80	1.00	1.2	33.33	75.98	23.36	9394	5898	482	1994	2229 **
7	130	7.24	14.162	39.759	21.18	0.257	2.42	0.80	1.00	1.1	34.66	83.75	21.18	11049	6676	516	2393	2712 **
6	110	6.99	16.348	41.385	22.81	0.230	2.50	0.80	1.00	1.1	37.10	92.66	22.81	11571	6884	551	2461	3012
5	90	6.70	22.171	46.450	24.33	0.235	2.48	0.80	1.00	1.1	44.74	111.15	24.33	12538	7230	633	2339	2972
4	70	6.36	21.084	42.706	20.59	0.192	2.62	0.80	1.00	1.1	41.34	108.42	20.59	12559	6901	586	2313	2899
3	50	5.92	22.985	49.958	21.15	0.194	2.62	0.80	1.00	1.0	47.03	123.10	21.15	13033	6900	620	2113	2732
2	30	5.32	28.712	50.107	21.31	0.189	2.63	0.80	1.00	1.0	51.66	136.08	21.31	13334	6792	615	1851	2466
1	10	4.60	31.130	48.963	20.16	0.175	2.68	0.80	1.00	0.9	52.84	141.67	20.16	13489	6030	554	1527	2082
** = Section Force Exceeds Solidity Ratio Criteria														105,267	58,433			22,992

1.2D + 1.0Di + 1.0Wi 330°  
50 mph wind with 1" radial ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00  
Ice Importance Factor: 1.00  
Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	7.83	7.858	23.629	15.96	0.277	2.36	0.85	1.00	1.2	19.76	46.62	15.96	2591	1577	310	208	518
9	170	7.66	9.977	30.162	18.50	0.278	2.36	0.85	1.00	1.2	24.97	58.81	18.50	5707	3545	383	1001	1384
8	150	7.46	12.833	38.383	23.36	0.306	2.28	0.85	1.00	1.2	33.97	77.45	23.36	9394	5898	491	1994	2229 **
7	130	7.24	14.162	39.759	21.18	0.257	2.42	0.85	1.00	1.1	35.37	85.46	21.18	11049	6676	526	2393	2712 **
6	110	6.99	16.348	41.385	22.81	0.230	2.50	0.85	1.00	1.1	37.92	94.70	22.81	11571	6884	563	2461	3024
5	90	6.70	22.171	46.450	24.33	0.235	2.48	0.85	1.00	1.1	45.85	113.91	24.33	12538	7230	649	2339	2988
4	70	6.36	21.084	42.706	20.59	0.192	2.62	0.85	1.00	1.1	42.40	111.18	20.59	12559	6901	601	2313	2914
3	50	5.92	22.985	49.958	21.15	0.194	2.62	0.85	1.00	1.0	48.18	126.11	21.15	13033	6900	635	2113	2748
2	30	5.32	28.712	50.107	21.31	0.189	2.63	0.85	1.00	1.0	53.10	139.86	21.31	13334	6792	632	1851	2483
1	10	4.60	31.130	48.963	20.16	0.175	2.68	0.85	1.00	0.9	54.40	145.85	20.16	13489	6030	571	1527	2098
** = Section Force Exceeds Solidity Ratio Criteria														105,267	58,433			23,097

1.0D + 1.0W Service Normal  
60 mph Wind with No Ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	11.27	9.823	7.667	0.00	0.158	2.74	1.00	1.00	0.0	14.18	38.88	0.00	845	0	372	85	457
9	170	11.03	12.471	11.667	0.00	0.172	2.69	1.00	1.00	0.0	19.12	51.48	0.00	1802	0	483	451	934
8	150	10.75	12.833	15.027	0.00	0.170	2.70	1.00	1.00	0.0	21.40	57.72	0.00	2913	0	527	939	1466
7	130	10.43	14.162	18.574	0.00	0.159	2.74	1.00	1.00	0.0	24.72	67.71	0.00	3645	0	600	1085	1685
6	110	10.07	16.348	18.577	0.00	0.142	2.80	1.00	1.00	0.0	26.88	75.33	0.00	3906	0	645	1097	1742
5	90	9.65	22.171	22.118	0.00	0.153	2.76	1.00	1.00	0.0	34.73	95.83	0.00	4424	0	786	1064	1850
4	70	9.15	21.084	22.121	0.00	0.132	2.84	1.00	1.00	0.0	33.60	95.44	0.00	4715	0	743	1014	1756
3	50	8.53	22.985	28.804	0.00	0.139	2.81	1.00	1.00	0.0	38.88	109.37	0.00	5111	0	793	945	1738



**SECTION FORCES**

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
2	30	7.66	28.712	28.798	0.00	0.139	2.81	1.00	1.00	0.0	44.94	126.42	0.00	5452	0	823	849	1672
1	10	6.63	31.130	28.798	0.00	0.132	2.84	1.00	1.00	0.0	46.49	132.00	0.00	6216	0	744	735	1478
** = Section Force Exceeds Solidity Ratio Criteria														39,029	0			14,779

1.0D + 1.0W Service 60° Gust Response Factor (Gh): 0.85  
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	11.27	9.823	7.667	0.00	0.158	2.74	0.80	1.00	0.0	12.22	33.49	0.00	845	0	321	85	405
9	170	11.03	12.471	11.667	0.00	0.172	2.69	0.80	1.00	0.0	16.63	44.77	0.00	1802	0	420	451	871
8	150	10.75	12.833	15.027	0.00	0.170	2.70	0.80	1.00	0.0	18.83	50.80	0.00	2913	0	464	939	1403
7	130	10.43	14.162	18.574	0.00	0.159	2.74	0.80	1.00	0.0	21.89	59.95	0.00	3645	0	531	1085	1616
6	110	10.07	16.348	18.577	0.00	0.142	2.80	0.80	1.00	0.0	23.61	66.17	0.00	3906	0	566	1097	1663
5	90	9.65	22.171	22.118	0.00	0.153	2.76	0.80	1.00	0.0	30.30	83.59	0.00	4424	0	686	1064	1749
4	70	9.15	21.084	22.121	0.00	0.132	2.84	0.80	1.00	0.0	29.39	83.47	0.00	4715	0	649	1014	1663
3	50	8.53	22.985	28.804	0.00	0.139	2.81	0.80	1.00	0.0	34.28	96.44	0.00	5111	0	699	945	1644
2	30	7.66	28.712	28.798	0.00	0.139	2.81	0.80	1.00	0.0	39.20	110.27	0.00	5452	0	718	849	1567
1	10	6.63	31.130	28.798	0.00	0.132	2.84	0.80	1.00	0.0	40.26	114.32	0.00	6216	0	644	735	1379
** = Section Force Exceeds Solidity Ratio Criteria														39,029	0			13,962

1.0D + 1.0W Service 90° Gust Response Factor (Gh): 0.85  
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	11.27	9.823	7.667	0.00	0.158	2.74	0.85	1.00	0.0	12.71	34.84	0.00	845	0	334	85	418
9	170	11.03	12.471	11.667	0.00	0.172	2.69	0.85	1.00	0.0	17.25	46.45	0.00	1802	0	436	451	887
8	150	10.75	12.833	15.027	0.00	0.170	2.70	0.85	1.00	0.0	19.47	52.53	0.00	2913	0	480	939	1419
7	130	10.43	14.162	18.574	0.00	0.159	2.74	0.85	1.00	0.0	22.60	61.89	0.00	3645	0	549	1085	1633
6	110	10.07	16.348	18.577	0.00	0.142	2.80	0.85	1.00	0.0	24.42	68.46	0.00	3906	0	586	1097	1683
5	90	9.65	22.171	22.118	0.00	0.153	2.76	0.85	1.00	0.0	31.41	86.65	0.00	4424	0	711	1064	1775
4	70	9.15	21.084	22.121	0.00	0.132	2.84	0.85	1.00	0.0	30.44	86.46	0.00	4715	0	673	1014	1686
3	50	8.53	22.985	28.804	0.00	0.139	2.81	0.85	1.00	0.0	35.43	99.67	0.00	5111	0	723	945	1668
2	30	7.66	28.712	28.798	0.00	0.139	2.81	0.85	1.00	0.0	40.63	114.31	0.00	5452	0	744	849	1593
1	10	6.63	31.130	28.798	0.00	0.132	2.84	0.85	1.00	0.0	41.82	118.74	0.00	6216	0	669	735	1404
** = Section Force Exceeds Solidity Ratio Criteria														39,029	0			14,166

1.0D + 1.0W Service 120° Gust Response Factor (Gh): 0.85  
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	11.27	9.823	7.667	0.00	0.158	2.74	1.00	1.00	0.0	14.18	38.88	0.00	845	0	372	85	457
9	170	11.03	12.471	11.667	0.00	0.172	2.69	1.00	1.00	0.0	19.12	51.48	0.00	1802	0	483	451	934
8	150	10.75	12.833	15.027	0.00	0.170	2.70	1.00	1.00	0.0	21.40	57.72	0.00	2913	0	527	939	1466
7	130	10.43	14.162	18.574	0.00	0.159	2.74	1.00	1.00	0.0	24.72	67.71	0.00	3645	0	600	1085	1685
6	110	10.07	16.348	18.577	0.00	0.142	2.80	1.00	1.00	0.0	26.88	75.33	0.00	3906	0	645	1097	1742
5	90	9.65	22.171	22.118	0.00	0.153	2.76	1.00	1.00	0.0	34.73	95.83	0.00	4424	0	786	1064	1850
4	70	9.15	21.084	22.121	0.00	0.132	2.84	1.00	1.00	0.0	33.60	95.44	0.00	4715	0	743	1014	1756
3	50	8.53	22.985	28.804	0.00	0.139	2.81	1.00	1.00	0.0	38.88	109.37	0.00	5111	0	793	945	1738
2	30	7.66	28.712	28.798	0.00	0.139	2.81	1.00	1.00	0.0	44.94	126.42	0.00	5452	0	823	849	1672
1	10	6.63	31.130	28.798	0.00	0.132	2.84	1.00	1.00	0.0	46.49	132.00	0.00	6216	0	744	735	1478
** = Section Force Exceeds Solidity Ratio Criteria														39,029	0			14,779

1.0D + 1.0W Service 180° Gust Response Factor (Gh): 0.85  
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

**SECTION FORCES**

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)	
10	188	11.27	9.823	7.667	0.00	0.158	2.74	0.80	1.00	0.0	12.22	33.49	0.00	845	0	321	85	405	
9	170	11.03	12.471	11.667	0.00	0.172	2.69	0.80	1.00	0.0	16.63	44.77	0.00	1802	0	420	451	871	
8	150	10.75	12.833	15.027	0.00	0.170	2.70	0.80	1.00	0.0	18.83	50.80	0.00	2913	0	464	939	1403	
7	130	10.43	14.162	18.574	0.00	0.159	2.74	0.80	1.00	0.0	21.89	59.95	0.00	3645	0	531	1085	1616	
6	110	10.07	16.348	18.577	0.00	0.142	2.80	0.80	1.00	0.0	23.61	66.17	0.00	3906	0	566	1097	1663	
5	90	9.65	22.171	22.118	0.00	0.153	2.76	0.80	1.00	0.0	30.30	83.59	0.00	4424	0	686	1064	1749	
4	70	9.15	21.084	22.121	0.00	0.132	2.84	0.80	1.00	0.0	29.39	83.47	0.00	4715	0	649	1014	1663	
3	50	8.53	22.985	28.804	0.00	0.139	2.81	0.80	1.00	0.0	34.28	96.44	0.00	5111	0	699	945	1644	
2	30	7.66	28.712	28.798	0.00	0.139	2.81	0.80	1.00	0.0	39.20	110.27	0.00	5452	0	718	849	1567	
1	10	6.63	31.130	28.798	0.00	0.132	2.84	0.80	1.00	0.0	40.26	114.32	0.00	6216	0	644	735	1379	
** = Section Force Exceeds Solidity Ratio Criteria															39,029	0			13,962

1.0D + 1.0W Service 210°  
60 mph Wind with No Ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)	
10	188	11.27	9.823	7.667	0.00	0.158	2.74	0.85	1.00	0.0	12.71	34.84	0.00	845	0	334	85	418	
9	170	11.03	12.471	11.667	0.00	0.172	2.69	0.85	1.00	0.0	17.25	46.45	0.00	1802	0	436	451	887	
8	150	10.75	12.833	15.027	0.00	0.170	2.70	0.85	1.00	0.0	19.47	52.53	0.00	2913	0	480	939	1419	
7	130	10.43	14.162	18.574	0.00	0.159	2.74	0.85	1.00	0.0	22.60	61.89	0.00	3645	0	549	1085	1633	
6	110	10.07	16.348	18.577	0.00	0.142	2.80	0.85	1.00	0.0	24.42	68.46	0.00	3906	0	586	1097	1683	
5	90	9.65	22.171	22.118	0.00	0.153	2.76	0.85	1.00	0.0	31.41	86.65	0.00	4424	0	711	1064	1775	
4	70	9.15	21.084	22.121	0.00	0.132	2.84	0.85	1.00	0.0	30.44	86.46	0.00	4715	0	673	1014	1686	
3	50	8.53	22.985	28.804	0.00	0.139	2.81	0.85	1.00	0.0	35.43	99.67	0.00	5111	0	723	945	1668	
2	30	7.66	28.712	28.798	0.00	0.139	2.81	0.85	1.00	0.0	40.63	114.31	0.00	5452	0	744	849	1593	
1	10	6.63	31.130	28.798	0.00	0.132	2.84	0.85	1.00	0.0	41.82	118.74	0.00	6216	0	669	735	1404	
** = Section Force Exceeds Solidity Ratio Criteria															39,029	0			14,166

1.0D + 1.0W Service 240°  
60 mph Wind with No Ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)	
10	188	11.27	9.823	7.667	0.00	0.158	2.74	1.00	1.00	0.0	14.18	38.88	0.00	845	0	372	85	457	
9	170	11.03	12.471	11.667	0.00	0.172	2.69	1.00	1.00	0.0	19.12	51.48	0.00	1802	0	483	451	934	
8	150	10.75	12.833	15.027	0.00	0.170	2.70	1.00	1.00	0.0	21.40	57.72	0.00	2913	0	527	939	1466	
7	130	10.43	14.162	18.574	0.00	0.159	2.74	1.00	1.00	0.0	24.72	67.71	0.00	3645	0	600	1085	1685	
6	110	10.07	16.348	18.577	0.00	0.142	2.80	1.00	1.00	0.0	26.88	75.33	0.00	3906	0	645	1097	1742	
5	90	9.65	22.171	22.118	0.00	0.153	2.76	1.00	1.00	0.0	34.73	95.83	0.00	4424	0	786	1064	1850	
4	70	9.15	21.084	22.121	0.00	0.132	2.84	1.00	1.00	0.0	33.60	95.44	0.00	4715	0	743	1014	1756	
3	50	8.53	22.985	28.804	0.00	0.139	2.81	1.00	1.00	0.0	38.88	109.37	0.00	5111	0	793	945	1738	
2	30	7.66	28.712	28.798	0.00	0.139	2.81	1.00	1.00	0.0	44.94	126.42	0.00	5452	0	823	849	1672	
1	10	6.63	31.130	28.798	0.00	0.132	2.84	1.00	1.00	0.0	46.49	132.00	0.00	6216	0	744	735	1478	
** = Section Force Exceeds Solidity Ratio Criteria															39,029	0			14,779

1.0D + 1.0W Service 300°  
60 mph Wind with No Ice

Gust Response Factor (Gh): 0.85  
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>r</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>r</sub>	D <sub>r</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	11.27	9.823	7.667	0.00	0.158	2.74	0.80	1.00	0.0	12.22	33.49	0.00	845	0	321	85	405
9	170	11.03	12.471	11.667	0.00	0.172	2.69	0.80	1.00	0.0	16.63	44.77	0.00	1802	0	420	451	871
8	150	10.75	12.833	15.027	0.00	0.170	2.70	0.80	1.00	0.0	18.83	50.80	0.00	2913	0	464	939	1403
7	130	10.43	14.162	18.574	0.00	0.159	2.74	0.80	1.00	0.0	21.89	59.95	0.00	3645	0	531	1085	1616
6	110	10.07	16.348	18.577	0.00	0.142	2.80	0.80	1.00	0.0	23.61	66.17	0.00	3906	0	566	1097	1663
5	90	9.65	22.171	22.118	0.00	0.153	2.76	0.80	1.00	0.0	30.30	83.59	0.00	4424	0	686	1064	1749
4	70	9.15	21.084	22.121	0.00	0.132	2.84	0.80	1.00	0.0	29.39	83.47	0.00	4715	0	649	1014	1663
3	50	8.53	22.985	28.804	0.00	0.139	2.81	0.80	1.00	0.0	34.28	96.44	0.00	5111	0	699	945	1644

**SECTION FORCES**

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>f</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
2	30	7.66	28.712	28.798	0.00	0.139	2.81	0.80	1.00	0.0	39.20	110.27	0.00	5452	0	718	849	1567
1	10	6.63	31.130	28.798	0.00	0.132	2.84	0.80	1.00	0.0	40.26	114.32	0.00	6216	0	644	735	1379
** = Section Force Exceeds Solidity Ratio Criteria														39,029	0			13,962

1.0D + 1.0W Service 330° Gust Response Factor (Gh): 0.85  
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q <sub>Z</sub> (psf)	A <sub>f</sub> (sf)	A <sub>r</sub> (sf)	Ice A <sub>r</sub> (sf)	e	C <sub>f</sub>	D <sub>f</sub>	D <sub>r</sub>	T <sub>iz</sub> (in)	A <sub>e</sub> (sf)	EPA <sub>a</sub> (sf)	EPA <sub>ai</sub> (sf)	Wt. (lb)	Ice Wt (lb)	F <sub>st</sub> (lb)	F <sub>a</sub> (lb)	Force (lb)
10	188	11.27	9.823	7.667	0.00	0.158	2.74	0.85	1.00	0.0	12.71	34.84	0.00	845	0	334	85	418
9	170	11.03	12.471	11.667	0.00	0.172	2.69	0.85	1.00	0.0	17.25	46.45	0.00	1802	0	436	451	887
8	150	10.75	12.833	15.027	0.00	0.170	2.70	0.85	1.00	0.0	19.47	52.53	0.00	2913	0	480	939	1419
7	130	10.43	14.162	18.574	0.00	0.159	2.74	0.85	1.00	0.0	22.60	61.89	0.00	3645	0	549	1085	1633
6	110	10.07	16.348	18.577	0.00	0.142	2.80	0.85	1.00	0.0	24.42	68.46	0.00	3906	0	586	1097	1683
5	90	9.65	22.171	22.118	0.00	0.153	2.76	0.85	1.00	0.0	31.41	86.65	0.00	4424	0	711	1064	1775
4	70	9.15	21.084	22.121	0.00	0.132	2.84	0.85	1.00	0.0	30.44	86.46	0.00	4715	0	673	1014	1686
3	50	8.53	22.985	28.804	0.00	0.139	2.81	0.85	1.00	0.0	35.43	99.67	0.00	5111	0	723	945	1668
2	30	7.66	28.712	28.798	0.00	0.139	2.81	0.85	1.00	0.0	40.63	114.31	0.00	5452	0	744	849	1593
1	10	6.63	31.130	28.798	0.00	0.132	2.84	0.85	1.00	0.0	41.82	118.74	0.00	6216	0	669	735	1404
** = Section Force Exceeds Solidity Ratio Criteria														39,029	0			14,166

**EQUIVALENT LATERAL FORCE METHOD**

Spectral Response Acceleration for Short Period ( $S_S$ ):	0.20
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.05
Long-Period Transition Period ( $T_L$ – Seconds):	6
Importance Factor ( $I_e$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.22
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.09
Seismic Response Coefficient ( $C_s$ ):	0.03
Upper Limit $C_s$ :	0.03
Lower Limit $C_s$ :	0.03
Period based on Rayleigh Method (sec):	0.98
Redundancy Factor ( $\rho$ ):	1.30
Seismic Force Distribution Exponent (k):	1.24
Total Unfactored Dead Load:	51.36 k
Seismic Base Shear (E):	2.00 k

**SEISMIC**

Load Case: 0.9D - 1.0Ev + 1.0Eh

Seismic

Section	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
10	188.00	845	564,925	0.035	71	724
9	170.00	1,802	1,062,729	0.066	133	1,544
8	150.00	2,913	1,470,928	0.092	184	2,496
7	130.00	3,645	1,540,569	0.096	193	3,123
6	110.00	3,906	1,341,444	0.084	168	3,347
5	90.00	4,424	1,184,163	0.074	148	3,791
4	70.00	4,715	923,599	0.058	116	4,040
3	50.00	5,111	659,206	0.041	83	4,380
2	30.00	5,452	372,791	0.023	47	4,672
1	10.00	6,216	108,572	0.007	14	5,326
Generic 2' HP Dish	196.00	180	126,698	0.008	16	154
Radio Waves HPD2-4.7NS	195.00	54	37,769	0.002	5	46
Alcatel-Lucent 800 MHz RRH	193.70	159	110,287	0.007	14	136
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	191.00	210	143,144	0.009	18	180
Alcatel-Lucent 1900 MHz 4X45 RRH	189.30	180	121,340	0.008	15	154
KMW ET-X-WM-18-65-8P	189.30	109	73,613	0.005	9	94
RFS APXVSP18-C-A20	185.00	57	37,343	0.002	5	49
Powerwave Allgon P40-16-XLPP-RRR	185.00	128	83,858	0.005	11	110
Round Sector Frames	185.00	900	589,628	0.037	74	771
Flat Light Sector Frames	178.00	1,200	749,390	0.047	94	1,028
Samsung RT4401-48A	177.00	56	34,604	0.002	4	48
Samsung B2/B66A RRH-BR049	177.00	253	157,018	0.010	20	217
Samsung B5/B13 RRH-BR04C	177.00	211	130,787	0.008	16	181
Amphenol Antel BXA-80080-4CF-EDIN-X	177.00	36	22,325	0.001	3	31
RFS DB-T1-6Z-8AB-0Z	177.00	88	54,572	0.003	7	75
JMA Wireless MX10FRO660-xx	177.00	344	213,203	0.013	27	295
Powerwave Allgon TT19-08BP111-001	167.00	96	55,384	0.004	7	82
Kaelus DBCT108F1V92-1	167.00	83	48,115	0.003	6	71
Raycap DC6-48-60-18-8F ("Squid")	167.00	95	55,038	0.003	7	82
Raycap DC6-48-60-18-8F ("Squid")	167.00	32	18,346	0.001	2	27
Ericsson RRUS 4449 B5, B12	167.00	213	122,883	0.008	15	183

Ericsson Radio 8843 - B2 + B66A (w/ protruding items)	167.00	225	129,806	0.008	16	193
Ericsson RRUS 4478 B14	167.00	178	102,806	0.006	13	153
Raycap DC9-48-60-24-PC16-EV	167.00	35	20,134	0.001	3	30
Ericsson RRUS 11 (Band 12) (55 lb)	167.00	165	95,191	0.006	12	141
Ericsson RRUS E2 B29	167.00	180	103,845	0.006	13	154
Ericsson RRUS-32 (77 lbs)	167.00	231	133,268	0.008	17	198
Ericsson AIR 6419 B77G	167.00	198	114,402	0.007	14	170
Ericsson AIR 6449 B77D/ C-Band	167.00	245	141,229	0.009	18	210
CCI TPA65R-BU6D	167.00	135	77,884	0.005	10	116
Round Sector Frames	167.00	900	519,224	0.032	65	771
CCI TPA65R-BU8D	167.00	82	47,596	0.003	6	71
Quintel QD8616-7	167.00	150	86,537	0.005	11	129
Quintel QD6616-7	167.00	260	149,998	0.009	19	223
Kathrein Scala 742 213	157.00	66	35,265	0.002	4	57
Ericsson KRY 112 144/1	148.00	33	16,386	0.001	2	28
Ericsson Radio 4449 B71 B85A	148.00	225	111,721	0.007	14	193
Ericsson RRUS 4415 B25	148.00	138	68,522	0.004	9	118
Ericsson Air6449 B41	148.00	312	154,920	0.010	19	267
Ericsson AIR 21, 1.3 M, B2A B4P	148.00	249	123,638	0.008	15	213
Ericsson AIR-32 B2A/B66Aa	148.00	397	196,927	0.012	25	340
Round Sector Frame	148.00	900	446,884	0.028	56	771
RFS APXVAARR24_43-U-NA20	148.00	384	190,521	0.012	24	329
Commander 620-3AN	130.00	53	22,401	0.001	3	45
Commscope RDIDC-9181-PF-48	115.00	22	7,949	0.000	1	19
Fujitsu TA08025-B605	115.00	225	81,664	0.005	10	193
Fujitsu TA08025-B604	115.00	192	69,578	0.004	9	164
JMA Wireless MX08FRO665-21	115.00	194	70,231	0.004	9	166
Generic Flat Light Sector Frame	115.00	1,200	435,542	0.027	55	1,028
PCTEL GPS-TMG-HR-26N	76.00	1	130	0.000	0	1
Standoffs	76.00	75	16,272	0.001	2	64
<b>Totals</b>		<b>51,362</b>	<b>15,984,742</b>	<b>1.000</b>	<b>2,003</b>	<b>44,012</b>

**SEISMIC**

Load Case: 1.2D + 1.0Ev + 1.0Eh

Seismic

Section	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vz</sub>	Horizontal Force (lb)	Vertical Force (lb)
10	188.00	845	564,925	0.035	71	1,051
9	170.00	1,802	1,062,729	0.066	133	2,240
8	150.00	2,913	1,470,928	0.092	184	3,622
7	130.00	3,645	1,540,569	0.096	193	4,531
6	110.00	3,906	1,341,444	0.084	168	4,855
5	90.00	4,424	1,184,163	0.074	148	5,499
4	70.00	4,715	923,599	0.058	116	5,861
3	50.00	5,111	659,206	0.041	83	6,354
2	30.00	5,452	372,791	0.023	47	6,777
1	10.00	6,216	108,572	0.007	14	7,727
Generic 2' HP Dish	196.00	180	126,698	0.008	16	224
Radio Waves HPD2-4.7NS	195.00	54	37,769	0.002	5	67
Alcatel-Lucent 800 MHz RRH	193.70	159	110,287	0.007	14	198
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	191.00	210	143,144	0.009	18	261
Alcatel-Lucent 1900 MHz 4X45 RRH	189.30	180	121,340	0.008	15	224
KMW ET-X-WM-18-65-8P	189.30	109	73,613	0.005	9	136
RFS APXVSP18-C-A20	185.00	57	37,343	0.002	5	71
Powerwave Allgon P40-16-XLPP-RRR	185.00	128	83,858	0.005	11	159
Round Sector Frames	185.00	900	589,628	0.037	74	1,119
Flat Light Sector Frames	178.00	1,200	749,390	0.047	94	1,492
Samsung RT4401-48A	177.00	56	34,604	0.002	4	69
Samsung B2/B66A RRH-BR049	177.00	253	157,018	0.010	20	315
Samsung B5/B13 RRH-BR04C	177.00	211	130,787	0.008	16	262
Amphenol Antel BXA-80080-4CF-EDIN-X	177.00	36	22,325	0.001	3	45
RFS DB-T1-6Z-8AB-OZ	177.00	88	54,572	0.003	7	109
JMA Wireless MX10FRO660-xx	177.00	344	213,203	0.013	27	427
Powerwave Allgon TT19-08BP111-001	167.00	96	55,384	0.004	7	119
Kaelus DBCT108F1V92-1	167.00	83	48,115	0.003	6	104
Raycap DC6-48-60-18-8F ("Squid")	167.00	95	55,038	0.003	7	119
Raycap DC6-48-60-18-8F ("Squid")	167.00	32	18,346	0.001	2	40
Ericsson RRUS 4449 B5, B12	167.00	213	122,883	0.008	15	265
Ericsson Radio 8843 - B2 + B66A (w/ protruding items)	167.00	225	129,806	0.008	16	280

Ericsson RRUS 4478 B14	167.00	178	102,806	0.006	13	222
Raycap DC9-48-60-24-PC16-EV	167.00	35	20,134	0.001	3	43
Ericsson RRUS 11 (Band 12) (55 lb)	167.00	165	95,191	0.006	12	205
Ericsson RRUS E2 B29	167.00	180	103,845	0.006	13	224
Ericsson RRUS-32 (77 lbs)	167.00	231	133,268	0.008	17	287
Ericsson AIR 6419 B77G	167.00	198	114,402	0.007	14	247
Ericsson AIR 6449 B77D/ C-Band	167.00	245	141,229	0.009	18	304
CCI TPA65R-BU6D	167.00	135	77,884	0.005	10	168
Round Sector Frames	167.00	900	519,224	0.032	65	1,119
CCI TPA65R-BU8D	167.00	82	47,596	0.003	6	103
Quintel QD8616-7	167.00	150	86,537	0.005	11	186
Quintel QD6616-7	167.00	260	149,998	0.009	19	323
Kathrein Scala 742 213	157.00	66	35,265	0.002	4	82
Ericsson KRY 112 144/1	148.00	33	16,386	0.001	2	41
Ericsson Radio 4449 B71 B85A	148.00	225	111,721	0.007	14	280
Ericsson RRUS 4415 B25	148.00	138	68,522	0.004	9	172
Ericsson Air6449 B41	148.00	312	154,920	0.010	19	388
Ericsson AIR 21, 1.3 M, B2A B4P	148.00	249	123,638	0.008	15	310
Ericsson AIR-32 B2A/B66Aa	148.00	397	196,927	0.012	25	493
Round Sector Frame	148.00	900	446,884	0.028	56	1,119
RFS APXVAARR24_43-U-NA20	148.00	384	190,521	0.012	24	477
Commander 620-3AN	130.00	53	22,401	0.001	3	66
Commscope RDIDC-9181-PF-48	115.00	22	7,949	0.000	1	27
Fujitsu TA08025-B605	115.00	225	81,664	0.005	10	280
Fujitsu TA08025-B604	115.00	192	69,578	0.004	9	238
JMA Wireless MX08FRO665-21	115.00	194	70,231	0.004	9	241
Generic Flat Light Sector Frame	115.00	1,200	435,542	0.027	55	1,492
PCTEL GPS-TMG-HR-26N	76.00	1	130	0.000	0	1
Standoffs	76.00	75	16,272	0.001	2	93
Totals		51,362	15,984,742	1.000	2,003	63,847

**FORCE/STRESS SUMMARY**

Section 1 – Base 0.0 (ft) and Height 20.00 (ft)

Max Compression	Pu		Len (ft)	Bracing %			F <sub>y</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Shear		Bear		# Bolt	# Hole	Use % Controls
	(kip)	Load Case		X	Y	Z			KL/R	Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)				
L PX - 8" DIA PIPE	-407.44	1.2D + 1.0W N	9.766	100	100	100	40.69	50.0	510.32	0.00	0.00	0	0	79	Member X
D SAE - 4X4X0.25	-13.82	1.2D + 1.0W 90°	23.621	50	50	50	178.27	43.5	17.47	19.88	23.40	1	1	79	Member Z

Max Tension Member	Pu		F <sub>y</sub> (ksi)	F <sub>u</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Blk Shear		# Bolt	# Hole	Use % Controls	
	(kip)	Load Case						Φ <sub>t</sub> P <sub>n</sub> (kip)					
L PX - 8" DIA PIPE	364.11	1.2D + 1.0W 60°	50.0	65	576.00	0.00	0.00			0	0	63	Member
D SAE - 4X4X0.25	13.57	0.9D + 1.0W 90°	50.0	65	63.50	19.88	14.14	17.98		1	1	96	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	Φ <sub>R<sub>nt</sub></sub> (kip)	Use %	Num Bolts	Bolt Type
Top Tension	333.43	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	368.65	0.9D + 1.0W 180°	567.88	43	10	1" A354-BC
Bot Compression	418.61	1.2D + 1.0W N	660.26	68	10	1" A354-BC

Section 2 – Base 20.0 (ft) and Height 20.00 (ft)

Max Compression	Pu		Len (ft)	Bracing %			F <sub>y</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Shear		Bear		# Bolt	# Hole	Use % Controls
	(kip)	Load Case		X	Y	Z			KL/R	Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)				
L PSP - ROHN 8 EHS	-366.18	1.2D + 1.0W N	9.766	100	100	100	40.14	50.0	388.80	0.00	0.00	0	0	94	Member X
D SAE - 4X4X0.25	-13.21	1.2D + 1.0W 90°	22.691	50	50	50	171.25	43.5	18.93	19.88	23.40	1	1	69	Member Z

Max Tension Member	Pu		F <sub>y</sub> (ksi)	F <sub>u</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Blk Shear		# Bolt	# Hole	Use % Controls	
	(kip)	Load Case						Φ <sub>t</sub> P <sub>n</sub> (kip)					
L PSP - ROHN 8 EHS	333.75	0.9D + 1.0W 60°	50.0	65	437.40	0.00	0.00			0	0	76	Member
D SAE - 4X4X0.25	12.87	1.2D + 1.0W 90°	50.0	65	63.50	19.88	14.14	17.98		1	1	91	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	Φ <sub>R<sub>nt</sub></sub> (kip)	Use %	Num Bolts	Bolt Type
Top Tension	295.62	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	333.43	0.9D + 1.0W 180°	436.14	76	8	1 A325

Section 3 – Base 40.0 (ft) and Height 20.00 (ft)

Max Compression	Pu		Len (ft)	Bracing %			F <sub>y</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Shear		Bear		# Bolt	# Hole	Use % Controls
	(kip)	Load Case		X	Y	Z			KL/R	Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)				
L PSP - ROHN 8 EHS	-323.28	1.2D + 1.0W N	9.768	100	100	100	40.14	50.0	388.78	0.00	0.00	0	0	83	Member X
D SAE - 3.5x3.5x0.25	-11.92	1.2D + 1.0W 90°	20.875	50	50	50	182.05	50.0	14.60	19.88	23.40	1	1	81	Member Z

Max Tension Member	Pu		F <sub>y</sub> (ksi)	F <sub>u</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Blk Shear		# Bolt	# Hole	Use % Controls	
	(kip)	Load Case						Φ <sub>t</sub> P <sub>n</sub> (kip)					
L PSP - ROHN 8 EHS	296.02	0.9D + 1.0W 60°	50.0	65	437.40	0.00	0.00			0	0	67	Member
D SAE - 3.5x3.5x0.25	11.78	1.2D + 1.0W 90°	50.0	65	54.36	19.88	14.14	17.98		1	1	83	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	Φ <sub>R<sub>nt</sub></sub> (kip)	Use %	Num Bolts	Bolt Type
Top Tension	258.16	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	295.62	0.9D + 1.0W 180°	436.14	68	8	1 A325

Section 4 – Base 60.0 (ft) and Height 20.00 (ft)

**FORCE/STRESS SUMMARY**

	Pu		Len (ft)	Bracing %			F <sub>y</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Shear		Bear		# Bolt	# Hole	Use %	Controls
	(kip)	Load Case		Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Φ <sub>t</sub> P <sub>n</sub> (kip)										
Max Compression																
L PX - 6" DIA PIPE	-279.84	1.2D + 1.0W N	9.767	100	100	100	53.39	50.0	306.88	0.00	0.00	0	0	91	Member X	
D SAE - 3.5x3.5x0.25	-11.60	1.2D + 1.0W 90°	19.044	50	50	50	166.08	50.0	17.54	19.88	23.40	1	1	66	Member Z	

	Pu		F <sub>y</sub> (ksi)	F <sub>u</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Φ <sub>t</sub> P <sub>n</sub> (kip)	# Bolt	# Hole	Use %	Controls
	(kip)	Load Case										
Max Tension Member												
L PX - 6" DIA PIPE	258.48	0.9D + 1.0W 60°	50.0	65	378.00	0.00	0.00		0	0	68	Member
D SAE - 3.5x3.5x0.25	11.59	1.2D + 1.0W 90°	50.0	65	54.36	19.88	14.14	17.98	1	1	81	Bolt Bear

	Pu		Φ <sub>R<sub>nt</sub></sub> (kip)	Use %	Num Bolts	Bolt Type
	(kip)	Load Case				
Max Splice Forces						
Top Tension	217.77	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	258.16	0.9D + 1.0W 180°	436.14	59	8	1 A325

Section 5 – Base 80.0 (ft) and Height 20.00 (ft)

	Pu		Len (ft)	Bracing %			F <sub>y</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Shear		Bear		# Bolt	# Hole	Use %	Controls
	(kip)	Load Case		Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Φ <sub>t</sub> P <sub>n</sub> (kip)										
Max Compression																
L PSP - ROHN 6 EHS	-237.15	1.2D + 1.0W N	6.51	100	100	100	35.11	50.0	275.92	0.00	0.00	0	0	85	Member X	
D SAE - 3X3X0.25	-10.61	1.2D + 1.0W 90°	15.902	50	50	50	161.17	50.0	15.87	19.88	23.40	1	1	66	Member Z	

	Pu		F <sub>y</sub> (ksi)	F <sub>u</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Φ <sub>t</sub> P <sub>n</sub> (kip)	# Bolt	# Hole	Use %	Controls
	(kip)	Load Case										
Max Tension Member												
L PSP - ROHN 6 EHS	218.00	0.9D + 1.0W 60°	50.0	65	301.95	0.00	0.00		0	0	72	Member
D SAE - 3X3X0.25	10.47	1.2D + 1.0W 90°	50.0	65	45.22	19.88	14.14	14.93	1	1	74	Bolt Bear

	Pu		Φ <sub>R<sub>nt</sub></sub> (kip)	Use %	Num Bolts	Bolt Type
	(kip)	Load Case				
Max Splice Forces						
Top Tension	174.11	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	217.77	0.9D + 1.0W 180°	327.10	67	6	1 A325

Section 6 – Base 100.0 (ft) and Height 20.00 (ft)

	Pu		Len (ft)	Bracing %			F <sub>y</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Shear		Bear		# Bolt	# Hole	Use %	Controls
	(kip)	Load Case		Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Φ <sub>t</sub> P <sub>n</sub> (kip)										
Max Compression																
L PX - 5" DIA PIPE	-189.12	1.2D + 1.0W N	6.512	100	100	100	42.47	50.0	240.59	0.00	0.00	0	0	78	Member X	
D SAE - 2.5X2.5X0.25	-9.16	1.2D + 1.0W 90°	14.137	50	50	50	172.76	36.0	11.41	13.81	17.40	1	1	80	Member Z	

	Pu		F <sub>y</sub> (ksi)	F <sub>u</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Φ <sub>t</sub> P <sub>n</sub> (kip)	# Bolt	# Hole	Use %	Controls
	(kip)	Load Case										
Max Tension Member												
L PX - 5" DIA PIPE	174.37	0.9D + 1.0W 60°	50.0	65	274.50	0.00	0.00		0	0	63	Member
D SAE - 2.5X2.5X0.25	9.06	1.2D + 1.0W 90°	36.0	58	33.22	13.81	10.44	11.83	1	1	86	Bolt Bear

	Pu		Φ <sub>R<sub>nt</sub></sub> (kip)	Use %	Num Bolts	Bolt Type
	(kip)	Load Case				
Max Splice Forces						
Top Tension	132.04	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	174.11	0.9D + 1.0W 180°	327.10	53	6	1 A325

Section 7 – Base 120.0 (ft) and Height 20.00 (ft)

	Pu		Len (ft)	Bracing %			F <sub>y</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Shear		Bear		# Bolt	# Hole	Use %	Controls
	(kip)	Load Case		Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Φ <sub>t</sub> P <sub>n</sub> (kip)										
Max Compression																
L PX - 5" DIA PIPE	-141.39	1.2D + 1.0W N	6.511	100	100	100	42.46	50.0	240.60	0.00	0.00	0	0	58	Member X	
D SAE - 2.5X2.5X0.25	-8.53	1.2D + 1.0W 90°	11.253	50	50	50	137.51	36.0	18.01	13.81	17.40	1	1	61	Bolt Shear	



**FORCE/STRESS SUMMARY**

Max Tension Member	Pu		Fy	Fu	ΦcPn	Shear	Bear	Blk Shear	# Bolt	# Hole	Use %	Controls
	(kip)	Load Case				ΦRnv	ΦRn	Φt Pn				
L PX - 5" DIA PIPE	132.21	0.9D + 1.0W 60°	50.0	65	274.50	0.00	0.00		0	0	48	Member
D SAE - 2.5X2.5X0.25	8.36	1.2D + 1.0W 90°	36.0	58	33.22	13.81	10.44	11.83	1	1	80	Bolt Bear

Max Splice Forces	Pu	Load Case	ΦRnt	Use %	Num Bolts	Bolt Type
(kip)	(kip)		(kip)			
Top Tension	87.25	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	132.04	0.9D + 1.0W 180°	218.07	61	4	1 A325

Section 8 – Base 140.0 (ft) and Height 20.00 (ft)

Max Compression	Pu		Len	Bracing %			Fy	Φc Pn	Shear	Bear	# Bolt	# Hole	Use %	Controls	
	(kip)	Load Case		ΦRnv	ΦRn	Φt Pn									
L PX - 4" DIA PIPE	-94.52	1.2D + 1.0W N	4.884	100	100	100	39.60	50.0	176.95	0.00	0.00	0	0	53	Member X
H SAE - 2X2X0.125	-0.43	1.2D + 1.0W 60°	6.76	100	100	100	203.83	36.0	3.31	13.81	8.70	1	1	13	Member Z
D SAE - 2X2X0.25	-6.95	1.2D + 1.0W 90°	9.848	50	50	50	151.11	36.0	11.78	13.81	17.40	1	1	58	Member Z

Max Tension Member	Pu		Fy	Fu	ΦcPn	Shear	Bear	Blk Shear	# Bolt	# Hole	Use %	Controls
	(kip)	Load Case				ΦRnv	ΦRn	Φt Pn				
L PX - 4" DIA PIPE	87.41	0.9D + 1.0W 60°	50.0	65	198.45	0.00	0.00		0	0	44	Member
H SAE - 2X2X0.125	0.33	1.2D + 1.0W N	36.0	58	12.86	13.81	5.22	4.55	1	1	7	Blk Shear
D SAE - 2X2X0.25	6.96	1.2D + 1.0W 90°	36.0	58	25.06	13.81	10.44	9.11	1	1	76	Blk Shear

Max Splice Forces	Pu	Load Case	ΦRnt	Use %	Num Bolts	Bolt Type
(kip)	(kip)		(kip)			
Top Tension	42.41	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	87.25	0.9D + 1.0W 180°	218.07	40	4	1 A325

Section 9 – Base 160.0 (ft) and Height 20.00 (ft)

Max Compression	Pu		Len	Bracing %			Fy	Φc Pn	Shear	Bear	# Bolt	# Hole	Use %	Controls	
	(kip)	Load Case		ΦRnv	ΦRn	Φt Pn									
L PX - 3" DIA PIPE	-50.67	1.2D + 1.0W N	0.25	100	100	100	2.63	50.0	135.83	0.00	0.00	0	0	37	Member X
D SAE - 2X2X0.1875	-6.69	1.2D + 1.0W 90°	7.798	50	50	50	119.06	36.0	14.27	27.61	26.10	2	1	46	Member Z

Max Tension Member	Pu		Fy	Fu	ΦcPn	Shear	Bear	Blk Shear	# Bolt	# Hole	Use %	Controls
	(kip)	Load Case				ΦRnv	ΦRn	Φt Pn				
L PX - 3" DIA PIPE	41.16	1.2D + 1.0W 60°	50.0	65	135.90	0.00	0.00		0	0	30	Member
D SAE - 2X2X0.1875	6.60	1.2D + 1.0W 90°	36.0	58	19.12	27.61	20.88	12.34	2	1	53	Blk Shear

Max Splice Forces	Pu	Load Case	ΦRnt	Use %	Num Bolts	Bolt Type
(kip)	(kip)		(kip)			
Top Tension	5.46	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	42.41	0.9D + 1.0W 180°	166.22	26	4	0.875" A325

Section 10 – Base 180.0 (ft) and Height 16.00 (ft)

Max Compression	Pu		Len	Bracing %			Fy	Φc Pn	Shear	Bear	# Bolt	# Hole	Use %	Controls	
	(kip)	Load Case		ΦRnv	ΦRn	Φt Pn									
L PST - 2-1/2" DIA PIPE	-7.74	1.2D + 1.0W N	0.25	100	100	100	3.17	50.0	76.62	0.00	0.00	0	0	10	Member X
H SAE - 2X2X0.125	-0.06	1.2D + 1.0W 60°	6.647	100	100	100	200.40	36.0	3.42	13.81	8.70	1	1	1	Member Z
D SAE - 1.75X1.75X0.1875	-1.78	1.2D + 1.0W 90°	7.758	50	50	50	135.71	36.0	9.65	13.81	13.05	1	1	18	Member Z

**FORCE/STRESS SUMMARY**

Max Tension Member	Pu		F <sub>y</sub> (ksi)	F <sub>u</sub> (ksi)	Φ <sub>c</sub> P <sub>n</sub> (kip)	Shear	Bear	Blk Shear	# Bolt	# Hole	Use %	Controls
	(kip)	Load Case				Φ <sub>R<sub>nv</sub></sub> (kip)	Φ <sub>R<sub>n</sub></sub> (kip)	Φ <sub>t</sub> P <sub>n</sub> (kip)				
L PST - 2-1/2" DIA PIPE	5.53	0.9D + 1.0W 60°	50.0	65	76.68	0.00	0.00		0	0	7	Member
H SAE - 2X2X0.125	0.06	1.2D + 1.0W N	36.0	58	12.86	13.81	5.22	4.55	1	1	1	Blk Shear
D SAE - 1.75X1.75X0.1875	1.78	1.2D + 1.0W 90°	36.0	58	16.05	13.81	7.83	5.81	1	1	30	Blk Shear

Max Splice Forces	Pu (kip)	Load Case	Φ <sub>R<sub>nt</sub></sub> (kip)	Use %	Num Bolts	Bolt Type
Bot Tension	5.46	0.9D + 1.0W 60°	120.41	5	4	0.75" A325

DETAILED REACTIONS

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	*(-) Uplift and (+) Down		
					*Fx (kip)	*Fy (kip)	*Fz (kip)
1.2D + 1.0W Normal	13.28	0.00	0	1	0.00	417.26	-43.83
	13.28	0.00	120	1a	15.01	-177.81	-14.42
	13.28	0.00	240	1b	-15.01	-177.81	-14.42
1.2D + 1.0W 60°	13.28	0.00	0	1	-4.56	211.79	-21.69
	13.28	0.00	120	1a	-21.06	211.77	6.90
	13.28	0.00	240	1b	-34.57	-361.93	-19.96
1.2D + 1.0W 90°	13.28	0.00	0	1	-5.43	20.55	-1.24
	13.28	0.00	120	1a	-33.35	354.85	16.21
	13.28	0.00	240	1b	-31.51	-313.76	-14.98
1.2D + 1.0W 120°	13.28	0.00	0	1	-4.98	-177.81	20.21
	13.28	0.00	120	1a	-37.96	417.24	21.91
	13.28	0.00	240	1b	-19.99	-177.80	-5.79
1.2D + 1.0W 180°	13.28	0.00	0	1	0.00	-361.95	39.93
	13.28	0.00	120	1a	-16.51	211.79	14.79
	13.28	0.00	240	1b	16.51	211.79	14.79
1.2D + 1.0W 210°	13.28	0.00	0	1	2.79	-313.78	34.78
	13.28	0.00	120	1a	1.64	20.56	5.32
	13.28	0.00	240	1b	30.72	354.85	20.78
1.2D + 1.0W 240°	13.28	0.00	0	1	4.98	-177.81	20.21
	13.28	0.00	120	1a	19.99	-177.80	-5.79
	13.28	0.00	240	1b	37.96	417.24	21.91
1.2D + 1.0W 300°	13.28	0.00	0	1	4.56	211.79	-21.69
	13.28	0.00	120	1a	34.57	-361.93	-19.96
	13.28	0.00	240	1b	21.06	211.77	6.90
1.2D + 1.0W 330°	13.28	0.00	0	1	2.64	354.86	-36.99
	13.28	0.00	120	1a	28.73	-313.77	-19.80
	13.28	0.00	240	1b	3.78	20.54	-4.08
0.9D + 1.0W Normal	13.28	0.00	0	1	0.00	411.57	-43.50
	13.28	0.00	120	1a	15.28	-182.67	-14.58
	13.28	0.00	240	1b	-15.28	-182.67	-14.58
0.9D + 1.0W 60°	13.28	0.00	0	1	-4.56	206.39	-21.36
	13.28	0.00	120	1a	-20.78	206.37	6.73
	13.28	0.00	240	1b	-34.85	-366.53	-20.12
0.9D + 1.0W 90°	13.28	0.00	0	1	-5.44	15.42	-0.91
	13.28	0.00	120	1a	-33.07	349.24	16.04
	13.28	0.00	240	1b	-31.79	-318.43	-15.13
0.9D + 1.0W 120°	13.28	0.00	0	1	-4.99	-182.67	20.53
	13.28	0.00	120	1a	-37.67	411.55	21.75
	13.28	0.00	240	1b	-20.27	-182.66	-5.94
0.9D + 1.0W 180°	13.28	0.00	0	1	0.00	-366.54	40.24
	13.28	0.00	120	1a	-16.22	206.39	14.63
	13.28	0.00	240	1b	16.22	206.39	14.63
0.9D + 1.0W 210°	13.28	0.00	0	1	2.79	-318.45	35.10
	13.28	0.00	120	1a	1.93	15.43	5.16
	13.28	0.00	240	1b	30.43	349.25	20.61
0.9D + 1.0W 240°	13.28	0.00	0	1	4.99	-182.67	20.53
	13.28	0.00	120	1a	20.27	-182.66	-5.94
	13.28	0.00	240	1b	37.67	411.55	21.75
0.9D + 1.0W 300°	13.28	0.00	0	1	4.56	206.39	-21.36
	13.28	0.00	120	1a	34.85	-366.53	-20.12
	13.28	0.00	240	1b	20.78	206.37	6.73
0.9D + 1.0W 330°	13.28	0.00	0	1	2.64	349.26	-36.66
	13.28	0.00	120	1a	29.00	-318.44	-19.97
	13.28	0.00	240	1b	3.50	15.41	-4.25
1.2D + 1.0Di + 1.0Wi Normal	13.28	0.00	0	1	0.00	184.41	-15.26
	13.28	0.00	120	1a	6.53	-26.18	-6.08
	13.28	0.00	240	1b	-6.53	-26.18	-6.08
1.2D + 1.0Di + 1.0Wi 60°	13.28	0.00	0	1	-1.93	113.42	-7.17
	13.28	0.00	120	1a	-7.18	113.41	1.91
	13.28	0.00	240	1b	-14.26	-94.79	-8.23
1.2D + 1.0Di + 1.0Wi 90°	13.28	0.00	0	1	-2.26	44.01	0.70
	13.28	0.00	120	1a	-11.79	164.57	5.52
	13.28	0.00	240	1b	-13.04	-76.55	-6.21
1.2D + 1.0Di + 1.0Wi 120°	13.28	0.00	0	1	-2.00	-26.18	8.69
	13.28	0.00	120	1a	-13.21	184.40	7.63
	13.28	0.00	240	1b	-8.53	-26.18	-2.62
1.2D + 1.0Di + 1.0Wi 180°	13.28	0.00	0	1	0.00	-94.80	16.47
	13.28	0.00	120	1a	-5.24	113.42	5.26

DETAILED REACTIONS

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	*(-) Uplift and (+) Down		
					*Fx (kip)	*Fy (kip)	*Fz (kip)
1.2D + 1.0Di + 1.0Wi 210°	13.28	0.00	240	1b	5.24	113.42	5.26
	13.28	0.00	0	1	1.14	-76.54	14.40
	13.28	0.00	120	1a	1.73	44.02	1.61
1.2D + 1.0Di + 1.0Wi 240°	13.28	0.00	240	1b	10.67	164.57	7.45
	13.28	0.00	0	1	2.00	-26.18	8.69
	13.28	0.00	120	1a	8.53	-26.18	-2.62
1.2D + 1.0Di + 1.0Wi 300°	13.28	0.00	240	1b	13.21	184.40	7.63
	13.28	0.00	0	1	1.93	113.42	-7.17
	13.28	0.00	120	1a	14.26	-94.79	-8.23
1.2D + 1.0Di + 1.0Wi 330°	13.28	0.00	240	1b	7.18	113.41	1.91
	13.28	0.00	0	1	1.12	164.58	-12.97
	13.28	0.00	120	1a	11.90	-76.55	-8.19
1.2D + 1.0Ev + 1.0Eh Normal	13.28	0.00	240	1b	0.53	44.01	-2.30
	13.28	0.00	0	1	0.00	34.32	-2.57
	13.28	0.00	120	1a	-0.69	13.99	0.31
1.2D + 1.0Ev + 1.0Eh 60°	13.28	0.00	240	1b	0.69	13.99	0.31
	13.28	0.00	0	1	-0.08	27.54	-1.96
	13.28	0.00	120	1a	-1.74	27.54	0.92
1.2D + 1.0Ev + 1.0Eh 90°	13.28	0.00	240	1b	0.12	7.22	0.07
	13.28	0.00	0	1	-0.09	20.77	-1.36
	13.28	0.00	120	1a	-2.11	32.50	1.17
1.2D + 1.0Ev + 1.0Eh 120°	13.28	0.00	240	1b	0.24	9.03	0.19
	13.28	0.00	0	1	-0.08	13.99	-0.75
	13.28	0.00	120	1a	-2.23	34.32	1.29
1.2D + 1.0Ev + 1.0Eh 180°	13.28	0.00	240	1b	0.61	13.99	0.44
	13.28	0.00	0	1	0.00	7.22	-0.14
	13.28	0.00	120	1a	-1.66	27.54	1.05
1.2D + 1.0Ev + 1.0Eh 210°	13.28	0.00	240	1b	1.66	27.54	1.05
	13.28	0.00	0	1	0.04	9.03	-0.30
	13.28	0.00	120	1a	-1.13	20.77	0.75
1.2D + 1.0Ev + 1.0Eh 240°	13.28	0.00	240	1b	2.06	32.50	1.24
	13.28	0.00	0	1	0.08	13.99	-0.75
	13.28	0.00	120	1a	-0.61	13.99	0.44
1.2D + 1.0Ev + 1.0Eh 300°	13.28	0.00	240	1b	2.23	34.32	1.29
	13.28	0.00	0	1	0.08	27.54	-1.96
	13.28	0.00	120	1a	-0.12	7.22	0.07
1.2D + 1.0Ev + 1.0Eh 330°	13.28	0.00	240	1b	1.74	27.54	0.92
	13.28	0.00	0	1	0.04	32.50	-2.41
	13.28	0.00	120	1a	-0.29	9.03	0.11
0.9D - 1.0Ev + 1.0Eh Normal	13.28	0.00	240	1b	1.22	20.77	0.60
	13.28	0.00	0	1	0.00	27.84	-2.15
	13.28	0.00	120	1a	-0.32	7.55	0.10
0.9D - 1.0Ev + 1.0Eh 60°	13.28	0.00	240	1b	0.32	7.55	0.10
	13.28	0.00	0	1	-0.08	21.08	-1.54
	13.28	0.00	120	1a	-1.37	21.08	0.70
0.9D - 1.0Ev + 1.0Eh 90°	13.28	0.00	240	1b	-0.24	0.79	-0.14
	13.28	0.00	0	1	-0.09	14.32	-0.94
	13.28	0.00	120	1a	-1.74	26.03	0.96
0.9D - 1.0Ev + 1.0Eh 120°	13.28	0.00	240	1b	-0.12	2.60	-0.02
	13.28	0.00	0	1	-0.08	7.55	-0.33
	13.28	0.00	120	1a	-1.86	27.84	1.08
0.9D - 1.0Ev + 1.0Eh 180°	13.28	0.00	240	1b	0.25	7.55	0.23
	13.28	0.00	0	1	0.00	0.79	0.28
	13.28	0.00	120	1a	-1.30	21.08	0.84
0.9D - 1.0Ev + 1.0Eh 210°	13.28	0.00	240	1b	1.30	21.08	0.84
	13.28	0.00	0	1	0.04	2.60	0.12
	13.28	0.00	120	1a	-0.77	14.32	0.54
0.9D - 1.0Ev + 1.0Eh 240°	13.28	0.00	240	1b	1.70	26.03	1.03
	13.28	0.00	0	1	0.08	7.55	-0.33
	13.28	0.00	120	1a	-0.25	7.55	0.23
0.9D - 1.0Ev + 1.0Eh 300°	13.28	0.00	240	1b	1.86	27.84	1.08
	13.28	0.00	0	1	0.08	21.08	-1.54
	13.28	0.00	120	1a	0.24	0.79	-0.14
0.9D - 1.0Ev + 1.0Eh 330°	13.28	0.00	240	1b	1.37	21.08	0.70
	13.28	0.00	0	1	0.04	26.03	-1.99
	13.28	0.00	120	1a	0.08	2.60	-0.10
1.0D + 1.0W Service Normal	13.28	0.00	240	1b	0.85	14.32	0.39
	13.28	0.00	0	1	0.00	121.03	-12.37

**DETAILED REACTIONS**

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	*(-) Uplift and (+) Down		
					*Fx (kip)	*Fy (kip)	*Fz (kip)
1.0D + 1.0W Service 60°	13.28	0.00	120	1a	3.29	-34.84	-3.42
	13.28	0.00	240	1b	-3.29	-34.84	-3.42
	13.28	0.00	0	1	-1.24	67.22	-6.50
1.0D + 1.0W Service 90°	13.28	0.00	120	1a	-6.24	67.21	2.18
	13.28	0.00	240	1b	-8.44	-83.07	-4.88
	13.28	0.00	0	1	-1.46	17.12	-1.09
1.0D + 1.0W Service 120°	13.28	0.00	120	1a	-9.50	104.72	4.65
	13.28	0.00	240	1b	-7.64	-70.48	-3.57
	13.28	0.00	0	1	-1.32	-34.82	4.56
1.0D + 1.0W Service 180°	13.28	0.00	120	1a	-10.71	120.99	6.18
	13.28	0.00	240	1b	-4.61	-34.81	-1.14
	13.28	0.00	0	1	0.00	-83.11	9.75
1.0D + 1.0W Service 210°	13.28	0.00	120	1a	-5.01	67.24	4.32
	13.28	0.00	240	1b	5.01	67.24	4.32
	13.28	0.00	0	1	0.73	-70.45	8.40
1.0D + 1.0W Service 240°	13.28	0.00	120	1a	-0.21	17.12	1.80
	13.28	0.00	240	1b	8.78	104.69	5.90
	13.28	0.00	0	1	1.32	-34.82	4.56
1.0D + 1.0W Service 300°	13.28	0.00	120	1a	4.61	-34.81	-1.14
	13.28	0.00	240	1b	10.71	120.99	6.18
	13.28	0.00	0	1	1.24	67.22	-6.50
1.0D + 1.0W Service 330°	13.28	0.00	120	1a	8.44	-83.07	-4.88
	13.28	0.00	240	1b	6.24	67.21	2.18
	13.28	0.00	0	1	0.72	104.72	-10.56
	13.28	0.00	120	1a	6.91	-70.48	-4.83
	13.28	0.00	240	1b	1.67	17.12	-0.72

Max Uplift:	366.54 (kip)	Moment Ice:	2796.47 (kip-ft)	Moment:	7902.02 (kip-ft)
Max Down:	417.26 (kip)	Total Down Ice:	132.04 (kip)	Total Down:	61.63 (kip)
Max Shear:	43.83 (kip)	Total Shear Ice:	27.41 (kip)	Total Shear:	72.66(kip)
1.2D + 1.0W Normal					

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0W Normal 118 mph wind with no ice	79.75	0.3381	0.0236	0.5399	0.5399
1.2D + 1.0W Normal 118 mph wind with no ice	113.25	0.6938	0.0314	0.7225	0.7232
1.2D + 1.0W Normal 118 mph wind with no ice	126.75	0.877	0.0341	0.8082	0.8089
1.2D + 1.0W Normal 118 mph wind with no ice	150.00	1.2418	0.0382	0.9867	0.9867
1.2D + 1.0W Normal 118 mph wind with no ice	154.88	1.3257	0.0383	0.9872	0.988
1.2D + 1.0W Normal 118 mph wind with no ice	168.05	1.569	0.0415	1.0886	1.0894
1.2D + 1.0W Normal 118 mph wind with no ice	175.85	1.7168	0.0417	1.0956	1.0964
1.2D + 1.0W Normal 118 mph wind with no ice	179.75	1.7914	0.0411	1.1718	1.1718
1.2D + 1.0W Normal 118 mph wind with no ice	184.19	1.8773	0.0417	1.0890	1.0898
1.2D + 1.0W Normal 118 mph wind with no ice	188.13	1.9523	0.0415	1.1031	1.1031
1.2D + 1.0W Normal 118 mph wind with no ice	192.06	2.0278	0.0416	1.0977	1.0984
1.2D + 1.0W Normal 118 mph wind with no ice	196.00	2.1031	0.0415	1.0968	1.0968
1.2D + 1.0W 60° 118 mph wind with no ice	79.75	0.3269	0.0242	0.5219	0.5219
1.2D + 1.0W 60° 118 mph wind with no ice	113.25	0.6719	0.0323	0.7001	0.7008
1.2D + 1.0W 60° 118 mph wind with no ice	126.75	0.8496	0.0354	0.7838	0.7845
1.2D + 1.0W 60° 118 mph wind with no ice	150.00	1.2032	0.0403	0.9569	0.9569
1.2D + 1.0W 60° 118 mph wind with no ice	154.88	1.285	0.0400	0.9573	0.958
1.2D + 1.0W 60° 118 mph wind with no ice	168.05	1.5199	0.0448	1.0558	1.0558
1.2D + 1.0W 60° 118 mph wind with no ice	175.85	1.6636	0.0452	1.0579	1.0589
1.2D + 1.0W 60° 118 mph wind with no ice	179.75	1.7361	0.0459	1.1359	1.1359
1.2D + 1.0W 60° 118 mph wind with no ice	184.19	1.8191	0.0452	1.0554	1.0563
1.2D + 1.0W 60° 118 mph wind with no ice	188.13	1.8923	0.0454	1.0694	1.0694
1.2D + 1.0W 60° 118 mph wind with no ice	192.06	1.9652	0.0453	1.0642	1.0651
1.2D + 1.0W 60° 118 mph wind with no ice	196.00	2.0382	0.0454	1.0637	1.0637
1.2D + 1.0W 90° 118 mph wind with no ice	79.75	0.3293	-0.0274	0.5207	0.5209
1.2D + 1.0W 90° 118 mph wind with no ice	113.25	0.6769	-0.0364	0.7087	0.7096
1.2D + 1.0W 90° 118 mph wind with no ice	126.75	0.8561	-0.0396	0.7907	0.7917
1.2D + 1.0W 90° 118 mph wind with no ice	150.00	1.2125	-0.0445	0.9610	0.9613
1.2D + 1.0W 90° 118 mph wind with no ice	154.88	1.2946	-0.0442	0.9694	0.9704
1.2D + 1.0W 90° 118 mph wind with no ice	168.05	1.5318	-0.0484	1.0635	1.0642
1.2D + 1.0W 90° 118 mph wind with no ice	175.85	1.6765	-0.0485	1.0702	1.0713
1.2D + 1.0W 90° 118 mph wind with no ice	179.75	1.7494	-0.0486	1.1337	1.1339
1.2D + 1.0W 90° 118 mph wind with no ice	184.19	1.8331	-0.0485	1.0676	1.0687
1.2D + 1.0W 90° 118 mph wind with no ice	188.13	1.9067	-0.0485	1.0754	1.0757
1.2D + 1.0W 90° 118 mph wind with no ice	192.06	1.9803	-0.0485	1.0736	1.0747
1.2D + 1.0W 90° 118 mph wind with no ice	196.00	2.0538	-0.0485	1.0704	1.0707
1.2D + 1.0W 120° 118 mph wind with no ice	79.75	0.3381	-0.0245	0.5400	0.54
1.2D + 1.0W 120° 118 mph wind with no ice	113.25	0.6938	-0.0331	0.7224	0.7231
1.2D + 1.0W 120° 118 mph wind with no ice	126.75	0.8769	-0.0361	0.8081	0.8088
1.2D + 1.0W 120° 118 mph wind with no ice	150.00	1.2417	-0.0410	0.9865	0.9865
1.2D + 1.0W 120° 118 mph wind with no ice	154.88	1.3255	-0.0412	0.9871	0.9878
1.2D + 1.0W 120° 118 mph wind with no ice	168.05	1.5688	-0.0456	1.0880	1.089
1.2D + 1.0W 120° 118 mph wind with no ice	175.85	1.7166	-0.0466	1.0908	1.0916
1.2D + 1.0W 120° 118 mph wind with no ice	179.75	1.7912	-0.0461	1.1730	1.173
1.2D + 1.0W 120° 118 mph wind with no ice	184.19	1.877	-0.0466	1.0883	1.0893
1.2D + 1.0W 120° 118 mph wind with no ice	188.13	1.9521	-0.0464	1.1028	1.1028
1.2D + 1.0W 120° 118 mph wind with no ice	192.06	2.0275	-0.0466	1.0973	1.0983
1.2D + 1.0W 120° 118 mph wind with no ice	196.00	2.1027	-0.0465	1.0964	1.0964
1.2D + 1.0W 180° 118 mph wind with no ice	79.75	0.3269	0.0233	0.5218	0.5218
1.2D + 1.0W 180° 118 mph wind with no ice	113.25	0.6719	0.0307	0.7002	0.7009
1.2D + 1.0W 180° 118 mph wind with no ice	126.75	0.8497	0.0334	0.7839	0.7847
1.2D + 1.0W 180° 118 mph wind with no ice	150.00	1.2033	0.0377	0.9571	0.9571
1.2D + 1.0W 180° 118 mph wind with no ice	154.88	1.2851	0.0373	0.9574	0.9582
1.2D + 1.0W 180° 118 mph wind with no ice	168.05	1.52	0.0411	1.0564	1.0564
1.2D + 1.0W 180° 118 mph wind with no ice	175.85	1.6639	0.0408	1.0628	1.0635
1.2D + 1.0W 180° 118 mph wind with no ice	179.75	1.7363	0.0414	1.1347	1.1347
1.2D + 1.0W 180° 118 mph wind with no ice	184.19	1.8193	0.0408	1.0561	1.0568
1.2D + 1.0W 180° 118 mph wind with no ice	188.13	1.8926	0.0410	1.0697	1.0697
1.2D + 1.0W 180° 118 mph wind with no ice	192.06	1.9655	0.0409	1.0645	1.0653
1.2D + 1.0W 180° 118 mph wind with no ice	196.00	2.0385	0.0410	1.0641	1.0641
1.2D + 1.0W 210° 118 mph wind with no ice	79.75	0.3293	-0.0266	0.5206	0.5208
1.2D + 1.0W 210° 118 mph wind with no ice	113.25	0.677	-0.0351	0.7088	0.7097
1.2D + 1.0W 210° 118 mph wind with no ice	126.75	0.8561	-0.0379	0.7909	0.7918
1.2D + 1.0W 210° 118 mph wind with no ice	150.00	1.2126	-0.0421	0.9612	0.9615

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0W 210° 118 mph wind with no ice	154.88	1.2948	-0.0417	0.9697	0.9706
1.2D + 1.0W 210° 118 mph wind with no ice	168.05	1.532	-0.0446	1.0640	1.0645
1.2D + 1.0W 210° 118 mph wind with no ice	175.85	1.6767	-0.0438	1.0751	1.076
1.2D + 1.0W 210° 118 mph wind with no ice	179.75	1.7497	-0.0437	1.1324	1.1327
1.2D + 1.0W 210° 118 mph wind with no ice	184.19	1.8334	-0.0437	1.0682	1.0691
1.2D + 1.0W 210° 118 mph wind with no ice	188.13	1.907	-0.0437	1.0756	1.076
1.2D + 1.0W 210° 118 mph wind with no ice	192.06	1.9806	-0.0437	1.0740	1.0748
1.2D + 1.0W 210° 118 mph wind with no ice	196.00	2.0542	-0.0437	1.0707	1.0711
1.2D + 1.0W 240° 118 mph wind with no ice	79.75	0.3381	0.0245	0.5400	0.54
1.2D + 1.0W 240° 118 mph wind with no ice	113.25	0.6938	0.0331	0.7224	0.7231
1.2D + 1.0W 240° 118 mph wind with no ice	126.75	0.8769	0.0361	0.8081	0.8088
1.2D + 1.0W 240° 118 mph wind with no ice	150.00	1.2417	0.0410	0.9865	0.9865
1.2D + 1.0W 240° 118 mph wind with no ice	154.88	1.3255	0.0412	0.9871	0.9878
1.2D + 1.0W 240° 118 mph wind with no ice	168.05	1.5688	0.0456	1.0880	1.089
1.2D + 1.0W 240° 118 mph wind with no ice	175.85	1.7166	0.0466	1.0908	1.0916
1.2D + 1.0W 240° 118 mph wind with no ice	179.75	1.7912	0.0461	1.1730	1.173
1.2D + 1.0W 240° 118 mph wind with no ice	184.19	1.877	0.0466	1.0883	1.0893
1.2D + 1.0W 240° 118 mph wind with no ice	188.13	1.9521	0.0464	1.1028	1.1028
1.2D + 1.0W 240° 118 mph wind with no ice	192.06	2.0275	0.0466	1.0973	1.0983
1.2D + 1.0W 240° 118 mph wind with no ice	196.00	2.1027	0.0465	1.0964	1.0964
1.2D + 1.0W 300° 118 mph wind with no ice	79.75	0.3269	-0.0242	0.5219	0.5219
1.2D + 1.0W 300° 118 mph wind with no ice	113.25	0.6719	-0.0323	0.7001	0.7008
1.2D + 1.0W 300° 118 mph wind with no ice	126.75	0.8496	-0.0354	0.7838	0.7845
1.2D + 1.0W 300° 118 mph wind with no ice	150.00	1.2032	-0.0403	0.9569	0.9569
1.2D + 1.0W 300° 118 mph wind with no ice	154.88	1.285	-0.0400	0.9573	0.958
1.2D + 1.0W 300° 118 mph wind with no ice	168.05	1.5199	-0.0448	1.0558	1.0558
1.2D + 1.0W 300° 118 mph wind with no ice	175.85	1.6636	-0.0452	1.0579	1.0589
1.2D + 1.0W 300° 118 mph wind with no ice	179.75	1.7361	-0.0459	1.1359	1.1359
1.2D + 1.0W 300° 118 mph wind with no ice	184.19	1.8191	-0.0452	1.0554	1.0563
1.2D + 1.0W 300° 118 mph wind with no ice	188.13	1.8923	-0.0454	1.0694	1.0694
1.2D + 1.0W 300° 118 mph wind with no ice	192.06	1.9652	-0.0453	1.0642	1.0651
1.2D + 1.0W 300° 118 mph wind with no ice	196.00	2.0382	-0.0454	1.0637	1.0637
1.2D + 1.0W 330° 118 mph wind with no ice	79.75	0.3293	-0.0275	0.5206	0.5207
1.2D + 1.0W 330° 118 mph wind with no ice	113.25	0.677	-0.0369	0.7087	0.7097
1.2D + 1.0W 330° 118 mph wind with no ice	126.75	0.8561	-0.0403	0.7907	0.7918
1.2D + 1.0W 330° 118 mph wind with no ice	150.00	1.2126	-0.0458	0.9613	0.9615
1.2D + 1.0W 330° 118 mph wind with no ice	154.88	1.2948	-0.0457	0.9695	0.9706
1.2D + 1.0W 330° 118 mph wind with no ice	168.05	1.532	-0.0508	1.0640	1.0648
1.2D + 1.0W 330° 118 mph wind with no ice	175.85	1.6767	-0.0515	1.0751	1.0764
1.2D + 1.0W 330° 118 mph wind with no ice	179.75	1.7497	-0.0515	1.1324	1.1326
1.2D + 1.0W 330° 118 mph wind with no ice	184.19	1.8334	-0.0515	1.0682	1.0694
1.2D + 1.0W 330° 118 mph wind with no ice	188.13	1.907	-0.0515	1.0757	1.0758
1.2D + 1.0W 330° 118 mph wind with no ice	192.06	1.9806	-0.0515	1.0739	1.0752
1.2D + 1.0W 330° 118 mph wind with no ice	196.00	2.0542	-0.0515	1.0708	1.0709
0.9D + 1.0W Normal 118 mph wind with no ice	79.75	0.3376	0.0235	0.5392	0.5392
0.9D + 1.0W Normal 118 mph wind with no ice	113.25	0.6925	0.0314	0.7209	0.7215
0.9D + 1.0W Normal 118 mph wind with no ice	126.75	0.8753	0.0340	0.8063	0.8071
0.9D + 1.0W Normal 118 mph wind with no ice	150.00	1.2393	0.0381	0.9842	0.9842
0.9D + 1.0W Normal 118 mph wind with no ice	154.88	1.3229	0.0382	0.9847	0.9855
0.9D + 1.0W Normal 118 mph wind with no ice	168.05	1.5656	0.0414	1.0856	1.0864
0.9D + 1.0W Normal 118 mph wind with no ice	175.85	1.7131	0.0416	1.0927	1.0935
0.9D + 1.0W Normal 118 mph wind with no ice	179.75	1.7875	0.0410	1.1686	1.1686
0.9D + 1.0W Normal 118 mph wind with no ice	184.19	1.8731	0.0415	1.0861	1.0869
0.9D + 1.0W Normal 118 mph wind with no ice	188.13	1.948	0.0413	1.1002	1.1002
0.9D + 1.0W Normal 118 mph wind with no ice	192.06	2.0233	0.0415	1.0948	1.0956
0.9D + 1.0W Normal 118 mph wind with no ice	196.00	2.0983	0.0414	1.0940	1.094
0.9D + 1.0W 60° 118 mph wind with no ice	79.75	0.3264	0.0241	0.5207	0.5207
0.9D + 1.0W 60° 118 mph wind with no ice	113.25	0.6707	0.0323	0.6986	0.6993
0.9D + 1.0W 60° 118 mph wind with no ice	126.75	0.848	0.0353	0.7820	0.7827
0.9D + 1.0W 60° 118 mph wind with no ice	150.00	1.2007	0.0402	0.9546	0.9546
0.9D + 1.0W 60° 118 mph wind with no ice	154.88	1.2823	0.0399	0.9549	0.9556
0.9D + 1.0W 60° 118 mph wind with no ice	168.05	1.5166	0.0446	1.0528	1.0531
0.9D + 1.0W 60° 118 mph wind with no ice	175.85	1.66	0.0451	1.0552	1.0561
0.9D + 1.0W 60° 118 mph wind with no ice	179.75	1.7323	0.0457	1.1330	1.133
0.9D + 1.0W 60° 118 mph wind with no ice	184.19	1.815	0.0451	1.0527	1.0536
0.9D + 1.0W 60° 118 mph wind with no ice	188.13	1.888	0.0453	1.0666	1.0666
0.9D + 1.0W 60° 118 mph wind with no ice	192.06	1.9608	0.0452	1.0614	1.0623
0.9D + 1.0W 60° 118 mph wind with no ice	196.00	2.0336	0.0453	1.0609	1.0609

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
0.9D + 1.0W 90° 118 mph wind with no ice	79.75	0.3288	-0.0273	0.5199	0.5201
0.9D + 1.0W 90° 118 mph wind with no ice	113.25	0.6757	-0.0364	0.7071	0.708
0.9D + 1.0W 90° 118 mph wind with no ice	126.75	0.8545	-0.0395	0.7889	0.7898
0.9D + 1.0W 90° 118 mph wind with no ice	150.00	1.2101	-0.0444	0.9586	0.9589
0.9D + 1.0W 90° 118 mph wind with no ice	154.88	1.292	-0.0441	0.9670	0.968
0.9D + 1.0W 90° 118 mph wind with no ice	168.05	1.5285	-0.0483	1.0605	1.0614
0.9D + 1.0W 90° 118 mph wind with no ice	175.85	1.6728	-0.0484	1.0674	1.0685
0.9D + 1.0W 90° 118 mph wind with no ice	179.75	1.7456	-0.0484	1.1306	1.1309
0.9D + 1.0W 90° 118 mph wind with no ice	184.19	1.8291	-0.0484	1.0648	1.0659
0.9D + 1.0W 90° 118 mph wind with no ice	188.13	1.9025	-0.0484	1.0726	1.0728
0.9D + 1.0W 90° 118 mph wind with no ice	192.06	1.9759	-0.0484	1.0709	1.0719
0.9D + 1.0W 90° 118 mph wind with no ice	196.00	2.0492	-0.0483	1.0676	1.0679
0.9D + 1.0W 120° 118 mph wind with no ice	79.75	0.3376	-0.0244	0.5393	0.5393
0.9D + 1.0W 120° 118 mph wind with no ice	113.25	0.6925	-0.0331	0.7208	0.7215
0.9D + 1.0W 120° 118 mph wind with no ice	126.75	0.8753	-0.0361	0.8062	0.8069
0.9D + 1.0W 120° 118 mph wind with no ice	150.00	1.2392	-0.0408	0.9840	0.984
0.9D + 1.0W 120° 118 mph wind with no ice	154.88	1.3228	-0.0411	0.9846	0.9853
0.9D + 1.0W 120° 118 mph wind with no ice	168.05	1.5654	-0.0455	1.0851	1.0861
0.9D + 1.0W 120° 118 mph wind with no ice	175.85	1.7129	-0.0465	1.0879	1.0887
0.9D + 1.0W 120° 118 mph wind with no ice	179.75	1.7872	-0.0460	1.1698	1.1698
0.9D + 1.0W 120° 118 mph wind with no ice	184.19	1.8729	-0.0465	1.0854	1.0864
0.9D + 1.0W 120° 118 mph wind with no ice	188.13	1.9477	-0.0463	1.1000	1.1
0.9D + 1.0W 120° 118 mph wind with no ice	192.06	2.023	-0.0464	1.0944	1.0954
0.9D + 1.0W 120° 118 mph wind with no ice	196.00	2.098	-0.0463	1.0936	1.0937
0.9D + 1.0W 180° 118 mph wind with no ice	79.75	0.3264	0.0233	0.5206	0.5206
0.9D + 1.0W 180° 118 mph wind with no ice	113.25	0.6707	0.0306	0.6987	0.6993
0.9D + 1.0W 180° 118 mph wind with no ice	126.75	0.8481	0.0333	0.7821	0.7828
0.9D + 1.0W 180° 118 mph wind with no ice	150.00	1.2008	0.0376	0.9547	0.9547
0.9D + 1.0W 180° 118 mph wind with no ice	154.88	1.2825	0.0372	0.9551	0.9558
0.9D + 1.0W 180° 118 mph wind with no ice	168.05	1.5168	0.0409	1.0534	1.0535
0.9D + 1.0W 180° 118 mph wind with no ice	175.85	1.6602	0.0407	1.0600	1.0608
0.9D + 1.0W 180° 118 mph wind with no ice	179.75	1.7325	0.0413	1.1317	1.1317
0.9D + 1.0W 180° 118 mph wind with no ice	184.19	1.8153	0.0407	1.0534	1.0541
0.9D + 1.0W 180° 118 mph wind with no ice	188.13	1.8883	0.0409	1.0669	1.0669
0.9D + 1.0W 180° 118 mph wind with no ice	192.06	1.9611	0.0408	1.0618	1.0625
0.9D + 1.0W 180° 118 mph wind with no ice	196.00	2.0339	0.0408	1.0612	1.0612
0.9D + 1.0W 210° 118 mph wind with no ice	79.75	0.3288	-0.0266	0.5199	0.5201
0.9D + 1.0W 210° 118 mph wind with no ice	113.25	0.6758	-0.0350	0.7072	0.7081
0.9D + 1.0W 210° 118 mph wind with no ice	126.75	0.8545	-0.0378	0.7891	0.79
0.9D + 1.0W 210° 118 mph wind with no ice	150.00	1.2102	-0.0420	0.9588	0.959
0.9D + 1.0W 210° 118 mph wind with no ice	154.88	1.2921	-0.0415	0.9673	0.9682
0.9D + 1.0W 210° 118 mph wind with no ice	168.05	1.5287	-0.0445	1.0611	1.0617
0.9D + 1.0W 210° 118 mph wind with no ice	175.85	1.6731	-0.0437	1.0723	1.0732
0.9D + 1.0W 210° 118 mph wind with no ice	179.75	1.7458	-0.0436	1.1293	1.1296
0.9D + 1.0W 210° 118 mph wind with no ice	184.19	1.8293	-0.0436	1.0654	1.0663
0.9D + 1.0W 210° 118 mph wind with no ice	188.13	1.9028	-0.0436	1.0728	1.0732
0.9D + 1.0W 210° 118 mph wind with no ice	192.06	1.9762	-0.0436	1.0712	1.072
0.9D + 1.0W 210° 118 mph wind with no ice	196.00	2.0495	-0.0436	1.0679	1.0682
0.9D + 1.0W 240° 118 mph wind with no ice	79.75	0.3376	0.0244	0.5393	0.5393
0.9D + 1.0W 240° 118 mph wind with no ice	113.25	0.6925	0.0331	0.7208	0.7215
0.9D + 1.0W 240° 118 mph wind with no ice	126.75	0.8753	0.0361	0.8062	0.8069
0.9D + 1.0W 240° 118 mph wind with no ice	150.00	1.2392	0.0408	0.9840	0.984
0.9D + 1.0W 240° 118 mph wind with no ice	154.88	1.3228	0.0411	0.9846	0.9853
0.9D + 1.0W 240° 118 mph wind with no ice	168.05	1.5654	0.0455	1.0851	1.0861
0.9D + 1.0W 240° 118 mph wind with no ice	175.85	1.7129	0.0465	1.0879	1.0887
0.9D + 1.0W 240° 118 mph wind with no ice	179.75	1.7872	0.0460	1.1698	1.1698
0.9D + 1.0W 240° 118 mph wind with no ice	184.19	1.8729	0.0465	1.0854	1.0864
0.9D + 1.0W 240° 118 mph wind with no ice	188.13	1.9477	0.0463	1.1000	1.1
0.9D + 1.0W 240° 118 mph wind with no ice	192.06	2.023	0.0464	1.0944	1.0954
0.9D + 1.0W 240° 118 mph wind with no ice	196.00	2.098	0.0463	1.0936	1.0937
0.9D + 1.0W 300° 118 mph wind with no ice	79.75	0.3264	-0.0241	0.5207	0.5207
0.9D + 1.0W 300° 118 mph wind with no ice	113.25	0.6707	-0.0323	0.6986	0.6993
0.9D + 1.0W 300° 118 mph wind with no ice	126.75	0.848	-0.0353	0.7820	0.7827
0.9D + 1.0W 300° 118 mph wind with no ice	150.00	1.2007	-0.0402	0.9546	0.9546
0.9D + 1.0W 300° 118 mph wind with no ice	154.88	1.2823	-0.0399	0.9549	0.9556
0.9D + 1.0W 300° 118 mph wind with no ice	168.05	1.5166	-0.0446	1.0528	1.0531
0.9D + 1.0W 300° 118 mph wind with no ice	175.85	1.66	-0.0451	1.0552	1.0561
0.9D + 1.0W 300° 118 mph wind with no ice	179.75	1.7323	-0.0457	1.1330	1.133



DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
0.9D + 1.0W 300° 118 mph wind with no ice	184.19	1.815	-0.0451	1.0527	1.0536
0.9D + 1.0W 300° 118 mph wind with no ice	188.13	1.888	-0.0453	1.0666	1.0666
0.9D + 1.0W 300° 118 mph wind with no ice	192.06	1.9608	-0.0452	1.0614	1.0623
0.9D + 1.0W 300° 118 mph wind with no ice	196.00	2.0336	-0.0453	1.0609	1.0609
0.9D + 1.0W 330° 118 mph wind with no ice	79.75	0.3288	-0.0275	0.5198	0.52
0.9D + 1.0W 330° 118 mph wind with no ice	113.25	0.6758	-0.0368	0.7071	0.7081
0.9D + 1.0W 330° 118 mph wind with no ice	126.75	0.8545	-0.0402	0.7889	0.7899
0.9D + 1.0W 330° 118 mph wind with no ice	150.00	1.2102	-0.0457	0.9589	0.9591
0.9D + 1.0W 330° 118 mph wind with no ice	154.88	1.2921	-0.0456	0.9671	0.9681
0.9D + 1.0W 330° 118 mph wind with no ice	168.05	1.5287	-0.0506	1.0610	1.062
0.9D + 1.0W 330° 118 mph wind with no ice	175.85	1.6731	-0.0513	1.0723	1.0736
0.9D + 1.0W 330° 118 mph wind with no ice	179.75	1.7458	-0.0514	1.1293	1.1295
0.9D + 1.0W 330° 118 mph wind with no ice	184.19	1.8293	-0.0513	1.0654	1.0666
0.9D + 1.0W 330° 118 mph wind with no ice	188.13	1.9028	-0.0513	1.0728	1.073
0.9D + 1.0W 330° 118 mph wind with no ice	192.06	1.9762	-0.0513	1.0711	1.0724
0.9D + 1.0W 330° 118 mph wind with no ice	196.00	2.0495	-0.0513	1.0679	1.0681
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	79.75	0.1193	0.0084	0.1853	0.1853
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	113.25	0.2385	0.0108	0.2391	0.2393
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	126.75	0.2985	0.0115	0.2623	0.2626
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	150.00	0.4158	0.0128	0.3133	0.3133
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	154.88	0.4422	0.0127	0.3133	0.3135
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	168.05	0.5188	0.0136	0.3416	0.3419
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	175.85	0.565	0.0136	0.3428	0.3431
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	179.75	0.5884	0.0135	0.3636	0.3636
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	184.19	0.6152	0.0135	0.3404	0.3407
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	188.13	0.6386	0.0135	0.3441	0.3441
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	192.06	0.6622	0.0135	0.3426	0.3429
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	196.00	0.6857	0.0135	0.3421	0.3423
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	79.75	0.119	0.0086	0.1878	0.1878
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	113.25	0.2371	0.0111	0.2364	0.2367
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	126.75	0.2965	0.0119	0.2602	0.2605
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	150.00	0.4125	0.0132	0.3101	0.3101
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	154.88	0.4387	0.0131	0.3099	0.3101
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	168.05	0.5142	0.0141	0.3388	0.3388
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	175.85	0.5601	0.0140	0.3378	0.3381
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	179.75	0.5832	0.0141	0.3589	0.3589
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	184.19	0.6097	0.0140	0.3364	0.3367
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	188.13	0.6331	0.0139	0.3409	0.3409
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	192.06	0.6563	0.0139	0.3392	0.3395
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	196.00	0.6796	0.0139	0.3396	0.3396
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	79.75	0.119	-0.0099	0.1854	0.1855
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	113.25	0.2374	-0.0128	0.2384	0.2387
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	126.75	0.297	-0.0136	0.2610	0.2613
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	150.00	0.4133	-0.0151	0.3102	0.3103
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	154.88	0.4396	-0.0151	0.3122	0.3125
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	168.05	0.5153	-0.0162	0.3395	0.3396
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	175.85	0.5614	-0.0162	0.3402	0.3406
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	179.75	0.5845	-0.0162	0.3580	0.3581
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	184.19	0.6111	-0.0161	0.3385	0.3389
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	188.13	0.6344	-0.0161	0.3413	0.3414
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	192.06	0.6578	-0.0161	0.3403	0.3407
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	196.00	0.6811	-0.0161	0.3401	0.3402
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	79.75	0.1193	-0.0086	0.1853	0.1853
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	113.25	0.2385	-0.0111	0.2391	0.2393
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	126.75	0.2985	-0.0119	0.2623	0.2625
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	150.00	0.4158	-0.0132	0.3133	0.3133
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	154.88	0.4422	-0.0131	0.3132	0.3135
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	168.05	0.5187	-0.0141	0.3415	0.3418
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	175.85	0.565	-0.0141	0.3418	0.342
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	179.75	0.5884	-0.0141	0.3639	0.3639
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	184.19	0.6151	-0.0141	0.3402	0.3405
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	188.13	0.6386	-0.0140	0.3440	0.344
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	192.06	0.6621	-0.0140	0.3426	0.3429
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	196.00	0.6856	-0.0140	0.3420	0.3422
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	79.75	0.119	0.0084	0.1877	0.1877
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	113.25	0.2371	0.0107	0.2365	0.2367
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	126.75	0.2965	0.0115	0.2603	0.2605
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	150.00	0.4125	0.0127	0.3101	0.3101

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	154.88	0.4388	0.0127	0.3099	0.3102
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	168.05	0.5142	0.0136	0.3390	0.339
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	175.85	0.5602	0.0135	0.3388	0.3391
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	179.75	0.5833	0.0136	0.3587	0.3587
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	184.19	0.6098	0.0135	0.3365	0.3368
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	188.13	0.6331	0.0135	0.3410	0.341
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	192.06	0.6564	0.0134	0.3392	0.3395
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	196.00	0.6797	0.0134	0.3396	0.3396
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	79.75	0.119	-0.0097	0.1854	0.1855
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	113.25	0.2374	-0.0125	0.2384	0.2387
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	126.75	0.297	-0.0133	0.2610	0.2613
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	150.00	0.4133	-0.0147	0.3102	0.3103
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	154.88	0.4396	-0.0146	0.3122	0.3126
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	168.05	0.5153	-0.0156	0.3396	0.3397
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	175.85	0.5613	-0.0155	0.3412	0.3416
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	179.75	0.5845	-0.0155	0.3577	0.3578
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	184.19	0.6111	-0.0154	0.3386	0.339
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	188.13	0.6344	-0.0154	0.3413	0.3414
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	192.06	0.6578	-0.0154	0.3404	0.3407
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	196.00	0.6811	-0.0154	0.3401	0.3402
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	79.75	0.1193	0.0086	0.1853	0.1853
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	113.25	0.2385	0.0111	0.2391	0.2393
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	126.75	0.2985	0.0119	0.2623	0.2625
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	150.00	0.4158	0.0132	0.3133	0.3133
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	154.88	0.4422	0.0131	0.3132	0.3135
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	168.05	0.5187	0.0141	0.3415	0.3418
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	175.85	0.565	0.0141	0.3418	0.342
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	179.75	0.5884	0.0141	0.3639	0.3639
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	184.19	0.6151	0.0141	0.3402	0.3405
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	188.13	0.6386	0.0140	0.3440	0.344
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	192.06	0.6621	0.0140	0.3426	0.3429
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	196.00	0.6856	0.0140	0.3420	0.3422
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	79.75	0.119	-0.0086	0.1878	0.1878
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	113.25	0.2371	-0.0111	0.2364	0.2367
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	126.75	0.2965	-0.0119	0.2602	0.2605
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	150.00	0.4125	-0.0132	0.3101	0.3101
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	154.88	0.4387	-0.0131	0.3099	0.3101
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	168.05	0.5142	-0.0141	0.3388	0.3388
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	175.85	0.5601	-0.0140	0.3378	0.3381
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	179.75	0.5832	-0.0141	0.3589	0.3589
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	184.19	0.6097	-0.0140	0.3364	0.3367
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	188.13	0.6331	-0.0139	0.3409	0.3409
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	192.06	0.6563	-0.0139	0.3392	0.3395
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	196.00	0.6796	-0.0139	0.3396	0.3396
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	79.75	0.119	-0.0098	0.1854	0.1855
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	113.25	0.2374	-0.0127	0.2384	0.2387
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	126.75	0.297	-0.0136	0.2610	0.2613
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	150.00	0.4133	-0.0151	0.3103	0.3104
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	154.88	0.4396	-0.0150	0.3122	0.3126
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	168.05	0.5154	-0.0162	0.3396	0.3397
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	175.85	0.5614	-0.0162	0.3413	0.3417
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	179.75	0.5846	-0.0162	0.3577	0.3578
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	184.19	0.6111	-0.0161	0.3387	0.3391
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	188.13	0.6345	-0.0161	0.3413	0.3414
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	192.06	0.6578	-0.0161	0.3404	0.3408
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	196.00	0.6812	-0.0161	0.3402	0.3402
1.2D + 1.0Ev + 1.0Eh Normal Seismic	79.75	0.0119	0.0008	0.0197	0.0197
1.2D + 1.0Ev + 1.0Eh Normal Seismic	113.25	0.0255	0.0010	0.0281	0.0281
1.2D + 1.0Ev + 1.0Eh Normal Seismic	126.75	0.0326	0.0011	0.0318	0.0318
1.2D + 1.0Ev + 1.0Eh Normal Seismic	150.00	0.0471	0.0011	0.0402	0.0402
1.2D + 1.0Ev + 1.0Eh Normal Seismic	154.88	0.0506	0.0011	0.0404	0.0404
1.2D + 1.0Ev + 1.0Eh Normal Seismic	168.05	0.0603	0.0011	0.0452	0.0452
1.2D + 1.0Ev + 1.0Eh Normal Seismic	175.85	0.0665	0.0011	0.0452	0.0452
1.2D + 1.0Ev + 1.0Eh Normal Seismic	179.75	0.0696	0.0011	0.0491	0.0491
1.2D + 1.0Ev + 1.0Eh Normal Seismic	184.19	0.0731	0.0010	0.0447	0.0447
1.2D + 1.0Ev + 1.0Eh Normal Seismic	188.13	0.0762	0.0010	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh Normal Seismic	192.06	0.0793	0.0010	0.0453	0.0453
1.2D + 1.0Ev + 1.0Eh Normal Seismic	196.00	0.0824	0.0010	0.0454	0.0455

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0Ev + 1.0Eh 60° Seismic	79.75	0.0118	0.0008	0.0207	0.0207
1.2D + 1.0Ev + 1.0Eh 60° Seismic	113.25	0.0253	0.0010	0.0279	0.0279
1.2D + 1.0Ev + 1.0Eh 60° Seismic	126.75	0.0325	0.0011	0.0319	0.0319
1.2D + 1.0Ev + 1.0Eh 60° Seismic	150.00	0.047	0.0011	0.0396	0.0396
1.2D + 1.0Ev + 1.0Eh 60° Seismic	154.88	0.0505	0.0011	0.0400	0.04
1.2D + 1.0Ev + 1.0Eh 60° Seismic	168.05	0.0603	0.0011	0.0453	0.0453
1.2D + 1.0Ev + 1.0Eh 60° Seismic	175.85	0.0664	0.0011	0.0448	0.0449
1.2D + 1.0Ev + 1.0Eh 60° Seismic	179.75	0.0696	0.0011	0.0490	0.049
1.2D + 1.0Ev + 1.0Eh 60° Seismic	184.19	0.0731	0.0010	0.0445	0.0446
1.2D + 1.0Ev + 1.0Eh 60° Seismic	188.13	0.0762	0.0010	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh 60° Seismic	192.06	0.0793	0.0010	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 60° Seismic	196.00	0.0824	0.0010	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 90° Seismic	79.75	0.0119	-0.0009	0.0204	0.0204
1.2D + 1.0Ev + 1.0Eh 90° Seismic	113.25	0.0254	-0.0012	0.0281	0.0281
1.2D + 1.0Ev + 1.0Eh 90° Seismic	126.75	0.0326	-0.0013	0.0319	0.0319
1.2D + 1.0Ev + 1.0Eh 90° Seismic	150.00	0.0471	-0.0013	0.0400	0.04
1.2D + 1.0Ev + 1.0Eh 90° Seismic	154.88	0.0505	-0.0013	0.0405	0.0405
1.2D + 1.0Ev + 1.0Eh 90° Seismic	168.05	0.0603	-0.0013	0.0453	0.0453
1.2D + 1.0Ev + 1.0Eh 90° Seismic	175.85	0.0665	-0.0013	0.0452	0.0453
1.2D + 1.0Ev + 1.0Eh 90° Seismic	179.75	0.0696	-0.0012	0.0487	0.0487
1.2D + 1.0Ev + 1.0Eh 90° Seismic	184.19	0.0731	-0.0012	0.0447	0.0447
1.2D + 1.0Ev + 1.0Eh 90° Seismic	188.13	0.0762	-0.0012	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh 90° Seismic	192.06	0.0793	-0.0011	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 90° Seismic	196.00	0.0824	-0.0011	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 120° Seismic	79.75	0.0119	0.0008	0.0197	0.0197
1.2D + 1.0Ev + 1.0Eh 120° Seismic	113.25	0.0255	0.0010	0.0281	0.0281
1.2D + 1.0Ev + 1.0Eh 120° Seismic	126.75	0.0326	0.0011	0.0318	0.0318
1.2D + 1.0Ev + 1.0Eh 120° Seismic	150.00	0.0471	0.0011	0.0402	0.0402
1.2D + 1.0Ev + 1.0Eh 120° Seismic	154.88	0.0506	0.0011	0.0404	0.0404
1.2D + 1.0Ev + 1.0Eh 120° Seismic	168.05	0.0603	0.0011	0.0452	0.0452
1.2D + 1.0Ev + 1.0Eh 120° Seismic	175.85	0.0665	0.0011	0.0452	0.0452
1.2D + 1.0Ev + 1.0Eh 120° Seismic	179.75	0.0696	0.0011	0.0491	0.0491
1.2D + 1.0Ev + 1.0Eh 120° Seismic	184.19	0.0731	0.0010	0.0447	0.0447
1.2D + 1.0Ev + 1.0Eh 120° Seismic	188.13	0.0762	0.0010	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh 120° Seismic	192.06	0.0793	0.0010	0.0453	0.0453
1.2D + 1.0Ev + 1.0Eh 120° Seismic	196.00	0.0824	0.0010	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 180° Seismic	79.75	0.0118	0.0008	0.0207	0.0207
1.2D + 1.0Ev + 1.0Eh 180° Seismic	113.25	0.0253	0.0010	0.0279	0.0279
1.2D + 1.0Ev + 1.0Eh 180° Seismic	126.75	0.0325	0.0011	0.0319	0.0319
1.2D + 1.0Ev + 1.0Eh 180° Seismic	150.00	0.047	0.0011	0.0396	0.0396
1.2D + 1.0Ev + 1.0Eh 180° Seismic	154.88	0.0505	0.0011	0.0400	0.04
1.2D + 1.0Ev + 1.0Eh 180° Seismic	168.05	0.0603	0.0011	0.0453	0.0453
1.2D + 1.0Ev + 1.0Eh 180° Seismic	175.85	0.0664	0.0011	0.0448	0.0448
1.2D + 1.0Ev + 1.0Eh 180° Seismic	179.75	0.0696	0.0011	0.0490	0.049
1.2D + 1.0Ev + 1.0Eh 180° Seismic	184.19	0.0731	0.0010	0.0445	0.0446
1.2D + 1.0Ev + 1.0Eh 180° Seismic	188.13	0.0762	0.0010	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh 180° Seismic	192.06	0.0793	0.0010	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 180° Seismic	196.00	0.0824	0.0010	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 210° Seismic	79.75	0.0119	-0.0009	0.0204	0.0204
1.2D + 1.0Ev + 1.0Eh 210° Seismic	113.25	0.0254	-0.0012	0.0281	0.0281
1.2D + 1.0Ev + 1.0Eh 210° Seismic	126.75	0.0326	-0.0012	0.0319	0.0319
1.2D + 1.0Ev + 1.0Eh 210° Seismic	150.00	0.0471	-0.0013	0.0400	0.04
1.2D + 1.0Ev + 1.0Eh 210° Seismic	154.88	0.0505	-0.0012	0.0405	0.0405
1.2D + 1.0Ev + 1.0Eh 210° Seismic	168.05	0.0603	-0.0013	0.0453	0.0453
1.2D + 1.0Ev + 1.0Eh 210° Seismic	175.85	0.0665	-0.0013	0.0452	0.0453
1.2D + 1.0Ev + 1.0Eh 210° Seismic	179.75	0.0696	-0.0012	0.0487	0.0487
1.2D + 1.0Ev + 1.0Eh 210° Seismic	184.19	0.0731	-0.0012	0.0447	0.0447
1.2D + 1.0Ev + 1.0Eh 210° Seismic	188.13	0.0762	-0.0012	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh 210° Seismic	192.06	0.0793	-0.0011	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 210° Seismic	196.00	0.0824	-0.0011	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 240° Seismic	79.75	0.0119	0.0008	0.0197	0.0197
1.2D + 1.0Ev + 1.0Eh 240° Seismic	113.25	0.0255	0.0010	0.0281	0.0281
1.2D + 1.0Ev + 1.0Eh 240° Seismic	126.75	0.0326	0.0011	0.0318	0.0318
1.2D + 1.0Ev + 1.0Eh 240° Seismic	150.00	0.0471	0.0011	0.0402	0.0402
1.2D + 1.0Ev + 1.0Eh 240° Seismic	154.88	0.0506	0.0011	0.0404	0.0404
1.2D + 1.0Ev + 1.0Eh 240° Seismic	168.05	0.0603	0.0011	0.0452	0.0452
1.2D + 1.0Ev + 1.0Eh 240° Seismic	175.85	0.0665	0.0011	0.0452	0.0452
1.2D + 1.0Ev + 1.0Eh 240° Seismic	179.75	0.0696	0.0011	0.0491	0.0491

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0Ev + 1.0Eh 240° Seismic	184.19	0.0731	0.0010	0.0447	0.0447
1.2D + 1.0Ev + 1.0Eh 240° Seismic	188.13	0.0762	0.0010	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh 240° Seismic	192.06	0.0793	0.0010	0.0453	0.0453
1.2D + 1.0Ev + 1.0Eh 240° Seismic	196.00	0.0824	0.0010	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 300° Seismic	79.75	0.0118	0.0008	0.0207	0.0207
1.2D + 1.0Ev + 1.0Eh 300° Seismic	113.25	0.0253	0.0010	0.0279	0.0279
1.2D + 1.0Ev + 1.0Eh 300° Seismic	126.75	0.0325	0.0011	0.0319	0.0319
1.2D + 1.0Ev + 1.0Eh 300° Seismic	150.00	0.047	0.0011	0.0396	0.0396
1.2D + 1.0Ev + 1.0Eh 300° Seismic	154.88	0.0505	0.0011	0.0400	0.04
1.2D + 1.0Ev + 1.0Eh 300° Seismic	168.05	0.0603	0.0011	0.0453	0.0453
1.2D + 1.0Ev + 1.0Eh 300° Seismic	175.85	0.0664	0.0011	0.0448	0.0449
1.2D + 1.0Ev + 1.0Eh 300° Seismic	179.75	0.0696	0.0011	0.0490	0.049
1.2D + 1.0Ev + 1.0Eh 300° Seismic	184.19	0.0731	0.0010	0.0445	0.0446
1.2D + 1.0Ev + 1.0Eh 300° Seismic	188.13	0.0762	0.0010	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh 300° Seismic	192.06	0.0793	0.0010	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 300° Seismic	196.00	0.0824	0.0010	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 330° Seismic	79.75	0.0119	-0.0009	0.0204	0.0204
1.2D + 1.0Ev + 1.0Eh 330° Seismic	113.25	0.0254	-0.0012	0.0281	0.0281
1.2D + 1.0Ev + 1.0Eh 330° Seismic	126.75	0.0326	-0.0013	0.0319	0.0319
1.2D + 1.0Ev + 1.0Eh 330° Seismic	150.00	0.0471	-0.0013	0.0400	0.04
1.2D + 1.0Ev + 1.0Eh 330° Seismic	154.88	0.0505	-0.0013	0.0405	0.0405
1.2D + 1.0Ev + 1.0Eh 330° Seismic	168.05	0.0603	-0.0013	0.0453	0.0453
1.2D + 1.0Ev + 1.0Eh 330° Seismic	175.85	0.0665	-0.0013	0.0452	0.0453
1.2D + 1.0Ev + 1.0Eh 330° Seismic	179.75	0.0696	-0.0012	0.0487	0.0487
1.2D + 1.0Ev + 1.0Eh 330° Seismic	184.19	0.0731	-0.0012	0.0447	0.0448
1.2D + 1.0Ev + 1.0Eh 330° Seismic	188.13	0.0762	-0.0012	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh 330° Seismic	192.06	0.0793	-0.0011	0.0454	0.0454
1.2D + 1.0Ev + 1.0Eh 330° Seismic	196.00	0.0824	-0.0011	0.0454	0.0454
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	79.75	0.0119	0.0008	0.0195	0.0195
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	113.25	0.0254	0.0010	0.0280	0.028
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	126.75	0.0325	0.0011	0.0317	0.0317
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	150.00	0.0469	0.0011	0.0400	0.04
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	154.88	0.0504	0.0011	0.0402	0.0403
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	168.05	0.0602	0.0011	0.0449	0.045
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	175.85	0.0663	0.0011	0.0450	0.045
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	179.75	0.0694	0.0011	0.0490	0.049
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	184.19	0.0729	0.0010	0.0446	0.0446
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	188.13	0.076	0.0010	0.0456	0.0456
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	192.06	0.0791	0.0010	0.0451	0.0451
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	196.00	0.0822	0.0010	0.0453	0.0453
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	79.75	0.0118	0.0008	0.0203	0.0203
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	113.25	0.0253	0.0010	0.0278	0.0279
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	126.75	0.0324	0.0011	0.0318	0.0318
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	150.00	0.0469	0.0011	0.0395	0.0395
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	154.88	0.0503	0.0011	0.0399	0.0399
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	168.05	0.0602	0.0011	0.0450	0.045
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	175.85	0.0663	0.0011	0.0448	0.0448
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	179.75	0.0694	0.0011	0.0489	0.0489
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	184.19	0.0729	0.0010	0.0444	0.0445
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	188.13	0.076	0.0010	0.0455	0.0455
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	192.06	0.0791	0.0010	0.0453	0.0453
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	196.00	0.0822	0.0010	0.0452	0.0452
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	79.75	0.0118	-0.0009	0.0201	0.0201
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	113.25	0.0253	-0.0012	0.0280	0.0281
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	126.75	0.0325	-0.0013	0.0318	0.0318
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	150.00	0.0469	-0.0013	0.0398	0.0398
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	154.88	0.0504	-0.0013	0.0404	0.0404
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	168.05	0.0602	-0.0013	0.0450	0.045
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	175.85	0.0663	-0.0013	0.0451	0.0451
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	179.75	0.0694	-0.0012	0.0486	0.0486
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	184.19	0.0729	-0.0012	0.0446	0.0446
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	188.13	0.076	-0.0012	0.0456	0.0456
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	192.06	0.0791	-0.0011	0.0452	0.0452
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	196.00	0.0822	-0.0011	0.0453	0.0453
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	79.75	0.0119	0.0008	0.0195	0.0195
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	113.25	0.0254	0.0010	0.0280	0.028
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	126.75	0.0325	0.0011	0.0317	0.0317
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	150.00	0.0469	0.0011	0.0400	0.04

## DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	154.88	0.0504	0.0011	0.0402	0.0403
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	168.05	0.0602	0.0011	0.0449	0.045
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	175.85	0.0663	0.0011	0.0450	0.045
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	179.75	0.0694	0.0011	0.0490	0.049
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	184.19	0.0729	0.0010	0.0446	0.0446
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	188.13	0.076	0.0010	0.0455	0.0456
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	192.06	0.0791	0.0010	0.0451	0.0451
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	196.00	0.0822	0.0010	0.0453	0.0453
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	79.75	0.0118	0.0008	0.0203	0.0203
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	113.25	0.0253	0.0010	0.0278	0.0279
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	126.75	0.0324	0.0011	0.0318	0.0318
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	150.00	0.0469	0.0011	0.0395	0.0395
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	154.88	0.0503	0.0011	0.0399	0.0399
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	168.05	0.0602	0.0011	0.0450	0.045
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	175.85	0.0663	0.0011	0.0448	0.0448
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	179.75	0.0694	0.0011	0.0489	0.0489
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	184.19	0.0729	0.0010	0.0444	0.0445
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	188.13	0.076	0.0010	0.0455	0.0455
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	192.06	0.0791	0.0010	0.0453	0.0453
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	196.00	0.0822	0.0010	0.0452	0.0452
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	79.75	0.0118	-0.0009	0.0201	0.0201
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	113.25	0.0253	-0.0012	0.0280	0.0281
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	126.75	0.0325	-0.0012	0.0318	0.0318
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	150.00	0.0469	-0.0013	0.0398	0.0398
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	154.88	0.0504	-0.0012	0.0404	0.0404
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	168.05	0.0602	-0.0013	0.0450	0.045
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	175.85	0.0663	-0.0013	0.0451	0.0451
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	179.75	0.0694	-0.0012	0.0486	0.0486
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	184.19	0.0729	-0.0012	0.0446	0.0446
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	188.13	0.076	-0.0012	0.0456	0.0456
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	192.06	0.0791	-0.0011	0.0452	0.0452
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	196.00	0.0822	-0.0011	0.0453	0.0453
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	79.75	0.0119	0.0008	0.0195	0.0195
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	113.25	0.0254	0.0010	0.0280	0.028
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	126.75	0.0325	0.0011	0.0317	0.0317
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	150.00	0.0469	0.0011	0.0400	0.04
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	154.88	0.0504	0.0011	0.0402	0.0403
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	168.05	0.0602	0.0011	0.0449	0.045
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	175.85	0.0663	0.0011	0.0450	0.045
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	179.75	0.0694	0.0011	0.0490	0.049
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	184.19	0.0729	0.0010	0.0446	0.0446
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	188.13	0.076	0.0010	0.0455	0.0456
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	192.06	0.0791	0.0010	0.0451	0.0451
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	196.00	0.0822	0.0010	0.0453	0.0453
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	79.75	0.0118	0.0008	0.0203	0.0203
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	113.25	0.0253	0.0010	0.0278	0.0279
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	126.75	0.0324	0.0011	0.0318	0.0318
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	150.00	0.0469	0.0011	0.0395	0.0395
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	154.88	0.0503	0.0011	0.0399	0.0399
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	168.05	0.0602	0.0011	0.0450	0.045
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	175.85	0.0663	0.0011	0.0448	0.0448
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	179.75	0.0694	0.0011	0.0489	0.0489
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	184.19	0.0729	0.0010	0.0444	0.0445
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	188.13	0.076	0.0010	0.0455	0.0455
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	192.06	0.0791	0.0010	0.0453	0.0453
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	196.00	0.0822	0.0010	0.0452	0.0452
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	79.75	0.0118	-0.0009	0.0201	0.0201
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	113.25	0.0253	-0.0012	0.0280	0.0281
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	126.75	0.0325	-0.0012	0.0318	0.0318
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	150.00	0.0469	-0.0013	0.0398	0.0398
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	154.88	0.0504	-0.0013	0.0404	0.0404
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	168.05	0.0602	-0.0013	0.0450	0.045
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	175.85	0.0663	-0.0013	0.0451	0.0451
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	179.75	0.0694	-0.0012	0.0486	0.0486
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	184.19	0.0729	-0.0012	0.0446	0.0446
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	188.13	0.076	-0.0012	0.0456	0.0456
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	192.06	0.0791	-0.0011	0.0452	0.0452
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	196.00	0.0822	-0.0011	0.0453	0.0453

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	79.75	0.0886	0.0061	0.1402	0.1402
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	113.25	0.1813	0.0081	0.1882	0.1884
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	126.75	0.229	0.0087	0.2102	0.2104
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	150.00	0.3237	0.0098	0.2563	0.2563
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	154.88	0.3457	0.0097	0.2565	0.2567
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	168.05	0.4086	0.0105	0.2829	0.2831
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	175.85	0.447	0.0105	0.2845	0.2847
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	179.75	0.4663	0.0104	0.3042	0.3042
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	184.19	0.4886	0.0104	0.2828	0.283
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	188.13	0.5081	0.0103	0.2863	0.2863
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	192.06	0.5277	0.0103	0.2849	0.2851
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	196.00	0.5472	0.0103	0.2846	0.2846
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	79.75	0.0854	0.0061	0.1371	0.1371
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	113.25	0.1752	0.0080	0.1820	0.1822
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	126.75	0.2214	0.0087	0.2037	0.2039
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	150.00	0.3133	0.0097	0.2483	0.2483
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	154.88	0.3344	0.0096	0.2484	0.2486
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	168.05	0.3955	0.0104	0.2744	0.2744
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	175.85	0.4327	0.0104	0.2742	0.2744
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	179.75	0.4515	0.0104	0.2943	0.2943
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	184.19	0.473	0.0103	0.2736	0.2738
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	188.13	0.492	0.0102	0.2773	0.2773
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	192.06	0.5109	0.0102	0.2759	0.2761
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	196.00	0.5298	0.0102	0.2760	0.276
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	79.75	0.0862	-0.0071	0.1366	0.1367
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	113.25	0.1767	-0.0093	0.1845	0.1847
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	126.75	0.2233	-0.0101	0.2056	0.2059
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	150.00	0.3159	-0.0113	0.2496	0.2497
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	154.88	0.3373	-0.0112	0.2518	0.252
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	168.05	0.3989	-0.0122	0.2765	0.2766
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	175.85	0.4364	-0.0121	0.2777	0.278
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	179.75	0.4553	-0.0121	0.2942	0.2943
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	184.19	0.4771	-0.0120	0.2771	0.2773
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	188.13	0.4961	-0.0120	0.2791	0.2792
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	192.06	0.5152	-0.0120	0.2786	0.2789
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	196.00	0.5343	-0.0120	0.2779	0.278
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	79.75	0.0886	-0.0063	0.1401	0.1401
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	113.25	0.1813	-0.0083	0.1881	0.1882
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	126.75	0.2289	-0.0089	0.2100	0.2102
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	150.00	0.3235	-0.0100	0.2561	0.2561
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	154.88	0.3455	-0.0099	0.2563	0.2565
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	168.05	0.4083	-0.0108	0.2826	0.2828
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	175.85	0.4467	-0.0107	0.2831	0.2833
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	179.75	0.466	-0.0107	0.3043	0.3043
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	184.19	0.4883	-0.0106	0.2824	0.2826
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	188.13	0.5078	-0.0106	0.2861	0.2861
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	192.06	0.5274	-0.0105	0.2847	0.2849
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	196.00	0.5469	-0.0105	0.2843	0.2843
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	79.75	0.0854	0.0060	0.1371	0.1371
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	113.25	0.1753	0.0078	0.1822	0.1823
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	126.75	0.2215	0.0085	0.2039	0.204
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	150.00	0.3134	0.0095	0.2485	0.2485
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	154.88	0.3346	0.0094	0.2486	0.2487
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	168.05	0.3957	0.0103	0.2747	0.2747
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	175.85	0.433	0.0102	0.2756	0.2758
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	179.75	0.4517	0.0102	0.2941	0.2941
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	184.19	0.4733	0.0101	0.2739	0.2741
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	188.13	0.4923	0.0101	0.2776	0.2776
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	192.06	0.5112	0.0101	0.2762	0.2764
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	196.00	0.5302	0.0101	0.2762	0.2762
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	79.75	0.0862	-0.0069	0.1365	0.1366
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	113.25	0.1767	-0.0091	0.1844	0.1847
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	126.75	0.2232	-0.0098	0.2056	0.2058
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	150.00	0.3158	-0.0109	0.2496	0.2496
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	154.88	0.3372	-0.0108	0.2517	0.252
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	168.05	0.3988	-0.0116	0.2765	0.2766
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	175.85	0.4362	-0.0115	0.2789	0.2791
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	179.75	0.4551	-0.0114	0.2937	0.2938

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	184.19	0.4769	-0.0113	0.2771	0.2773
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	188.13	0.496	-0.0113	0.2790	0.2791
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	192.06	0.515	-0.0113	0.2786	0.2788
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	196.00	0.5341	-0.0112	0.2778	0.2779
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	79.75	0.0886	0.0063	0.1401	0.1401
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	113.25	0.1813	0.0083	0.1881	0.1882
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	126.75	0.2289	0.0089	0.2100	0.2102
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	150.00	0.3235	0.0100	0.2561	0.2561
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	154.88	0.3455	0.0099	0.2563	0.2565
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	168.05	0.4083	0.0108	0.2826	0.2828
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	175.85	0.4467	0.0107	0.2831	0.2833
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	179.75	0.466	0.0107	0.3043	0.3043
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	184.19	0.4883	0.0106	0.2824	0.2826
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	188.13	0.5078	0.0106	0.2861	0.2861
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	192.06	0.5274	0.0105	0.2847	0.2849
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	196.00	0.5469	0.0105	0.2843	0.2843
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	79.75	0.0854	-0.0061	0.1371	0.1371
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	113.25	0.1752	-0.0080	0.1820	0.1822
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	126.75	0.2214	-0.0087	0.2037	0.2039
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	150.00	0.3133	-0.0097	0.2483	0.2483
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	154.88	0.3344	-0.0096	0.2484	0.2486
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	168.05	0.3955	-0.0104	0.2744	0.2744
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	175.85	0.4327	-0.0104	0.2742	0.2744
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	179.75	0.4515	-0.0104	0.2943	0.2943
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	184.19	0.473	-0.0103	0.2736	0.2738
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	188.13	0.492	-0.0102	0.2773	0.2773
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	192.06	0.5109	-0.0102	0.2759	0.2761
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	196.00	0.5298	-0.0102	0.2760	0.276
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	79.75	0.0862	-0.0070	0.1366	0.1366
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	113.25	0.1767	-0.0093	0.1845	0.1847
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	126.75	0.2233	-0.0101	0.2057	0.2059
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	150.00	0.3159	-0.0113	0.2497	0.2498
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	154.88	0.3373	-0.0112	0.2518	0.2521
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	168.05	0.399	-0.0122	0.2766	0.2767
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	175.85	0.4364	-0.0122	0.2790	0.2793
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	179.75	0.4553	-0.0121	0.2939	0.294
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	184.19	0.4771	-0.0121	0.2772	0.2775
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	188.13	0.4962	-0.0120	0.2792	0.2792
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	192.06	0.5153	-0.0120	0.2787	0.279
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	196.00	0.5344	-0.0120	0.2780	0.2781

# EXHIBIT 4



April 21, 2022 (Rev.1)

March 29, 2022



Centerline Communications  
750 West Center Street, Suite #301  
West Bridgewater, MA 02379

RE:      Site Number:              CT2091  
         FA Number:                10035308  
         PACE Number:               MRCTB055416  
         PT Number:                2051A11LEL  
         Site Name:                 ANSONIA NW\_SPECTRASITE TOWER  
         Site Address:               401 Wakelee Avenue  
                                            Ansonia, CT 06401

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by Centerline Communications to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (2) TPA65R-BU6DA-K Antennas (71.2"x20.7"x7.7" – Wt. = 69 lbs. /each)
- (1) TPA65R-BU8DA-K Antenna (96.0"x20.7"x7.7" – Wt. = 87 lbs. /each)
- (3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (3) RRUS-E2 B29 RRH's (20.4"x18.5"x7.5" – Wt. = 53 lbs. /each)
- (3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (4) DC6-48-60-18-8F Surge Arrestors (31.4"x10.2"Ø – Wt. = 29 lbs. /each)
- **(2) QD6616-7 Antennas (72.0"x22.0"x9.6" – Wt. = 130 lbs. /each)**
- **(1) QD8616-7 Antenna (96.0"x22.0"x9.6" – Wt. = 143 lbs. /each)**
- **(3) AIR6449 Antennas (30.4"x15.9"x8.1" – Wt. = 82 lbs. /each)**
- **(3) AIR6419 Antennas (31.1"x16.1"x7.3" – Wt. = 81 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**

*\*Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG conducted a ground audit of the existing AT&T antenna mounts on January 17, 2022.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.18 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods,  $S_s$ , of 0.195 and a spectral response acceleration parameter at a period of 1 second,  $S_1$ , of 0.064.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing self supporting tower with U-bolts tightened around the tower leg. HDG considers the threaded rods as the governing connection members.

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Relocate the existing stiff arm connection point from the vertical pipe on the standoff frame to the antenna pipe mast at Position #3 (typ. of 1 per sector, total of 3).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
<b>Existing Mount Rating</b>	11	LC4	164%	<b>FAIL</b>
<b>Modified Mount Rating</b>	19	LC11	63%	<b>PASS</b>

Reference Documents:

- Mount Mapping Report prepared by Tower Engineering Professionals dated June 25, 2018.
- Previous Mount Structural Analysis prepared by HDG, dated June 26, 2019.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,  
Hudson Design Group LLC



Michael Cabral  
Vice President

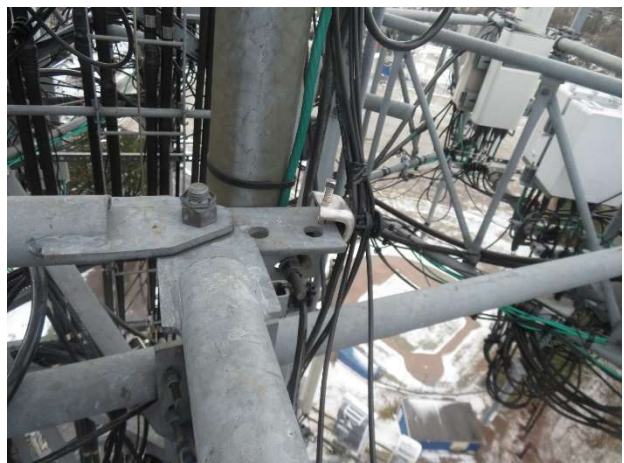


Daniel P. Hamm, PE  
Principal

**FIELD PHOTOS:**



FIELD PHOTOS (CONT.):





**HUDSON**  
Design Group LLC

## Wind & Ice Calculations

## ANSI/TIA-222H - WIND, ICE & SEISMIC LOAD CALCULATIONS

Site Code/Name
State
County
Structure Class
Exposure Category
Topographic Category
Mean Elevation of base of structure
Height Above Ground

CT2091 - Ansonia NW_Spectrasite Tower	
Connecticut	
New Haven	
II	
B	
1 - Kzt = 1	
z <sub>s</sub>	127.41 ft
z	167 ft

Reference  
 Table 2-1  
 Section 2.6.5.1.2  
 Section 2.6.6.2.1  
 ASCE7-10 Hazards

<b>Wind Parameters</b>	
Basic wind speed	
Wind direction probability factor	
Gust effect factor	
Velocity Pressure (K <sub>a</sub> = 0.9)	

V	125	mph
K <sub>d</sub>	0.95	
G <sub>h</sub>	1	
	38.95	psf

Appendix N of the Connecticut State Building Code  
 Section 16.6  
 Section 16.6  
 Section 2.6.11.6

<b>Wind &amp; Ice Parameters</b>	
Base windspeed in conjunction with ice, V <sub>i</sub>	
Base Ice thickness	
Ice Velocity Pressure (K <sub>a</sub> = 0.9)	
Design Ice Thickness	

	50	mph
t <sub>i</sub>	1.00	in
q <sub>ice</sub>	6.23	psf
t <sub>iz</sub>	1.18	in

ASCE7-10 Hazards Tool  
 ASCE7-10 Hazards Tool  
 Section 2.6.11.6  
 Section 2.6.10

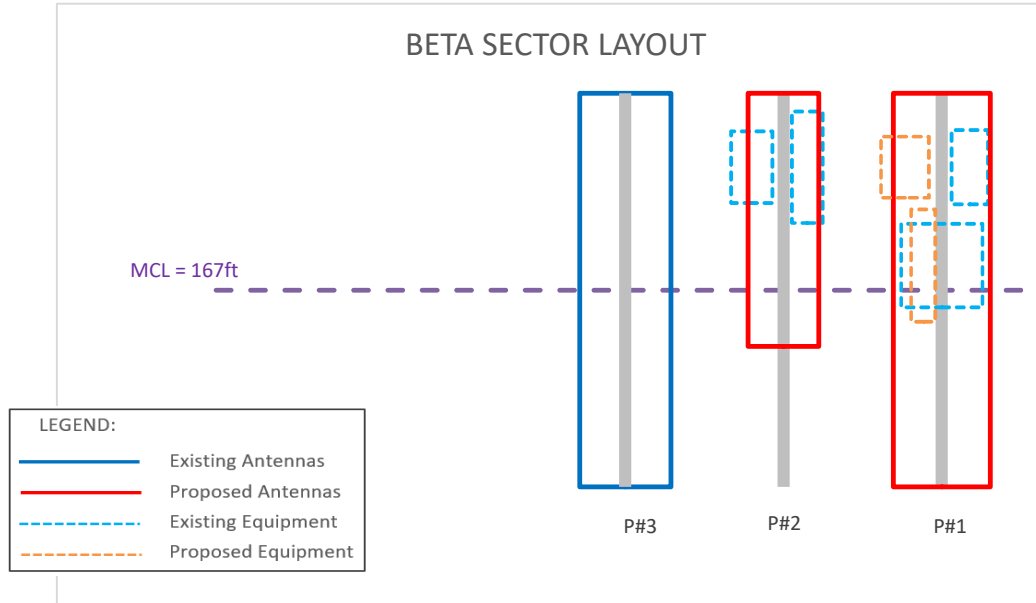
<b>Seismic Parameters</b>	
Site Soil Class	
Seismic Design Category	
Spectral Response at Short Periods	
Spectral Response at 1sec	
Long Period Transition Period	
Seismic Importance Factor	
Response modification coefficient	
Short-Period Site Coefficient	
Design Spectral Response at Short Periods	
Seismic Response Coefficient	

	D - Default
	B
S <sub>s</sub>	0.195
S <sub>1</sub>	0.064
T <sub>L</sub>	6
I <sub>s</sub>	1
R	2
F <sub>a</sub>	1.6
S <sub>DS</sub>	0.208
C <sub>s</sub>	0.104

Table 2-10  
 ASCE7-10 Hazards Tool  
 Appendix N of the Connecticut State Building Code  
 Appendix N of the Connecticut State Building Code  
 ASCE7-10 Hazards Tool  
 Table 2-3  
 Section 16.7  
 Table 2-11  
 Section 2.7.5  
 Section 2.7.7.1

# BETA SECTOR

Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0° [lbs]	90° [lbs]	IceWeight [lbs]	E <sub>H</sub> [lbs]
1	Quintel	QD8616-7	96.0	22.0	9.6	143.0	732.8	373.9	293.0	14.9
2	Ericsson	AIR6449 B77D + AIR6419 B77G	61.7	16.1	10.4	148.0	338.3	234.8	153.1	15.4
1	Ericsson	RRUS 4478 B14	18.1	13.4	8.3	60.0	48.8	78.7	39.1	6.2
1	Ericsson	RRUS 8843 B2/B66A	14.9	13.2	10.9	72.0	52.7	63.8	35.2	7.5
1	Ericsson	RRUS-E2 B29	20.4	18.5	7.5	60.0	122.5	50.1	54.6	6.2
2	Ericsson	RRUS 4449 B5/B12	17.5	13.9	9.4	59.9	53.4	79.0	40.2	6.2
2	Ericsson	RRUS-32 B30	27.2	12.1	7.0	60.0	65.0	106.8	51.5	6.2
1	Raycap	DC6-48-60-18	27.4	16.7	5.5	48.0	53.4	148.5	64.2	5.0
-	Raycap	DC9-48-60-24-PC16-EV	19.0	15.9	8.2	35.0	50.6	98.1	46.1	3.6

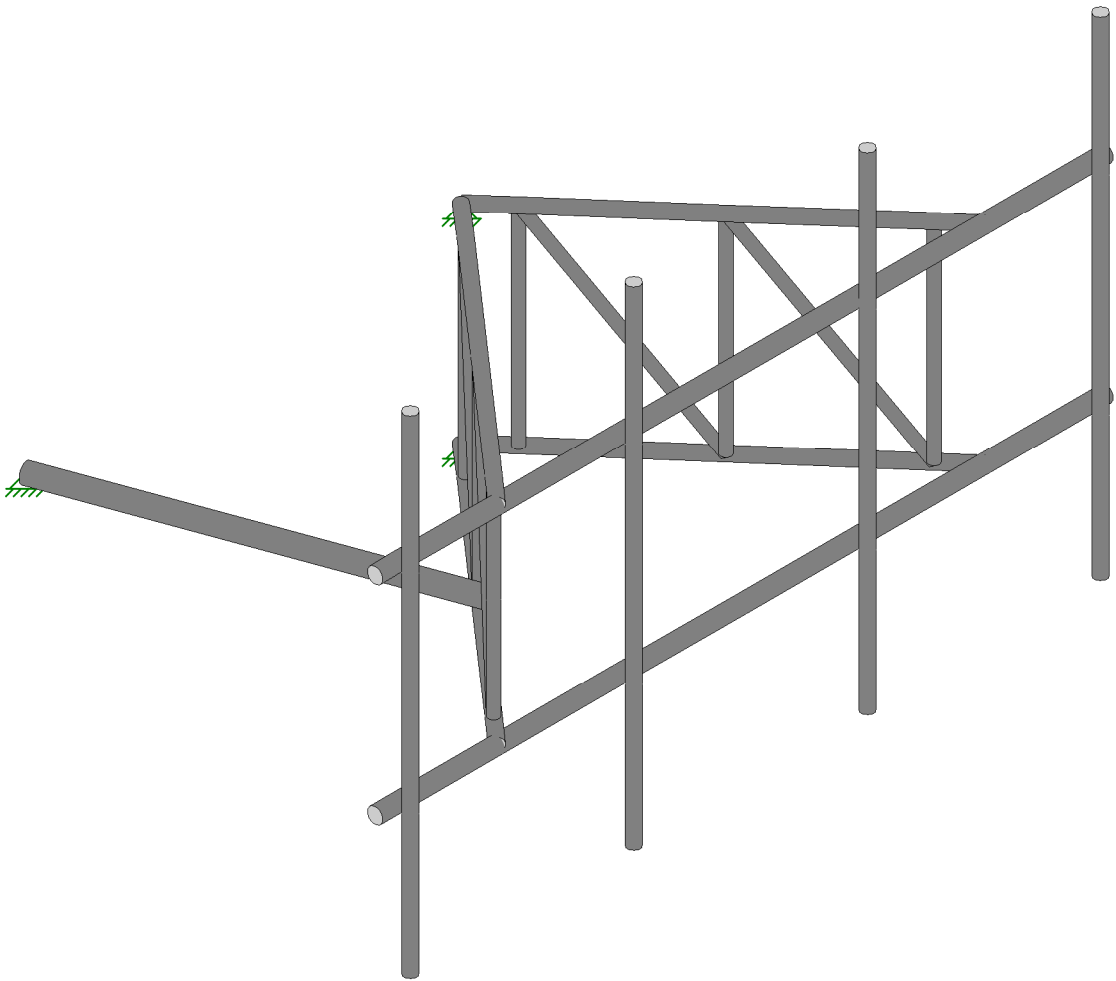
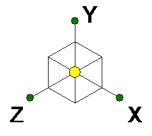






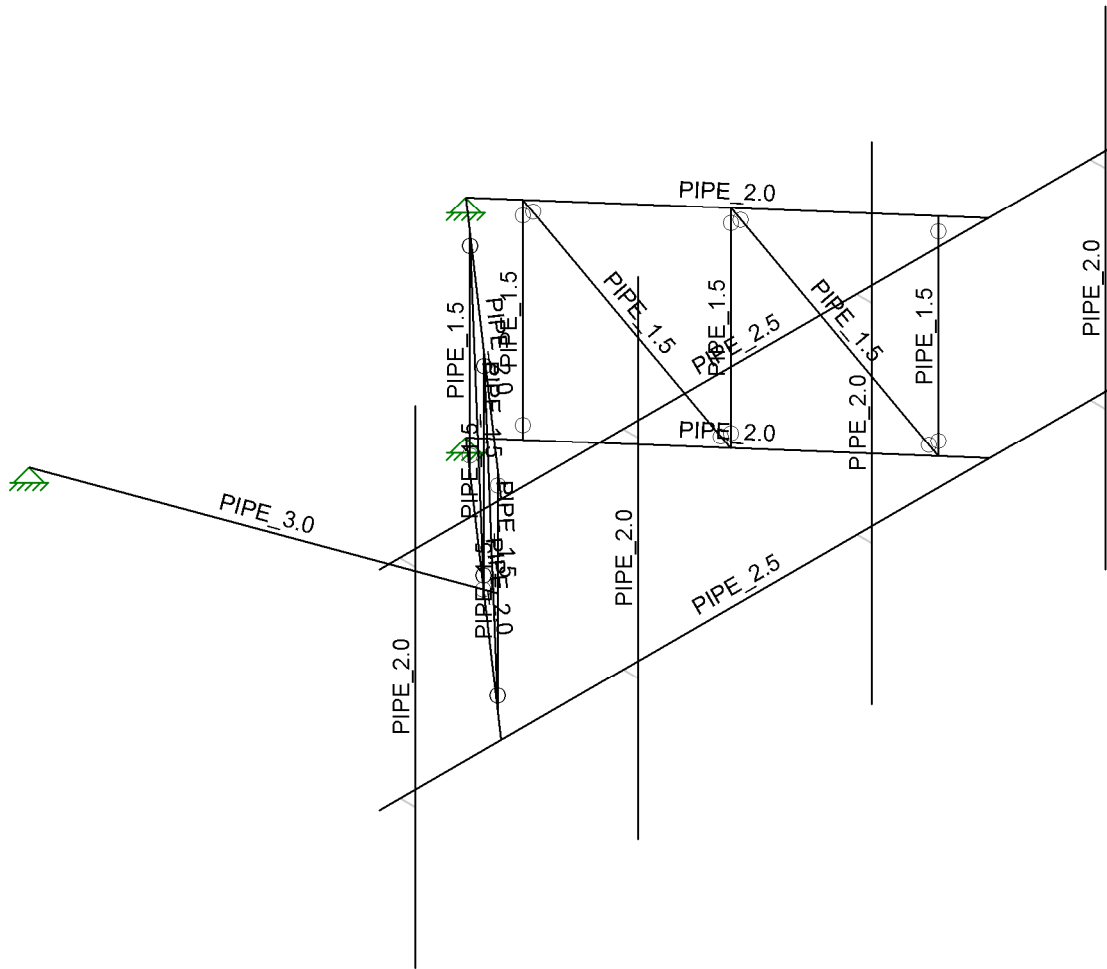
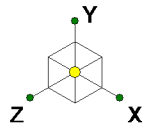
**HUDSON**  
Design Group LLC

**Mount Calculations  
(Existing Conditions)**



Envelope Only Solution

Hudson Design Group	Ansonia NW_Spectrasite Tower	SK - 1
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CT2091		V-Frame.r3d



Envelope Only Solution

Hudson Design Group

AV

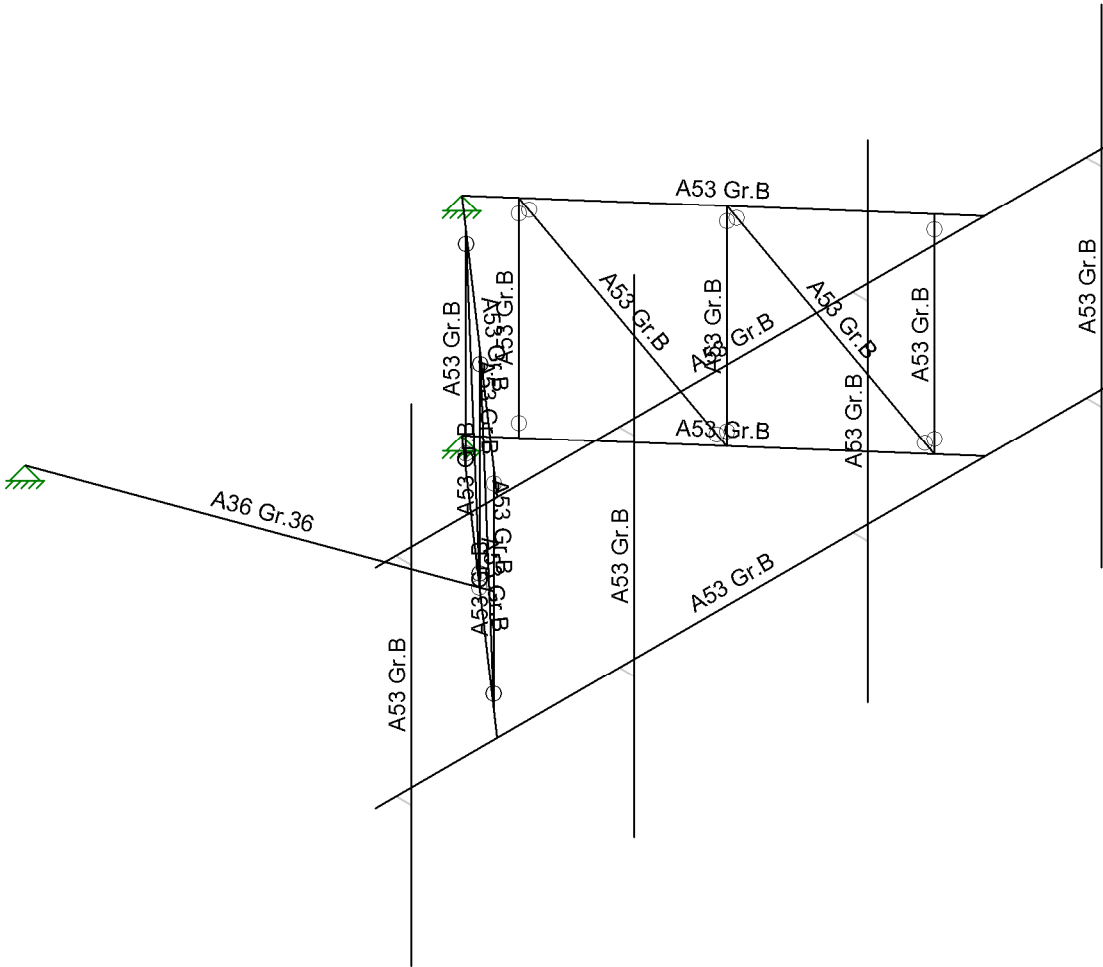
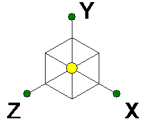
CT2091

Ansonia NW\_Spectrasite Tower

SK - 2

Mar 24, 2022 at 4:55 PM

V-Frame.r3d



Envelope Only Solution

Hudson Design Group

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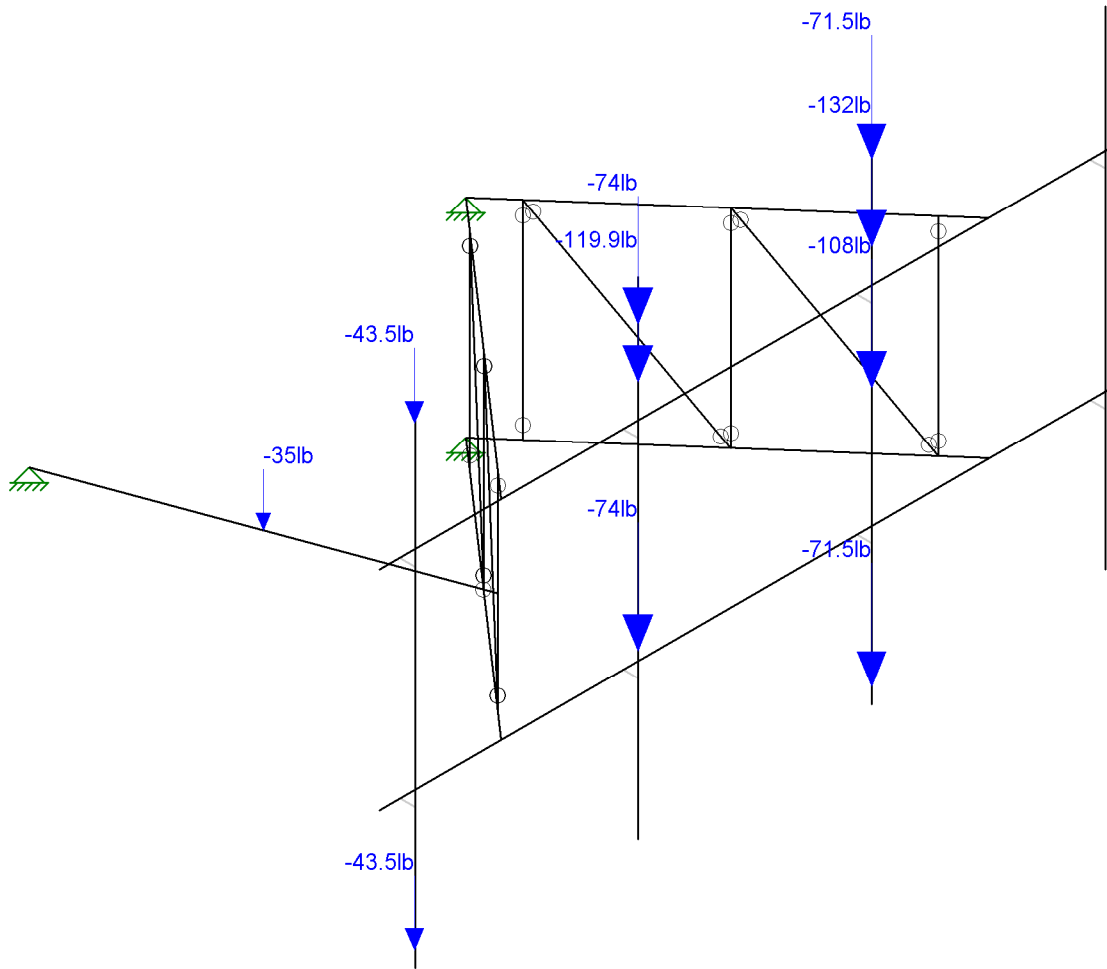
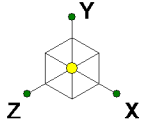
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Ansonia NW\_Spectrasite Tower

SK - 3

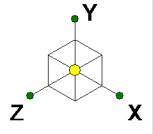
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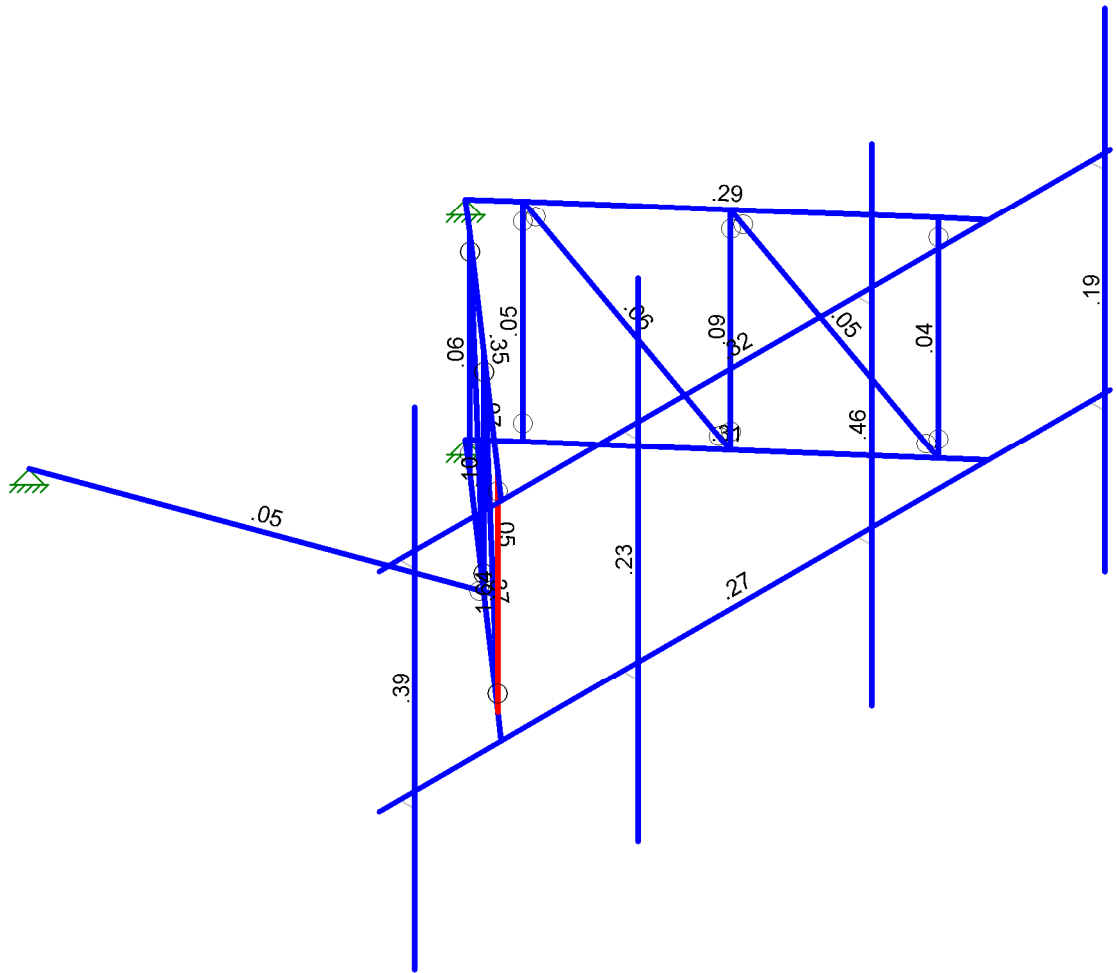
Loads: BLC 2, We  
Envelope Only Solution

Hudson Design Group	Ansonia NW_Spectrasite Tower	SK - 4
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CT2091		V-Frame.r3d



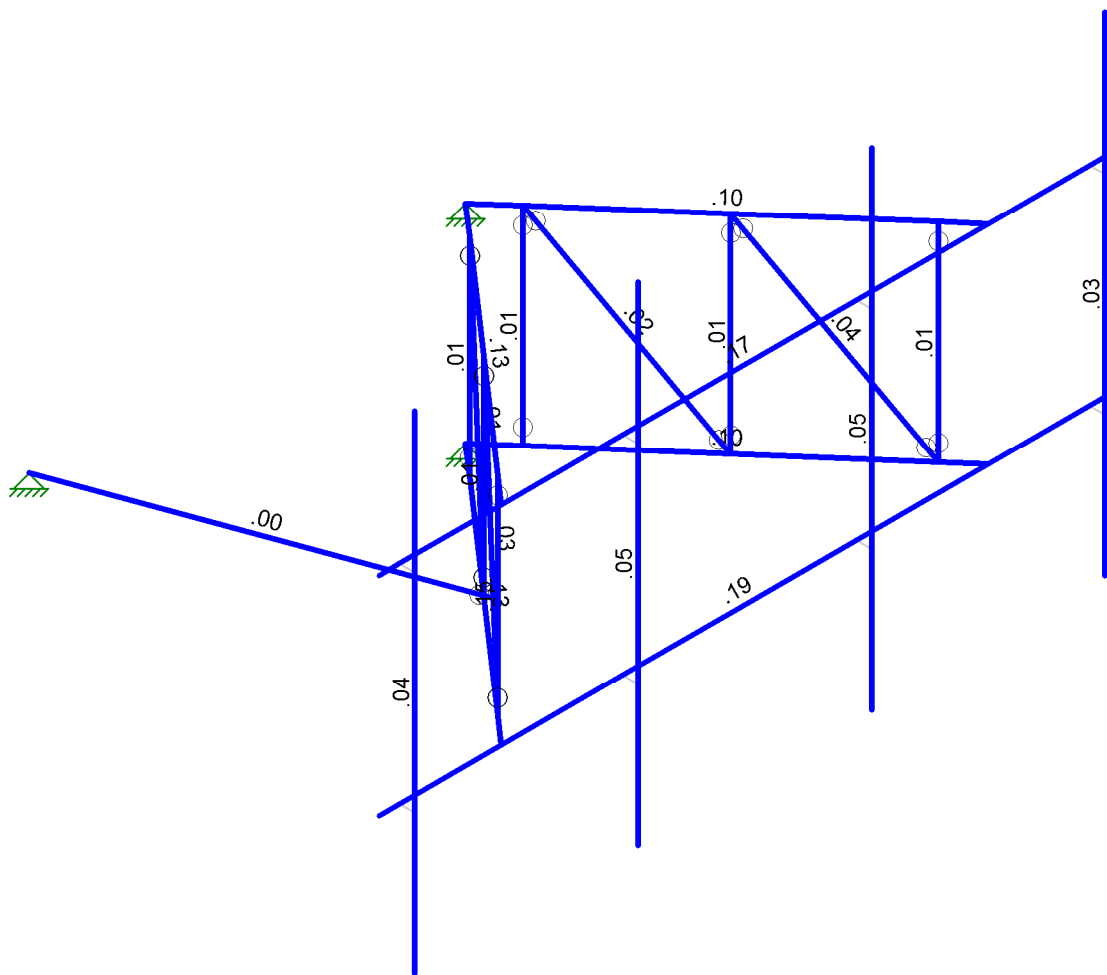
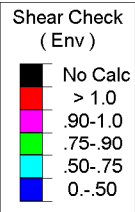
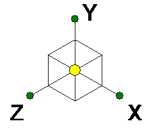
Code Check (Env)

No Calc
> 1.0
.90-1.0
.75-.90
.50-.75
0-.50



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

Hudson Design Group	Ansonia NW_Spectrasite Tower	SK - 5
AV		Mar 24, 2022 at 4:56 PM
CT2091		V-Frame.r3d



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

Hudson Design Group
AV
CT2091

Ansonia NW\_Spectrasite Tower

SK - 6
Mar 24, 2022 at 4:56 PM
V-Frame.r3d



Company : Hudson Design Group  
 Designer : AV  
 Job Number : CT2091  
 Model Name : Ansonia NW\_Spectrasite Tower

Mar 24, 2022  
 4:57 PM  
 Checked By: \_\_\_\_\_

**(Global) Model Settings**

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

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR SET ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8





**(Global) Model Settings, Continued**

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm (/... Density[lb/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt	
1	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.1
4	A500 Gr.B 42	29000	11154	.3	.65	490	42	1.4	58	1.3
5	A500 Gr.B 46	29000	11154	.3	.65	490	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	490	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	490	50	1.4	65	1.3

**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design L...	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	PIPE 1.5	PIPE 1.5	None	None	A53 Gr.B	Typical	.749	.293	.293	.586
2	PIPE 1.25	PIPE 1.25	None	None	A53 Gr.B	Typical	.625	.184	.184	.368
3	PIPE 2.0	PIPE 2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	PIPE 2.5	PIPE 2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
5	PIPE 3.0	PIPE 3.0	None	None	A36 Gr.36	Typical	2.07	2.85	2.85	5.69

**Joint Boundary Conditions**

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N6	Reaction	Reaction	Reaction			
2	N1	Reaction	Reaction	Reaction			
3	N49	Reaction	Reaction	Reaction			



**Member Primary Data**

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N5	N4			PIPE 2.5	None	None	A53 Gr.B	Typical
2	M2	N3	N1			PIPE 2.0	None	None	A53 Gr.B	Typical
3	M3	N1	N2			PIPE 2.0	None	None	A53 Gr.B	Typical
4	M4	N10	N9			PIPE 2.5	None	None	A53 Gr.B	Typical
5	M5	N8	N6			PIPE 2.0	None	None	A53 Gr.B	Typical
6	M6	N6	N7			PIPE 2.0	None	None	A53 Gr.B	Typical
7	M7	N19	N20			PIPE 1.5	None	None	A53 Gr.B	Typical
8	M8	N16	N15			PIPE 1.5	None	None	A53 Gr.B	Typical
9	M9	N21	N22			PIPE 1.5	None	None	A53 Gr.B	Typical
10	M10	N18	N17			PIPE 1.5	None	None	A53 Gr.B	Typical
11	M11	N11	N12			PIPE 1.5	None	None	A53 Gr.B	Typical
12	M12	N14	N13			PIPE 1.5	None	None	A53 Gr.B	Typical
13	M13	N21	N17			PIPE 1.5	None	None	A53 Gr.B	Typical
14	M14	N18	N13			PIPE 1.5	None	None	A53 Gr.B	Typical
15	M15	N19	N16			PIPE 1.5	None	None	A53 Gr.B	Typical
16	M16	N15	N12			PIPE 1.5	None	None	A53 Gr.B	Typical
17	M17	N26	N24			RIGID	None	None	RIGID	Typical
18	M18	N25	N23			RIGID	None	None	RIGID	Typical
19	M19	N27	N28			PIPE 2.0	None	None	A53 Gr.B	Typical
20	M20	N33	N31			RIGID	None	None	RIGID	Typical
21	M21	N32	N30			RIGID	None	None	RIGID	Typical
22	M22	N34	N35			PIPE 2.0	None	None	A53 Gr.B	Typical
23	M23	N39	N37			RIGID	None	None	RIGID	Typical
24	M24	N38	N36			RIGID	None	None	RIGID	Typical
25	M25	N40	N41			PIPE 2.0	None	None	A53 Gr.B	Typical
26	M26	N45	N43			RIGID	None	None	RIGID	Typical
27	M27	N44	N42			RIGID	None	None	RIGID	Typical
28	M28	N46	N47			PIPE 2.0	None	None	A53 Gr.B	Typical
29	M29	N48	N49			PIPE 3.0	None	None	A36 Gr.36	Typical

**Member Advanced Data**

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7	BenPIN	BenPIN				Yes	** NA **			None
8	M8	BenPIN	BenPIN				Yes	** NA **			None
9	M9	BenPIN	BenPIN				Yes	** NA **			None
10	M10	BenPIN	BenPIN				Yes	** NA **			None
11	M11	BenPIN	BenPIN				Yes	** NA **			None
12	M12	BenPIN	BenPIN				Yes	** NA **			None
13	M13	BenPIN	BenPIN				Yes	** NA **			None
14	M14	BenPIN	BenPIN				Yes	** NA **			None
15	M15	BenPIN	BenPIN				Yes	** NA **			None
16	M16	BenPIN	BenPIN				Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18						Yes	** NA **			None
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			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...
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28						Yes	** NA **			None
29	M29	BenPIN					Yes	** NA **			None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	PIPE 2.5	144	96	96							Lateral
2	M2	PIPE 2.0	73									Lateral
3	M3	PIPE 2.0	73									Lateral
4	M4	PIPE 2.5	144	96	96							Lateral
5	M5	PIPE 2.0	73									Lateral
6	M6	PIPE 2.0	73									Lateral
7	M7	PIPE 1.5	41									Lateral
8	M8	PIPE 1.5	41									Lateral
9	M9	PIPE 1.5	41									Lateral
10	M10	PIPE 1.5	41									Lateral
11	M11	PIPE 1.5	41									Lateral
12	M12	PIPE 1.5	41									Lateral
13	M13	PIPE 1.5	50.22									Lateral
14	M14	PIPE 1.5	50.22									Lateral
15	M15	PIPE 1.5	50.22									Lateral
16	M16	PIPE 1.5	50.22									Lateral
17	M19	PIPE 2.0	96									Lateral
18	M22	PIPE 2.0	96									Lateral
19	M25	PIPE 2.0	96									Lateral
20	M28	PIPE 2.0	96									Lateral
21	M29	PIPE 3.0	72				Lbyy					Lateral

**Basic Load Cases**

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Self We	DL		-1.1					
2	We	DL					13		
3	Ice We	DL					13	21	
4	W0	WL					13	21	
5	W30	WL					26	42	
6	W60	WL					26	42	
7	W90	WL					13	21	
8	W120	WL					26	42	
9	W150	WL					26	42	
10	W0 + Ice	WL					13	21	
11	W30 + Ice	WL					26	42	
12	W60 + Ice	WL					26	42	
13	W90 + Ice	WL					13	21	
14	W120 + Ice	WL					26	42	
15	W150 + Ice	WL					26	42	
16	500lbs LM 1	LL				1			
17	500lbs LM 2	LL				1			
18	500lbs LM 3	LL				1			
19	500lbs LM 4	LL				1			
20	250lbs LV 5	LL				1			
21	250lbs LV 6	LL				1			



Company : Hudson Design Group  
 Designer : AV  
 Job Number : CT2091  
 Model Name : Ansonia NW\_Spectrasite Tower

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**Basic Load Cases (Continued)**

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
22	E0	EL	-1				13		
23	E90	EL			.1		13		

**Load Combinations**

	Description	Solve	P...	S...	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.
1	Dead	Yes	Y		1	1.4	2	1.4	0	0								
2	Dead + Wind 0	Yes	Y		1	1.2	2	1.2	4	1	0							
3	Dead + Wind 30	Yes	Y		1	1.2	2	1.2	5	1	0							
4	Dead + Wind 60	Yes	Y		1	1.2	2	1.2	6	1	0							
5	Dead + Wind 90	Yes	Y		1	1.2	2	1.2	7	1	0							
6	Dead + Wind 120	Yes	Y		1	1.2	2	1.2	8	1	0							
7	Dead + Wind 150	Yes	Y		1	1.2	2	1.2	9	1	0							
8	Dead + Wind 180	Yes	Y		1	1.2	2	1.2	4	-1	0							
9	Dead + Wind 210	Yes	Y		1	1.2	2	1.2	5	-1	0							
10	Dead + Wind 240	Yes	Y		1	1.2	2	1.2	6	-1	0							
11	Dead + Wind 270	Yes	Y		1	1.2	2	1.2	7	-1	0							
12	Dead + Wind 300	Yes	Y		1	1.2	2	1.2	8	-1	0							
13	Dead + Wind 330	Yes	Y		1	1.2	2	1.2	9	-1	0							
14	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	10	1	3	1						
15	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	11	1	3	1						
16	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	12	1	3	1						
17	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	13	1	3	1						
18	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	14	1	3	1						
19	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	15	1	3	1						
20	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	10	-1	3	1						
21	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	11	-1	3	1						
22	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	12	-1	3	1						
23	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	13	-1	3	1						
24	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	14	-1	3	1						
25	Dead + Ice + Wind...	Yes	Y		1	1.2	2	1.2	15	-1	3	1						
26	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	4	.058						
27	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	5	.058						
28	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	6	.058						
29	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	7	.058						
30	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	8	.058						
31	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	9	.058						
32	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	4	-.058						
33	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	5	-.058						
34	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	6	-.058						
35	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	7	-.058						
36	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	8	-.058						
37	Dead + LM5001 + ...	Yes	Y		1	1.2	2	1.2	16	1.5	9	-.058						
38	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	4	.058						
39	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	5	.058						
40	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	6	.058						
41	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	7	.058						
42	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	8	.058						
43	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	9	.058						
44	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	4	-.058						
45	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	5	-.058						
46	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	6	-.058						
47	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	7	-.058						
48	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	8	-.058						
49	Dead + LM5002 + ...	Yes	Y		1	1.2	2	1.2	17	1.5	9	-.058						
50	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	4	.058						



**Load Combinations (Continued)**

	Description	Solve	P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
51	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	5	.058			
52	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	6	.058			
53	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	7	.058			
54	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	8	.058			
55	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	9	.058			
56	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	4	-.058			
57	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	5	-.058			
58	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	6	-.058			
59	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	7	-.058			
60	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	8	-.058			
61	Dead + LM5003 + ...	Yes	Y		1	1.2	2	1.2	18	1.5	9	-.058			
62	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	4	.058			
63	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	5	.058			
64	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	6	.058			
65	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	7	.058			
66	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	8	.058			
67	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	9	.058			
68	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	4	-.058			
69	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	5	-.058			
70	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	6	-.058			
71	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	7	-.058			
72	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	8	-.058			
73	Dead + LM5004 + ...	Yes	Y		1	1.2	2	1.2	19	1.5	9	-.058			
74	Dead + LV2505	Yes	Y		1	1.2	2	1.2	20	1.5	0				
75	Dead + LV2506	Yes	Y		1	1.2	2	1.2	21	1.5	0				
76	Service 60mph Wi...	Yes	Y		1	1	2	1	4	.23	0				
77	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	1	23				
78	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	.866	23	.5			
79	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	.5	23	.866			
80	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22		23	1			
81	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	-.5	23	.866			
82	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	-.866	23	.5			
83	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	-1	23				
84	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	-.866	23	-.5			
85	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	-.5	23	-.866			
86	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22		23	-1			
87	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	.5	23	-.866			
88	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	.866	23	-.5			

**Envelope Joint Reactions**

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC	
1	N6	max	24.21	13	1653.737	15	1140.939	35	0	88	0	88	0	88
2		min	-4423.105	19	662.681	76	-1477.573	65	0	1	0	1	0	1
3	N1	max	4320.006	25	1503.731	21	1438.716	72	0	88	0	88	0	88
4		min	479.738	7	580.147	76	-1102.243	30	0	1	0	1	0	1
5	N49	max	2034.977	4	92.614	22	776.951	10	0	88	0	88	0	88
6		min	-2029.029	10	40.675	76	-762.652	4	0	1	0	1	0	1
7	Totals:	max	3223.22	2	3219.787	22	2233.403	11						
8		min	-3223.222	8	1283.503	76	-2233.403	5						



Company : Hudson Design Group  
 Designer : AV  
 Job Number : CT2091  
 Model Name : Ansonia NW\_Spectrasite Tower

Mar 24, 2022  
 4:57 PM  
 Checked By: \_\_\_\_\_

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

Member	Shape	Code Check	Loc[...]	LC	Shear C...	Loc[in]	Dir	LC	phi*Pn...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	M1	PIPE 2.5	.272	24	8	.189	24	8	30038...	50715	43.155	43.155	2..	H1-1b
2	M2	PIPE 2.0	.370	64.6..	25	.127	6.844	7	20616...	32130	22.459	22.459	2..	H1-1b
3	M3	PIPE 2.0	.310	8.365	35	.096	66.156	32	20616...	32130	22.459	22.459	2..	H1-1b
4	M4	PIPE 2.5	.323	24	2	.173	120	2	30038...	50715	43.155	43.155	2..	H1-1b
5	M5	PIPE 2.0	.353	0	2	.133	6.844	3	20616...	32130	22.459	22.459	3..	H1-1b
6	M6	PIPE 2.0	.286	7.604	34	.102	0	26	20616...	32130	22.459	22.459	2..	H1-1b
7	M7	PIPE 1.5	.059	41	17	.012	0	4	18935...	23593.5	13.261	13.261	1..	H1-1b*
8	M8	PIPE 1.5	.105	0	16	.012	41	4	18935...	23593.5	13.261	13.261	1..	H1-1b*
9	M9	PIPE 1.5	.050	41	33	.013	0	5	18935...	23593.5	13.261	13.261	1..	H1-1b*
10	M10	PIPE 1.5	.094	41	35	.012	0	5	18935...	23593.5	13.261	13.261	1..	H1-1b*
11	M11	PIPE 1.5	1.639	20.9..	4	.154	21.354	4	18935...	23593.5	13.261	13.261	1..	H1-1b
12	M12	PIPE 1.5	.043	41	37	.014	0	3	18935...	23593.5	13.261	13.261	1..	H1-1b*
13	M13	PIPE 1.5	.056	25.11	15	.015	0	8	16962...	23593.5	13.261	13.261	1..	H1-1b
14	M14	PIPE 1.5	.046	24.5..	27	.042	50.22	8	16962...	23593.5	13.261	13.261	1..	H1-1b
15	M15	PIPE 1.5	.071	25.11	25	.013	50.22	34	16962...	23593.5	13.261	13.261	1..	H1-1b
16	M16	PIPE 1.5	.053	25.11	25	.035	0	7	16962...	23593.5	13.261	13.261	1..	H1-1b
17	M19	PIPE 2.0	.387	27	8	.038	27	8	14916...	32130	22.459	22.459	1..	H1-1b
18	M22	PIPE 2.0	.227	68	17	.051	68	6	14916...	32130	22.459	22.459	4..	H1-1b
19	M25	PIPE 2.0	.455	27	8	.051	27	8	14916...	32130	22.459	22.459	1..	H1-1b
20	M28	PIPE 2.0	.189	68	30	.034	68	25	14916...	32130	22.459	22.459	4..	H1-1b
21	M29	PIPE 3.0	.048	36	6	.005	72	24	55008...	67068	70.956	70.956	1..	H1-1b



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## Connection Check

**SITE DETAILS**

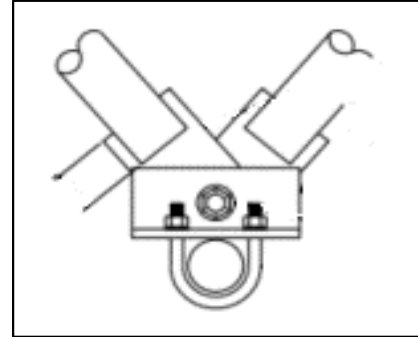
Site Name/Code  
Date  
Engineer

Ansonia NW\_Spectrasite Tower  
03/24/2022  
AV

**CONNECTION PARAMETERS**

Loadcase #  
Number of bolts  
Bolt Diameter  
Tensile Area  
Tensile Area  
Grade  
Bolt Ultimate Strength  
Connection length reduction factor

19  
1  
d 3/4 in  
A<sub>b</sub> 0.44 in<sup>2</sup>  
A<sub>n</sub> 0.33 in<sup>2</sup>  
A325  
F<sub>ub</sub> 120 ksi  
R<sub>b</sub> 1

**FLANGE LOADS**

Bending Moment  
Bending Moment  
Torsional Moment  
Shear Force  
Shear Force  
Axial Force

M<sub>zz</sub> 0.00 kips-in  
M<sub>yy</sub> 0.00 kips-in  
M<sub>xx</sub> 0.00 kips-in  
V<sub>y</sub> 4.42 kips  
V<sub>z</sub> 0.71 kips  
P<sub>x</sub> 1.63 kips

**SOFTWARE REACTIONS TABLE**

LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-in]	MY [k-in]	MZ [k-in]
19	N6	-4423.105	1631.836	-708.35	0	0	0
19	N1	3670.828	1496.111	456.875	0	0	0
19	N49	181.249	91.839	-78.207	0	0	0
19	Totals:	-571.028	3219.787	-329.682			
19	COG (in):	X: 50.356	Y: -14.47	Z: 49.915			

**BOLT CHECK****Bolt Tension Capacity**

$$\phi R_{nt} = 0.75 \cdot F_{ub} \cdot A_n$$

$$\phi R_{nt} = 30.1 \text{ kips}$$

**Bolt Shear Capacity**

$$\phi R_{nv} = 0.75 \cdot 0.45 \cdot F_{ub} \cdot A_b \cdot R_b$$

$$\phi R_{nv} = 19.9 \text{ kips}$$

**Maximum Bolt Tension**

$$T_{ub} = F_{Mxx} + F_{Mzz} + T_v/4$$

$$T_{ub} = 1.63 \text{ kips}$$

**Maximum Bolt Shear**

$$V_{ub} = \text{sqrt}((V_x/4)^2 + (V_y/4)^2) + F_{Myy}$$

$$V_{ub} = 4.48 \text{ kips}$$

Tension Ratio:

5.4 %

Shear Ratio:

22.5 %

PASS

PASS

$$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$$

OK

Ratio

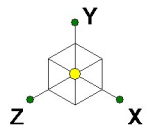
5.4% PASS



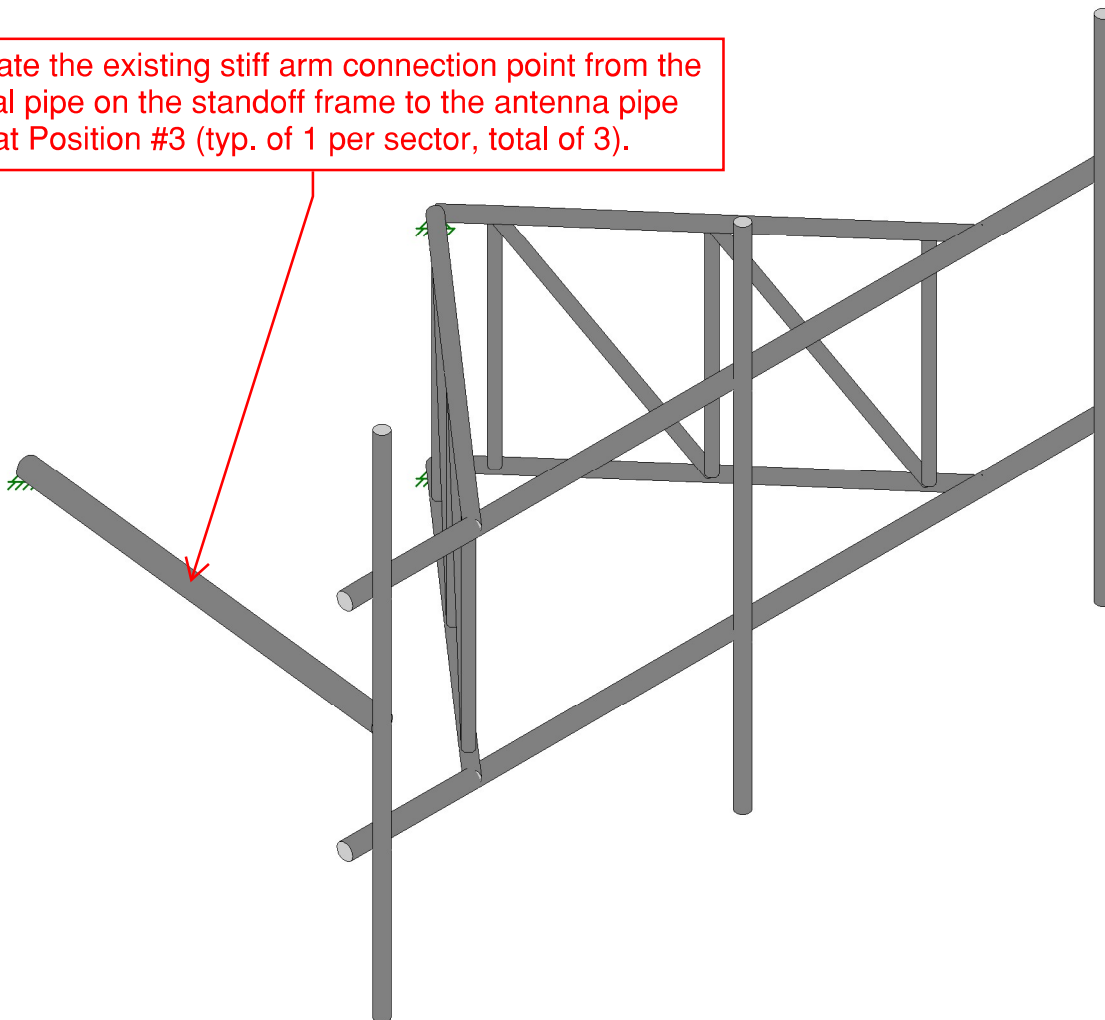


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Design Group LLC

**Mount Calculations  
(Modified Conditions)**



Relocate the existing stiff arm connection point from the vertical pipe on the standoff frame to the antenna pipe mast at Position #3 (typ. of 1 per sector, total of 3).



Envelope Only Solution

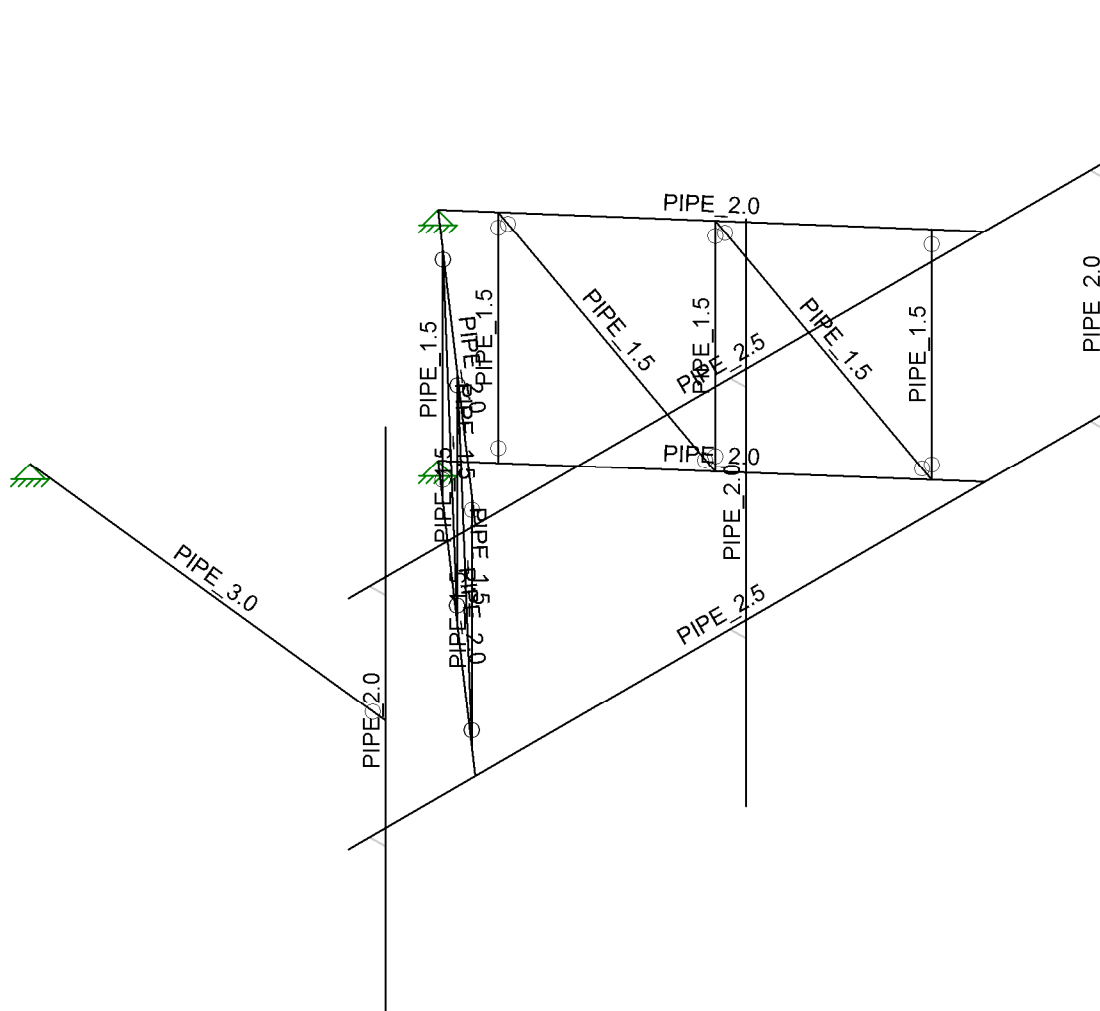
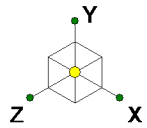
Hudson Design Group

AV

Ansonia NW Spectrasite Tower

SK - 1

Mar 29 2022 at 10:50 AM



Envelope Only Solution

Hudson Design Group

AV

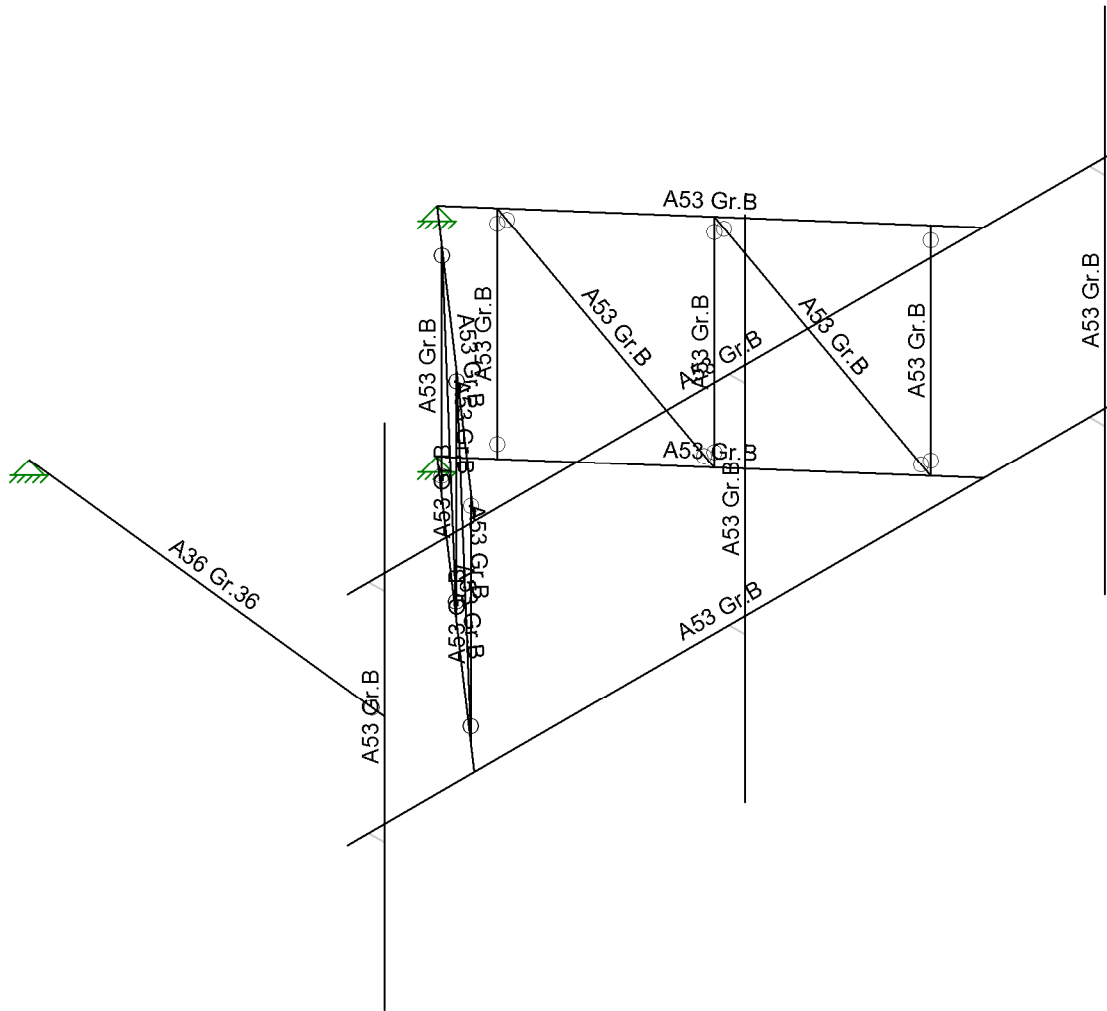
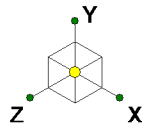
CT2091

Ansonia NW\_Spectrasite Tower

SK - 2

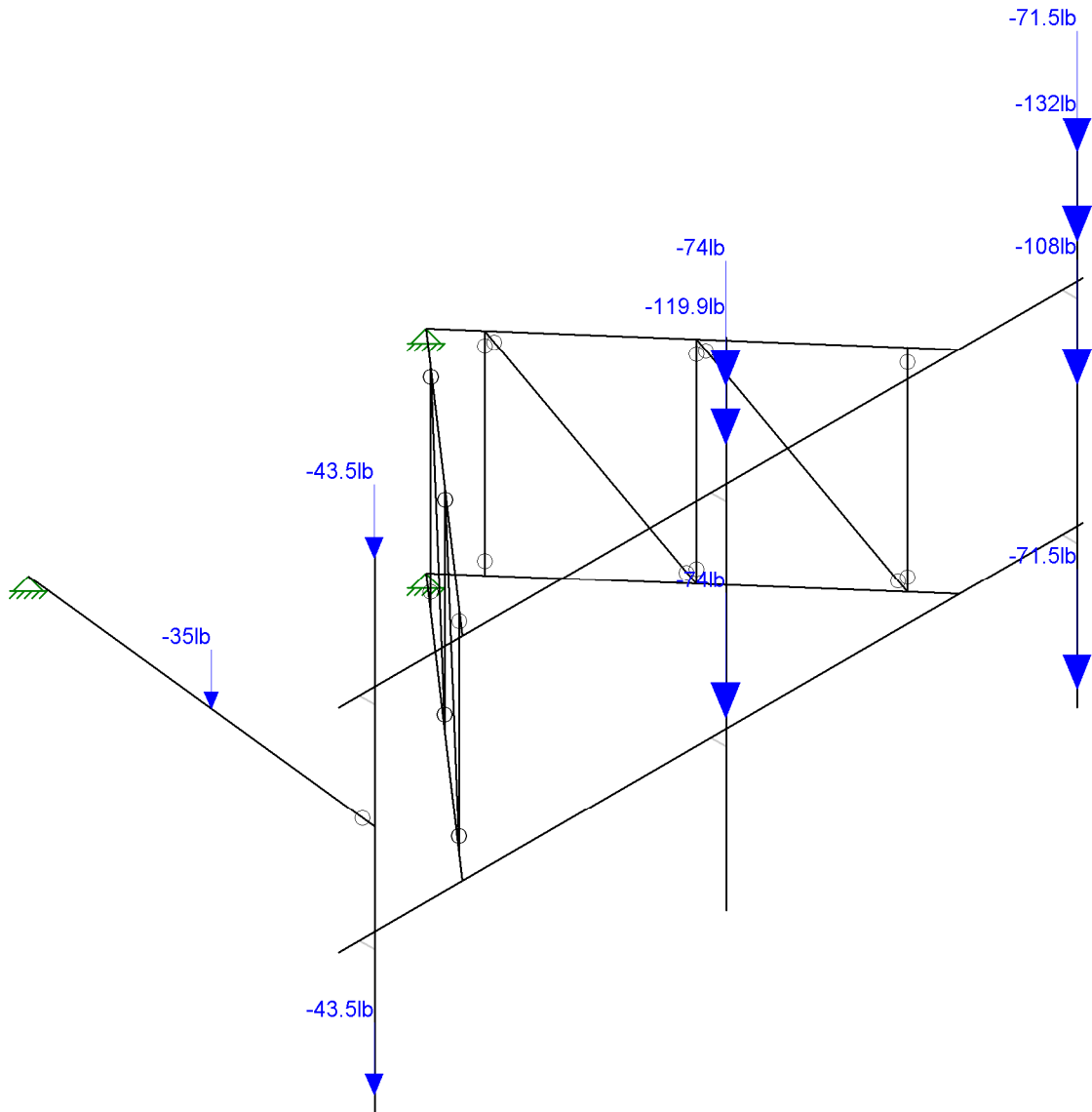
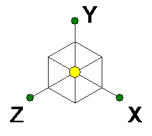
Mar 29, 2022 at 10:50 AM

V-Frame\_reinforce.r3d



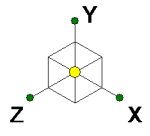
Envelope Only Solution

Hudson Design Group	Ansonia NW_Spectrasite Tower	SK - 3
AV		Mar 29, 2022 at 10:50 AM
CT2091		V-Frame_reinforce.r3d



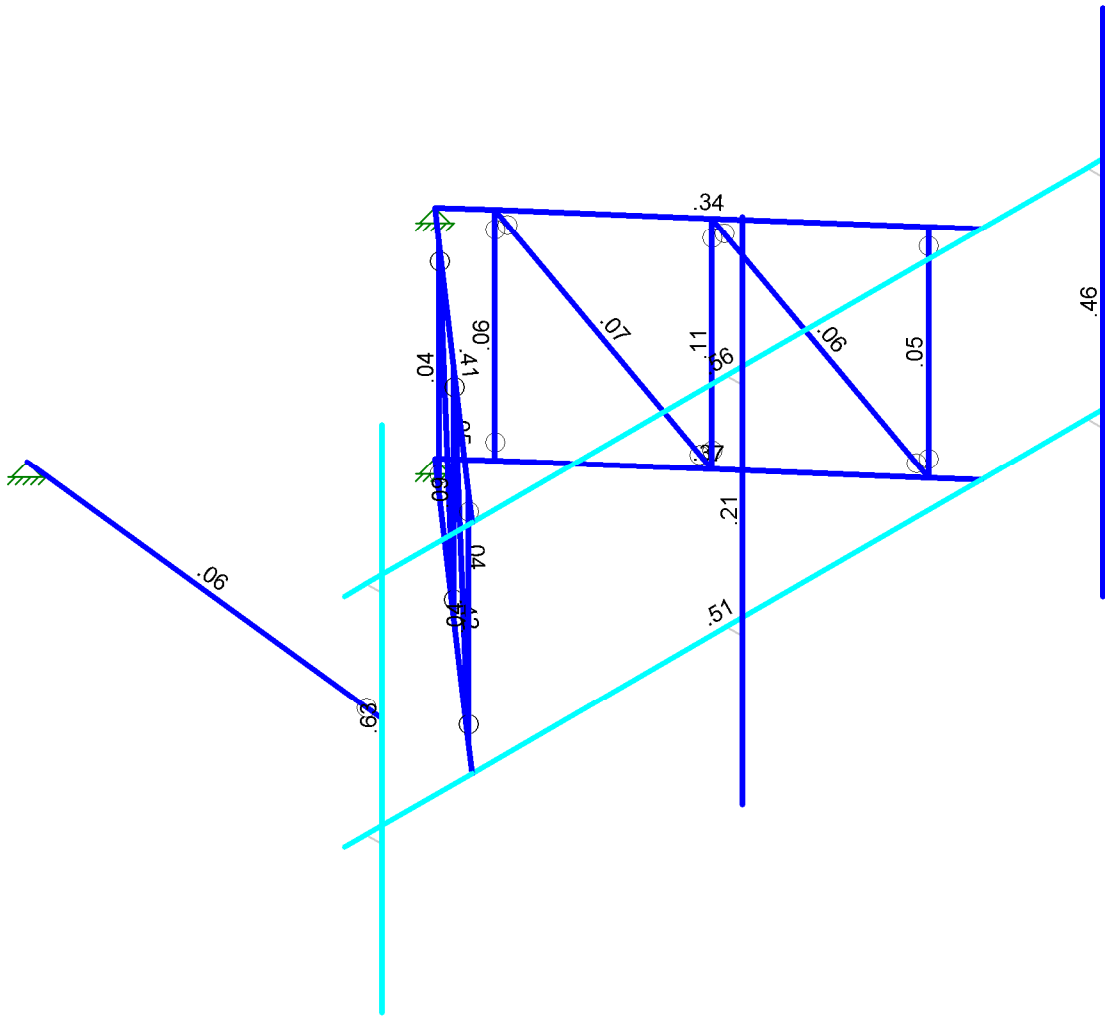
Loads: BLC 2, We  
Envelope Only Solution

Hudson Design Group	Ansonia NW_Spectrasite Tower	SK - 4
AV		Mar 29, 2022 at 10:51 AM
CT2091		V-Frame_reinforce.r3d



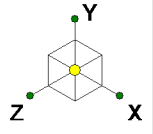
Code Check ( Env )

No Calc
> 1.0
.90-1.0
.75-.90
.50-.75
0-.50



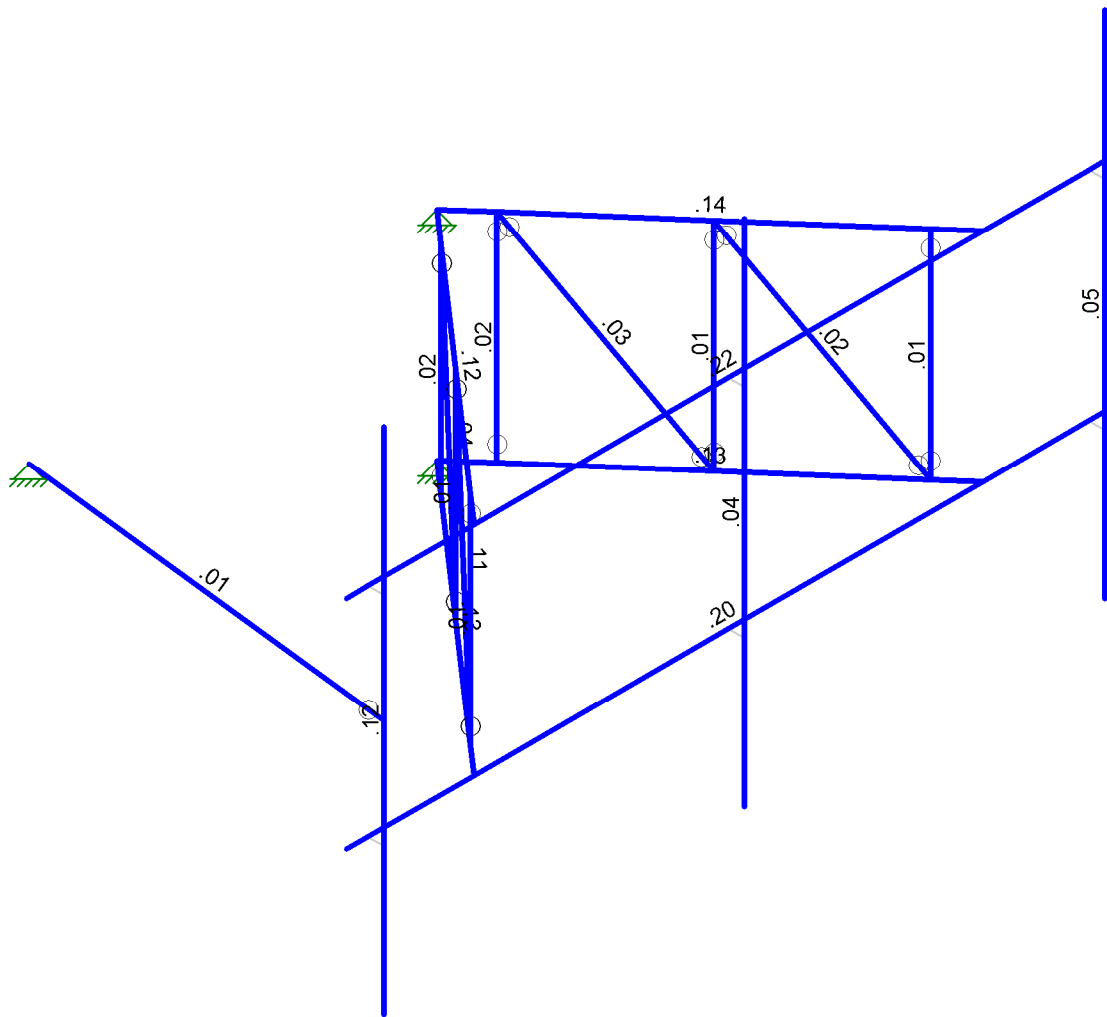
Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

Hudson Design Group	Ansonia NW_Spectrasite Tower	SK - 5
AV		Mar 29, 2022 at 10:51 AM
CT2091		V-Frame_reinforce.r3d



Shear Check ( Env )

- No Calc
- > 1.0
- .90-1.0
- .75-.90
- .50-.75
- 0-.50



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

Hudson Design Group	Ansonia NW_Spectrasite Tower	SK - 6
AV		Mar 29, 2022 at 10:51 AM
CT2091		V-Frame_reinforce.r3d



Company : Hudson Design Group  
 Designer : AV  
 Job Number : CT2091  
 Model Name : Ansonia NW\_Spectrasite Tower

Mar 29, 2022  
 10:52 AM  
 Checked By: \_\_\_\_\_

**(Global) Model Settings**

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

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR SET ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8





**(Global) Model Settings, Continued**

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[lb/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.1
4	A500 Gr.B 42	29000	11154	.3	.65	490	42	1.4	58	1.3
5	A500 Gr.B 46	29000	11154	.3	.65	490	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	490	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	490	50	1.4	65	1.3

**Cold Formed Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[lb/ft^3]	Yield[ksi]	Fu[ksi]
1	A36	29500	11346	.3	.65	490	36	58
2	A653 SS Gr50/1	29500	11346	.3	.65	490	50	65

**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	PIPE 1.5	PIPE 1.5	None	None	A53 Gr.B	Typical	.749	.293	.293	.586
2	PIPE 1.25	PIPE 1.25	None	None	A53 Gr.B	Typical	.625	.184	.184	.368
3	PIPE 2.0	PIPE 2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	PIPE 2.5	PIPE 2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
5	PIPE 3.0	PIPE 3.0	None	None	A36 Gr.36	Typical	2.07	2.85	2.85	5.69

**Cold Formed Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	C5.44"x3.77"	C5.44"x3.77"...	Beam	None	A36	Typical	2.303	3.414	11.338	.027
2	C6"x6.5"x0.2...	C6"x6.5"x0.2...	Beam	None	A36	Typical	4.518	20.289	29.373	.094
3	CF3	C6"x6.5"x0.2...	Beam	None	A36	Typical	4.518	20.289	29.373	.094



### Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		6	18	0
3	Total General		6	18	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	PIPE_3.0	1	76.5	44.882
7	A53 Gr.B	PIPE_1.5	10	446.9	94.912
8	A53 Gr.B	PIPE_2.0	7	580	167.757
9	A53 Gr.B	PIPE_2.5	2	288	131.483
10	Total HR Steel		20	1391.3	439.034

### Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N6	Reaction	Reaction	Reaction			
2	N1	Reaction	Reaction	Reaction			
3	N41	Reaction	Reaction	Reaction			

### Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N5	N4			PIPE_2.5	None	None	A53 Gr.B	Typical
2	M2	N3	N1			PIPE_2.0	None	None	A53 Gr.B	Typical
3	M3	N1	N2			PIPE_2.0	None	None	A53 Gr.B	Typical
4	M4	N10	N9			PIPE_2.5	None	None	A53 Gr.B	Typical
5	M5	N8	N6			PIPE_2.0	None	None	A53 Gr.B	Typical
6	M6	N6	N7			PIPE_2.0	None	None	A53 Gr.B	Typical
7	M7	N19	N20			PIPE_1.5	None	None	A53 Gr.B	Typical
8	M8	N16	N15			PIPE_1.5	None	None	A53 Gr.B	Typical
9	M9	N21	N22			PIPE_1.5	None	None	A53 Gr.B	Typical
10	M10	N18	N17			PIPE_1.5	None	None	A53 Gr.B	Typical
11	M11	N11	N12			PIPE_1.5	None	None	A53 Gr.B	Typical
12	M12	N14	N13			PIPE_1.5	None	None	A53 Gr.B	Typical
13	M13	N21	N17			PIPE_1.5	None	None	A53 Gr.B	Typical
14	M14	N18	N13			PIPE_1.5	None	None	A53 Gr.B	Typical
15	M15	N19	N16			PIPE_1.5	None	None	A53 Gr.B	Typical
16	M16	N15	N12			PIPE_1.5	None	None	A53 Gr.B	Typical
17	M17	N26	N24			RIGID	None	None	RIGID	Typical
18	M18	N25	N23			RIGID	None	None	RIGID	Typical
19	M19	N27	N28			PIPE_2.0	None	None	A53 Gr.B	Typical
20	M20	N32	N30			RIGID	None	None	RIGID	Typical
21	M21	N31	N29			RIGID	None	None	RIGID	Typical
22	M22	N33	N34			PIPE_2.0	None	None	A53 Gr.B	Typical
23	M23	N38	N36			RIGID	None	None	RIGID	Typical
24	M24	N37	N35			RIGID	None	None	RIGID	Typical
25	M25	N39	N40			PIPE_2.0	None	None	A53 Gr.B	Typical
26	M26	N42	N41			PIPE_3.0	None	None	A36 Gr.36	Typical

### Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			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...
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7	BenPIN	BenPIN				Yes	** NA **			None
8	M8	BenPIN	BenPIN				Yes	** NA **			None
9	M9	BenPIN	BenPIN				Yes	** NA **			None
10	M10	BenPIN	BenPIN				Yes	** NA **			None
11	M11	BenPIN	BenPIN				Yes	** NA **			None
12	M12	BenPIN	BenPIN				Yes	** NA **			None
13	M13	BenPIN	BenPIN				Yes	** NA **			None
14	M14	BenPIN	BenPIN				Yes	** NA **			None
15	M15	BenPIN	BenPIN				Yes	** NA **			None
16	M16	BenPIN	BenPIN				Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18						Yes	** NA **			None
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26	BenPIN					Yes	** NA **			None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	PIPE 2.5	144	96	96							Lateral
2	M2	PIPE 2.0	73									Lateral
3	M3	PIPE 2.0	73									Lateral
4	M4	PIPE 2.5	144	96	96							Lateral
5	M5	PIPE 2.0	73									Lateral
6	M6	PIPE 2.0	73									Lateral
7	M7	PIPE 1.5	41									Lateral
8	M8	PIPE 1.5	41									Lateral
9	M9	PIPE 1.5	41									Lateral
10	M10	PIPE 1.5	41									Lateral
11	M11	PIPE 1.5	41									Lateral
12	M12	PIPE 1.5	41									Lateral
13	M13	PIPE 1.5	50.22									Lateral
14	M14	PIPE 1.5	50.22									Lateral
15	M15	PIPE 1.5	50.22									Lateral
16	M16	PIPE 1.5	50.22									Lateral
17	M19	PIPE 2.0	96									Lateral
18	M22	PIPE 2.0	96									Lateral
19	M25	PIPE 2.0	96									Lateral
20	M26	PIPE 3.0	76.462			Lbyy						Lateral

**Cold Formed Steel Design Parameters**

Label	Shape	Length...	Lbyy[in]	Lbzz[in]	Lcomp to...	Lcomp bo...	L-torque[in]	Kyy	Kzz	Cb	R	a[in]	Funct...
No Data to Print ...													



**Basic Load Cases**

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Self We	DL		-1.1					
2	We	DL					13		
3	Ice We	DL					13	20	
4	W0	WL					13	20	
5	W30	WL					26	40	
6	W60	WL					26	40	
7	W90	WL					13	20	
8	W120	WL					26	40	
9	W150	WL					26	40	
10	W0 + Ice	WL					13	20	
11	W30 + Ice	WL					26	40	
12	W60 + Ice	WL					26	40	
13	W90 + Ice	WL					13	20	
14	W120 + Ice	WL					26	40	
15	W150 + Ice	WL					26	40	
16	500lbs LM 1	LL				1			
17	500lbs LM 2	LL				1			
18	500lbs LM 3	LL				1			
19	500lbs LM 4	LL							
20	250lbs LV 5	LL				1			
21	250lbs LV 6	LL				1			
22	E0	EL	-.1				13		
23	E90	EL			.1		13		

**Load Combinations**

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
1	Dead	Yes	Y		1	1.4	2	1.4	0	0										
2	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	1	0									
3	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	1	0									
4	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	1	0									
5	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	1	0									
6	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	1	0									
7	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	1	0									
8	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	-1	0									
9	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	-1	0									
10	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	-1	0									
11	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	-1	0									
12	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	-1	0									
13	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	-1	0									
14	Dead + Ic...	Yes	Y		1	1.2	2	1.2	10	1	3	1								
15	Dead + Ic...	Yes	Y		1	1.2	2	1.2	11	1	3	1								
16	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	1	3	1								
17	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	1	3	1								
18	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	1	3	1								
19	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	1	3	1								
20	Dead + Ic...	Yes	Y		1	1.2	2	1.2	10	-1	3	1								
21	Dead + Ic...	Yes	Y		1	1.2	2	1.2	11	-1	3	1								
22	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	-1	3	1								
23	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	-1	3	1								
24	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	-1	3	1								
25	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	-1	3	1								
26	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	4	.058								
27	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	5	.058								
28	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	6	.058								



Company : Hudson Design Group  
 Designer : AV  
 Job Number : CT2091  
 Model Name : Ansonia NW\_Spectrasite Tower

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**Load Combinations (Continued)**

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
29	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	7	.058			
30	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	8	.058			
31	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	9	.058			
32	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	4	-.058			
33	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	5	-.058			
34	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	6	-.058			
35	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	7	-.058			
36	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	8	-.058			
37	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	9	-.058			
38	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	4	.058			
39	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	5	.058			
40	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	6	.058			
41	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	7	.058			
42	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	8	.058			
43	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	9	.058			
44	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	4	-.058			
45	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	5	-.058			
46	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	6	-.058			
47	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	7	-.058			
48	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	8	-.058			
49	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	9	-.058			
50	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	4	.058			
51	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	5	.058			
52	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	6	.058			
53	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	7	.058			
54	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	8	.058			
55	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	9	.058			
56	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	4	-.058			
57	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	5	-.058			
58	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	6	-.058			
59	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	7	-.058			
60	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	8	-.058			
61	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	9	-.058			
62	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	4	.058			
63	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	5	.058			
64	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	6	.058			
65	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	7	.058			
66	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	8	.058			
67	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	9	.058			
68	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	4	-.058			
69	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	5	-.058			
70	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	6	-.058			
71	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	7	-.058			
72	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	8	-.058			
73	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	9	-.058			
74	Dead + LV...	Yes	Y		1	1.2	2	1.2	20	1.5	0				
75	Dead + LV...	Yes	Y		1	1.2	2	1.2	21	1.5	0				
76	Service 60...	Yes	Y		1	1	2	1	4	.23	0				
77	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22	1	23				
78	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22	.866	23	.5			
79	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22	.5	23	.866			
80	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22		23	1			
81	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22	-.5	23	.866			
82	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22	-.866	23	.5			
83	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22	-1	23				
84	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22	-.866	23	-.5			
85	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22	-.5	23	-.866			



**Load Combinations (Continued)**

	Description	Sol.	PD	SR	BLC Fact	BLC Fact	BLC Fact	BLC Fact	BLC Fact	BLC Fact	BLC Fact	BLC Fact	BLC Fact	BLC Fact	BLC Fact
86	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22		23	-1			
87	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22	.5	23	-.866			
88	(1.2 + 0.2...	Yes	Y		1	1.242	2	1.242	22	.866	23	-.5			

**Member Point Loads (BLC 2 : We)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	Y	-71.5	3
2	M22	Y	-74	8.15
3	M19	Y	-43.5	3
4	M25	Y	-71.5	93
5	M22	Y	-74	63.85
6	M19	Y	-43.5	93
7	M25	Y	-60	18
8	M25	Y	-72	18
9	M25	Y	-60	42
10	M22	Y	-59.9	18
11	M22	Y	-60	18
12	M25	Y	-48	42
13	M26	Y	-35	36

**Member Point Loads (BLC 3 : Ice We)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	Y	-146.483	3
2	M22	Y	-76.574	8.15
3	M19	Y	-135.328	3
4	M25	Y	-146.483	93
5	M22	Y	-76.574	63.85
6	M19	Y	-135.328	93
7	M25	Y	-39.093	18
8	M25	Y	-35.214	18
9	M25	Y	-54.608	42
10	M22	Y	-40.152	18
11	M22	Y	-51.49	18
12	M25	Y	-64.182	42
13	M26	Y	-46.058	36

**Member Point Loads (BLC 4 : W0)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	-366.425	3
2	M22	X	-169.174	8.15
3	M19	X	-348.046	3
4	M25	X	-366.425	93
5	M22	X	-169.174	63.85
6	M19	X	-348.046	93
7	M25	X	-48.763	18
8	M25	X	-52.716	18
9	M25	X	-122.5	42
10	M22	X	-53.395	18
11	M22	X	-64.974	18
12	M25	X	-53.412	42
13	M26	X	-50.571	36

**Member Point Loads (BLC 5 : W30)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
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Company : Hudson Design Group  
 Designer : AV  
 Job Number : CT2091  
 Model Name : Ansonia NW\_Spectrasite Tower

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**Member Point Loads (BLC 5 : W30) (Continued)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	-278.479	3
2	M22	X	-135.295	8.15
3	M19	X	-260.31	3
4	M25	X	-278.479	93
5	M22	X	-135.295	63.85
6	M19	X	-260.31	93
7	M25	X	-48.717	18
8	M25	X	-48.062	18
9	M25	X	-90.406	42
10	M22	X	-51.776	18
11	M22	X	-65.331	18
12	M25	X	-66.849	42
13	M26	X	-54.077	36
14	M25	Z	160.78	3
15	M22	Z	78.113	8.15
16	M19	Z	150.29	3
17	M25	Z	160.78	93
18	M22	Z	78.113	63.85
19	M19	Z	150.29	93
20	M25	Z	28.127	18
21	M25	Z	27.749	18
22	M25	Z	52.196	42
23	M22	Z	29.893	18
24	M22	Z	37.719	18
25	M25	Z	38.595	42
26	M26	Z	31.221	36

**Member Point Loads (BLC 6 : W60)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	-115.914	3
2	M22	X	-65.165	8.15
3	M19	X	-102.824	3
4	M25	X	-115.914	93
5	M22	X	-65.165	63.85
6	M19	X	-102.824	93
7	M25	X	-35.618	18
8	M25	X	-30.53	18
9	M25	X	-34.088	42
10	M22	X	-36.283	18
11	M22	X	-48.182	18
12	M25	X	-62.373	42
13	M26	X	-43.093	36
14	M25	Z	200.769	3
15	M22	Z	112.869	8.15
16	M19	Z	178.097	3
17	M25	Z	200.769	93
18	M22	Z	112.869	63.85
19	M19	Z	178.097	93
20	M25	Z	61.691	18
21	M25	Z	52.879	18
22	M25	Z	59.041	42
23	M22	Z	62.844	18
24	M22	Z	83.454	18
25	M25	Z	108.034	42
26	M26	Z	74.64	36



**Member Point Loads (BLC 7 : W90)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	Z	186.963	3
2	M22	Z	117.381	8.15
3	M19	Z	158.183	3
4	M25	Z	186.963	93
5	M22	Z	117.381	63.85
6	M19	Z	158.183	93
7	M25	Z	78.726	18
8	M25	Z	63.84	18
9	M25	Z	50.067	42
10	M22	Z	78.956	18
11	M22	Z	106.829	18
12	M25	Z	148.525	42
13	M26	Z	98.058	36

**Member Point Loads (BLC 8 : W120)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	115.914	3
2	M22	X	65.165	8.15
3	M19	X	102.824	3
4	M25	X	115.914	93
5	M22	X	65.165	63.85
6	M19	X	102.824	93
7	M25	X	35.618	18
8	M25	X	30.53	18
9	M25	X	34.088	42
10	M22	X	36.283	18
11	M22	X	48.182	18
12	M25	X	62.373	42
13	M26	X	43.093	36
14	M25	Z	200.769	3
15	M22	Z	112.869	8.15
16	M19	Z	178.097	3
17	M25	Z	200.769	93
18	M22	Z	112.869	63.85
19	M19	Z	178.097	93
20	M25	Z	61.691	18
21	M25	Z	52.879	18
22	M25	Z	59.041	42
23	M22	Z	62.844	18
24	M22	Z	83.454	18
25	M25	Z	108.034	42
26	M26	Z	74.64	36

**Member Point Loads (BLC 9 : W150)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	278.479	3
2	M22	X	135.295	8.15
3	M19	X	260.31	3
4	M25	X	278.479	93
5	M22	X	135.295	63.85
6	M19	X	260.31	93
7	M25	X	48.717	18
8	M25	X	48.062	18
9	M25	X	90.406	42
10	M22	X	51.776	18
11	M22	X	65.331	18





**Member Point Loads (BLC 9 : W150) (Continued)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
12	M25	X	66.849	42
13	M26	X	54.077	36
14	M25	Z	160.78	3
15	M22	Z	78.113	8.15
16	M19	Z	150.29	3
17	M25	Z	160.78	93
18	M22	Z	78.113	63.85
19	M19	Z	150.29	93
20	M25	Z	28.127	18
21	M25	Z	27.749	18
22	M25	Z	52.196	42
23	M22	Z	29.893	18
24	M22	Z	37.719	18
25	M25	Z	38.595	42
26	M26	Z	31.221	36

**Member Point Loads (BLC 10 : W0 + Ice)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	-65.738	3
2	M22	X	-31.794	8.15
3	M19	X	-62.725	3
4	M25	X	-65.738	93
5	M22	X	-31.794	63.85
6	M19	X	-62.725	93
7	M25	X	-11.314	18
8	M25	X	-11.873	18
9	M25	X	-24.639	42
10	M22	X	-12.116	18
11	M22	X	-14.704	18
12	M25	X	-12.712	42
13	M26	X	-11.701	36

**Member Point Loads (BLC 11 : W30 + Ice)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	-50.634	3
2	M22	X	-25.672	8.15
3	M19	X	-47.656	3
4	M25	X	-50.634	93
5	M22	X	-25.672	63.85
6	M19	X	-47.656	93
7	M25	X	-10.971	18
8	M25	X	-10.729	18
9	M25	X	-18.524	42
10	M22	X	-11.498	18
11	M22	X	-14.353	18
12	M25	X	-14.63	42
13	M26	X	-11.982	36
14	M25	Z	29.233	3
15	M22	Z	14.822	8.15
16	M19	Z	27.514	3
17	M25	Z	29.233	93
18	M22	Z	14.822	63.85
19	M19	Z	27.514	93
20	M25	Z	6.334	18
21	M25	Z	6.194	18
22	M25	Z	10.695	42



**Member Point Loads (BLC 11 : W30 + Ice) (Continued)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
23	M22	Z	6.638	18
24	M22	Z	8.287	18
25	M25	Z	8.447	42
26	M26	Z	6.918	36

**Member Point Loads (BLC 12 : W60 + Ice)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	-21.962	3
2	M22	X	-12.671	8.15
3	M19	X	-19.817	3
4	M25	X	-21.962	93
5	M22	X	-12.671	63.85
6	M19	X	-19.817	93
7	M25	X	-7.688	18
8	M25	X	-6.71	18
9	M25	X	-7.445	42
10	M22	X	-7.798	18
11	M22	X	-10.156	18
12	M25	X	-12.628	42
13	M26	X	-9.053	36
14	M25	Z	38.04	3
15	M22	Z	21.947	8.15
16	M19	Z	34.324	3
17	M25	Z	38.04	93
18	M22	Z	21.947	63.85
19	M19	Z	34.324	93
20	M25	Z	13.317	18
21	M25	Z	11.621	18
22	M25	Z	12.896	42
23	M22	Z	13.507	18
24	M22	Z	17.59	18
25	M25	Z	21.873	42
26	M26	Z	15.68	36

**Member Point Loads (BLC 13 : W90 + Ice)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	Z	36.654	3
2	M22	Z	23.192	8.15
3	M19	Z	31.936	3
4	M25	Z	36.654	93
5	M22	Z	23.192	63.85
6	M19	Z	31.936	93
7	M25	Z	16.731	18
8	M25	Z	13.934	18
9	M25	Z	11.641	42
10	M22	Z	16.756	18
11	M22	Z	22.181	18
12	M25	Z	29.438	42
13	M26	Z	20.24	36

**Member Point Loads (BLC 14 : W120 + Ice)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	21.962	3
2	M22	X	12.671	8.15
3	M19	X	19.817	3



**Member Point Loads (BLC 14 : W120 + Ice) (Continued)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
4	M25	X	21.962	93
5	M22	X	12.671	63.85
6	M19	X	19.817	93
7	M25	X	7.688	18
8	M25	X	6.71	18
9	M25	X	7.445	42
10	M22	X	7.798	18
11	M22	X	10.156	18
12	M25	X	12.628	42
13	M26	X	9.053	36
14	M25	Z	38.04	3
15	M22	Z	21.947	8.15
16	M19	Z	34.324	3
17	M25	Z	38.04	93
18	M22	Z	21.947	63.85
19	M19	Z	34.324	93
20	M25	Z	13.317	18
21	M25	Z	11.621	18
22	M25	Z	12.896	42
23	M22	Z	13.507	18
24	M22	Z	17.59	18
25	M25	Z	21.873	42
26	M26	Z	15.68	36

**Member Point Loads (BLC 15 : W150 + Ice)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	50.634	3
2	M22	X	25.672	8.15
3	M19	X	47.656	3
4	M25	X	50.634	93
5	M22	X	25.672	63.85
6	M19	X	47.656	93
7	M25	X	10.971	18
8	M25	X	10.729	18
9	M25	X	18.524	42
10	M22	X	11.498	18
11	M22	X	14.353	18
12	M25	X	14.63	42
13	M26	X	11.982	36
14	M25	Z	29.233	3
15	M22	Z	14.822	8.15
16	M19	Z	27.514	3
17	M25	Z	29.233	93
18	M22	Z	14.822	63.85
19	M19	Z	27.514	93
20	M25	Z	6.334	18
21	M25	Z	6.194	18
22	M25	Z	10.695	42
23	M22	Z	6.638	18
24	M22	Z	8.287	18
25	M25	Z	8.447	42
26	M26	Z	6.918	36

**Member Point Loads (BLC 22 : E0)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	X	-7.436	3



**Member Point Loads (BLC 22 : E0) (Continued)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
2	M22	X	-7.696	8.15
3	M19	X	-4.524	3
4	M25	X	-7.436	93
5	M22	X	-7.696	63.85
6	M19	X	-4.524	93
7	M25	X	-6.24	18
8	M25	X	-7.488	18
9	M25	X	-6.24	42
10	M22	X	-6.23	18
11	M22	X	-6.24	18
12	M25	X	-4.992	42
13	M26	X	-3.64	36

**Member Point Loads (BLC 23 : E90)**

	Member Label	Direction	Magnitude[lb.k-in]	Location[in,%]
1	M25	Z	7.436	3
2	M22	Z	7.696	8.15
3	M19	Z	4.524	3
4	M25	Z	7.436	93
5	M22	Z	7.696	63.85
6	M19	Z	4.524	93
7	M25	Z	6.24	18
8	M25	Z	7.488	18
9	M25	Z	6.24	42
10	M22	Z	6.23	18
11	M22	Z	6.24	18
12	M25	Z	4.992	42
13	M26	Z	3.64	36

**Member Distributed Loads (BLC 3 : Ice We)**

	Member Label	Direction	Start Magnitude[lb/in,...	End Magnitude[lb/in,...	Start Location[in,%]	End Location[in,%]
1	M25	Y	-.425	-.425	0	0
2	M22	Y	-.425	-.425	0	0
3	M19	Y	-.425	-.425	0	0
4	M11	Y	-.368	-.368	0	0
5	M12	Y	-.368	-.368	0	0
6	M7	Y	-.368	-.368	0	0
7	M8	Y	-.368	-.368	0	0
8	M9	Y	-.368	-.368	0	0
9	M10	Y	-.368	-.368	0	0
10	M1	Y	-.485	-.485	0	0
11	M4	Y	-.485	-.485	0	0
12	M3	Y	-.425	-.425	0	0
13	M6	Y	-.425	-.425	0	0
14	M2	Y	-.425	-.425	0	0
15	M5	Y	-.425	-.425	0	0
16	M26	Y	-.56	-.56	0	0
17	M13	Y	-.368	-.368	0	0
18	M14	Y	-.368	-.368	0	0
19	M15	Y	-.368	-.368	0	0
20	M16	Y	-.368	-.368	0	0

**Member Distributed Loads (BLC 4 : W0)**

	Member Label	Direction	Start Magnitude[lb/in,...	End Magnitude[lb/in,...	Start Location[in,%]	End Location[in,%]
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**Member Distributed Loads (BLC 4 : W0) (Continued)**

	Member Label	Direction	Start Magnitude[lb/in....	End Magnitude[lb/in....	Start Location[in, %]	End Location[in, %]
1	M25	X	-.771	-.771	0	0
2	M22	X	-.771	-.771	0	0
3	M19	X	-.771	-.771	0	0
4	M11	X	-.578	-.578	0	0
5	M12	X	-.578	-.578	0	0
6	M7	X	-.578	-.578	0	0
7	M8	X	-.578	-.578	0	0
8	M9	X	-.578	-.578	0	0
9	M10	X	-.578	-.578	0	0
10	M1	X	-.933	-.933	0	0
11	M4	X	-.933	-.933	0	0
12	M3	X	-.385	-.385	0	0
13	M6	X	-.385	-.385	0	0
14	M2	X	-.385	-.385	0	0
15	M5	X	-.385	-.385	0	0
16	M26	X	0	0	0	0
17	M13	X	-.617	-.617	0	0
18	M14	X	-.617	-.617	0	0
19	M15	X	-.617	-.617	0	0
20	M16	X	-.617	-.617	0	0

**Member Distributed Loads (BLC 5 : W30)**

	Member Label	Direction	Start Magnitude[lb/in....	End Magnitude[lb/in....	Start Location[in, %]	End Location[in, %]
1	M25	X	-.668	-.668	0	0
2	M22	X	-.668	-.668	0	0
3	M19	X	-.668	-.668	0	0
4	M11	X	-.5	-.5	0	0
5	M12	X	-.5	-.5	0	0
6	M7	X	-.5	-.5	0	0
7	M8	X	-.5	-.5	0	0
8	M9	X	-.5	-.5	0	0
9	M10	X	-.5	-.5	0	0
10	M1	X	-.606	-.606	0	0
11	M4	X	-.606	-.606	0	0
12	M3	X	-.045	-.045	0	0
13	M6	X	-.045	-.045	0	0
14	M2	X	-.623	-.623	0	0
15	M5	X	-.623	-.623	0	0
16	M26	X	-.226	-.226	0	0
17	M13	X	-.534	-.534	0	0
18	M14	X	-.534	-.534	0	0
19	M15	X	-.534	-.534	0	0
20	M16	X	-.534	-.534	0	0
21	M25	Z	.385	.385	0	0
22	M22	Z	.385	.385	0	0
23	M19	Z	.385	.385	0	0
24	M11	Z	.289	.289	0	0
25	M12	Z	.289	.289	0	0
26	M7	Z	.289	.289	0	0
27	M8	Z	.289	.289	0	0
28	M9	Z	.289	.289	0	0
29	M10	Z	.289	.289	0	0
30	M1	Z	.35	.35	0	0
31	M4	Z	.35	.35	0	0
32	M3	Z	.026	.026	0	0
33	M6	Z	.026	.026	0	0



Company : Hudson Design Group  
 Designer : AV  
 Job Number : CT2091  
 Model Name : Ansonia NW\_Spectrasite Tower

Mar 29, 2022  
 10:52 AM  
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**Member Distributed Loads (BLC 5 : W30) (Continued)**

	Member Label	Direction	Start Magnitude[lb/in....	End Magnitude[lb/in....	Start Location[in, %]	End Location[in, %]
34	M2	Z	.36	.36	0	0
35	M5	Z	.36	.36	0	0
36	M26	Z	.13	.13	0	0
37	M13	Z	.308	.308	0	0
38	M14	Z	.308	.308	0	0
39	M15	Z	.308	.308	0	0
40	M16	Z	.308	.308	0	0

**Member Distributed Loads (BLC 6 : W60)**

	Member Label	Direction	Start Magnitude[lb/in....	End Magnitude[lb/in....	Start Location[in, %]	End Location[in, %]
1	M25	X	-.385	-.385	0	0
2	M22	X	-.385	-.385	0	0
3	M19	X	-.385	-.385	0	0
4	M11	X	-.289	-.289	0	0
5	M12	X	-.289	-.289	0	0
6	M7	X	-.289	-.289	0	0
7	M8	X	-.289	-.289	0	0
8	M9	X	-.289	-.289	0	0
9	M10	X	-.289	-.289	0	0
10	M1	X	-.117	-.117	0	0
11	M4	X	-.117	-.117	0	0
12	M3	X	-.026	-.026	0	0
13	M6	X	-.026	-.026	0	0
14	M2	X	-.36	-.36	0	0
15	M5	X	-.36	-.36	0	0
16	M26	X	-.391	-.391	0	0
17	M13	X	-.308	-.308	0	0
18	M14	X	-.308	-.308	0	0
19	M15	X	-.308	-.308	0	0
20	M16	X	-.308	-.308	0	0
21	M25	Z	.668	.668	0	0
22	M22	Z	.668	.668	0	0
23	M19	Z	.668	.668	0	0
24	M11	Z	.5	.5	0	0
25	M12	Z	.5	.5	0	0
26	M7	Z	.5	.5	0	0
27	M8	Z	.5	.5	0	0
28	M9	Z	.5	.5	0	0
29	M10	Z	.5	.5	0	0
30	M1	Z	.202	.202	0	0
31	M4	Z	.202	.202	0	0
32	M3	Z	.045	.045	0	0
33	M6	Z	.045	.045	0	0
34	M2	Z	.623	.623	0	0
35	M5	Z	.623	.623	0	0
36	M26	Z	.677	.677	0	0
37	M13	Z	.534	.534	0	0
38	M14	Z	.534	.534	0	0
39	M15	Z	.534	.534	0	0
40	M16	Z	.534	.534	0	0

**Member Distributed Loads (BLC 7 : W90)**

	Member Label	Direction	Start Magnitude[lb/in....	End Magnitude[lb/in....	Start Location[in, %]	End Location[in, %]
1	M25	Z	.771	.771	0	0
2	M22	Z	.771	.771	0	0
3	M19	Z	.771	.771	0	0



**Member Distributed Loads (BLC 7 : W90) (Continued)**

	Member Label	Direction	Start Magnitude[lb/in....	End Magnitude[lb/in....	Start Location[in, %]	End Location[in, %]
4	M11	Z	.578	.578	0	0
5	M12	Z	.578	.578	0	0
6	M7	Z	.578	.578	0	0
7	M8	Z	.578	.578	0	0
8	M9	Z	.578	.578	0	0
9	M10	Z	.578	.578	0	0
10	M1	Z	0	0	0	0
11	M4	Z	0	0	0	0
12	M3	Z	.385	.385	0	0
13	M6	Z	.385	.385	0	0
14	M2	Z	.385	.385	0	0
15	M5	Z	.385	.385	0	0
16	M26	Z	1.043	1.043	0	0
17	M13	Z	.617	.617	0	0
18	M14	Z	.617	.617	0	0
19	M15	Z	.617	.617	0	0
20	M16	Z	.617	.617	0	0

**Member Distributed Loads (BLC 8 : W120)**

	Member Label	Direction	Start Magnitude[lb/in....	End Magnitude[lb/in....	Start Location[in, %]	End Location[in, %]
1	M25	X	.385	.385	0	0
2	M22	X	.385	.385	0	0
3	M19	X	.385	.385	0	0
4	M11	X	.289	.289	0	0
5	M12	X	.289	.289	0	0
6	M7	X	.289	.289	0	0
7	M8	X	.289	.289	0	0
8	M9	X	.289	.289	0	0
9	M10	X	.289	.289	0	0
10	M1	X	.117	.117	0	0
11	M4	X	.117	.117	0	0
12	M3	X	.36	.36	0	0
13	M6	X	.36	.36	0	0
14	M2	X	.026	.026	0	0
15	M5	X	.026	.026	0	0
16	M26	X	.391	.391	0	0
17	M13	X	.308	.308	0	0
18	M14	X	.308	.308	0	0
19	M15	X	.308	.308	0	0
20	M16	X	.308	.308	0	0
21	M25	Z	.668	.668	0	0
22	M22	Z	.668	.668	0	0
23	M19	Z	.668	.668	0	0
24	M11	Z	.5	.5	0	0
25	M12	Z	.5	.5	0	0
26	M7	Z	.5	.5	0	0
27	M8	Z	.5	.5	0	0
28	M9	Z	.5	.5	0	0
29	M10	Z	.5	.5	0	0
30	M1	Z	.202	.202	0	0
31	M4	Z	.202	.202	0	0
32	M3	Z	.623	.623	0	0
33	M6	Z	.623	.623	0	0
34	M2	Z	.045	.045	0	0
35	M5	Z	.045	.045	0	0
36	M26	Z	.677	.677	0	0



**Member Distributed Loads (BLC 8 : W120) (Continued)**

	Member Label	Direction	Start Magnitude[lb/in,...	End Magnitude[lb/in,...	Start Location[in, %]	End Location[in, %]
37	M13	Z	.534	.534	0	0
38	M14	Z	.534	.534	0	0
39	M15	Z	.534	.534	0	0
40	M16	Z	.534	.534	0	0

**Member Distributed Loads (BLC 9 : W150)**

	Member Label	Direction	Start Magnitude[lb/in,...	End Magnitude[lb/in,...	Start Location[in, %]	End Location[in, %]
1	M25	X	.668	.668	0	0
2	M22	X	.668	.668	0	0
3	M19	X	.668	.668	0	0
4	M11	X	.5	.5	0	0
5	M12	X	.5	.5	0	0
6	M7	X	.5	.5	0	0
7	M8	X	.5	.5	0	0
8	M9	X	.5	.5	0	0
9	M10	X	.5	.5	0	0
10	M1	X	.606	.606	0	0
11	M4	X	.606	.606	0	0
12	M3	X	.623	.623	0	0
13	M6	X	.623	.623	0	0
14	M2	X	.045	.045	0	0
15	M5	X	.045	.045	0	0
16	M26	X	.226	.226	0	0
17	M13	X	.534	.534	0	0
18	M14	X	.534	.534	0	0
19	M15	X	.534	.534	0	0
20	M16	X	.534	.534	0	0
21	M25	Z	.385	.385	0	0
22	M22	Z	.385	.385	0	0
23	M19	Z	.385	.385	0	0
24	M11	Z	.289	.289	0	0
25	M12	Z	.289	.289	0	0
26	M7	Z	.289	.289	0	0
27	M8	Z	.289	.289	0	0
28	M9	Z	.289	.289	0	0
29	M10	Z	.289	.289	0	0
30	M1	Z	.35	.35	0	0
31	M4	Z	.35	.35	0	0
32	M3	Z	.36	.36	0	0
33	M6	Z	.36	.36	0	0
34	M2	Z	.026	.026	0	0
35	M5	Z	.026	.026	0	0
36	M26	Z	.13	.13	0	0
37	M13	Z	.308	.308	0	0
38	M14	Z	.308	.308	0	0
39	M15	Z	.308	.308	0	0
40	M16	Z	.308	.308	0	0

**Member Distributed Loads (BLC 10 : W0 + Ice)**

	Member Label	Direction	Start Magnitude[lb/in,...	End Magnitude[lb/in,...	Start Location[in, %]	End Location[in, %]
1	M25	X	-.226	-.226	0	0
2	M22	X	-.226	-.226	0	0
3	M19	X	-.226	-.226	0	0
4	M11	X	-.16	-.16	0	0
5	M12	X	-.16	-.16	0	0
6	M7	X	-.16	-.16	0	0





Company : Hudson Design Group  
 Designer : AV  
 Job Number : CT2091  
 Model Name : Ansonia NW\_Spectrasite Tower

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**Member Distributed Loads (BLC 10 : W0 + Ice) (Continued)**

	Member Label	Direction	Start Magnitude[lb/in....	End Magnitude[lb/in....	Start Location[in, %]	End Location[in, %]
7	M8	X	-.16	-.16	0	0
8	M9	X	-.16	-.16	0	0
9	M10	X	-.16	-.16	0	0
10	M1	X	-.271	-.271	0	0
11	M4	X	-.271	-.271	0	0
12	M3	X	-.104	-.104	0	0
13	M6	X	-.104	-.104	0	0
14	M2	X	-.104	-.104	0	0
15	M5	X	-.104	-.104	0	0
16	M26	X	-.006	-.006	0	0
17	M13	X	-.169	-.169	0	0
18	M14	X	-.169	-.169	0	0
19	M15	X	-.169	-.169	0	0
20	M16	X	-.169	-.169	0	0

**Member Distributed Loads (BLC 11 : W30 + Ice)**

	Member Label	Direction	Start Magnitude[lb/in....	End Magnitude[lb/in....	Start Location[in, %]	End Location[in, %]
1	M25	X	-.196	-.196	0	0
2	M22	X	-.196	-.196	0	0
3	M19	X	-.196	-.196	0	0
4	M11	X	-.139	-.139	0	0
5	M12	X	-.139	-.139	0	0
6	M7	X	-.139	-.139	0	0
7	M8	X	-.139	-.139	0	0
8	M9	X	-.139	-.139	0	0
9	M10	X	-.139	-.139	0	0
10	M1	X	-.177	-.177	0	0
11	M4	X	-.177	-.177	0	0
12	M3	X	-.015	-.015	0	0
13	M6	X	-.015	-.015	0	0
14	M2	X	-.165	-.165	0	0
15	M5	X	-.165	-.165	0	0
16	M26	X	-.054	-.054	0	0
17	M13	X	-.146	-.146	0	0
18	M14	X	-.146	-.146	0	0
19	M15	X	-.146	-.146	0	0
20	M16	X	-.146	-.146	0	0
21	M25	Z	.113	.113	0	0
22	M22	Z	.113	.113	0	0
23	M19	Z	.113	.113	0	0
24	M11	Z	.08	.08	0	0
25	M12	Z	.08	.08	0	0
26	M7	Z	.08	.08	0	0
27	M8	Z	.08	.08	0	0
28	M9	Z	.08	.08	0	0
29	M10	Z	.08	.08	0	0
30	M1	Z	.102	.102	0	0
31	M4	Z	.102	.102	0	0
32	M3	Z	.009	.009	0	0
33	M6	Z	.009	.009	0	0
34	M2	Z	.095	.095	0	0
35	M5	Z	.095	.095	0	0
36	M26	Z	.031	.031	0	0
37	M13	Z	.085	.085	0	0
38	M14	Z	.085	.085	0	0
39	M15	Z	.085	.085	0	0



**Member Distributed Loads (BLC 11 : W30 + Ice) (Continued)**

	Member Label	Direction	Start Magnitude[lb/in....]	End Magnitude[lb/in....]	Start Location[in,%]	End Location[in,%]
40	M16	Z	.085	.085	0	0

**Member Distributed Loads (BLC 12 : W60 + Ice)**

	Member Label	Direction	Start Magnitude[lb/in....]	End Magnitude[lb/in....]	Start Location[in,%]	End Location[in,%]
1	M25	X	-.113	-.113	0	0
2	M22	X	-.113	-.113	0	0
3	M19	X	-.113	-.113	0	0
4	M11	X	-.08	-.08	0	0
5	M12	X	-.08	-.08	0	0
6	M7	X	-.08	-.08	0	0
7	M8	X	-.08	-.08	0	0
8	M9	X	-.08	-.08	0	0
9	M10	X	-.08	-.08	0	0
10	M1	X	-.035	-.035	0	0
11	M4	X	-.035	-.035	0	0
12	M3	X	-.009	-.009	0	0
13	M6	X	-.009	-.009	0	0
14	M2	X	-.095	-.095	0	0
15	M5	X	-.095	-.095	0	0
16	M26	X	-.089	-.089	0	0
17	M13	X	-.085	-.085	0	0
18	M14	X	-.085	-.085	0	0
19	M15	X	-.085	-.085	0	0
20	M16	X	-.085	-.085	0	0
21	M25	Z	.196	.196	0	0
22	M22	Z	.196	.196	0	0
23	M19	Z	.196	.196	0	0
24	M11	Z	.139	.139	0	0
25	M12	Z	.139	.139	0	0
26	M7	Z	.139	.139	0	0
27	M8	Z	.139	.139	0	0
28	M9	Z	.139	.139	0	0
29	M10	Z	.139	.139	0	0
30	M1	Z	.06	.06	0	0
31	M4	Z	.06	.06	0	0
32	M3	Z	.015	.015	0	0
33	M6	Z	.015	.015	0	0
34	M2	Z	.165	.165	0	0
35	M5	Z	.165	.165	0	0
36	M26	Z	.154	.154	0	0
37	M13	Z	.146	.146	0	0
38	M14	Z	.146	.146	0	0
39	M15	Z	.146	.146	0	0
40	M16	Z	.146	.146	0	0

**Member Distributed Loads (BLC 13 : W90 + Ice)**

	Member Label	Direction	Start Magnitude[lb/in....]	End Magnitude[lb/in....]	Start Location[in,%]	End Location[in,%]
1	M25	Z	.226	.226	0	0
2	M22	Z	.226	.226	0	0
3	M19	Z	.226	.226	0	0
4	M11	Z	.16	.16	0	0
5	M12	Z	.16	.16	0	0
6	M7	Z	.16	.16	0	0
7	M8	Z	.16	.16	0	0
8	M9	Z	.16	.16	0	0
9	M10	Z	.16	.16	0	0



**Member Distributed Loads (BLC 13 : W90 + Ice) (Continued)**

	Member Label	Direction	Start Magnitude[lb/in....]	End Magnitude[lb/in....]	Start Location[in,%]	End Location[in,%]
10	M1	Z	.003	.003	0	0
11	M4	Z	.003	.003	0	0
12	M3	Z	.104	.104	0	0
13	M6	Z	.104	.104	0	0
14	M2	Z	.104	.104	0	0
15	M5	Z	.104	.104	0	0
16	M26	Z	.235	.235	0	0
17	M13	Z	.169	.169	0	0
18	M14	Z	.169	.169	0	0
19	M15	Z	.169	.169	0	0
20	M16	Z	.169	.169	0	0

**Member Distributed Loads (BLC 14 : W120 + Ice)**

	Member Label	Direction	Start Magnitude[lb/in....]	End Magnitude[lb/in....]	Start Location[in,%]	End Location[in,%]
1	M25	X	.113	.113	0	0
2	M22	X	.113	.113	0	0
3	M19	X	.113	.113	0	0
4	M11	X	.08	.08	0	0
5	M12	X	.08	.08	0	0
6	M7	X	.08	.08	0	0
7	M8	X	.08	.08	0	0
8	M9	X	.08	.08	0	0
9	M10	X	.08	.08	0	0
10	M1	X	.035	.035	0	0
11	M4	X	.035	.035	0	0
12	M3	X	.095	.095	0	0
13	M6	X	.095	.095	0	0
14	M2	X	.009	.009	0	0
15	M5	X	.009	.009	0	0
16	M26	X	.089	.089	0	0
17	M13	X	.085	.085	0	0
18	M14	X	.085	.085	0	0
19	M15	X	.085	.085	0	0
20	M16	X	.085	.085	0	0
21	M25	Z	.196	.196	0	0
22	M22	Z	.196	.196	0	0
23	M19	Z	.196	.196	0	0
24	M11	Z	.139	.139	0	0
25	M12	Z	.139	.139	0	0
26	M7	Z	.139	.139	0	0
27	M8	Z	.139	.139	0	0
28	M9	Z	.139	.139	0	0
29	M10	Z	.139	.139	0	0
30	M1	Z	.06	.06	0	0
31	M4	Z	.06	.06	0	0
32	M3	Z	.165	.165	0	0
33	M6	Z	.165	.165	0	0
34	M2	Z	.015	.015	0	0
35	M5	Z	.015	.015	0	0
36	M26	Z	.154	.154	0	0
37	M13	Z	.146	.146	0	0
38	M14	Z	.146	.146	0	0
39	M15	Z	.146	.146	0	0
40	M16	Z	.146	.146	0	0



**Member Distributed Loads (BLC 15 : W150 + Ice)**

	Member Label	Direction	Start Magnitude[lb/in....	End Magnitude[lb/in....	Start Location[in, %]	End Location[in, %]
1	M25	X	.196	.196	0	0
2	M22	X	.196	.196	0	0
3	M19	X	.196	.196	0	0
4	M11	X	.139	.139	0	0
5	M12	X	.139	.139	0	0
6	M7	X	.139	.139	0	0
7	M8	X	.139	.139	0	0
8	M9	X	.139	.139	0	0
9	M10	X	.139	.139	0	0
10	M1	X	.177	.177	0	0
11	M4	X	.177	.177	0	0
12	M3	X	.165	.165	0	0
13	M6	X	.165	.165	0	0
14	M2	X	.015	.015	0	0
15	M5	X	.015	.015	0	0
16	M26	X	.054	.054	0	0
17	M13	X	.146	.146	0	0
18	M14	X	.146	.146	0	0
19	M15	X	.146	.146	0	0
20	M16	X	.146	.146	0	0
21	M25	Z	.113	.113	0	0
22	M22	Z	.113	.113	0	0
23	M19	Z	.113	.113	0	0
24	M11	Z	.08	.08	0	0
25	M12	Z	.08	.08	0	0
26	M7	Z	.08	.08	0	0
27	M8	Z	.08	.08	0	0
28	M9	Z	.08	.08	0	0
29	M10	Z	.08	.08	0	0
30	M1	Z	.102	.102	0	0
31	M4	Z	.102	.102	0	0
32	M3	Z	.095	.095	0	0
33	M6	Z	.095	.095	0	0
34	M2	Z	.009	.009	0	0
35	M5	Z	.009	.009	0	0
36	M26	Z	.031	.031	0	0
37	M13	Z	.085	.085	0	0
38	M14	Z	.085	.085	0	0
39	M15	Z	.085	.085	0	0
40	M16	Z	.085	.085	0	0

**Envelope Joint Reactions**

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N6	max	381.152	13	1631.189	15	2007.915	11	0	88	0	88	0	88
2		min	-4396.573	19	606.222	8	-1009.768	5	0	1	0	1	0	1
3	N1	max	4294.097	25	1480.513	21	790.897	60	0	88	0	88	0	88
4		min	118.499	7	548.738	3	-1798.44	30	0	1	0	1	0	1
5	N41	max	1930.87	6	94.807	18	180.062	6	0	88	0	88	0	88
6		min	-1941.559	12	36.962	12	-163.839	12	0	1	0	1	0	1
7	Totals:	max	3082.945	2	3148.266	21	2230.346	11						
8		min	-3082.943	8	1255.838	76	-2230.347	5						



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

Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M19	PIPE 2.0	.628	48	11	.120	28	6	14916.096	32130	22.459	22.459	1...	H1-1b
2	M4	PIPE 2.5	.558	24	6	.216	24	6	30038.461	50715	43.155	43.155	1...	H1-1b
3	M1	PIPE 2.5	.508	24	12	.201	24	10	30038.461	50715	43.155	43.155	1...	H1-1b
4	M25	PIPE 2.0	.455	27	8	.052	28	8	14916.096	32130	22.459	22.459	1...	H1-1b
5	M2	PIPE 2.0	.419	0	12	.125	6.844	9	20616.315	32130	22.459	22.459	2...	H1-1b
6	M5	PIPE 2.0	.413	0	6	.119	6.844	3	20616.315	32130	22.459	22.459	2...	H1-1b
7	M3	PIPE 2.0	.366	8.365	25	.127	66.156	21	20616.315	32130	22.459	22.459	2...	H1-1b
8	M6	PIPE 2.0	.337	7.604	23	.141	0	14	20616.315	32130	22.459	22.459	2...	H1-1b
9	M22	PIPE 2.0	.211	27	8	.039	68	12	14916.096	32130	22.459	22.459	1...	H1-1b
10	M10	PIPE 1.5	.112	41	36	.014	0	12	18935.405	23593.5	13.261	13.261	1...	H1-1b*
11	M8	PIPE 1.5	.087	0	53	.012	41	35	18935.405	23593.5	13.261	13.261	1	H1-1b*
12	M13	PIPE 1.5	.071	25.11	15	.030	0	6	16962.399	23593.5	13.261	13.261	1...	H1-1b
13	M14	PIPE 1.5	.059	25.11	15	.020	50.22	12	16962.399	23593.5	13.261	13.261	1...	H1-1b
14	M9	PIPE 1.5	.059	41	23	.015	0	11	18935.405	23593.5	13.261	13.261	1	H1-1b*
15	M26	PIPE 3.0	.059	35.842	5	.005	0	5	53632.726	67068	70.956	70.956	1...	H1-1b
16	M12	PIPE 1.5	.053	41	27	.011	0	6	18935.405	23593.5	13.261	13.261	1...	H1-1b*
17	M15	PIPE 1.5	.050	25.11	25	.038	50.22	10	16962.399	23593.5	13.261	13.261	1...	H1-1b
18	M7	PIPE 1.5	.045	41	56	.017	41	11	18935.405	23593.5	13.261	13.261	1...	H1-1b*
19	M16	PIPE 1.5	.043	24.587	61	.110	0	12	16962.399	23593.5	13.261	13.261	1...	H1-1b
20	M11	PIPE 1.5	.040	41	50	.013	41	2	18935.405	23593.5	13.261	13.261	1...	H1-1b*

**Envelope AISI S100-16: LRFD Cold Formed Steel Code Checks**

Member	Shape	Code ...	Loc[in]	LC	Shear ..	Loc[in]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mny...	phi*Mnz...	phi*V...	phi*V...	Cb	Eqn
No Data to Print ...																



**HUDSON**  
Design Group LLC

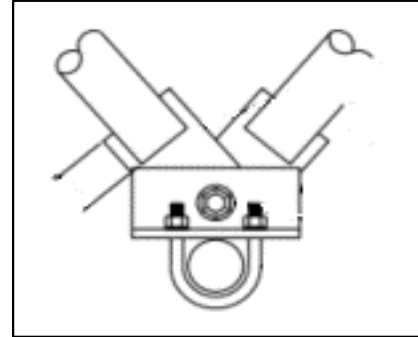
**Connection Check  
(Modified)**

## SITE DETAILS

Site Name/Code	Ansonia NW_Spectrasite Tower
Date	03/29/2022
Engineer	AV

## CONNECTION PARAMETERS

Loadcase #	19
Number of bolts	1
Bolt Diameter	d = 3/4 in
Tensile Area	A <sub>b</sub> = 0.44 in <sup>2</sup>
Tensile Area	A <sub>n</sub> = 0.33 in <sup>2</sup>
Grade	A325
Bolt Ultimate Strength	F <sub>ub</sub> = 120 ksi
Connection length reduction factor	R <sub>b</sub> = 1



## FLANGE LOADS

Bending Moment	M <sub>zz</sub>	0.00 kips-in
Bending Moment	M <sub>yy</sub>	0.00 kips-in
Torsional Moment	M <sub>xx</sub>	0.00 kips-in
Shear Force	V <sub>y</sub>	4.40 kips
Shear Force	V <sub>z</sub>	0.58 kips
Axial Force	P <sub>x</sub>	1.59 kips

## SOFTWARE REACTIONS TABLE

L...	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-in]	MY [k-in]	MZ [k-in]
19	N6	-4396.573	1589.61	578.645	0	0	0
19	N1	3530.101	1464.365	-926.713	0	0	0
19	N41	324.31	94.291	35.053	0	0	0
19	Totals:	-542.162	3148.266	-313.015			

## BOLT CHECK

### Bolt Tension Capacity

$$\phi R_{nt} = 0.75 * F_{ub} * A_n$$

$$\phi R_{nt} = 30.1 \text{ kips}$$

### Bolt Shear Capacity

$$\phi R_{nv} = 0.75 * 0.45 * F_{ub} * A_b * R_b$$

$$\phi R_{nv} = 19.9 \text{ kips}$$

### Maximum Bolt Tension

$$T_{ub} = F_{Mxx} + F_{Mzz} + T_v / 4$$

$$T_{ub} = 1.59 \text{ kips}$$

### Maximum Bolt Shear

$$V_{ub} = \text{sqrt}((V_x/4)^2 + (V_y/4)^2) + F_{Myy}$$

$$V_{ub} = 4.43 \text{ kips}$$

Tension Ratio:

5.3 %

PASS

Shear Ratio:

22.3 %

PASS

$$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$$

OK

Ratio

5.3% PASS

# EXHIBIT 5





# Radio Frequency Exposure Analysis Report

April 18, 2022

Centerline on behalf of AT&T  
Centerline Communications Project Number: 566709

AT&T Site Name: ANSONIA NW\_SPECTRASITE TOWER  
Site Number: CT2091  
FA#: 10035308  
USID: 44824

Site Address: 401 WAKELEE AVENUE, ANSONIA, CT 06401

## Site Compliance Summary

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AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	16.34469 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Ground Level):	1.63449%



April 18, 2022

Centerline  
Attn: Jennifer Iliades, Project Manager  
750 W Center St, Suite 301  
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **ANSONIA NW\_SPECTRASITE TOWER**

Centerline Communications, LLC (“Centerline”) was contracted to analyze the proposed AT&T facility at **401 WAKELEE AVENUE, ANSONIA, CT 06401** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter ( $\text{mW}/\text{cm}^2$ ) or microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in  $\text{mW}/\text{cm}^2$ ) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ( $f_{\text{MHz}}/1500$ ). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of  $1 \text{ mW}/\text{cm}^2$  ( $1000 \mu\text{W}/\text{cm}^2$ ). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the MPE limits for General Population/Uncontrolled environments as defined below.

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

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Additional details can be found in FCC OET 65.



## **Calculation Methodology**

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.



## **Data & Results**

The following table details the antennas and operating parameters for the AT&T antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the ground level.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.



**Maximum Calculated Cumulative Power Density (Location: approximately 480' east of site)**

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
AT&T A 1	QUINTEL QD6616-7 V1	700	11.93	167.00	4.00	40.00	2495.80	0.00001	466.67	0.00000
AT&T A 1	QUINTEL QD6616-7 V1	1900	15.07	167.00	4.00	40.00	5144.23	0.00001	1000.00	0.00000
AT&T A 1	QUINTEL QD6616-7 V1	2100	15.50	167.00	4.00	40.00	5677.28	0.00001	1000.00	0.00000
AT&T A 1	QUINTEL QD6616-7 V1	700	11.93	167.00	2.00	40.00	1247.90	0.00000	466.67	0.00000
AT&T A 2	ERICSSON AIR6449	3700	23.55	165.00	1.00	108.40	24548.74	0.00013	1000.00	0.00001
AT&T A 3	ERICSSON AIR6419	3450	22.85	169.00	1.00	54.20	10447.19	4.01310	1000.00	0.40131
AT&T A 3	ERICSSON AIR6419	3450	22.85	169.00	1.00	54.20	10447.19	4.01310	1000.00	0.40131
AT&T A 4	CCI TPA65R-BU6D	700	11.45	167.00	4.00	40.00	2234.19	0.00001	466.67	0.00000
AT&T A 4	CCI TPA65R-BU6D	850	12.35	167.00	4.00	40.00	2748.65	0.00000	566.67	0.00000
AT&T A 4	CCI TPA65R-BU6D	2300	14.95	167.00	4.00	25.00	3126.08	0.00000	1000.00	0.00000
AT&T B 5	QUINTEL QD8616-7 V1	700	13.04	167.00	4.00	40.00	3219.44	0.00001	466.67	0.00000
AT&T B 5	QUINTEL QD8616-7 V1	1900	15.27	167.00	4.00	40.00	5389.64	0.00001	1000.00	0.00000
AT&T B 5	QUINTEL QD8616-7 V1	2100	15.56	167.00	4.00	40.00	5762.22	0.00001	1000.00	0.00000
AT&T B 5	QUINTEL QD8616-7 V1	700	13.04	167.00	2.00	40.00	1609.72	0.00000	466.67	0.00000
AT&T B 6	ERICSSON AIR6449	3700	23.55	165.00	1.00	108.40	24548.74	0.00014	1000.00	0.00001
AT&T B 7	ERICSSON AIR6419	3450	22.85	169.00	1.00	54.20	10447.19	4.15413	1000.00	0.41541
AT&T B 7	ERICSSON AIR6419	3450	22.85	169.00	1.00	54.20	10447.19	4.15413	1000.00	0.41541
AT&T B 8	CCI TPA65R-BU8D	700	12.85	167.00	4.00	40.00	3084.04	0.00003	466.67	0.00001
AT&T B 8	CCI TPA65R-BU8D	850	13.25	167.00	4.00	40.00	3381.58	0.00001	566.67	0.00000
AT&T B 8	CCI TPA65R-BU8D	2300	14.65	167.00	4.00	25.00	2917.43	0.00000	1000.00	0.00000
AT&T C 9	QUINTEL QD6616-7 V1	700	11.93	167.00	4.00	40.00	2495.80	0.00000	466.67	0.00000
AT&T C 9	QUINTEL QD6616-7 V1	1900	15.07	167.00	4.00	40.00	5144.23	0.00000	1000.00	0.00000
AT&T C 9	QUINTEL QD6616-7 V1	2100	15.50	167.00	4.00	40.00	5677.28	0.00000	1000.00	0.00000
AT&T C 9	QUINTEL QD6616-7 V1	700	11.93	167.00	2.00	40.00	1247.90	0.00000	466.67	0.00000
AT&T C 10	ERICSSON AIR6449	3700	23.55	165.00	1.00	108.40	24548.74	0.00000	1000.00	0.00000
AT&T C 11	ERICSSON AIR6419	3450	22.85	169.00	1.00	54.20	10447.19	0.00486	1000.00	0.00049
AT&T C 11	ERICSSON AIR6419	3450	22.85	169.00	1.00	54.20	10447.19	0.00486	1000.00	0.00049
AT&T C 12	CCI TPA65R-BU6D	700	11.45	167.00	4.00	40.00	2234.19	0.00000	466.67	0.00000
AT&T C 12	CCI TPA65R-BU6D	850	12.35	167.00	4.00	40.00	2748.65	0.00000	566.67	0.00000
AT&T C 12	CCI TPA65R-BU6D	2300	14.95	167.00	4.00	25.00	3126.08	0.00000	1000.00	0.00000
Sprint A 13	GENERIC PANEL 6FT	862	12.62	194.00	2.00	40.00	1462.48	0.00000	574.67	0.00000
Sprint A 14	GENERIC PANEL 6FT	1900	15.84	194.00	2.00	60.00	4604.49	0.00000	1000.00	0.00000
Sprint A 15	GENERIC PANEL 6FT	2500	14.49	194.00	1.00	34.70	975.73	0.00000	1000.00	0.00000
Sprint B 16	GENERIC PANEL 6FT	862	12.62	194.00	2.00	40.00	1462.48	0.00000	574.67	0.00000
Sprint B 17	GENERIC PANEL 6FT	1900	15.84	194.00	2.00	60.00	4604.49	0.00000	1000.00	0.00000



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
Sprint B 18	GENERIC PANEL 6FT	2500	14.49	194.00	1.00	34.70	975.73	0.00000	1000.00	0.00000
Sprint C 19	GENERIC PANEL 6FT	862	12.62	194.00	2.00	40.00	1462.48	0.00000	574.67	0.00000
Sprint C 20	GENERIC PANEL 6FT	1900	15.84	194.00	2.00	60.00	4604.49	0.00000	1000.00	0.00000
Sprint C 21	GENERIC PANEL 6FT	2500	14.49	194.00	1.00	34.70	975.73	0.00000	1000.00	0.00000
Unknown A 22	GENERIC PANEL 6FT	850	12.62	184.00	1.00	100.00	1828.10	0.00000	566.67	0.00000
Unknown B 23	GENERIC PANEL 6FT	850	12.62	184.00	1.00	100.00	1828.10	0.00000	566.67	0.00000
Unknown C 24	GENERIC PANEL 6FT	850	12.62	184.00	1.00	100.00	1828.10	0.00000	566.67	0.00000
Verizon A 25	GENERIC PANEL 6FT	850	12.62	177.00	4.00	40.00	2924.96	0.00001	566.67	0.00000
Verizon A 26	GENERIC PANEL 6FT	1900	15.84	177.00	4.00	40.00	6139.32	0.00000	1000.00	0.00000
Verizon A 27	GENERIC PANEL 6FT	2100	16.39	177.00	4.00	40.00	6968.19	0.00000	1000.00	0.00000
Verizon A 27	GENERIC PANEL 6FT	700	12.33	177.00	4.00	40.00	2736.02	0.00001	466.67	0.00000
Verizon B 28	GENERIC PANEL 6FT	850	12.62	177.00	4.00	40.00	2924.96	0.00001	566.67	0.00000
Verizon B 29	GENERIC PANEL 6FT	1900	15.84	177.00	4.00	40.00	6139.32	0.00001	1000.00	0.00000
Verizon B 30	GENERIC PANEL 6FT	2100	16.39	177.00	4.00	40.00	6968.19	0.00001	1000.00	0.00000
Verizon B 30	GENERIC PANEL 6FT	700	12.33	177.00	4.00	40.00	2736.02	0.00001	466.67	0.00000
Verizon C 31	GENERIC PANEL 6FT	850	12.62	177.00	4.00	40.00	2924.96	0.00000	566.67	0.00000
Verizon C 32	GENERIC PANEL 6FT	1900	15.84	177.00	4.00	40.00	6139.32	0.00000	1000.00	0.00000
Verizon C 33	GENERIC PANEL 6FT	2100	16.39	177.00	4.00	40.00	6968.19	0.00000	1000.00	0.00000
Verizon C 33	GENERIC PANEL 6FT	700	12.33	177.00	4.00	40.00	2736.02	0.00000	466.67	0.00000
T-Mobile A 34	GENERIC PANEL 6FT	1900	15.84	148.00	2.00	60.00	4604.49	0.00000	1000.00	0.00000
T-Mobile A 35	GENERIC PANEL 6FT	600	12.33	148.00	2.00	60.00	2052.02	0.00000	400.00	0.00000
T-Mobile A 36	GENERIC PANEL 6FT	700	12.33	148.00	2.00	60.00	2052.02	0.00000	466.67	0.00000
T-Mobile A 37	GENERIC PANEL 6FT	2100	15.84	148.00	2.00	60.00	4604.49	0.00000	1000.00	0.00000
T-Mobile B 38	GENERIC PANEL 6FT	1900	15.84	148.00	2.00	60.00	4604.49	0.00002	1000.00	0.00000
T-Mobile B 39	GENERIC PANEL 6FT	600	12.33	148.00	2.00	60.00	2052.02	0.00002	400.00	0.00001
T-Mobile B 40	GENERIC PANEL 6FT	700	12.33	148.00	2.00	60.00	2052.02	0.00002	466.67	0.00001
T-Mobile B 41	GENERIC PANEL 6FT	2100	15.84	148.00	2.00	60.00	4604.49	0.00002	1000.00	0.00000
T-Mobile C 42	GENERIC PANEL 6FT	1900	15.84	148.00	2.00	60.00	4604.49	0.00000	1000.00	0.00000
T-Mobile C 43	GENERIC PANEL 6FT	600	12.33	148.00	2.00	60.00	2052.02	0.00000	400.00	0.00000
T-Mobile C 44	GENERIC PANEL 6FT	700	12.33	148.00	2.00	60.00	2052.02	0.00000	466.67	0.00000
T-Mobile C 45	GENERIC PANEL 6FT	2100	15.84	148.00	2.00	60.00	4604.49	0.00000	1000.00	0.00000
							<b>Cumulative Power Density:</b>	<b>16.34469 <math>\mu\text{W}/\text{cm}^2</math></b>	<b>Cumulative % MPE:</b>	<b>1.63449%</b>



## Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground level that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **Compliant** with FCC rules and regulations.

Katrina Styx  
RF EME Technical Writer  
Centerline Communications, LLC

A handwritten signature in black ink, appearing to read "Katrina Styx", is positioned below the typed name and title.

# EXHIBIT 6



# Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

**Tracking Number**

1Z9Y45030339710718

**Weight**

1.00 LBS

**Service**

UPS Ground

**Shipped / Billed On**

04/20/2022

**Delivered On**

06/07/2022 11:23 A.M.

**Delivered To**

10 PRESIDENTIAL WAY  
WOBURN, MA, 01801, US

**Received By**

ANCRI

**Left At**

Front Desk

**Reference Number(s)**

CT2091-CSC AMERICAN TOWER

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 06/08/2022 10:33 A.M. EST

# Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

**Tracking Number**

1Z9Y45030320261104

**Weight**

1.00 LBS

**Service**

UPS Ground

**Shipped / Billed On**

04/20/2022

**Delivered On**

06/07/2022 10:11 A.M.

**Delivered To**

253 MAIN ST  
ANSONIA, CT, 06401, US

**Received By**

CASSETTI

**Left At**

Office

**Reference Number(s)**

CT2091-CSC CITY PLANNER

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 06/08/2022 10:28 A.M. EST

# Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

**Tracking Number**

1Z9Y45030321240885

**Weight**

1.00 LBS

**Service**

UPS Ground

**Shipped / Billed On**

04/20/2022

**Delivered On**

06/07/2022 10:11 A.M.

**Delivered To**

253 MAIN ST  
ANSONIA, CT, 06401, US

**Received By**

CASSETTI

**Left At**

Office

**Reference Number(s)**

CT2091-CSC MAYOR

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 06/08/2022 10:31 A.M. EST

# Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

**Tracking Number**

1Z9Y45030334404497

**Weight**

1.00 LBS

**Service**

UPS Ground

**Shipped / Billed On**

04/20/2022

**Delivered On**

06/07/2022 10:11 A.M.

**Delivered To**

253 MAIN ST  
ANSONIA, CT, 06401, US

**Received By**

CASSETTI

**Left At**

Office

**Reference Number(s)**

CT2091-CSC ZEO

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 06/08/2022 10:30 A.M. EST