QC Development
PO Box 916
Storrs, CT 06268
860-670-9068
Mark.Roberts@QCDevelopment.net

March 15, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T)
360 Gaylord Mountain Road, Hamden, CT 06514 – AT&T SITE # CT5663
N 41.43372500
W 72.94523889

Dear Ms. Bachman:

AT&T currently maintains six (6) antennas at the 180-foot level of the existing 625-foot Guyed Tower at 360 Gaylord Mountain Road, Hamden, CT. The tower and property are owned by Vertical Bridge. AT&T's use of this facility was approved by the Siting Council on September 5, 2002.

AT&T now intends to remove its antennas and associated equipment at the 180-foot level and install new mounts and antennas at the 280-foot level of the tower. AT&T will install (3) Powerwave 7770 antennas, (2) Andrew SBNHH-1D65A antennas, (2) CCI HPA-65R-BUU-H6 and (2) CCI HPA-65R-BU6AA antennas, (1) Kathrien 800-10964 and (2) Kathrien 800-10965 antennas. AT&T also intends to install three (3) Ericsson RRUS-32, (3) 4449-B5/B12 and (3) 8843-B2/B66A Remote Radio Units (RRU). The (12) antennas and (9) RRUs will all be installed on new sector frame mounts at the 280-foot level of the tower.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 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 Honorable Curt B. Leng, Mayor of the Town of Hamden, and to the Hamden Planning and Zoning

Department, as well as to the property and tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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

6. The existing structure and its foundation can support the proposed loading.

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).

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,

Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: Honorable Curt B. Leng - Elected Official
Daniel Kops, Jr. – Town Planner
Vertical Bridge - Property & Tower Owner

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							1.35%
AT&T GSM	4	414	180	0.0197	850	0.5667	0.35%
AT&T UMTS	2	656	180	0.0156	1900	1.0000	0.16%
AT&T LTE	2	729	180	0.0173	700	0.4667	0.37%
AT&T LTE	2	1711	180	0.0406	1900	1.0000	0.41%
Site Total							2.63%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							1.35%
AT&T UMTS	1	244	280	0.0012	850	0.5667	0.02%
AT&T LTE	1	1476	280	0.0071	700	0.4667	0.15%
AT&T LTE	1	1000	280	0.0048	850	0.5667	0.08%
AT&T 5G	1	1000	280	0.0048	850	0.5667	0.08%
AT&T LTE	2	3664	280	0.0351	1900	1.0000	0.35%
AT&T LTE	1	3837	280	0.0184	2100	1.0000	0.18%
AT&T LTE	1	1285	280	0.0062	2300	1.0000	0.06%
Site Total							2.29%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Note: Proposed Loading may also include corrections to certain Existing Loading values

SITE NUMBER: CT5663
SITE NAME: HAMDEN - TALMADGE
FA CODE: 10071061
PACE ID: MRCTB035177, MRCTB035216, MRCTB035190, MRCTB035278, MRCTB035364
PROJECT: LTE 3C_4C_5C 2019 UPGRADE

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING GUYED TOWER:
- PROPOSED NEW 12' HD V-BOOM SECTOR MOUNT (SABRE PART# C10857001C) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- RELOCATE ANTENNAS AND ASSOCIATED EQUIPMENT FROM ELEVATION 180' TO 280'.
- NEW AT&T ANTENNAS: (800-10964) (TOTAL OF 1 PER ALPHA SECTOR).
- NEW AT&T ANTENNAS: (SBNHH-1D65A) (TOTAL OF 1 PER ALPHA SECTOR).
- NEW AT&T ANTENNAS: (800-10965) (TYP. OF 1 PER BETA & GAMMA SECTORS, TOTAL OF 2).
- NEW AT&T ANTENNAS: (HPA-65R-BU6AA) (TYP. OF 1 PER BETA & GAMMA SECTORS, TOTAL OF 2).
- NEW AT&T RRUS: 32 (WCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B2/B66A 8843 (1900/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B5/B12 4449 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T SURGE ARRESTOR: DC6-48-60-18-8C (TOTAL OF 1)
- NEW AT&T SURGE ARRESTOR: DC6-48-60-0-8C-EV (TOTAL OF 1)
- NEW AT&T (6) 1-5/8"ø COAX, (6) DC POWER, (2) FIBER (TO REPLACE EXISTING) & (TO FOLLOW EXISTING ROUTE).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- SWAP DUS FOR RBS 6630.
- ADD 5G RBS 6630.
- ADD (1) XMU.

SITE ADDRESS:	360 GAYLORD MOUNTAIN ROAD HAMDEN, CT 06518
LATITUDE:	41.433491 N, 41° 26' 00.57" N
LONGITUDE:	72.944898 W, 72° 56' 41.63" W
TYPE OF SITE:	GUYED TOWER / OUTDOOR EQUIPMENT
STRUCTURE HEIGHT:	625'-0"±
RAD CENTER:	280'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
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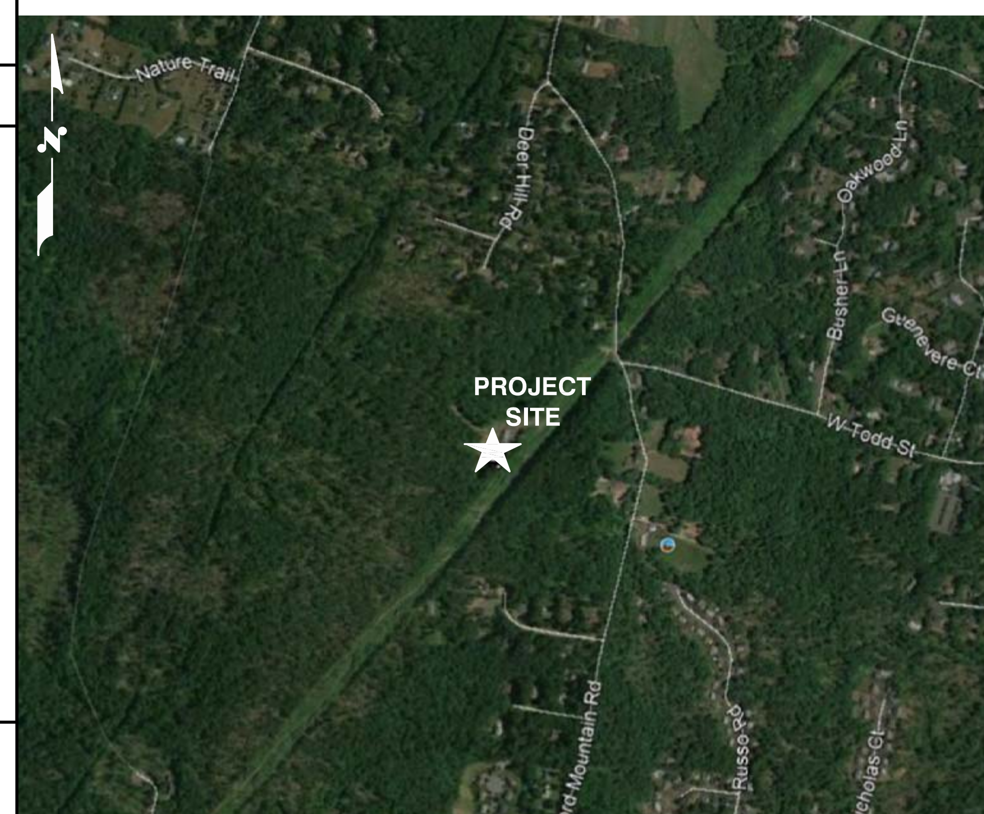
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	ANTENNA LAYOUTS & ELEVATION	1
A-3	DETAILS	1
SN-1	STRUCTURAL NOTES	1
RF-1	RF PLUMBING DIAGRAM	1
G-1	GROUNDING DETAILS	1

VICINITY MAP

DIRECTION TO SITE:

TAKE RAMP LEFT FOR I-91 SOUTH, AT EXIT 10, TAKE RAMP RIGHT FOR CT-40 TOWARD MT. CARMEL / HAMDEN, BEAR RIGHT ONTO CT-10 / WHITNEY AVE, TURN LEFT ONTO TODD ST, TURN RIGHT ONTO SHEPARD AVE, TURN LEFT ONTO W TODD ST, BEAR RIGHT ONTO GAYLORD MOUNTAIN RD, ARRIVE AT GAYLORD MOUNTAIN RD AND TURN RIGHT.



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.

72 HOURS

CALL BEFORE YOU DIG

CALL TOLL FREE 1-800-922-4455

OR CALL 811

UNDERGROUND SERVICE ALERT

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

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SITE NAME: HAMDEN - TALMADGE

360 GAYLORD MOUNTAIN ROAD
HAMDEN, CT 06518
NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	01/04/19	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT · No. 28551 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE 3C_4C_5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5663	T-1	1

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) 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 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 AWS 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 – SAI
   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. TOUCHUP 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-G, 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	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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

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SALEM, NH 03079

SITE NUMBER: CT5663
SITE NAME: HAMDEN - TALMADGE

360 GAYLORD MOUNTAIN ROAD
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NEW HAVEN COUNTY

at&t
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FRAMINGHAM, MA 01701

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A	01/04/19	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT
DEREK J. CREASEY
No. 28564
LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE 3C_4C_5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5663	GN-1	1

NOTE:

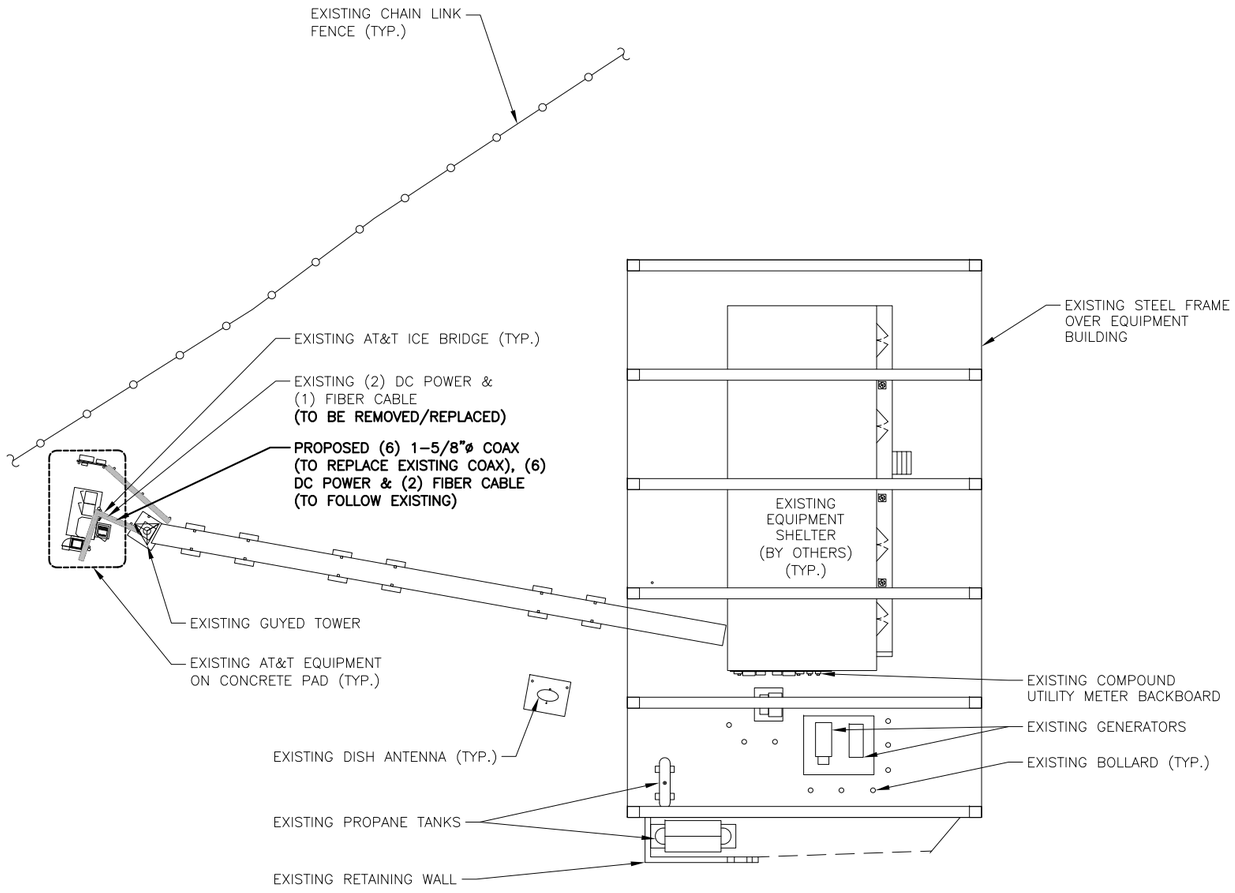
REFER TO STRUCTURAL ANALYSIS BY: VERTICAL BRIDGE ENGINEERING, LLC. DATED: FEBRUARY 21, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

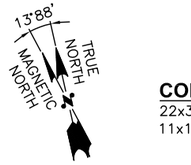
NOTE:

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

NOTE:

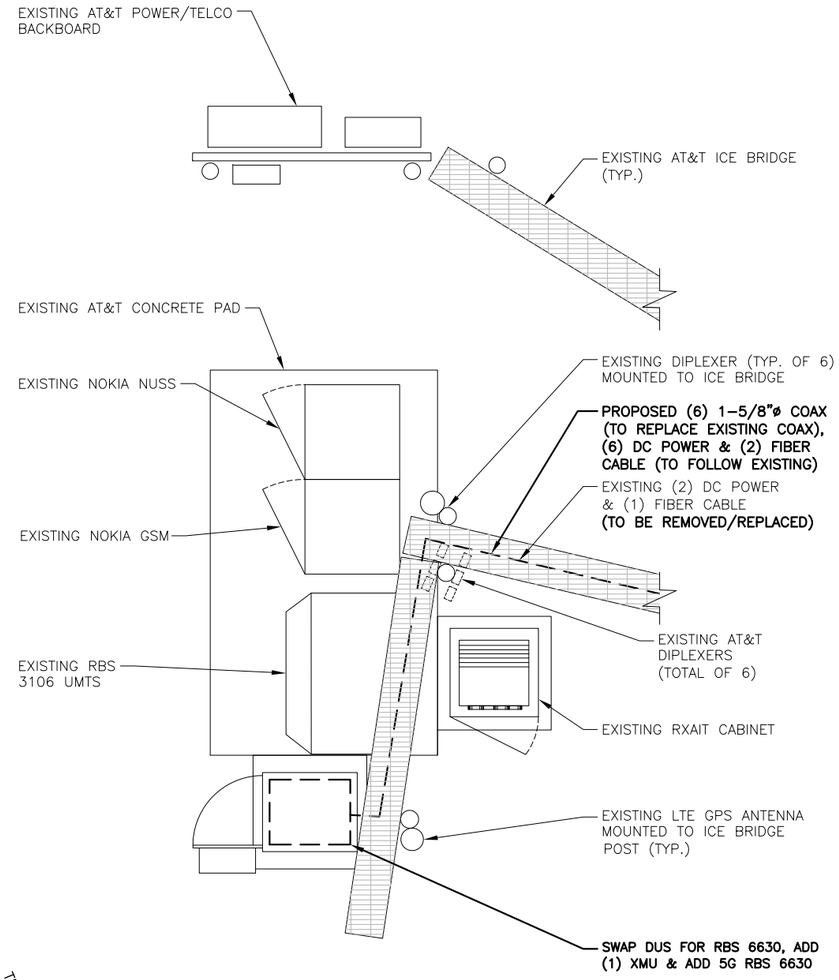
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: MARCH 13, 2019

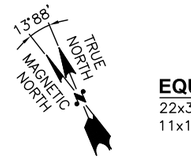




COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/16"=1'-0"
11x17 SCALE: 1/32"=1'-0"

0 8'-0" 16'-0" 32'-0" 48'-0"





EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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TEL: (978) 557-5553
FAX: (978) 336-5586

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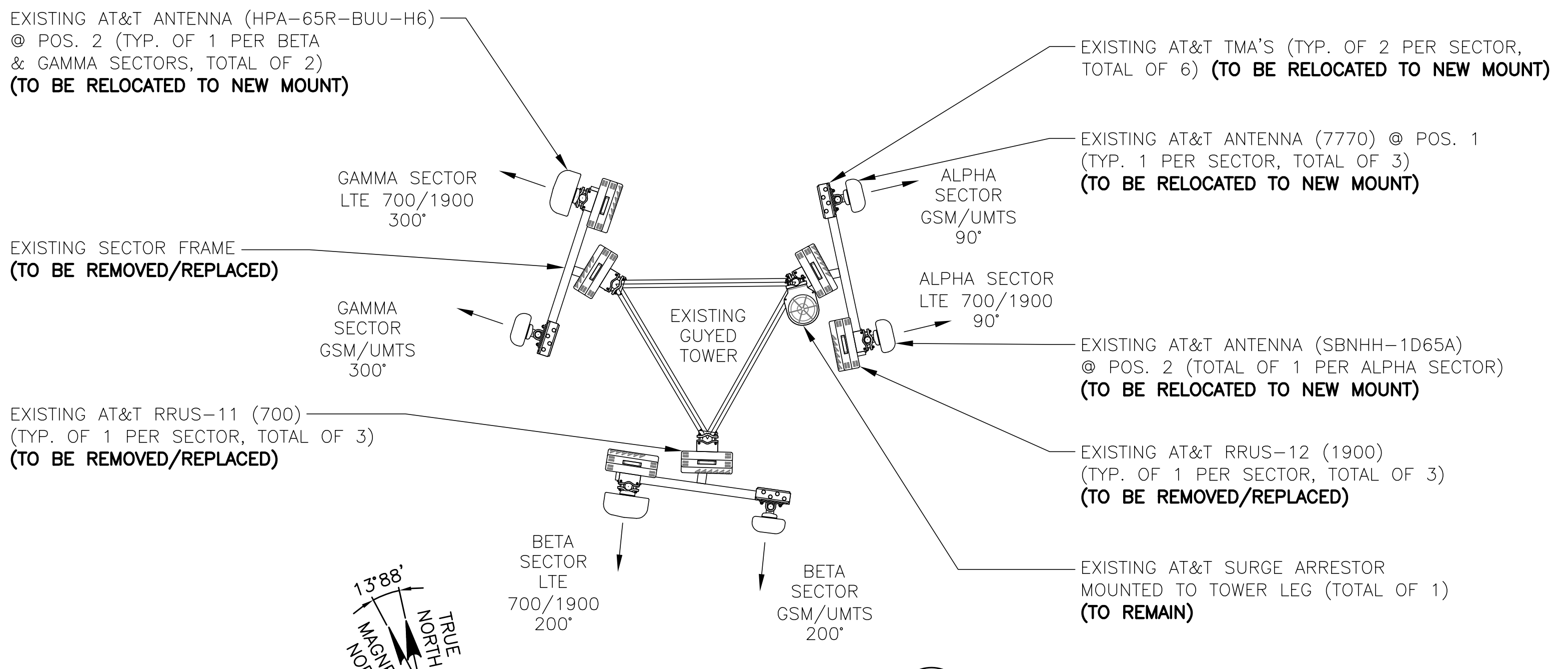
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT · DEREK J. CREASER · No. 25[illegible] · LICENSED PROFESSIONAL ENGINEER

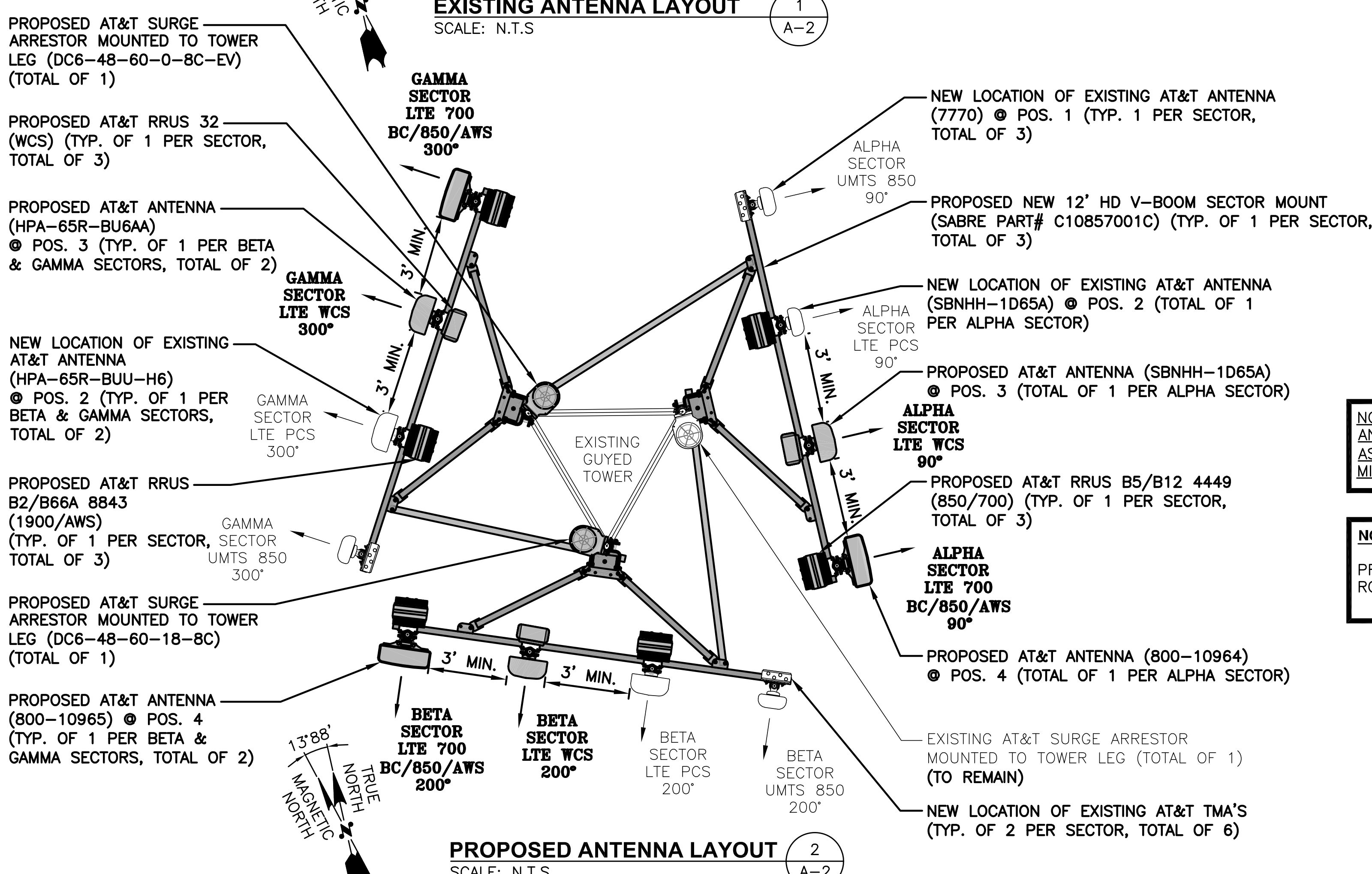
AT&T

COMPOUND & EQUIPMENT PLAN
(LTE 3C_4C_5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5663	A-1	1



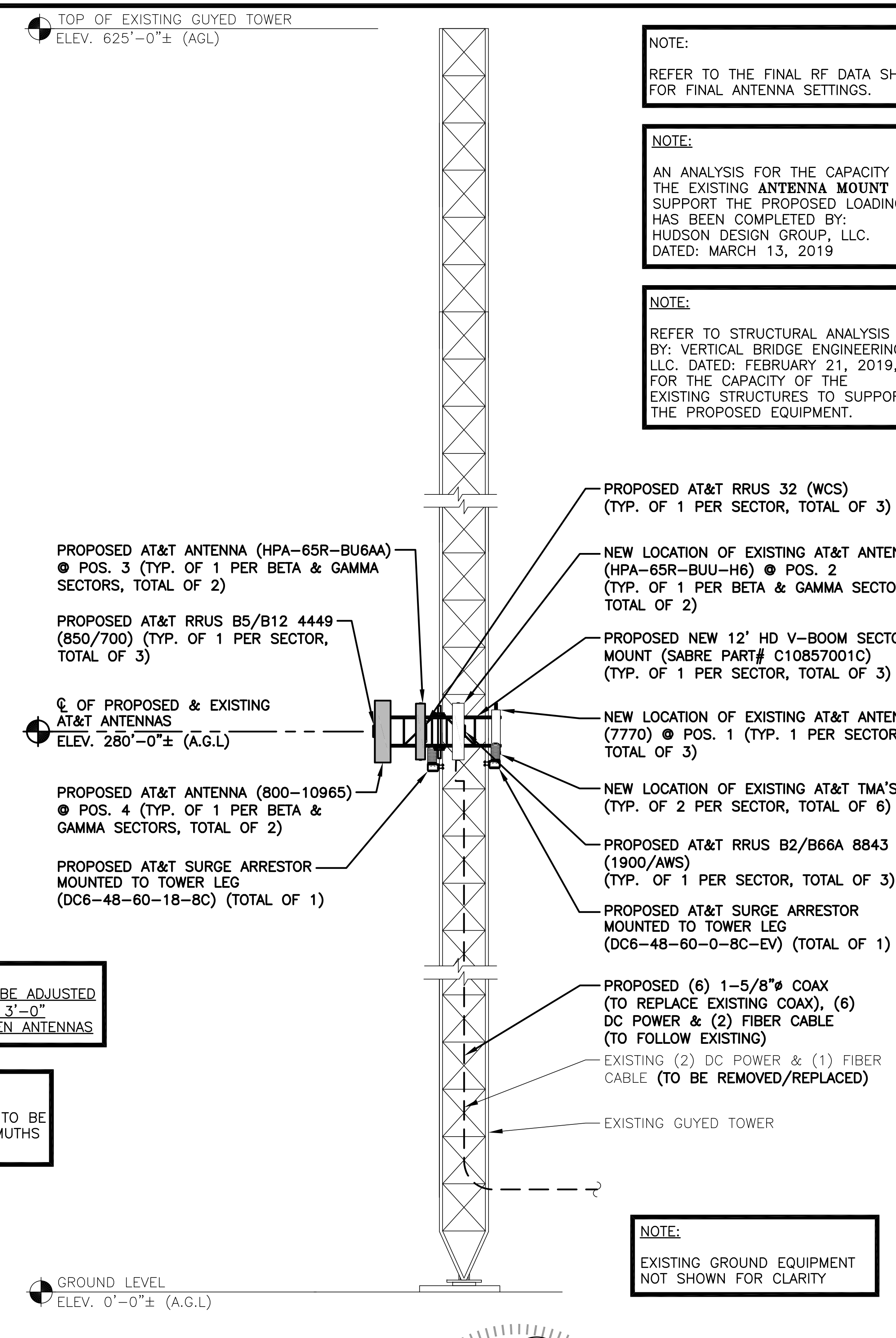
EXISTING ANTENNA LAYOUT (1 / A-2)
SCALE: N.T.S



PROPOSED ANTENNA LAYOUT (2 / A-2)
SCALE: N.T.S

NOTE:
ANTENNAS AND MOUNTS TO BE ADJUSTED AS REQUIRED TO ACHIEVE A 3'-0" MINIMUM SEPARATION BETWEEN ANTENNAS

NOTE:
PROPOSED ANTENNA MOUNT TO BE ROTATED TO MATCH LTE AZIMUTHS



ELEVATION (3 / A-2)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"
0 4'-0" 8'-0" 16'-0" 24'-0"

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

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: MARCH 13, 2019

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: VERTICAL BRIDGE ENGINEERING, LLC. DATED: FEBRUARY 21, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY

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SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT5663
SITE NAME: HAMDEN - TALMADGE
360 GAYLORD MOUNTAIN ROAD
HAMDEN, CT 06518
NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	03/12/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	01/04/19	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT LICENSED PROFESSIONAL ENGINEER

AT&T
ANTENNA LAYOUTS & ELEVATION
(LTE 3C_4C_5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5663	A-2	1

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: MARCH 13, 2019

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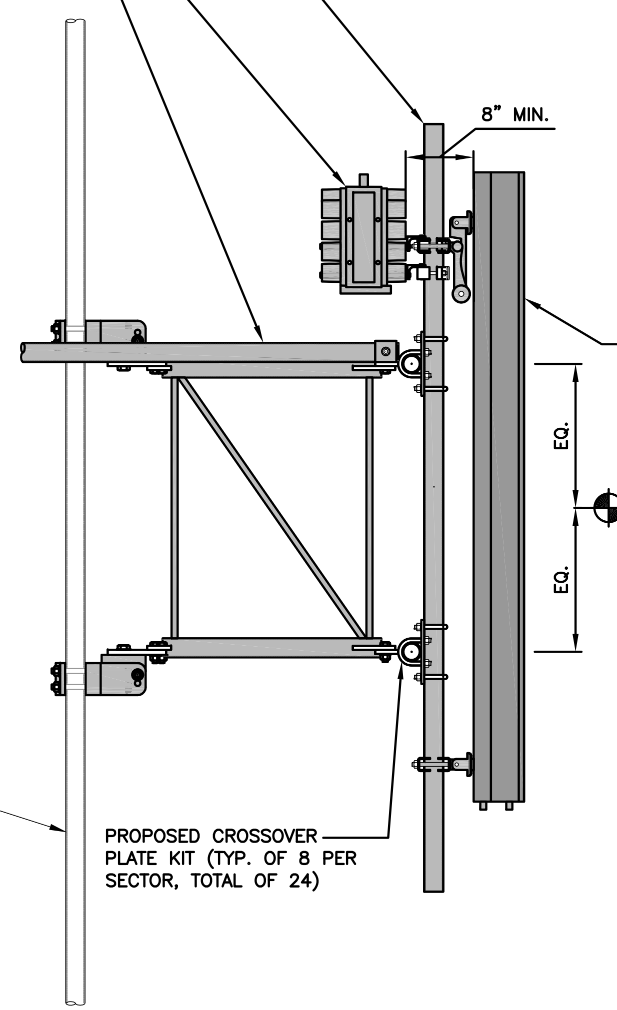
ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	7770	55X11X5	±280'	90°	(2)(G) POWERWAVE LGP 21901 (2) POWERWAVE LGP 21401	–	–	(2) 1-5/8" (325'±)	(E) (1) RAYCAP DC6-48-60-18-8F
A2	EXISTING	LTE PCS	SBNHH-1D65A	55X11.9X7.1	±280'	90°	--	(P) (1) B2/B66A 8843 (1900/AWS)	14.9X13.2X10.9	--	
A3	PROPOSED	LTE WCS	SBNHH-1D65A	55X11.9X7.1	±280'	90°	--	(P) (1) RRUS 32 (WCS)	27.2X12.1X7.0	--	
A4	PROPOSED	LTE 700 BC/850/AWS	800-10964	59X20X6.9	±280'	90°	--	(P) (1) B5/B12 4449 (850/700)	14.9X13.2X10.4	--	
B1	EXISTING	UMTS 850	7770	55X11X5	±280'	200°	(2)(G) POWERWAVE LGP 21901 (2) POWERWAVE LGP 21401	–	–	(2) 1-5/8" (325'±)	(P) (1) RAYCAP DC6-48-60-18-8C
B2	EXISTING	LTE PCS	HPA-65R-BUU-H6	72X14.8X9	±280'	200°	--	(P) (1) B2/B66A 8843 (1900/AWS)	14.9X13.2X10.9	--	
B3	PROPOSED	LTE WCS	HPA-65R-BU6AA	71X11.7X7.6	±280'	200°	--	(P) (1) RRUS 32 (WCS)	27.2X12.1X7.0	--	
B4	PROPOSED	LTE 700 BC/850/AWS	800-10965	78.7X20X6.9	±280'	200°	--	(P) (1) B5/B12 4449 (850/700)	14.9X13.2X10.4	--	
C1	EXISTING	UMTS 850	7770	55X11X5	±280'	300°	(2)(G) POWERWAVE LGP 21901 (2) POWERWAVE LGP 21401	–	–	(2) 1-5/8" (325'±)	(P) (1) RAYCAP DC6-48-60-0-8C-EV
C2	EXISTING	LTE PCS	HPA-65R-BUU-H6	72X14.8X9	±280'	300°	--	(P) (1) B2/B66A 8843 (1900/AWS)	14.9X13.2X10.9	--	
C3	PROPOSED	LTE WCS	HPA-65R-BU6AA	71X11.7X7.6	±280'	300°	--	(P) (1) RRUS 32 (WCS)	27.2X12.1X7.0	--	
C4	PROPOSED	LTE 700 BC/850/AWS	800-10965	78.7X20X6.9	±280'	300°	--	(P) (1) B5/B12 4449 (850/700)	14.9X13.2X10.4	--	

FINAL ANTENNA SCHEDULE 3 A-3
SCALE: N.T.S



PROPOSED LTE ANTENNA & RRH MOUNTING DETAIL 1 A-3
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

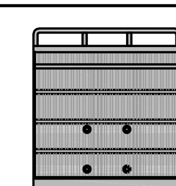
RRU CHART

QUANTITY	MODEL	L	W	D
3(P)	RRUS 32 (WCS)	27.2"	12.1"	7.0"
3(P)	B2/B66A 8843 (1900/AWS)	14.9"	13.2"	10.9"
3(P)	B5/B12 4449 (700/850/AWS)	14.9"	13.2"	10.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

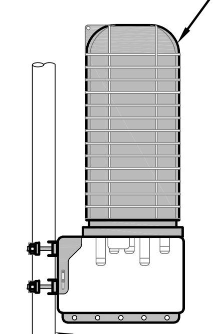
NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

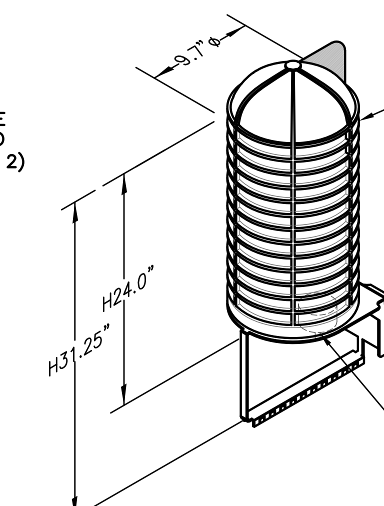


NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL 2 A-3
SCALE: N.T.S



PROPOSED SURGE ARRESTOR MOUNTING DETAIL 4 A-3
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL 5 A-3
SCALE: N.T.S

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STATE OF CONNECTICUT DEREK ... LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
(LTE 3C_4C_5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5663	A-3	1

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA–222–G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD–FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT–DIPPED ZINC–COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE–X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT–DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC–COATING (HOT–DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON–CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT–DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI–HIT HY–270 AND OR HY–200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF–S–325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE–EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL–OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC–ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318–11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318–11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325–X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	01/04/19	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 25[illegible] · LICENSED PROFESSIONAL ENGINEER

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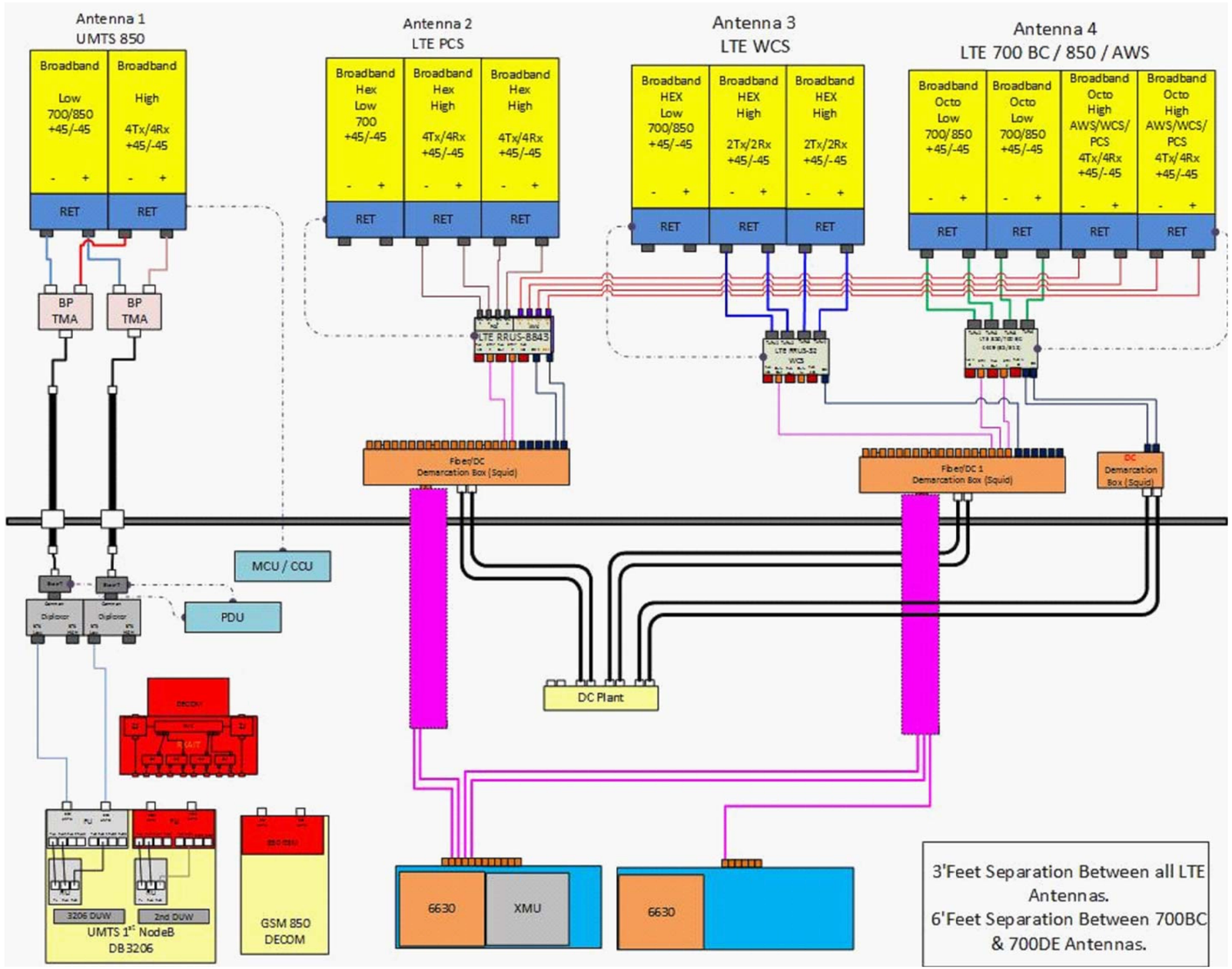
STRUCTURAL NOTES
(LTE 3C_4C_5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5663	SN–1	1



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

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.

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT · DEREK J. CREASER · 16,295 · LICENSED PROFESSIONAL ENGINEER

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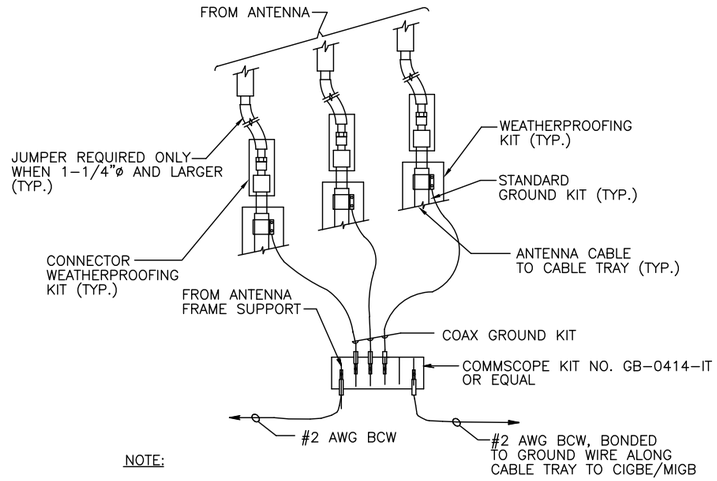
RF PLUMBING DIAGRAM
(LTE 3C_4C_5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5663	RF–1	1



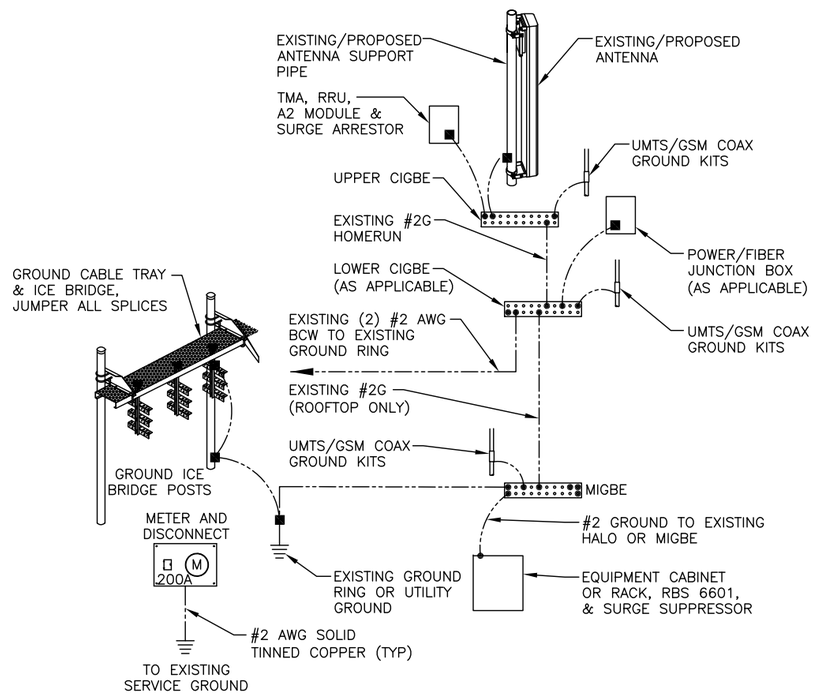
NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

1 / G-1

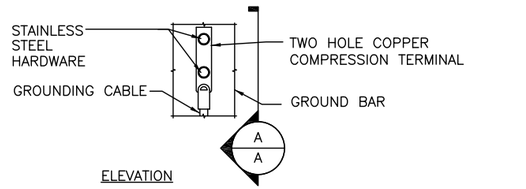
SCALE: N.T.S



GROUNDING RISER DIAGRAM

2 / G-1

SCALE: N.T.S



NOTE:

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

TYPICAL GROUND BAR CONNECTION DETAIL

3 / G-1

SCALE: N.T.S

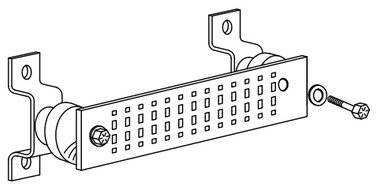
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL

4 / G-1

SCALE: N.T.S

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT5663
SITE NAME: HAMDEN - TALMADGE

360 GAYLORD MOUNTAIN ROAD
HAMDEN, CT 06518
NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	03/12/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	01/04/19	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT
DEREK J. CREASER
26,255
LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
(LTE 3C_4C_5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5663	G-1	1

Structural Analysis Report

Structure	**:** 625 Foot Guyed Tower
VB Site Name	**:** NHA-003-FM
VB Site Number	**:** US-CT-5004
Proposed Carrier	**:** AT&T
Carrier Site Name	**:** Hamden - Talmadge
Carrier Site Number	**:** CT5663
Site Location	**:** Approximately 6.9 Nm Southwest of Meriden-markham Airport (mmk) Meriden, CT 06450 (New Haven County) 41.4337, -72.9452
Date	**:** February 21, 2019
Max Member Stress Level	**:** 87%
Result	**:** **PASS**

Prepared by:

02/21/2019

VERTICAL BRIDGE ENGINEERING, LLC

750 Park of Commerce Drive Suite 200 | Boca Raton, FL 33487 | 561-948-6367
VerticalBridge.com

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Collocation Application ..... **Attached**

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by **AT&T**. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Paul J Ford and Company Tower Drawings Job No. 37700-30 dated February 23, 2001.
Foundation Information	Paul J Ford and Company Foundation Drawings Job No. 37700-30 dated February 23, 2001.
Geotechnical Information	Geotechnical Information was not available at time of analysis.
Existing Equipment Information	Vertical Bridge Collocation Application January 11, 2019.
Tower Reinforcement Information	Tower has not been previously reinforced.

Final Proposed Equipment Loading for AT&T

The following proposed loading was obtained from the Vertical Bridge Collocation Application:

Antenna/Equipment					Coax	
Mount (Ft.)	RAD (Ft.)	Qty.	Antenna	Type	Qty.	Size/Type
280.0	-	**3**	**Sabre C10857001C-MC**	Mount	**6** **2** **6**	**1-5/8" Coax** **3/8' Fiber** **3/4" DC Power**
	280.0	**3**	**Powerwave 7770**	Panel		
		2	**Andrew SBNHH-1D65A**	Panel		
		1	**Kathrein 800-10964**	Panel		
		2	**CCI HPA-65R-BUU-H6**	Panel		
		2	**CCI HPA-654-BU6AA**	Panel		
		2	**Kathrein 800-10965**	Panel		
		3	**Ericsson RRUS-32**	RRU		
		3	**Ericsson 8843 B2/B66A**	RRU		
		3	**Ericsson 4449 B5/B12**	RRU		
		6	**Powerwave LGP 21401**	TMA		
		3	**Raycap DC6-48-60-18-8C**	Squid		

Note: Proposed equipment shown in bold.
Note: Other existing loading can be found on the tower profile attached.
Note: (3) Powerwave 7770 Panels, (1) Andrew SBNHH-1065A Panel, (6) Powerwave 7020 RETs, (6) Powerwave LGP21901 Diplexers, (6) Powerwave LGP21401 TMAs, (6) Polyphaser 100860 TMAs, (3) Ericsson RRUS-11 RRUs, (1) Raycap DC6-48-60-18-8F Squid, (2) CCI HPA-65R-BUU-H6 Panels, (3) Ericsson RRUS-12 RRUs, (3) Ericsson RRUS-A2 RRUs , (6) 1-5/8" Coax, (2) #8 AWG DCs, (1) 1/4" Fiber, and (1) 1/2" Fiber are to be removed.

Design Criteria

The tower was analyzed using tnxTower (Version 8.0.5.0) tower analysis software using the following design criteria.

State	Connecticut
City / County Building Code	New Haven County (IBC 2015)
TIA/EIA Standard Code	TIA-222-G
Basic Wind Speed	123 MPH (V_{ult}) / 95 MPH (V_{asd})
Basic Wind Speed w/ Ice	50 MPH w/ 0.75" Ice
Steel Grade	50 ksi Legs / 36 ksi all other members / A325 Bolts
Exposure Category	C
Topographic Category (height)	1 (0.0 Ft.)
Risk Category	II

Analysis Results

Based on the foregoing information, our structural analysis determined that **the existing tower is structurally capable of supporting the proposed equipment loads without modification.** The tower base, inner, and outer anchor foundations have also been evaluated. The foundation reactions as a result of the proposed installation are less than the original design foundation reactions and as such **the existing foundation is considered to be structurally capable of supporting the proposed equipment loads. See calculations section.**

Assumptions

The below assumptions are true, complete, and accurate.

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Tower is within acceptable engineering tolerance at 105%
8. Foundations are within acceptable engineering tolerance at 110%.

Conclusions

The existing tower described above **does have sufficient capacity** to support the proposed loading based on the governing Building Code. The tower base, inner, and outer anchor foundations **have been evaluated and are acceptable**.

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance please call us anytime at 561-948-6367.

Sincerely,

Analysis by:

Jesse Wagner
Design Engineer

Reviewed by:

Michael T. De Boer, PE
Vice President of Structural Engineering

02/21/2019

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Vertical Bridge Engineering, LLC, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Vertical Bridge Engineering, LLC and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un- corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222-G requested.

All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Vertical Bridge Engineering LLC, is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Disclaimer of Warranties

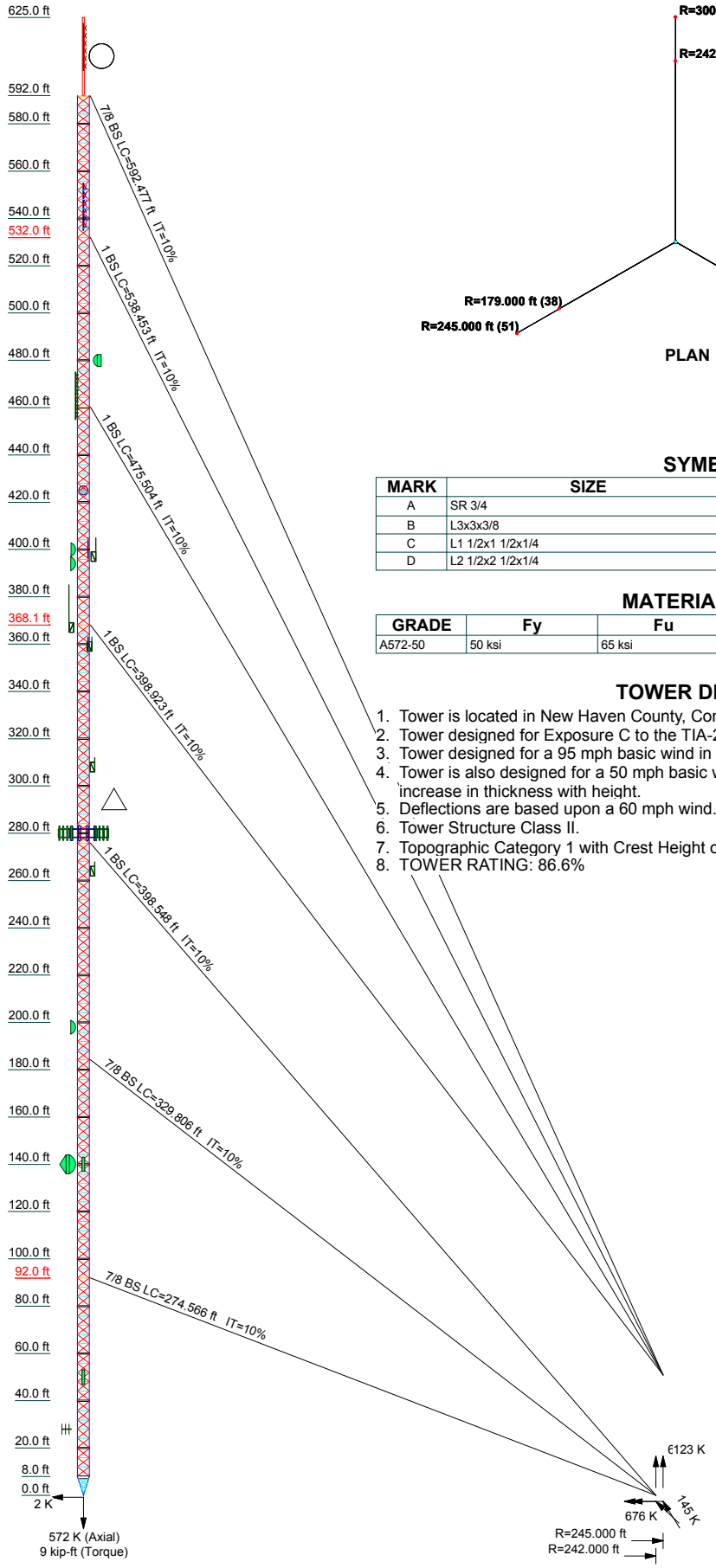
The engineering services by Vertical Bridge Engineering, LLC in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. Vertical Bridge Engineering, LLC does not analyze the fabrication, including welding, except as may be expressly included in this report.

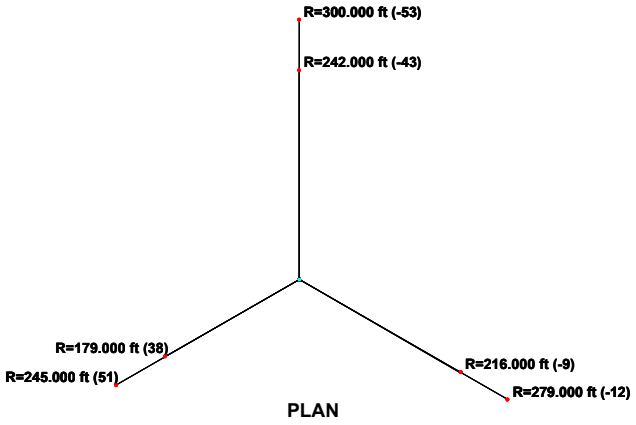
The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines. Any mention of structural modifications are reasonable estimates and should not be used a precise construction document. Precise modification drawings are obtainable from Vertical Bridge Engineering, LLC but are beyond the scope of this report.

Vertical Bridge Engineering, LLC makes no warranties, express or implied, in connection with this report and disclaims any liability arising from material, fabrication and erection of this tower, or installation and compliance with legal and permitting requirements of the proposed equipment. Vertical Bridge Engineering, LLC will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Vertical Bridge Engineering, LLC pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1:
Calculations

Section		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23	T24	T25	T26	T27	T28	T29	T30	T31
Legs		P10x.365	SR 2 1/4		SR 2 1/2			SR 3		SR 2 3/4					SR 3						SR 3 1/4							SR 3 1/2				
Leg Grade		A572-50																														
Diagonals	B	A	SR 5/8		SR 5/8			SR 3/4		SR 5/8			SR 7/8		SR 5/8			SR 3/4		SR 5/8		SR 7/8		SR 3/4		SR 5/8		SR 5/8				B
Diagonal Grade		N.A.									A36																					
Top Girts	E	N.A.						L2 1/2x2 1/2x3/16					C					L2 1/2x2 1/2x3/16				D				L2 1/2x2 1/2x3/16						E
Bottom Girts	F	N.A.			L2 1/2x2 1/2x3/16			N.A.		L2 1/2x2 1/2x3/16			D		L2 1/2x2 1/2x3/16			L2 1/2x2 1/2x3/16				D				L2 1/2x2 1/2x3/16						F
Horizontals	B	N.A.			L2 1/2x2 1/2x3/16			L2 1/2x2 1/2x3/16					D																			B
Top Guy Pull-Offs		6*1	N.A.		6*1	N.A.		6*1	N.A.				6*1	N.A.			6*1	N.A.			6*1					6*1	N.A.					
Face Width (ft)		5																														
# Panels @ (ft)		G	0.895833														140 @ 3.9															
Weight (K)	62.7	H	N.A.																												G	
	1.5	1.5	1.3	1.3	1.8	1.5	1.5	2.0	1.8	1.7	1.7	1.7	2.4	1.9	1.9	1.9	2.3	2.5	2.2	2.2	2.2	2.7	2.3	2.2	2.2	2.3	2.8	2.4	2.4	2.4	1.3	1.1





PLAN

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 3/4	E	C3x5
B	L3x3x3/8	F	12x3/8
C	L1 1/2x1 1/2x1/4	G	3 @ 3.83333
D	L2 1/2x2 1/2x1/4	H	4 @ 2.05556

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 95 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 86.6%

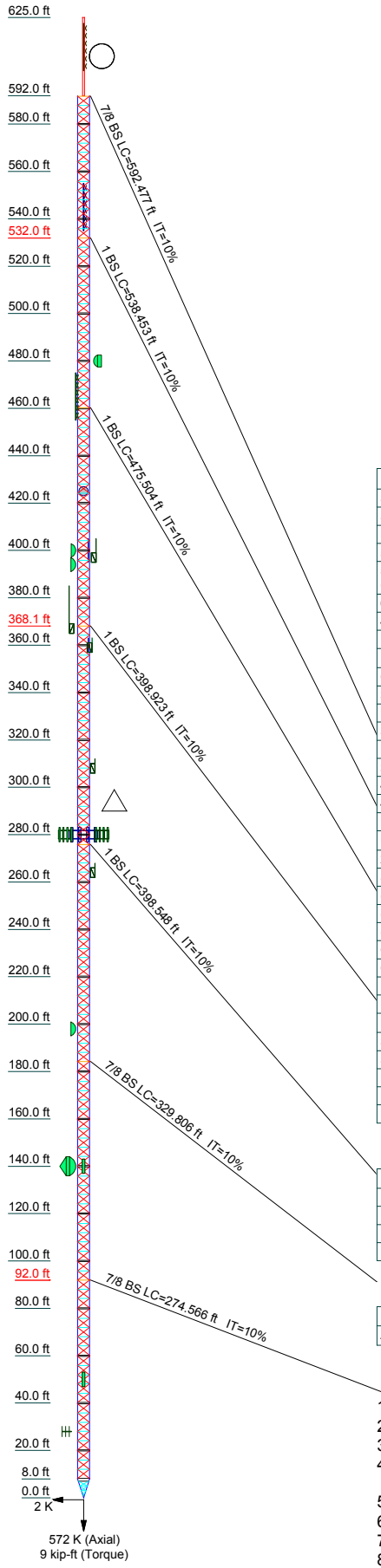
ALL REACTIONS ARE FACTORED

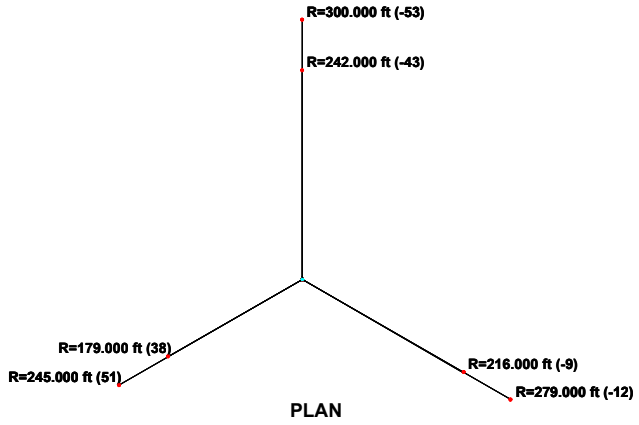
Vertical Bridge Engineering, LLC
750 Park of Commerce Dr. Suite 200
Boca Raton, FL 33487
Phone: 561-948-6367
FAX:

Job: ***US-CT-5004***		
Project: ***Guyed Tower Structural Analysis***		
Client:	Drawn by: Jesse Wagner	App'd:
Code: TIA-222-G	Date: 02/21/19	Scale: NTS
Path: C:\Users\jwagner.VBL\Desktop\VB\Operationals\US-CT-5004\US-CT-5004_SA_022119_ATT.eri		Dwg No. E-1

Section		L1	P10x.365	
Legs		T1	SR 2 1/4	
Leg Grade		T2	SR 2 1/2	
Diagonals	B	T3	SR 3/4	A
Diagonal Grade		T4	SR 5/8	N.A.
Top Girts	E	T5	L2 1/2x2 1/2x3/16	N.A.
Bottom Girts	F	T6	L2 1/2x2 1/2x3/16	N.A.
Horizontals	B	T7	L2 1/2x2 1/2x3/16	N.A.
Top Guy Pull-Offs		T8	6*1	N.A.
Face Width (ft)		T9	N.A.	5
# Panels @ (ft)	H	T10	140 @ 3.9	G
Weight (K)	62.7	T11	1.7	1.1
		T12	2.4	1.3
		T13	1.9	1.3
		T14	1.9	1.8
		T15	1.9	1.5
		T16	2.3	1.5
		T17	2.5	1.7
		T18	2.2	2.0
		T19	2.2	1.8
		T20	2.2	1.8
		T21	2.7	1.7
		T22	2.3	1.7
		T23	2.2	1.7
		T24	2.2	2.4
		T25	2.3	2.4
		T26	2.8	2.4
		T27	2.4	2.4
		T28	2.4	2.4
		T29	2.4	2.4
		T30	1.5	1.5
		T31	1.5	1.5

Section		L1	P10x.365	
Legs		T1	SR 3 1/4	
Leg Grade		T2	SR 3	
Diagonals	B	T3	SR 3/4	A
Diagonal Grade		T4	SR 5/8	N.A.
Top Girts	D	T5	L2 1/2x2 1/2x3/16	N.A.
Bottom Girts	D	T6	L2 1/2x2 1/2x3/16	N.A.
Horizontals	D	T7	L2 1/2x2 1/2x3/16	N.A.
Top Guy Pull-Offs		T8	6*1	N.A.
Face Width (ft)		T9	N.A.	5
# Panels @ (ft)	H	T10	140 @ 3.9	G
Weight (K)	62.7	T11	1.7	1.1
		T12	2.4	1.3
		T13	1.9	1.3
		T14	1.9	1.8
		T15	1.9	1.5
		T16	2.3	1.5
		T17	2.5	1.7
		T18	2.2	2.0
		T19	2.2	1.8
		T20	2.2	1.8
		T21	2.7	1.7
		T22	2.3	1.7
		T23	2.2	1.7
		T24	2.2	2.4
		T25	2.3	2.4
		T26	2.8	2.4
		T27	2.4	2.4
		T28	2.4	2.4
		T29	2.4	2.4
		T30	1.5	1.5
		T31	1.5	1.5





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
SHPX-4AC (iHeart Media)	612.5	Kathrein 800-10965K (78.7x20x6.9) (ATI)	280
SHP-2AE (iHeart Media)	545	Kathrein 800-10965K (78.7x20x6.9) (ATI)	280
ERI ALP8L1-HSB-34 (Tyche Media)	540 - 520	RRUS 32 (ATI)	280
5' Stand Off (Tyche Media)	520	RRUS 32 (ATI)	280
5' HP Dish (230lbs 24.77CaAa) (Unknown)	480	RRUS 32 (ATI)	280
6810 (Office Radio)	465	Ericsson 8843 B2/B66 (14.9x13.2x10.9) (ATI)	280
4' Dish w/o Radome (iHeart Media)	425	Ericsson 8843 B2/B66 (14.9x13.2x10.9) (ATI)	280
14' Omni (iHeart Media)	400	Ericsson 8843 B2/B66 (14.9x13.2x10.9) (ATI)	280
14' Omni (Unknown)	400	Ericsson 4449 B5/B12 (17.9x13.2x9.4) (ATI)	280
CMA-B/6519/E0-8 (Unknown)	400	Ericsson 4449 B5/B12 (17.9x13.2x9.4) (ATI)	280
3' x 4' Side Arm (Unknown)	400	Ericsson 4449 B5/B12 (17.9x13.2x9.4) (ATI)	280
MRC Proscann III (Meridith)	400	Kathrein 800-10964 (59x20x6.9) (ATI)	280
Scala PR450 (iHeart Media)	394	CCI HPA-65R-BU6AA (71.1x11.7x7.6) (ATI)	280
PD220 (MCLM)	375	CCI HPA-65R-BU6AA (71.1x11.7x7.6) (ATI)	280
3' Stand-off (MCLM)	375	20"*3" Omni (40lbs) (iHeart Media)	255
4' Omni (Unknown)	360	3' Side Arm (Unknown)	198
4' Omni (Unknown)	360	Scala PR450 (iHeart Media)	198
Beacon (10lbs 0.5CaAa) (Tower)	310	Beacon (10lbs 0.5CaAa) (Tower)	159
Beacon (10lbs 0.5CaAa) (Tower)	310	Beacon (10lbs 0.5CaAa) (Tower)	159
20"*3" Omni (40lbs) (iHeart Media)	299	Beacon (10lbs 0.5CaAa) (Tower)	159
Sabre C10857001C-MC (ATI)	280	8' Dish w/ Radome (Meridith)	140
(2) LGP21401 (ATI)	280	Pelco Camera (Meridith)	140
(2) LGP21401 (ATI)	280	AWS (Earth Network)	50
(2) LGP21401 (ATI)	280	Scala FM10 yagi (Office Radio)	28
CCI HPA-65R-BUU-H6 (ATI)	280		
CCI HPA-65R-BUU-H6 (ATI)	280		
Powerwave 7770 (55x11x5) (ATI)	280		
Powerwave 7770 (55x11x5) (ATI)	280		
Powerwave 7770 (55x11x5) (ATI)	280		
SBNHH-1D65A w/ Mount Pipe (ATI)	280		
SBNHH-1D65A w/ Mount Pipe (ATI)	280		
DC6-48-60-18-8C (ATI)	280		
DC6-48-60-18-8C (ATI)	280		
DC6-48-60-18-8C (ATI)	280		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 3/4	E	C3x5
B	L3x3x3/8	F	12x3/8
C	L1 1/2x1 1/2x1/4	G	3 @ 3.83333
D	L2 1/2x2 1/2x1/4	H	4 @ 2.05556

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 95 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 86.6%

676 K

ALL REACTIONS ARE FACTORED

Vertical Bridge Engineering, LLC
750 Park of Commerce Dr. Suite 200
Boca Raton, FL 33487
Phone: 561-948-6367
FAX:

Job: **US-CT-5004**		
Project: ***Guyed Tower Structural Analysis***		
Client:	Drawn by: Jesse Wagner	App'd:
Code: TIA-222-G	Date: 02/21/19	Scale: NTS
Path: C:\Users\jwagner.VBL\Desktop\VB\Operationals\US-CT-5004\US-CT-5004_SA_022119_ATT.eri		Dwg No. E-1

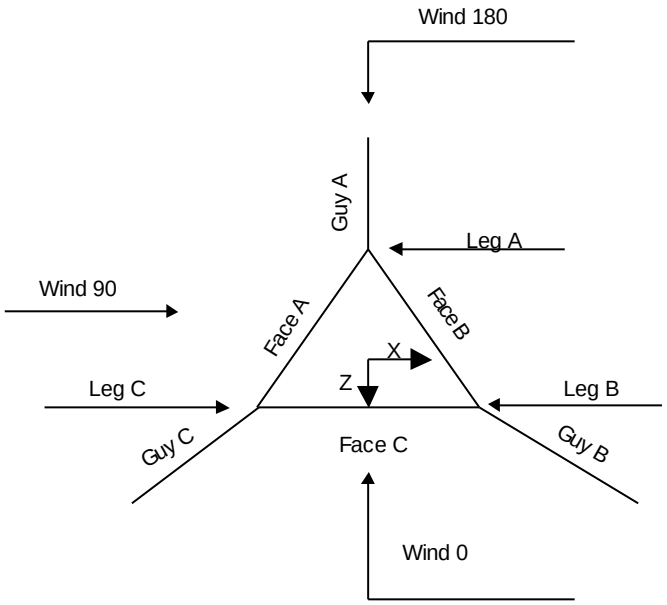
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 625.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 5.000 ft at the top and tapered at the base.
An index plate is provided at the 3x guyed -tower connection.
There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 95 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
Tension only take-up is 0.0313 in.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice		Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
√	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Corner & Starmount Guyed Tower

Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Pole Size*	*Pole Grade*	*Socket Length* *ft*
L1	625.000-592.000	33.000	P10x.365	A572-50 (50 ksi)	

Tower Elevation *ft*	*Gusset Area (per face)* ft^2	*Gusset Thickness* *in*	*Gusset Grade*	*Adjust. Factor* A_f	*Adjust. Factor* A_r	*Weight Mult.*	*Double Angle Stitch Bolt Spacing Diagonals* *in*	*Double Angle Stitch Bolt Spacing Horizontals* *in*	*Double Angle Stitch Bolt Spacing Redundants* *in*
L1 625.000-592.000				1	1	1			

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	592.000-580.000			5.000	1	12.000
T2	580.000-560.000			5.000	1	20.000
T3	560.000-540.000			5.000	1	20.000
T4	540.000-520.000			5.000	1	20.000
T5	520.000-500.000			5.000	1	20.000
T6	500.000-480.000			5.000	1	20.000
T7	480.000-460.000			5.000	1	20.000
T8	460.000-440.000			5.000	1	20.000
T9	440.000-420.000			5.000	1	20.000
T10	420.000-400.000			5.000	1	20.000
T11	400.000-380.000			5.000	1	20.000
T12	380.000-360.000			5.000	1	20.000
T13	360.000-340.000			5.000	1	20.000
T14	340.000-320.000			5.000	1	20.000
T15	320.000-300.000			5.000	1	20.000
T16	300.000-280.000			5.000	1	20.000
T17	280.000-260.000			5.000	1	20.000
T18	260.000-240.000			5.000	1	20.000
T19	240.000-220.000			5.000	1	20.000
T20	220.000-200.000			5.000	1	20.000
T21	200.000-180.000			5.000	1	20.000
T22	180.000-160.000			5.000	1	20.000
T23	160.000-140.000			5.000	1	20.000
T24	140.000-120.000			5.000	1	20.000
T25	120.000-100.000			5.000	1	20.000
T26	100.000-80.000			5.000	1	20.000
T27	80.000-60.000			5.000	1	20.000
T28	60.000-40.000			5.000	1	20.000
T29	40.000-20.000			5.000	1	20.000
T30	20.000-8.000			5.000	1	12.000
T31	8.000-0.000			5.000	1	8.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	592.000-580.000	3.833	TX Brace	No	Yes	3.0000	3.0000
T2	580.000-560.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T3	560.000-540.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T4	540.000-520.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T5	520.000-500.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T6	500.000-480.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T7	480.000-460.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T8	460.000-440.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T9	440.000-420.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T10	420.000-400.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T11	400.000-380.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T12	380.000-360.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T13	360.000-340.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T14	340.000-320.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T15	320.000-300.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T16	300.000-280.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T17	280.000-260.000	3.900	TX Brace	No	Yes	3.0000	3.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T18	260.000-240.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T19	240.000-220.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T20	220.000-200.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T21	200.000-180.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T22	180.000-160.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T23	160.000-140.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T24	140.000-120.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T25	120.000-100.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T26	100.000-80.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T27	80.000-60.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T28	60.000-40.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T29	40.000-20.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T30	20.000-8.000	3.833	TX Brace	No	Yes	3.0000	3.0000
T31	8.000-0.000	2.056	X Brace	No	Yes	11.0000	11.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 592.000-580.000	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T2 580.000-560.000	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 560.000-540.000	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T4 540.000-520.000	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T5 520.000-500.000	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T6 500.000-480.000	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T7 480.000-460.000	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T8 460.000-440.000	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T9 440.000-420.000	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T10 420.000-400.000	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T11 400.000-380.000	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T12 380.000-360.000	Solid Round	3	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T13 360.000-340.000	Solid Round	3	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T14 340.000-320.000	Solid Round	3	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T15 320.000-300.000	Solid Round	3	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T16 300.000-280.000	Solid Round	3 1/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T17 280.000-260.000	Solid Round	3 1/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T18 260.000-240.000	Solid Round	3 1/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T19	Solid Round	3 1/4	A572-50	Solid Round	5/8	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
240.000-220.000			(50 ksi)			(36 ksi)
T20	Solid Round	3 1/4	A572-50	Solid Round	5/8	A36
220.000-200.000			(50 ksi)			(36 ksi)
T21	Solid Round	3 1/4	A572-50	Solid Round	7/8	A36
200.000-180.000			(50 ksi)			(36 ksi)
T22	Solid Round	3 1/4	A572-50	Solid Round	3/4	A36
180.000-160.000			(50 ksi)			(36 ksi)
T23	Solid Round	3 1/4	A572-50	Solid Round	5/8	A36
160.000-140.000			(50 ksi)			(36 ksi)
T24	Solid Round	3 1/4	A572-50	Solid Round	5/8	A36
140.000-120.000			(50 ksi)			(36 ksi)
T25	Solid Round	3 1/4	A572-50	Solid Round	3/4	A36
120.000-100.000			(50 ksi)			(36 ksi)
T26	Solid Round	3 1/2	A572-50	Solid Round	3/4	A36
100.000-80.000			(50 ksi)			(36 ksi)
T27	Solid Round	3 1/2	A572-50	Solid Round	5/8	A36
80.000-60.000			(50 ksi)			(36 ksi)
T28	Solid Round	3 1/2	A572-50	Solid Round	5/8	A36
60.000-40.000			(50 ksi)			(36 ksi)
T29	Solid Round	3 1/2	A572-50	Solid Round	5/8	A36
40.000-20.000			(50 ksi)			(36 ksi)
T30 20.000-8.000	Solid Round	3 1/2	A572-50	Solid Round	5/8	A36
			(50 ksi)			(36 ksi)
T31 8.000-0.000	Solid Round	3 1/2	A572-50	Single Angle	L3x3x3/8	A36
			(50 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
592.000-580.000			(36 ksi)			(36 ksi)
T2	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
580.000-560.000			(36 ksi)			(36 ksi)
T3	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
560.000-540.000			(36 ksi)			(36 ksi)
T4	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
540.000-520.000			(36 ksi)			(36 ksi)
T5	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
520.000-500.000			(36 ksi)			(36 ksi)
T6	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
500.000-480.000			(36 ksi)			(36 ksi)
T7	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
480.000-460.000			(36 ksi)			(36 ksi)
T8	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
460.000-440.000			(36 ksi)			(36 ksi)
T9	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
440.000-420.000			(36 ksi)			(36 ksi)
T10	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
420.000-400.000			(36 ksi)			(36 ksi)
T11	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
400.000-380.000			(36 ksi)			(36 ksi)
T12	Equal Angle	L1 1/2x1 1/2x1/4	A36	Equal Angle	L2 1/2x2 1/2x1/4	A36
380.000-360.000			(36 ksi)			(36 ksi)
T13	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
360.000-340.000			(36 ksi)			(36 ksi)
T14 340.000-320.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T15 320.000-300.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T16 300.000-280.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T17 280.000-260.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T18 260.000-240.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T19 240.000-220.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T20 220.000-200.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T21 200.000-180.000	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T22 180.000-160.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T23 160.000-140.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T24 140.000-120.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T25 120.000-100.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T26 100.000-80.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T27 80.000-60.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T28 60.000-40.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T29 40.000-20.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T30 20.000-8.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T31 8.000-0.000	Channel	C3x5	A36 (36 ksi)	Flat Bar	12x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 592.000-580.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T2 580.000-560.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T3 560.000-540.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T4 540.000-520.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 520.000-500.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T6 500.000-480.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T7 480.000-460.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T8 460.000-440.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T9 440.000-420.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T10 420.000-400.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T11 400.000-380.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T12 380.000-360.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T13 360.000-340.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T14 340.000-320.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T15 320.000-300.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T16 300.000-280.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T17 280.000-260.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T18 260.000-240.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T19 240.000-220.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T20 220.000-200.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T21 200.000-180.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T22 180.000-160.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T23 160.000-140.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T24 140.000-120.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T25 120.000-100.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T26 100.000-80.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T27 80.000-60.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T28 60.000-40.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T29 40.000-20.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T30 20.000-8.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T31 8.000-0.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3x3x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*Gusset Area (per face)* *ft²*	*Gusset Thickness* *in*	*Gusset Grade*	*Adjust. Factor A_f*	*Adjust. Factor A_r*	*Weight Mult.*	*Double Angle Stitch Bolt Spacing Diagonals* *in*	*Double Angle Stitch Bolt Spacing Horizontals* *in*	*Double Angle Stitch Bolt Spacing Redundants* *in*
T1 592.000-580.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 580.000-560.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 560.000-540.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 540.000-520.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 520.000-500.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 500.000-480.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 480.000-460.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 460.000-440.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 440.000-420.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 420.000-400.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 400.000-380.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T12 380.000-360.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T13 360.000-340.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T14 340.000-320.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T15 320.000-300.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T16 300.000-280.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T17 280.000-260.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T18 260.000-240.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T19 240.000-220.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T20 220.000-200.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
00									
T21 200.000-180.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T22 180.000-160.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T23 160.000-140.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T24 140.000-120.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T25 120.000-100.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T26 100.000-80.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T27 80.000-60.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T28 60.000-40.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T29 40.000-20.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T30 20.000-8.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T31 8.000-0.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 592.000-580.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 580.000-560.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 560.000-540.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 540.000-520.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 520.000-500.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 500.000-480.0	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
00										
T7	Yes	Yes	1	1	1	1	1	1	1	1
480.000-460.0				1	1	1	1	1	1	1
00										
T8	Yes	Yes	1	1	1	1	1	1	1	1
460.000-440.0				1	1	1	1	1	1	1
00										
T9	Yes	Yes	1	1	1	1	1	1	1	1
440.000-420.0				1	1	1	1	1	1	1
00										
T10	Yes	Yes	1	1	1	1	1	1	1	1
420.000-400.0				1	1	1	1	1	1	1
00										
T11	Yes	Yes	1	1	1	1	1	1	1	1
400.000-380.0				1	1	1	1	1	1	1
00										
T12	Yes	Yes	1	1	1	1	1	1	1	1
380.000-360.0				1	1	1	1	1	1	1
00										
T13	Yes	Yes	1	1	1	1	1	1	1	1
360.000-340.0				1	1	1	1	1	1	1
00										
T14	Yes	Yes	1	1	1	1	1	1	1	1
340.000-320.0				1	1	1	1	1	1	1
00										
T15	Yes	Yes	1	1	1	1	1	1	1	1
320.000-300.0				1	1	1	1	1	1	1
00										
T16	Yes	Yes	1	1	1	1	1	1	1	1
300.000-280.0				1	1	1	1	1	1	1
00										
T17	Yes	Yes	1	1	1	1	1	1	1	1
280.000-260.0				1	1	1	1	1	1	1
00										
T18	Yes	Yes	1	1	1	1	1	1	1	1
260.000-240.0				1	1	1	1	1	1	1
00										
T19	Yes	Yes	1	1	1	1	1	1	1	1
240.000-220.0				1	1	1	1	1	1	1
00										
T20	Yes	Yes	1	1	1	1	1	1	1	1
220.000-200.0				1	1	1	1	1	1	1
00										
T21	Yes	Yes	1	1	1	1	1	1	1	1
200.000-180.0				1	1	1	1	1	1	1
00										
T22	Yes	Yes	1	1	1	1	1	1	1	1
180.000-160.0				1	1	1	1	1	1	1
00										
T23	Yes	Yes	1	1	1	1	1	1	1	1
160.000-140.0				1	1	1	1	1	1	1
00										
T24	Yes	Yes	1	1	1	1	1	1	1	1
140.000-120.0				1	1	1	1	1	1	1
00										
T25	Yes	Yes	1	1	1	1	1	1	1	1
120.000-100.0				1	1	1	1	1	1	1
00										

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T26	Yes	Yes	1	1	1	1	1	1	1	1
100.000-80.000				1	1	1	1	1	1	1
T27	Yes	Yes	1	1	1	1	1	1	1	1
80.000-60.000				1	1	1	1	1	1	1
T28	Yes	Yes	1	1	1	1	1	1	1	1
60.000-40.000				1	1	1	1	1	1	1
T29	Yes	Yes	1	1	1	1	1	1	1	1
40.000-20.000				1	1	1	1	1	1	1
T30	Yes	Yes	1	1	1	1	1	1	1	1
20.000-8.000				1	1	1	1	1	1	1
T31	Yes	Yes	1	1	1	1	1	1	1	1
8.000-0.000				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
592.000-580.000														
T2	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
580.000-560.000														
T3	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
560.000-540.000														
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
540.000-520.000														
T5	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
520.000-500.000														
T6	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
500.000-480.000														
T7	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
480.000-460.000														
T8	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
460.000-440.000														
T9	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
440.000-420.000														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T10 420.000-400.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 400.000-380.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 380.000-360.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 360.000-340.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 340.000-320.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 320.000-300.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 300.000-280.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 280.000-260.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T18 260.000-240.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T19 240.000-220.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T20 220.000-200.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T21 200.000-180.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T22 180.000-160.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T23 160.000-140.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T24 140.000-120.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T25 120.000-100.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T26 100.000-80.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T27 80.000-60.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T28 60.000-40.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T29 40.000-20.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T30 20.000-8.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T31 8.000-0.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 592.000-580.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 580.000-560.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 560.000-540.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 540.000-520.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 520.000-500.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 500.000-480.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 480.000-460.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 460.000-440.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 440.000-420.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 420.000-400.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 400.000-380.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 380.000-360.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 360.000-340.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T14 340.000-320.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T15 320.000-300.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T16 300.000-280.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T17 280.000-260.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T18 260.000-240.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T19 240.000-220.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T20 220.000-200.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T21 200.000-180.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T22 180.000-160.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T23 160.000-140.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T24 140.000-120.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T25 120.000-100.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T26 100.000-80.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T27 80.000-60.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T28 60.000-40.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T29 40.000-20.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T30 20.000-8.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T31 8.000-0.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
591.75	BS	A	7/8	9.200	10%	24000.000	1.610	709.361	300.000	0.0000	-53.000	100%
		B	7/8	9.200	10%	24000.000	1.610	663.367	279.000	0.0000	-12.000	100%
		C	7/8	9.200	10%	24000.000	1.610	592.000	245.000	0.0000	51.000	100%
531.95	BS	A	1	12.200	10%	24000.000	2.100	655.563	300.000	0.0000	-53.000	100%
		B	1	12.200	10%	24000.000	2.100	609.528	279.000	0.0000	-12.000	100%
		C	1	12.200	10%	24000.000	2.100	538.014	245.000	0.0000	51.000	100%
460.25	BS	A	1	12.200	10%	24000.000	2.100	592.580	300.000	0.0000	-53.000	100%
		B	1	12.200	10%	24000.000	2.100	546.611	279.000	0.0000	-12.000	100%
		C	1	12.200	10%	24000.000	2.100	475.120	245.000	0.0000	51.000	100%
368.05	BS	A	1	12.200	10%	24000.000	2.100	514.925	300.000	0.0000	-53.000	100%
		B	1	12.200	10%	24000.000	2.100	469.393	279.000	0.0000	-12.000	100%
		C	1	12.200	10%	24000.000	2.100	398.603	245.000	0.0000	51.000	100%
275.85	BS	A	1	12.200	10%	24000.000	2.100	398.228	242.000	0.0000	-43.000	100%
		B	1	12.200	10%	24000.000	2.100	355.459	216.000	0.0000	-9.000	100%
		C	1	12.200	10%	24000.000	2.100	295.709	179.000	0.0000	38.000	100%
184.15	BS	A	7/8	9.200	10%	24000.000	1.610	329.549	242.000	0.0000	-43.000	100%
		B	7/8	9.200	10%	24000.000	1.610	287.390	216.000	0.0000	-9.000	100%
		C	7/8	9.200	10%	24000.000	1.610	228.673	179.000	0.0000	38.000	100%
91.95	BS	A	7/8	9.200	10%	24000.000	1.610	274.354	242.000	0.0000	-43.000	100%
		B	7/8	9.200	10%	24000.000	1.610	235.629	216.000	0.0000	-9.000	100%
		C	7/8	9.200	10%	24000.000	1.610	184.044	179.000	0.0000	38.000	100%

Guy Data*(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
591.75	Corner						
531.95	Corner						
460.25	Corner						
368.05	Corner						
275.85	Corner						
184.15	Corner						
91.95	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
591.750	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
531.950	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
460.250	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
368.050	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
275.850	A572-50	Solid Round			No	A572-50	Flat Bar	6*1

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
	(50 ksi)					(50 ksi)		
184.150	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
91.950	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
591.75	1.142	1.068	0.953		41.726 11.2 sec/pulse	36.613 10.4 sec/pulse	29.311 9.3 sec/pulse	
531.95	1.377	1.280	1.130		35.255 10.3 sec/pulse	30.579 9.5 sec/pulse	23.948 8.4 sec/pulse	
460.25	1.244	1.148	0.998		28.976 9.3 sec/pulse	24.738 8.6 sec/pulse	18.787 7.5 sec/pulse	
368.05	1.081	0.986	0.837		22.047 8.1 sec/pulse	18.382 7.4 sec/pulse	13.325 6.3 sec/pulse	
275.85	0.836	0.746	0.621		13.298 6.3 sec/pulse	10.625 5.6 sec/pulse	7.382 4.7 sec/pulse	
184.15	0.531	0.463	0.368		9.327 5.3 sec/pulse	7.114 4.6 sec/pulse	4.522 3.7 sec/pulse	
91.95	0.442	0.379	0.296		6.516 4.4 sec/pulse	4.820 3.8 sec/pulse	2.953 3.0 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
591.75	No	No			1	1	1	1
531.95	No	No			1	1	1	1
460.25	No	No			1	1	1	1
368.05	No	No			1	1	1	1
275.85	No	No			1	1	1	1
184.15	No	No			1	1	1	1
91.95	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
591.75	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
531.95	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
460.25	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
368.05	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
275.85	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
184.15	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
91.95	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
591.75	A	269.375	0.031	0.008	1.8504
	B	289.875	0.031	0.009	1.8641
	C	321.375	0.032	0.009	1.8834
531.95	A	239.475	0.030	0.008	1.8288
	B	259.975	0.030	0.008	1.8439
	C	291.475	0.031	0.009	1.8651
460.25	A	203.625	0.029	0.008	1.7994
	B	224.125	0.029	0.008	1.8167
	C	255.625	0.030	0.008	1.8408
368.05	A	157.525	0.027	0.008	1.7538
	B	178.025	0.028	0.008	1.7754
	C	209.525	0.029	0.008	1.8045
275.85	A	116.425	0.026	0.007	1.7015
	B	133.425	0.026	0.007	1.7249
	C	156.925	0.027	0.008	1.7531
184.15	A	70.575	0.023	0.006	1.6185
	B	87.575	0.024	0.007	1.6538
	C	111.075	0.025	0.007	1.6936
91.95	A	24.475	0.018	0.005	1.4558
	B	41.475	0.021	0.006	1.5347
	C	64.975	0.023	0.006	1.6051

Guy-Tensioning Information

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension K	0 F Intercept ft	20 F Initial Tension K	20 F Intercept ft	40 F Initial Tension K	40 F Intercept ft	60 F Initial Tension K	60 F Intercept ft	80 F Initial Tension K	80 F Intercept ft	100 F Initial Tension K	100 F Intercept ft	120 F Initial Tension K	120 F Intercept ft
591.75	A	297.11	644.75	9.824	39.19	9.613	40.01	9.406	40.86	9.200	41.73	8.997	42.62	8.796	43.55	8.599	44.50
	B	276.11	603.75	9.830	34.36	9.618	35.09	9.408	35.84	9.200	36.61	8.994	37.41	8.791	38.24	8.591	39.09
	C	242.11	540.75	9.830	27.50	9.618	28.08	9.408	28.69	9.200	29.31	8.994	29.96	8.790	30.62	8.587	31.31
531.95	A	297.11	584.95	13.162	32.78	12.837	33.57	12.517	34.40	12.200	35.26	11.888	36.14	11.580	37.06	11.277	38.01
	B	276.11	543.95	13.190	28.37	12.859	29.07	12.524	29.82	12.200	30.58	11.880	31.37	11.565	32.19	11.254	33.04
	C	242.11	480.95	13.202	22.19	12.865	22.75	12.531	23.34	12.200	23.95	11.873	24.58	11.549	25.25	11.230	25.94
460.25	A	297.11	513.25	13.378	26.51	12.980	27.30	12.587	28.12	12.200	28.98	11.820	29.87	11.447	30.81	11.081	31.78

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension K	0 F Intercept ft	20 F Initial Tension K	20 F Intercept ft	40 F Initial Tension K	40 F Intercept ft	60 F Initial Tension K	60 F Intercept ft	80 F Initial Tension K	80 F Intercept ft	100 F Initial Tension K	100 F Intercept ft	120 F Initial Tension K	120 F Intercept ft
	B	276.11	472.25	13.423	22.56	13.009	23.25	12.602	23.98	12.200	24.74	11.805	25.54	11.416	26.37	11.035	27.25
	C	242.11	409.25	13.487	17.04	13.053	17.59	12.624	18.17	12.200	18.79	11.782	19.43	11.370	20.11	10.965	20.83
368.05	A	297.11	421.05	13.765	19.61	13.233	20.37	12.711	21.19	12.200	22.05	11.700	22.96	11.213	23.92	10.739	24.94
	B	276.11	380.05	13.864	16.23	13.299	16.90	12.744	17.62	12.200	18.38	11.667	19.20	11.148	20.06	10.643	20.98
	C	242.11	317.05	14.036	11.62	13.414	12.14	12.802	12.71	12.200	13.33	11.610	13.99	11.033	14.70	10.471	15.46
275.85	A	239.11	318.85	13.998	11.62	13.390	12.14	12.790	12.70	12.200	13.30	11.621	13.94	11.055	14.64	10.503	15.39
	B	213.11	284.85	14.034	9.26	13.415	9.68	12.803	10.13	12.200	10.62	11.606	11.16	11.023	11.73	10.453	12.36
	C	176.11	237.85	14.063	6.42	13.437	6.71	12.815	7.03	12.200	7.38	11.592	7.76	10.993	8.18	10.403	8.63
184.15	A	239.11	227.15	11.217	7.67	10.531	8.17	9.858	8.71	9.200	9.33	8.562	10.01	7.947	10.77	7.360	11.61
	B	213.11	193.15	11.352	5.78	10.622	6.17	9.904	6.62	9.200	7.11	8.515	7.68	7.852	8.31	7.217	9.03
	C	176.11	146.15	11.592	3.60	10.784	3.86	9.985	4.17	9.200	4.52	8.431	4.93	7.684	5.40	6.965	5.95
91.95	A	239.11	134.95	12.131	4.95	11.128	5.40	10.149	5.91	9.200	6.52	8.292	7.22	7.436	8.04	6.646	8.98
	B	213.11	100.95	12.431	3.57	11.330	3.92	10.250	4.33	9.200	4.82	8.192	5.41	7.240	6.11	6.363	6.95
	C	176.11	53.95	12.921	2.10	11.660	2.33	10.417	2.61	9.200	2.95	8.024	3.38	6.908	3.93	5.884	4.61

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
3" Coax (iHeart Media)	C	No	No	Ar (CaAa)	590.000 - 8.000	0.5000	0	1	1	0.0000	3.0100		0.002
3" Coax (iHeart Media)	A	No	No	Ar (CaAa)	550.000 - 8.000	0.5000	0.25	1	1	0.0000	3.0100		0.002
5/8" Coax (Unknown)	A	No	No	Ar (CaAa)	225.000 - 8.000	0.5000	0.19	1	1	0.0000	0.7700		0.001
LDF5-50A (7/8" FOAM) (iHeart Media)	A	No	No	Ar (CaAa)	198.000 - 8.000	0.5000	0.16	3	3	0.0000	0.8750		0.000
LDF5-50A (7/8" FOAM) (iHeart Media)	A	No	No	Ar (CaAa)	400.000 - 198.000	0.5000	0.16	2	2	0.0000	0.8750		0.000
LDF5-50A (7/8" FOAM) (Unknown)	A	No	No	Ar (CaAa)	395.000 - 8.000	0.5000	0.13	1	1	0.0000	0.8750		0.000
LDF5-50A (7/8" FOAM) (Unknown)	A	No	No	Ar (CaAa)	353.000 - 8.000	0.5000	0.1	1	1	0.0000	0.8750		0.000
LDF5-50A (7/8" FOAM) (Unknown)	A	No	No	Ar (CaAa)	348.000 - 8.000	0.5000	0.07	1	1	0.0000	0.8750		0.000
LDF5-50A (7/8" FOAM) (Unknown)	A	No	No	Ar (CaAa)	300.000 - 8.000	0.5000	0.16	1	1	0.0000	0.8750		0.000
LDF5-50A (7/8" FOAM) (Unknown)	A	No	No	Ar (CaAa)	250.000 - 8.000	0.5000	0.35	1	1	0.0000	0.8750		0.000
LDF5-50A (7/8" FOAM) (Unknown)	A	No	No	Ar (CaAa)	200.000 - 8.000	0.5000	0.37	1	1	0.0000	0.8750		0.000
CAT5-E (1/4") (Unknown)	B	No	No	Ar (CaAa)	592.000 - 8.000	0.0000	0.48	12	4	0.0000	0.2500		0.000
LDF4-50A(1/2") Synflex Tubing (Earth Network)	C	No	No	Ar (CaAa)	50.000 - 8.000	0.0000	-0.2	3	3	0.0000	0.6300		0.000

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
LDF7-50A(1-5/8") (Meridith)	C	No	No	Ar (CaAa)	140.000 - 8.000	0.0000	-0.3	2	2	0.0000	1.9800		0.001
CAT6-Shielded Cable (Meridith)	C	No	No	Ar (CaAa)	140.000 - 8.000	0.0000	-0.35	1	1	0.0000	0.2500		0.000
LDF7-50A(1-5/8") (Meridith)	C	No	No	Ar (CaAa)	400.000 - 140.000	0.0000	-0.4	1	1	0.0000	1.9800		0.001
LDF5-50A(7/8") (MCLM)	C	No	No	Ar (CaAa)	375.000 - 8.000	0.0000	-0.45	1	1	0.0000	1.0900		0.000
LDF5-50A(7/8") (Office Radio)	B	No	No	Ar (CaAa)	465.000 - 8.000	0.0000	-0.2	1	1	0.0000	1.0900		0.000
LDF2-50A(3/8") (Office Radio)	B	No	No	Ar (CaAa)	28.000 - 8.000	0.0000	-0.25	1	1	0.0000	0.4400		0.000
4" Flex (Tyche)	B	No	No	Ar (CaAa)	520.000 - 8.000	0.0000	-0.35	1	1	0.0000	4.0000		0.000
LDF7-50A (1 5/8 FOAM) (AT&T)	C	No	No	Ar (CaAa)	280.000 - 8.000	0.5000	0.35	6	6	0.0000	1.9800		0.001
LDF2-50A(3/8") Fiber (AT&T)	C	No	No	Ar (CaAa)	280.000 - 8.000	0.5000	0.4	2	2	0.0000	0.4400		0.000
3/4" DC Power Cable (AT&T)	C	No	No	Ar (CaAa)	280.000 - 8.000	0.5000	0.45	6	6	0.0000	0.7950		0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	625.000-592.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
T1	592.000-580.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	3.600	0.000	0.000
		C	0.000	0.000	2.983	0.000	0.018
T2	580.000-560.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.000	0.000	0.000
		C	0.000	0.000	5.983	0.000	0.036
T3	560.000-540.000	A	0.000	0.000	3.006	0.000	0.018
		B	0.000	0.000	6.000	0.000	0.000
		C	0.000	0.000	6.006	0.000	0.036
T4	540.000-520.000	A	0.000	0.000	6.020	0.000	0.036
		B	0.000	0.000	6.000	0.000	0.000
		C	0.000	0.000	6.020	0.000	0.036
T5	520.000-500.000	A	0.000	0.000	6.020	0.000	0.036
		B	0.000	0.000	12.053	0.000	0.000
		C	0.000	0.000	6.020	0.000	0.036
T6	500.000-480.000	A	0.000	0.000	6.020	0.000	0.036
		B	0.000	0.000	12.079	0.000	0.000
		C	0.000	0.000	6.020	0.000	0.036

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T7	480.000-460.000	A	0.000	0.000	6.020	0.000	0.036
		B	0.000	0.000	12.651	0.000	0.002
		C	0.000	0.000	6.020	0.000	0.036
T8	460.000-440.000	A	0.000	0.000	6.020	0.000	0.036
		B	0.000	0.000	14.314	0.000	0.007
		C	0.000	0.000	6.020	0.000	0.036
T9	440.000-420.000	A	0.000	0.000	6.020	0.000	0.036
		B	0.000	0.000	14.343	0.000	0.007
		C	0.000	0.000	6.020	0.000	0.036
T10	420.000-400.000	A	0.000	0.000	6.020	0.000	0.036
		B	0.000	0.000	14.374	0.000	0.007
		C	0.000	0.000	6.020	0.000	0.036
T11	400.000-380.000	A	0.000	0.000	10.833	0.000	0.054
		B	0.000	0.000	14.407	0.000	0.007
		C	0.000	0.000	9.980	0.000	0.052
T12	380.000-360.000	A	0.000	0.000	11.270	0.000	0.055
		B	0.000	0.000	14.441	0.000	0.007
		C	0.000	0.000	11.615	0.000	0.057
T13	360.000-340.000	A	0.000	0.000	13.108	0.000	0.062
		B	0.000	0.000	14.478	0.000	0.007
		C	0.000	0.000	12.160	0.000	0.059
T14	340.000-320.000	A	0.000	0.000	14.770	0.000	0.069
		B	0.000	0.000	14.517	0.000	0.007
		C	0.000	0.000	12.160	0.000	0.059
T15	320.000-300.000	A	0.000	0.000	14.770	0.000	0.069
		B	0.000	0.000	14.559	0.000	0.007
		C	0.000	0.000	12.160	0.000	0.059
T16	300.000-280.000	A	0.000	0.000	16.520	0.000	0.075
		B	0.000	0.000	14.604	0.000	0.007
		C	0.000	0.000	12.160	0.000	0.059
T17	280.000-260.000	A	0.000	0.000	16.520	0.000	0.075
		B	0.000	0.000	14.653	0.000	0.007
		C	0.000	0.000	47.220	0.000	0.230
T18	260.000-240.000	A	0.000	0.000	17.395	0.000	0.079
		B	0.000	0.000	14.705	0.000	0.007
		C	0.000	0.000	47.220	0.000	0.230
T19	240.000-220.000	A	0.000	0.000	18.655	0.000	0.087
		B	0.000	0.000	14.763	0.000	0.007
		C	0.000	0.000	47.220	0.000	0.230
T20	220.000-200.000	A	0.000	0.000	19.810	0.000	0.104
		B	0.000	0.000	14.826	0.000	0.007
		C	0.000	0.000	47.220	0.000	0.230
T21	200.000-180.000	A	0.000	0.000	23.135	0.000	0.116
		B	0.000	0.000	14.897	0.000	0.007
		C	0.000	0.000	47.220	0.000	0.230
T22	180.000-160.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	14.976	0.000	0.007
		C	0.000	0.000	47.220	0.000	0.230
T23	160.000-140.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	15.066	0.000	0.007
		C	0.000	0.000	47.220	0.000	0.230
T24	140.000-120.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	15.170	0.000	0.007
		C	0.000	0.000	51.680	0.000	0.253
T25	120.000-100.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	15.294	0.000	0.007
		C	0.000	0.000	51.680	0.000	0.253
T26	100.000-80.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	15.446	0.000	0.007
		C	0.000	0.000	51.680	0.000	0.253
T27	80.000-60.000	A	0.000	0.000	23.310	0.000	0.117

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	15.641	0.000	0.007
		C	0.000	0.000	51.680	0.000	0.253
T28	60.000-40.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	15.910	0.000	0.007
		C	0.000	0.000	53.570	0.000	0.258
T29	40.000-20.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	16.532	0.000	0.007
		C	0.000	0.000	55.460	0.000	0.262
T30	20.000-8.000	A	0.000	0.000	13.986	0.000	0.070
		B	0.000	0.000	10.236	0.000	0.005
		C	0.000	0.000	33.276	0.000	0.157
T31	8.000-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	625.000-592.000	A	2.008	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
T1	592.000-580.000	A	2.000	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	10.345	0.000	0.090
		C		0.000	0.000	7.010	0.000	0.140
T2	580.000-560.000	A	1.994	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	17.202	0.000	0.149
		C		0.000	0.000	13.998	0.000	0.279
T3	560.000-540.000	A	1.987	0.000	0.000	6.985	0.000	0.139
		B		0.000	0.000	17.152	0.000	0.148
		C		0.000	0.000	13.969	0.000	0.278
T4	540.000-520.000	A	1.980	0.000	0.000	13.940	0.000	0.277
		B		0.000	0.000	17.100	0.000	0.148
		C		0.000	0.000	13.940	0.000	0.277
T5	520.000-500.000	A	1.972	0.000	0.000	13.910	0.000	0.276
		B		0.000	0.000	32.936	0.000	0.434
		C		0.000	0.000	13.910	0.000	0.276
T6	500.000-480.000	A	1.965	0.000	0.000	13.878	0.000	0.274
		B		0.000	0.000	32.849	0.000	0.432
		C		0.000	0.000	13.878	0.000	0.274
T7	480.000-460.000	A	1.956	0.000	0.000	13.845	0.000	0.273
		B		0.000	0.000	35.260	0.000	0.467
		C		0.000	0.000	13.845	0.000	0.273
T8	460.000-440.000	A	1.948	0.000	0.000	13.812	0.000	0.272
		B		0.000	0.000	42.636	0.000	0.578
		C		0.000	0.000	13.812	0.000	0.272
T9	440.000-420.000	A	1.939	0.000	0.000	13.776	0.000	0.270
		B		0.000	0.000	42.503	0.000	0.574
		C		0.000	0.000	13.776	0.000	0.270
T10	420.000-400.000	A	1.930	0.000	0.000	13.739	0.000	0.269
		B		0.000	0.000	42.364	0.000	0.570
		C		0.000	0.000	13.739	0.000	0.269
T11	400.000-380.000	A	1.920	0.000	0.000	39.058	0.000	0.542
		B		0.000	0.000	42.219	0.000	0.566
		C		0.000	0.000	25.342	0.000	0.466
T12	380.000-360.000	A	1.910	0.000	0.000	41.264	0.000	0.572
		B		0.000	0.000	42.067	0.000	0.562

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	32.626	0.000	0.573
T13	360.000-340.000	A	1.900	0.000	0.000	50.920	0.000	0.710
		B		0.000	0.000	41.907	0.000	0.557
		C		0.000	0.000	34.954	0.000	0.605
T14	340.000-320.000	A	1.888	0.000	0.000	59.544	0.000	0.832
		B		0.000	0.000	41.740	0.000	0.552
		C		0.000	0.000	34.821	0.000	0.601
T15	320.000-300.000	A	1.877	0.000	0.000	59.273	0.000	0.824
		B		0.000	0.000	41.562	0.000	0.547
		C		0.000	0.000	34.679	0.000	0.596
T16	300.000-280.000	A	1.864	0.000	0.000	68.192	0.000	0.948
		B		0.000	0.000	41.374	0.000	0.542
		C		0.000	0.000	34.530	0.000	0.590
T17	280.000-260.000	A	1.851	0.000	0.000	67.833	0.000	0.938
		B		0.000	0.000	41.174	0.000	0.536
		C		0.000	0.000	115.252	0.000	1.603
T18	260.000-240.000	A	1.837	0.000	0.000	71.997	0.000	0.992
		B		0.000	0.000	40.960	0.000	0.530
		C		0.000	0.000	114.795	0.000	1.589
T19	240.000-220.000	A	1.821	0.000	0.000	78.279	0.000	1.077
		B		0.000	0.000	40.731	0.000	0.524
		C		0.000	0.000	114.304	0.000	1.574
T20	220.000-200.000	A	1.805	0.000	0.000	84.320	0.000	1.165
		B		0.000	0.000	40.482	0.000	0.517
		C		0.000	0.000	113.772	0.000	1.558
T21	200.000-180.000	A	1.787	0.000	0.000	94.145	0.000	1.300
		B		0.000	0.000	40.211	0.000	0.510
		C		0.000	0.000	113.193	0.000	1.540
T22	180.000-160.000	A	1.767	0.000	0.000	93.548	0.000	1.282
		B		0.000	0.000	39.913	0.000	0.502
		C		0.000	0.000	112.557	0.000	1.521
T23	160.000-140.000	A	1.745	0.000	0.000	92.691	0.000	1.259
		B		0.000	0.000	39.582	0.000	0.493
		C		0.000	0.000	111.849	0.000	1.500
T24	140.000-120.000	A	1.720	0.000	0.000	91.725	0.000	1.234
		B		0.000	0.000	39.209	0.000	0.483
		C		0.000	0.000	130.525	0.000	1.642
T25	120.000-100.000	A	1.692	0.000	0.000	90.614	0.000	1.205
		B		0.000	0.000	38.779	0.000	0.471
		C		0.000	0.000	129.409	0.000	1.611
T26	100.000-80.000	A	1.658	0.000	0.000	89.304	0.000	1.171
		B		0.000	0.000	38.273	0.000	0.458
		C		0.000	0.000	128.094	0.000	1.576
T27	80.000-60.000	A	1.617	0.000	0.000	87.700	0.000	1.130
		B		0.000	0.000	37.652	0.000	0.442
		C		0.000	0.000	126.483	0.000	1.532
T28	60.000-40.000	A	1.564	0.000	0.000	85.616	0.000	1.078
		B		0.000	0.000	36.846	0.000	0.421
		C		0.000	0.000	132.227	0.000	1.540
T29	40.000-20.000	A	1.486	0.000	0.000	82.582	0.000	1.005
		B		0.000	0.000	38.402	0.000	0.421
		C		0.000	0.000	136.475	0.000	1.515
T30	20.000-8.000	A	1.377	0.000	0.000	47.001	0.000	0.544
		B		0.000	0.000	24.250	0.000	0.249
		C		0.000	0.000	78.876	0.000	0.838
T31	8.000-0.000	A	1.215	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	625.000-592.000	0.0000	0.0000	0.0000	0.0000
T1	592.000-580.000	0.7766	2.7415	1.4826	1.8015
T2	580.000-560.000	0.9006	3.6433	1.7427	2.3272
T3	560.000-540.000	0.1957	1.7230	1.3823	1.4920
T4	540.000-520.000	0.0619	0.2438	0.9567	0.6499
T5	520.000-500.000	0.8380	-3.4196	1.3798	-1.2625
T6	500.000-480.000	0.8409	-3.4331	1.3824	-1.2676
T7	480.000-460.000	0.8221	-3.2600	1.3586	-1.3595
T8	460.000-440.000	1.0396	-3.7658	1.6682	-1.9709
T9	440.000-420.000	1.0572	-3.8372	1.7006	-2.0125
T10	420.000-400.000	1.0604	-3.8525	1.7040	-2.0198
T11	400.000-380.000	1.5035	-3.5952	1.7307	-2.2811
T12	380.000-360.000	1.7469	-3.0557	2.1317	-1.7454
T13	360.000-340.000	1.7170	-3.3297	1.9532	-2.0861
T14	340.000-320.000	1.4702	-3.5165	1.5062	-2.4263
T15	320.000-300.000	1.4735	-3.5339	1.5100	-2.4339
T16	300.000-280.000	1.2328	-3.6985	1.1089	-2.8278
T17	280.000-260.000	-4.6074	-2.0167	-3.3597	-0.6083
T18	260.000-240.000	-4.8073	-2.3363	-3.5310	-0.9923
T19	240.000-220.000	-4.8172	-2.6117	-3.6070	-1.4560
T20	220.000-200.000	-4.8516	-2.8029	-3.7353	-1.7917
T21	200.000-180.000	-4.6297	-3.2304	-3.6177	-2.4102
T22	180.000-160.000	-4.8158	-3.4253	-3.7736	-2.5178
T23	160.000-140.000	-4.8426	-3.4915	-3.8341	-2.5546
T24	140.000-120.000	-4.2987	-3.2565	-3.1375	-1.9877
T25	120.000-100.000	-4.2516	-3.2668	-3.1372	-1.9801
T26	100.000-80.000	-4.0625	-3.1697	-3.0694	-1.9283
T27	80.000-60.000	-4.2030	-3.3754	-3.2124	-2.0126
T28	60.000-40.000	-3.9745	-3.3296	-3.0092	-1.7554
T29	40.000-20.000	-4.0768	-2.2313	-2.7554	-1.6842
T30	20.000-8.000	-3.9745	-2.2804	-2.6963	-1.9371
T31	8.000-0.000	0.0000	0.0000	0.0000	0.0000

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	3" Coax	580.00 - 590.00	1.0000	0.4154
T1	12	CAT5-E (1/4")	580.00 - 592.00	0.6000	0.4154
T2	1	3" Coax	560.00 - 580.00	1.0000	0.4576
T2	12	CAT5-E (1/4")	560.00 - 580.00	0.6000	0.4576
T3	1	3" Coax	540.00 - 560.00	1.0000	0.4589

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	2	3" Coax	540.00 - 550.00	1.0000	0.4589
T3	12	CAT5-E (1/4")	540.00 - 560.00	0.6000	0.4589
T4	1	3" Coax	520.00 - 540.00	0.6000	0.4379
T4	2	3" Coax	520.00 - 540.00	0.6000	0.4379
T4	12	CAT5-E (1/4")	520.00 - 540.00	0.6000	0.4379
T5	1	3" Coax	500.00 - 520.00	0.6000	0.4576
T5	2	3" Coax	500.00 - 520.00	0.6000	0.4576
T5	12	CAT5-E (1/4")	500.00 - 520.00	0.6000	0.4576
T5	20	4" Flex	500.00 - 520.00	1.0000	0.4576
T6	1	3" Coax	480.00 - 500.00	0.6000	0.4590
T6	2	3" Coax	480.00 - 500.00	0.6000	0.4590
T6	12	CAT5-E (1/4")	480.00 - 500.00	0.6000	0.4590
T6	20	4" Flex	480.00 - 500.00	1.0000	0.4590
T7	1	3" Coax	460.00 - 480.00	0.6000	0.4383
T7	2	3" Coax	460.00 - 480.00	0.6000	0.4383
T7	12	CAT5-E (1/4")	460.00 - 480.00	0.6000	0.4383
T7	18	LDF5-50A(7/8")	460.00 - 465.00	0.6000	0.4383
T7	20	4" Flex	460.00 - 480.00	1.0000	0.4383
T8	1	3" Coax	440.00 - 460.00	0.6000	0.4523
T8	2	3" Coax	440.00 - 460.00	0.6000	0.4523
T8	12	CAT5-E (1/4")	440.00 - 460.00	0.6000	0.4523
T8	18	LDF5-50A(7/8")	440.00 - 460.00	0.6000	0.4523
T8	20	4" Flex	440.00 - 460.00	1.0000	0.4523
T9	1	3" Coax	420.00 - 440.00	0.6000	0.4596
T9	2	3" Coax	420.00 - 440.00	0.6000	0.4596
T9	12	CAT5-E (1/4")	420.00 - 440.00	0.6000	0.4596
T9	18	LDF5-50A(7/8")	420.00 - 440.00	0.6000	0.4596
T9	20	4" Flex	420.00 - 440.00	1.0000	0.4596
T10	1	3" Coax	400.00 - 420.00	0.6000	0.4612
T10	2	3" Coax	400.00 - 420.00	0.6000	0.4612
T10	12	CAT5-E (1/4")	400.00 - 420.00	0.6000	0.4612

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T10	18	LDF5-50A(7/8")	400.00 - 420.00	0.6000	0.4612
T10	20	4" Flex	400.00 - 420.00	1.0000	0.4612
T11	1	3" Coax	380.00 - 400.00	0.6000	0.4629
T11	2	3" Coax	380.00 - 400.00	0.6000	0.4629
T11	5	LDF5-50A (7/8" FOAM)	380.00 - 400.00	0.6000	0.4629
T11	6	LDF5-50A (7/8" FOAM)	380.00 - 395.00	0.6000	0.4629
T11	12	CAT5-E (1/4")	380.00 - 400.00	0.6000	0.4629
T11	16	LDF7-50A(1-5/8")	380.00 - 400.00	0.6000	0.4629
T11	18	LDF5-50A(7/8")	380.00 - 400.00	0.6000	0.4629
T11	20	4" Flex	380.00 - 400.00	1.0000	0.4629
T12	1	3" Coax	360.00 - 380.00	0.6000	0.4405
T12	2	3" Coax	360.00 - 380.00	0.6000	0.4405
T12	5	LDF5-50A (7/8" FOAM)	360.00 - 380.00	0.6000	0.4405
T12	6	LDF5-50A (7/8" FOAM)	360.00 - 380.00	0.6000	0.4405
T12	12	CAT5-E (1/4")	360.00 - 380.00	0.6000	0.4405
T12	16	LDF7-50A(1-5/8")	360.00 - 380.00	0.6000	0.4405
T12	17	LDF5-50A(7/8")	360.00 - 375.00	0.6000	0.4405
T12	18	LDF5-50A(7/8")	360.00 - 380.00	0.6000	0.4405
T12	20	4" Flex	360.00 - 380.00	1.0000	0.4405
T13	1	3" Coax	340.00 - 360.00	0.6000	0.4626
T13	2	3" Coax	340.00 - 360.00	0.6000	0.4626
T13	5	LDF5-50A (7/8" FOAM)	340.00 - 360.00	0.6000	0.4626
T13	6	LDF5-50A (7/8" FOAM)	340.00 - 360.00	0.6000	0.4626
T13	7	LDF5-50A (7/8" FOAM)	340.00 - 353.00	0.6000	0.4626
T13	8	LDF5-50A (7/8" FOAM)	340.00 - 348.00	0.6000	0.4626
T13	12	CAT5-E (1/4")	340.00 - 360.00	0.6000	0.4626
T13	16	LDF7-50A(1-5/8")	340.00 - 360.00	0.6000	0.4626
T13	17	LDF5-50A(7/8")	340.00 - 360.00	0.6000	0.4626
T13	18	LDF5-50A(7/8")	340.00 - 360.00	0.6000	0.4626
T13	20	4" Flex	340.00 - 360.00	1.0000	0.4626
T14	1	3" Coax	320.00 - 340.00	0.6000	0.4645

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T14	2	3" Coax	320.00 - 340.00	0.6000	0.4645
T14	5	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.4645
T14	6	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.4645
T14	7	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.4645
T14	8	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.4645
T14	12	CAT5-E (1/4")	320.00 - 340.00	0.6000	0.4645
T14	16	LDF7-50A(1-5/8")	320.00 - 340.00	0.6000	0.4645
T14	17	LDF5-50A(7/8")	320.00 - 340.00	0.6000	0.4645
T14	18	LDF5-50A(7/8")	320.00 - 340.00	0.6000	0.4645
T14	20	4" Flex	320.00 - 340.00	1.0000	0.4645
T15	1	3" Coax	300.00 - 320.00	0.6000	0.4666
T15	2	3" Coax	300.00 - 320.00	0.6000	0.4666
T15	5	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.4666
T15	6	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.4666
T15	7	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.4666
T15	8	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.4666
T15	12	CAT5-E (1/4")	300.00 - 320.00	0.6000	0.4666
T15	16	LDF7-50A(1-5/8")	300.00 - 320.00	0.6000	0.4666
T15	17	LDF5-50A(7/8")	300.00 - 320.00	0.6000	0.4666
T15	18	LDF5-50A(7/8")	300.00 - 320.00	0.6000	0.4666
T15	20	4" Flex	300.00 - 320.00	1.0000	0.4666
T16	1	3" Coax	280.00 - 300.00	0.6000	0.4592
T16	2	3" Coax	280.00 - 300.00	0.6000	0.4592
T16	5	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.4592
T16	6	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.4592
T16	7	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.4592
T16	8	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.4592
T16	9	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.4592
T16	12	CAT5-E (1/4")	280.00 - 300.00	0.6000	0.4592
T16	16	LDF7-50A(1-5/8")	280.00 - 300.00	0.6000	0.4592
T16	17	LDF5-50A(7/8")	280.00 - 300.00	0.6000	0.4592

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T16	18	LDF5-50A(7/8")	280.00 - 300.00	0.6000	0.4592
T16	20	4" Flex	280.00 - 300.00	1.0000	0.4592
T17	1	3" Coax	260.00 - 280.00	0.6000	0.4492
T17	2	3" Coax	260.00 - 280.00	0.6000	0.4492
T17	5	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.4492
T17	6	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.4492
T17	7	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.4492
T17	8	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.4492
T17	9	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.4492
T17	12	CAT5-E (1/4")	260.00 - 280.00	0.6000	0.4492
T17	16	LDF7-50A(1-5/8")	260.00 - 280.00	0.6000	0.4492
T17	17	LDF5-50A(7/8")	260.00 - 280.00	0.6000	0.4492
T17	18	LDF5-50A(7/8")	260.00 - 280.00	0.6000	0.4492
T17	20	4" Flex	260.00 - 280.00	1.0000	0.4492
T17	21	LDF7-50A (1 5/8 FOAM)	260.00 - 280.00	0.6000	0.4492
T17	22	LDF2-50A(3/8") Fiber	260.00 - 280.00	0.6000	0.4492
T17	23	3/4" DC Power Cable	260.00 - 280.00	0.6000	0.4492
T18	1	3" Coax	240.00 - 260.00	0.6000	0.4696
T18	2	3" Coax	240.00 - 260.00	0.6000	0.4696
T18	5	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.4696
T18	6	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.4696
T18	7	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.4696
T18	8	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.4696
T18	9	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.4696
T18	10	LDF5-50A (7/8" FOAM)	240.00 - 250.00	0.6000	0.4696
T18	12	CAT5-E (1/4")	240.00 - 260.00	0.6000	0.4696
T18	16	LDF7-50A(1-5/8")	240.00 - 260.00	0.6000	0.4696
T18	17	LDF5-50A(7/8")	240.00 - 260.00	0.6000	0.4696
T18	18	LDF5-50A(7/8")	240.00 - 260.00	0.6000	0.4696
T18	20	4" Flex	240.00 - 260.00	1.0000	0.4696
T18	21	LDF7-50A (1 5/8 FOAM)	240.00 - 260.00	0.6000	0.4696

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T18	22	LDF2-50A(3/8") Fiber	240.00 - 260.00	0.6000	0.4696
T18	23	3/4" DC Power Cable	240.00 - 260.00	0.6000	0.4696
T19	1	3" Coax	220.00 - 240.00	0.6000	0.4723
T19	2	3" Coax	220.00 - 240.00	0.6000	0.4723
T19	3	5/8" Coax	220.00 - 225.00	0.6000	0.4723
T19	5	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.4723
T19	6	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.4723
T19	7	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.4723
T19	8	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.4723
T19	9	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.4723
T19	10	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.4723
T19	12	CAT5-E (1/4")	220.00 - 240.00	0.6000	0.4723
T19	16	LDF7-50A(1-5/8")	220.00 - 240.00	0.6000	0.4723
T19	17	LDF5-50A(7/8")	220.00 - 240.00	0.6000	0.4723
T19	18	LDF5-50A(7/8")	220.00 - 240.00	0.6000	0.4723
T19	20	4" Flex	220.00 - 240.00	1.0000	0.4723
T19	21	LDF7-50A (1 5/8 FOAM)	220.00 - 240.00	0.6000	0.4723
T19	22	LDF2-50A(3/8") Fiber	220.00 - 240.00	0.6000	0.4723
T19	23	3/4" DC Power Cable	220.00 - 240.00	0.6000	0.4723
T20	1	3" Coax	200.00 - 220.00	0.6000	0.4752
T20	2	3" Coax	200.00 - 220.00	0.6000	0.4752
T20	3	5/8" Coax	200.00 - 220.00	0.6000	0.4752
T20	5	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.4752
T20	6	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.4752
T20	7	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.4752
T20	8	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.4752
T20	9	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.4752
T20	10	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.4752
T20	12	CAT5-E (1/4")	200.00 - 220.00	0.6000	0.4752
T20	16	LDF7-50A(1-5/8")	200.00 - 220.00	0.6000	0.4752
T20	17	LDF5-50A(7/8")	200.00 - 220.00	0.6000	0.4752

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T20	18	LDF5-50A(7/8")	200.00 - 220.00	0.6000	0.4752
T20	20	4" Flex	200.00 - 220.00	1.0000	0.4752
T20	21	LDF7-50A (1 5/8 FOAM)	200.00 - 220.00	0.6000	0.4752
T20	22	LDF2-50A(3/8") Fiber	200.00 - 220.00	0.6000	0.4752
T20	23	3/4" DC Power Cable	200.00 - 220.00	0.6000	0.4752
T21	1	3" Coax	180.00 - 200.00	0.6000	0.4548
T21	2	3" Coax	180.00 - 200.00	0.6000	0.4548
T21	3	5/8" Coax	180.00 - 200.00	0.6000	0.4548
T21	4	LDF5-50A (7/8" FOAM)	180.00 - 198.00	0.6000	0.4548
T21	5	LDF5-50A (7/8" FOAM)	198.00 - 200.00	0.6000	0.4548
T21	6	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.4548
T21	7	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.4548
T21	8	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.4548
T21	9	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.4548
T21	10	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.4548
T21	11	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.4548
T21	12	CAT5-E (1/4")	180.00 - 200.00	0.6000	0.4548
T21	16	LDF7-50A(1-5/8")	180.00 - 200.00	0.6000	0.4548
T21	17	LDF5-50A(7/8")	180.00 - 200.00	0.6000	0.4548
T21	18	LDF5-50A(7/8")	180.00 - 200.00	0.6000	0.4548
T21	20	4" Flex	180.00 - 200.00	1.0000	0.4548
T21	21	LDF7-50A (1 5/8 FOAM)	180.00 - 200.00	0.6000	0.4548
T21	22	LDF2-50A(3/8") Fiber	180.00 - 200.00	0.6000	0.4548
T21	23	3/4" DC Power Cable	180.00 - 200.00	0.6000	0.4548
T22	1	3" Coax	160.00 - 180.00	0.6000	0.4763
T22	2	3" Coax	160.00 - 180.00	0.6000	0.4763
T22	3	5/8" Coax	160.00 - 180.00	0.6000	0.4763
T22	4	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.4763
T22	6	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.4763
T22	7	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.4763
T22	8	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.4763

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T22	9	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.4763
T22	10	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.4763
T22	11	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.4763
T22	12	CAT5-E (1/4")	160.00 - 180.00	0.6000	0.4763
T22	16	LDF7-50A(1-5/8")	160.00 - 180.00	0.6000	0.4763
T22	17	LDF5-50A(7/8")	160.00 - 180.00	0.6000	0.4763
T22	18	LDF5-50A(7/8")	160.00 - 180.00	0.6000	0.4763
T22	20	4" Flex	160.00 - 180.00	1.0000	0.4763
T22	21	LDF7-50A (1 5/8 FOAM)	160.00 - 180.00	0.6000	0.4763
T22	22	LDF2-50A(3/8") Fiber	160.00 - 180.00	0.6000	0.4763
T22	23	3/4" DC Power Cable	160.00 - 180.00	0.6000	0.4763
T23	1	3" Coax	140.00 - 160.00	0.6000	0.4858
T23	2	3" Coax	140.00 - 160.00	0.6000	0.4858
T23	3	5/8" Coax	140.00 - 160.00	0.6000	0.4858
T23	4	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.4858
T23	6	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.4858
T23	7	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.4858
T23	8	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.4858
T23	9	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.4858
T23	10	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.4858
T23	11	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.4858
T23	12	CAT5-E (1/4")	140.00 - 160.00	0.6000	0.4858
T23	16	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.4858
T23	17	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.4858
T23	18	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.4858
T23	20	4" Flex	140.00 - 160.00	1.0000	0.4858
T23	21	LDF7-50A (1 5/8 FOAM)	140.00 - 160.00	0.6000	0.4858
T23	22	LDF2-50A(3/8") Fiber	140.00 - 160.00	0.6000	0.4858
T23	23	3/4" DC Power Cable	140.00 - 160.00	0.6000	0.4858
T24	1	3" Coax	120.00 - 140.00	0.6000	0.4901
T24	2	3" Coax	120.00 - 140.00	0.6000	0.4901

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T24	3	5/8" Coax	120.00 - 140.00	0.6000	0.4901
T24	4	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.4901
T24	6	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.4901
T24	7	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.4901
T24	8	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.4901
T24	9	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.4901
T24	10	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.4901
T24	11	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.4901
T24	12	CAT5-E (1/4")	120.00 - 140.00	0.6000	0.4901
T24	14	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.4901
T24	15	CAT6-Shielded Cable	120.00 - 140.00	0.6000	0.4901
T24	17	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.4901
T24	18	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.4901
T24	20	4" Flex	120.00 - 140.00	1.0000	0.4901
T24	21	LDF7-50A (1 5/8 FOAM)	120.00 - 140.00	0.6000	0.4901
T24	22	LDF2-50A(3/8") Fiber	120.00 - 140.00	0.6000	0.4901
T24	23	3/4" DC Power Cable	120.00 - 140.00	0.6000	0.4901
T25	1	3" Coax	100.00 - 120.00	0.6000	0.4896
T25	2	3" Coax	100.00 - 120.00	0.6000	0.4896
T25	3	5/8" Coax	100.00 - 120.00	0.6000	0.4896
T25	4	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.4896
T25	6	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.4896
T25	7	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.4896
T25	8	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.4896
T25	9	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.4896
T25	10	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.4896
T25	11	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.4896
T25	12	CAT5-E (1/4")	100.00 - 120.00	0.6000	0.4896
T25	14	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.4896
T25	15	CAT6-Shielded Cable	100.00 - 120.00	0.6000	0.4896
T25	17	LDF5-50A(7/8")	100.00 - 120.00	0.6000	0.4896

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T25	18	LDF5-50A(7/8")	100.00 - 120.00	0.6000	0.4896
T25	20	4" Flex	100.00 - 120.00	1.0000	0.4896
T25	21	LDF7-50A (1 5/8 FOAM)	100.00 - 120.00	0.6000	0.4896
T25	22	LDF2-50A(3/8") Fiber	100.00 - 120.00	0.6000	0.4896
T25	23	3/4" DC Power Cable	100.00 - 120.00	0.6000	0.4896
T26	1	3" Coax	80.00 - 100.00	0.6000	0.4790
T26	2	3" Coax	80.00 - 100.00	0.6000	0.4790
T26	3	5/8" Coax	80.00 - 100.00	0.6000	0.4790
T26	4	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.4790
T26	6	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.4790
T26	7	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.4790
T26	8	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.4790
T26	9	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.4790
T26	10	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.4790
T26	11	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.4790
T26	12	CAT5-E (1/4")	80.00 - 100.00	0.6000	0.4790
T26	14	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.4790
T26	15	CAT6-Shielded Cable	80.00 - 100.00	0.6000	0.4790
T26	17	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.4790
T26	18	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.4790
T26	20	4" Flex	80.00 - 100.00	1.0000	0.4790
T26	21	LDF7-50A (1 5/8 FOAM)	80.00 - 100.00	0.6000	0.4790
T26	22	LDF2-50A(3/8") Fiber	80.00 - 100.00	0.6000	0.4790
T26	23	3/4" DC Power Cable	80.00 - 100.00	0.6000	0.4790
T27	1	3" Coax	60.00 - 80.00	0.6000	0.5041
T27	2	3" Coax	60.00 - 80.00	0.6000	0.5041
T27	3	5/8" Coax	60.00 - 80.00	0.6000	0.5041
T27	4	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.5041
T27	6	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.5041
T27	7	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.5041
T27	8	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.5041
T27	9	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.5041
T27	10	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.5041
T27	11	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.5041
T27	12	CAT5-E (1/4")	60.00 - 80.00	0.6000	0.5041
T27	14	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.5041
T27	15	CAT6-Shielded Cable	60.00 - 80.00	0.6000	0.5041
T27	17	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.5041
T27	18	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.5041
T27	20	4" Flex	60.00 - 80.00	1.0000	0.5041
T27	21	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	0.6000	0.5041
T27	22	LDF2-50A(3/8") Fiber	60.00 - 80.00	0.6000	0.5041
T27	23	3/4" DC Power Cable	60.00 - 80.00	0.6000	0.5041
T28	1	3" Coax	40.00 - 60.00	0.6000	0.5136
T28	2	3" Coax	40.00 - 60.00	0.6000	0.5136
T28	3	5/8" Coax	40.00 - 60.00	0.6000	0.5136
T28	4	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.5136
T28	6	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.5136
T28	7	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.5136
T28	8	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.5136
T28	9	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.5136
T28	10	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.5136
T28	11	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.5136
T28	12	CAT5-E (1/4")	40.00 - 60.00	0.6000	0.5136
T28	13	LDF4-50A(1/2") Synflex Tubing	40.00 - 50.00	0.6000	0.5136
T28	14	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.5136

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T28	15	CAT6-Shielded Cable	40.00 - 60.00	0.6000	0.5136
T28	17	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.5136
T28	18	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.5136
T28	20	4" Flex	40.00 - 60.00	1.0000	0.5136
T28	21	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	0.6000	0.5136
T28	22	LDF2-50A(3/8") Fiber	40.00 - 60.00	0.6000	0.5136
T28	23	3/4" DC Power Cable	40.00 - 60.00	0.6000	0.5136
T29	1	3" Coax	20.00 - 40.00	0.6000	0.5275
T29	2	3" Coax	20.00 - 40.00	0.6000	0.5275
T29	3	5/8" Coax	20.00 - 40.00	0.6000	0.5275
T29	4	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.5275
T29	6	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.5275
T29	7	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.5275
T29	8	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.5275
T29	9	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.5275
T29	10	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.5275
T29	11	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.5275
T29	12	CAT5-E (1/4")	20.00 - 40.00	0.6000	0.5275
T29	13	LDF4-50A(1/2") Synflex Tubing	20.00 - 40.00	0.6000	0.5275
T29	14	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.5275
T29	15	CAT6-Shielded Cable	20.00 - 40.00	0.6000	0.5275
T29	17	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.5275
T29	18	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.5275
T29	19	LDF2-50A(3/8")	20.00 - 28.00	0.6000	0.5275
T29	20	4" Flex	20.00 - 40.00	0.6000	0.5275
T29	21	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	0.6000	0.5275
T29	22	LDF2-50A(3/8") Fiber	20.00 - 40.00	0.6000	0.5275
T29	23	3/4" DC Power Cable	20.00 - 40.00	0.6000	0.5275
T30	1	3" Coax	8.00 - 20.00	0.6000	0.5355
T30	2	3" Coax	8.00 - 20.00	0.6000	0.5355
T30	3	5/8" Coax	8.00 - 20.00	0.6000	0.5355
T30	4	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.5355
T30	6	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.5355
T30	7	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.5355
T30	8	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.5355
T30	9	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.5355
T30	10	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.5355
T30	11	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.5355
T30	12	CAT5-E (1/4")	8.00 - 20.00	0.6000	0.5355
T30	13	LDF4-50A(1/2") Synflex Tubing	8.00 - 20.00	0.6000	0.5355
T30	14	LDF7-50A(1-5/8")	8.00 - 20.00	0.6000	0.5355
T30	15	CAT6-Shielded Cable	8.00 - 20.00	0.6000	0.5355
T30	17	LDF5-50A(7/8")	8.00 - 20.00	0.6000	0.5355
T30	18	LDF5-50A(7/8")	8.00 - 20.00	0.6000	0.5355
T30	19	LDF2-50A(3/8")	8.00 - 20.00	0.6000	0.5355
T30	20	4" Flex	8.00 - 20.00	0.6000	0.5355
T30	21	LDF7-50A (1 5/8 FOAM)	8.00 - 20.00	0.6000	0.5355
T30	22	LDF2-50A(3/8") Fiber	8.00 - 20.00	0.6000	0.5355
T30	23	3/4" DC Power Cable	8.00 - 20.00	0.6000	0.5355

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
SHPX-4AC	A	None		0.0000	612.500	No Ice	21.720	21.750	0.476
(iHeart Media)						1/2" Ice	28.790	28.790	0.796
						1" Ice	35.860	35.860	1.116
SHP-2AE	A	From Leg	0.500	0.0000	545.000	No Ice	11.300	11.500	0.225
(iHeart Media)			0.000			1/2" Ice	14.700	15.100	0.375
			0.000			1" Ice	17.500	18.700	0.540
CMA-B/6519/E0-8	B	From Leg	2.000	0.0000	400.000	No Ice	3.825	2.592	0.024
(Unknown)			0.000			1/2" Ice	4.211	2.913	0.048
			10.000			1" Ice	4.605	3.242	0.076
14' Omni	B	From Leg	2.000	0.0000	400.000	No Ice	4.200	4.200	0.050
(Unknown)			0.000			1/2" Ice	5.630	5.630	0.065
			0.000			1" Ice	7.060	7.060	0.080
3' x 4' Side Arm	A	From Leg	2.000	0.0000	400.000	No Ice	3.000	3.000	0.050
(Unknown)			0.000			1/2" Ice	3.000	3.000	0.065
			11.000			1" Ice	3.000	3.000	0.080
14' Omni	A	From Leg	2.000	0.0000	400.000	No Ice	4.200	4.200	0.050
(iHeart Media)			0.000			1/2" Ice	5.630	5.630	0.065
			0.000			1" Ice	7.060	7.060	0.080
4' Omni	A	From Leg	1.000	0.0000	360.000	No Ice	0.600	0.600	0.020
(Unknown)			0.000			1/2" Ice	0.920	0.920	0.026
			0.000			1" Ice	1.240	1.240	0.032
4' Omni	B	From Leg	0.000	0.0000	360.000	No Ice	0.600	0.600	0.020
(Unknown)			0.000			1/2" Ice	0.920	0.920	0.026
			0.000			1" Ice	1.240	1.240	0.032
Beacon (10lbs 0.5CaAa)	B	From Leg	0.000	0.0000	310.000	No Ice	0.500	0.500	0.005
(Tower)			0.000			1/2" Ice	0.000	0.000	0.006
			0.000			1" Ice	0.000	0.000	0.008
Beacon (10lbs 0.5CaAa)	C	From Leg	1.000	0.0000	310.000	No Ice	0.500	0.500	0.005
(Tower)			0.000			1/2" Ice	0.000	0.000	0.006
			0.000			1" Ice	0.000	0.000	0.008
20'*3" Omni (40lbs)	B	From Leg	1.500	0.0000	299.000	No Ice	6.000	6.000	0.040
(iHeart Media)			0.000			1/2" Ice	8.033	8.033	0.083
			10.000			1" Ice	10.083	10.083	0.139
20'*3" Omni (40lbs)	B	From Leg	1.500	0.0000	255.000	No Ice	6.000	6.000	0.040
(iHeart Media)			0.000			1/2" Ice	8.033	8.033	0.083
			10.000			1" Ice	10.083	10.083	0.139
3' Side Arm	B	None		0.0000	198.000	No Ice	0.450	2.750	0.040
(Unknown)						1/2" Ice	0.570	3.860	0.060
						1" Ice	0.690	4.970	0.080
Beacon (10lbs 0.5CaAa)	C	From Leg	0.000	0.0000	159.000	No Ice	0.500	0.500	0.005
(Tower)			0.000			1/2" Ice	0.000	0.000	0.006
			0.000			1" Ice	0.000	0.000	0.008
Beacon (10lbs 0.5CaAa)	A	From Leg	0.000	0.0000	159.000	No Ice	0.500	0.500	0.005
(Tower)			0.000			1/2" Ice	0.000	0.000	0.006
			0.000			1" Ice	0.000	0.000	0.008
Beacon (10lbs 0.5CaAa)	B	From Leg	0.000	0.0000	159.000	No Ice	0.500	0.500	0.005
(Tower)			0.000			1/2" Ice	0.000	0.000	0.006
			0.000			1" Ice	0.000	0.000	0.008
AWS	C	None		0.0000	50.000	No Ice	1.200	0.131	0.012
(Earth Network)						1/2" Ice	1.337	0.208	0.018
						1" Ice	1.481	0.290	0.026
Pelco Camera	C	None		0.0000	140.000	No Ice	0.400	0.400	0.006
(Meridith)						1/2" Ice	0.500	0.500	0.008
						1" Ice	0.600	0.600	0.010
PD220	C	From Leg	3.000	0.0000	375.000	No Ice	3.560	3.560	0.023
(MCLM)			0.000			1/2" Ice	7.130	7.130	0.046
			0.000			1" Ice	10.700	10.700	0.069

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
3' Stand-off (MCLM)	C	From Leg	1.500 0.000 0.000	0.0000	375.000	No Ice 1/2" Ice 1" Ice	0.500 0.700 0.900	0.500 0.700 0.900	0.010 0.015 0.020
6810 (Office Radio)	C	From Leg	1.000 0.000 0.000	0.0000	465.000	No Ice 1/2" Ice 1" Ice	22.300 40.140 57.980	22.300 40.140 57.980	0.354 0.460 0.566
Scala FM10 yagi (Office Radio)	C	From Leg	3.000 0.000 0.000	0.0000	28.000	No Ice 1/2" Ice 1" Ice	4.108 4.368 4.634	2.900 3.131 3.370	0.022 0.058 0.098
5' Stand Off (Tyche Media)	B	From Leg	2.500 0.000 0.000	0.0000	520.000	No Ice 1/2" Ice 1" Ice	5.500 6.900 8.300	5.500 6.900 8.300	0.129 0.170 0.211
ERI ALP8L1-HSB-34 (Tyche Media)	B	From Leg	5.000 0.000 0.000	0.0000	540.000 - 520.000	No Ice 1/2" Ice 1" Ice	30.240 40.570 50.900	17.170 26.590 36.010	0.229 0.466 0.704
Sabre C10857001C-MC (AT&T)	C	None		0.0000	280.000	No Ice 1/2" Ice 1" Ice	30.000 35.000 40.000	30.000 35.000 40.000	1.500 1.750 2.000
(2) LGP21401 (AT&T)	A	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.347 0.442 0.544	0.014 0.021 0.030
(2) LGP21401 (AT&T)	B	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.347 0.442 0.544	0.014 0.021 0.030
(2) LGP21401 (AT&T)	C	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.347 0.442 0.544	0.014 0.021 0.030
CCI HPA-65R-BUU-H6 (AT&T)	B	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	9.486 9.956 10.434	6.423 6.888 7.360	0.043 0.105 0.173
CCI HPA-65R-BUU-H6 (AT&T)	C	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	9.486 9.956 10.434	6.423 6.888 7.360	0.043 0.105 0.173
Powerwave 7770 (55x11x5) (AT&T)	A	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	5.508 5.867 6.233	2.928 3.273 3.625	0.035 0.068 0.105
Powerwave 7770 (55x11x5) (AT&T)	B	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	5.508 5.867 6.233	2.928 3.273 3.625	0.035 0.068 0.105
Powerwave 7770 (55x11x5) (AT&T)	C	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	5.508 5.867 6.233	2.928 3.273 3.625	0.035 0.068 0.105
SBNHH-1D65A w/ Mount Pipe (AT&T)	A	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	6.120 6.558 6.990	5.190 5.961 6.658	0.054 0.108 0.168
SBNHH-1D65A w/ Mount Pipe (AT&T)	B	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	6.120 6.558 6.990	5.190 5.961 6.658	0.054 0.108 0.168
DC6-48-60-18-8C (AT&T)	A	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	4.818 5.098 5.385	2.901 3.130 3.366	0.019 0.057 0.100
DC6-48-60-18-8C (AT&T)	A	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	4.818 5.098 5.385	2.901 3.130 3.366	0.019 0.057 0.100
DC6-48-60-18-8C (AT&T)	A	From Leg	4.000 0.000 0.000	0.0000	280.000	No Ice 1/2" Ice 1" Ice	4.818 5.098 5.385	2.901 3.130 3.366	0.019 0.057 0.100

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Kathrein 800-10965K	A	From Leg	4.000	0.0000	280.000	No Ice	13.814	5.833	0.109
(78.7x20x6.9)			0.000			1/2" Ice	14.347	6.324	0.185
(AT&T)			0.000			1" Ice	14.888	6.821	0.269
Kathrein 800-10965K	B	From Leg	4.000	0.0000	280.000	No Ice	13.814	5.833	0.109
(78.7x20x6.9)			0.000			1/2" Ice	14.347	6.324	0.185
(AT&T)			0.000			1" Ice	14.888	6.821	0.269
RRUS 32	A	From Leg	4.000	0.0000	280.000	No Ice	3.314	2.424	0.077
(AT&T)			0.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
RRUS 32	B	From Leg	4.000	0.0000	280.000	No Ice	3.314	2.424	0.077
(AT&T)			0.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
RRUS 32	C	From Leg	4.000	0.0000	280.000	No Ice	3.314	2.424	0.077
(AT&T)			0.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
Ericsson 8843 B2/B66	A	From Leg	4.000	0.0000	280.000	No Ice	1.639	1.353	0.000
(14.9x13.2x10.9)			0.000			1/2" Ice	1.799	1.500	0.018
(AT&T)			0.000			1" Ice	1.966	1.655	0.038
Ericsson 8843 B2/B66	B	From Leg	4.000	0.0000	280.000	No Ice	1.639	1.353	0.000
(14.9x13.2x10.9)			0.000			1/2" Ice	1.799	1.500	0.018
(AT&T)			0.000			1" Ice	1.966	1.655	0.038
Ericsson 8843 B2/B66	C	From Leg	4.000	0.0000	280.000	No Ice	1.639	1.353	0.000
(14.9x13.2x10.9)			0.000			1/2" Ice	1.799	1.500	0.018
(AT&T)			0.000			1" Ice	1.966	1.655	0.038
Ericsson 4449 B5/B12	A	From Leg	4.000	0.0000	280.000	No Ice	1.969	1.626	0.072
(17.9x13.2x9.4)			0.000			1/2" Ice	2.145	1.790	0.092
(AT&T)			0.000			1" Ice	2.329	1.961	0.115
Ericsson 4449 B5/B12	B	From Leg	4.000	0.0000	280.000	No Ice	1.969	1.626	0.072
(17.9x13.2x9.4)			0.000			1/2" Ice	2.145	1.790	0.092
(AT&T)			0.000			1" Ice	2.329	1.961	0.115
Ericsson 4449 B5/B12	C	From Leg	4.000	0.0000	280.000	No Ice	1.969	1.626	0.072
(17.9x13.2x9.4)			0.000			1/2" Ice	2.145	1.790	0.092
(AT&T)			0.000			1" Ice	2.329	1.961	0.115
Kathrein 800-10964	A	From Leg	4.000	0.0000	280.000	No Ice	9.997	4.104	0.084
(59x20x6.9)			0.000			1/2" Ice	10.423	4.482	0.143
(AT&T)			0.000			1" Ice	10.856	4.867	0.207
CCI HPA-65R-BU6AA	B	From Leg	4.000	0.0000	280.000	No Ice	7.851	5.548	0.042
(71.1x11.7x7.6)			0.000			1/2" Ice	8.301	5.999	0.092
(AT&T)			0.000			1" Ice	8.758	6.457	0.149
CCI HPA-65R-BU6AA	C	From Leg	4.000	0.0000	280.000	No Ice	7.851	5.548	0.042
(71.1x11.7x7.6)			0.000			1/2" Ice	8.301	5.999	0.092
(AT&T)			0.000			1" Ice	8.758	6.457	0.149

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
4' Dish w/o Radome	A	Paraboloid w/o	From	2.000	0.0000		425.000	4.000	No Ice	12.566	0.080

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
(iHeart Media)		Radome	Leg	0.000					1/2" Ice	13.095	0.147
				0.000					1" Ice	13.624	0.214
5' HP Dish (230lbs	B	Paraboloid	From	2.000	0.0000		480.000	5.000	No Ice	19.630	0.230
24.77CaAa)		w/Shroud (HP)	Leg	0.000					1/2" Ice	20.290	0.334
(Unknown)				0.000					1" Ice	20.950	0.438
8' Dish w/ Radome	C	Paraboloid	From	1.000	0.0000		140.000	8.000	No Ice	50.265	0.300
(Meridith)		w/Radome	Leg	0.000					1/2" Ice	51.318	0.563
				0.000					1" Ice	52.371	0.827
Scala PR450	C	Passive Reflector	From	1.000	0.0000		394.000	6.000	No Ice	28.270	0.030
(iHeart Media)			Leg	0.000					1/2" Ice	29.070	0.170
				0.000					1" Ice	29.860	0.320
Scala PR450	C	Passive Reflector	From	1.000	0.0000		198.000	6.000	No Ice	28.270	0.030
(iHeart Media)			Leg	0.000					1/2" Ice	29.070	0.170
				0.000					1" Ice	29.860	0.320
MRC Proscann III	C	Paraboloid w/o	From	1.000	0.0000		400.000	5.610	No Ice	24.718	0.185
(Meridith)		Radome	Leg	0.000					1/2" Ice	25.458	0.316
				0.000					1" Ice	26.198	0.446

Tower Pressures - No Ice

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg % %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1	608.524	1.851	0.036	29.563	A	0.000	29.563	29.563	100.00	0.000	0.000
625.000-592.0					B	0.000	29.563		100.00	0.000	0.000
00					C	0.000	29.563		100.00	0.000	0.000
T1	586.000	1.836	0.036	62.250	A	5.414	6.774	4.500	36.92	0.000	0.000
592.000-580.0					B	5.414	6.774		36.92	3.600	0.000
00					C	5.414	6.774		36.92	2.983	0.000
T2	570.000	1.826	0.036	103.750	A	6.016	10.679	7.500	44.93	0.000	0.000
580.000-560.0					B	6.016	10.679		44.93	6.000	0.000
00					C	6.016	10.679		44.93	5.983	0.000
T3	550.000	1.812	0.036	103.750	A	6.016	10.679	7.500	44.93	3.006	0.000
560.000-540.0					B	6.016	10.679		44.93	6.000	0.000
00					C	6.016	10.679		44.93	6.006	0.000
T4	530.000	1.798	0.035	104.167	A	7.387	12.131	8.333	42.69	6.020	0.000
540.000-520.0					B	7.387	12.131		42.69	6.000	0.000
00					C	7.387	12.131		42.69	6.020	0.000
T5	510.000	1.783	0.035	104.167	A	5.990	11.498	8.333	47.65	6.020	0.000
520.000-500.0					B	5.990	11.498		47.65	12.053	0.000
00					C	5.990	11.498		47.65	6.020	0.000
T6	490.000	1.769	0.035	104.167	A	5.990	11.498	8.333	47.65	6.020	0.000
500.000-480.0					B	5.990	11.498		47.65	12.079	0.000
00					C	5.990	11.498		47.65	6.020	0.000
T7	470.000	1.753	0.034	104.583	A	7.355	12.948	9.167	45.15	6.020	0.000
480.000-460.0					B	7.355	12.948		45.15	12.651	0.000
00					C	7.355	12.948		45.15	6.020	0.000
T8	450.000	1.737	0.034	104.583	A	5.964	12.948	9.167	48.47	6.020	0.000
460.000-440.0					B	5.964	12.948		48.47	14.314	0.000
00					C	5.964	12.948		48.47	6.020	0.000
T9	430.000	1.721	0.034	104.583	A	5.964	12.318	9.167	50.14	6.020	0.000
440.000-420.0					B	5.964	12.318		50.14	14.343	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	5.964	12.318		50.14	6.020	0.000
T10	410.000	1.703	0.033	104.583	A	5.964	12.318	9.167	50.14	6.020	0.000
420.000-400.0					B	5.964	12.318		50.14	14.374	0.000
00					C	5.964	12.318		50.14	6.020	0.000
T11	390.000	1.686	0.033	104.583	A	5.964	12.318	9.167	50.14	10.833	0.000
400.000-380.0					B	5.964	12.318		50.14	14.407	0.000
00					C	5.964	12.318		50.14	9.980	0.000
T12	370.000	1.667	0.033	105.000	A	6.927	14.393	10.000	46.91	11.270	0.000
380.000-360.0					B	6.927	14.393		46.91	14.441	0.000
00					C	6.927	14.393		46.91	11.615	0.000
T13	350.000	1.648	0.032	105.000	A	5.938	13.138	10.000	52.42	13.108	0.000
360.000-340.0					B	5.938	13.138		52.42	14.478	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T14	330.000	1.627	0.032	105.000	A	5.938	13.138	10.000	52.42	14.770	0.000
340.000-320.0					B	5.938	13.138		52.42	14.517	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T15	310.000	1.606	0.032	105.000	A	5.938	13.138	10.000	52.42	14.770	0.000
320.000-300.0					B	5.938	13.138		52.42	14.559	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T16	290.000	1.584	0.031	105.417	A	5.911	14.582	10.833	52.86	16.520	0.000
300.000-280.0					B	5.911	14.582		52.86	14.604	0.000
00					C	5.911	14.582		52.86	12.160	0.000
T17	270.000	1.56	0.031	105.417	A	7.291	14.582	10.833	49.53	16.520	0.000
280.000-260.0					B	7.291	14.582		49.53	14.653	0.000
00					C	7.291	14.582		49.53	47.220	0.000
T18	250.000	1.535	0.030	105.417	A	5.911	13.957	10.833	54.52	17.395	0.000
260.000-240.0					B	5.911	13.957		54.52	14.705	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T19	230.000	1.508	0.030	105.417	A	5.911	13.957	10.833	54.52	18.655	0.000
240.000-220.0					B	5.911	13.957		54.52	14.763	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T20	210.000	1.48	0.029	105.417	A	5.911	13.957	10.833	54.52	19.810	0.000
220.000-200.0					B	5.911	13.957		54.52	14.826	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T21	190.000	1.449	0.028	105.417	A	7.291	15.207	10.833	48.15	23.135	0.000
200.000-180.0					B	7.291	15.207		48.15	14.897	0.000
00					C	7.291	15.207		48.15	47.220	0.000
T22	170.000	1.415	0.028	105.417	A	5.911	14.582	10.833	52.86	23.310	0.000
180.000-160.0					B	5.911	14.582		52.86	14.976	0.000
00					C	5.911	14.582		52.86	47.220	0.000
T23	150.000	1.378	0.027	105.417	A	5.911	13.957	10.833	54.52	23.310	0.000
160.000-140.0					B	5.911	13.957		54.52	15.066	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T24	130.000	1.337	0.026	105.417	A	5.911	13.957	10.833	54.52	23.310	0.000
140.000-120.0					B	5.911	13.957		54.52	15.170	0.000
00					C	5.911	13.957		54.52	51.680	0.000
T25	110.000	1.291	0.025	105.417	A	5.911	14.582	10.833	52.86	23.310	0.000
120.000-100.0					B	5.911	14.582		52.86	15.294	0.000
00					C	5.911	14.582		52.86	51.680	0.000
T26	90.000	1.238	0.024	105.833	A	7.259	15.399	11.667	51.49	23.310	0.000
100.000-80.00					B	7.259	15.399		51.49	15.446	0.000
0					C	7.259	15.399		51.49	51.680	0.000
T27	70.000	1.174	0.023	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
80.000-60.000					B	5.885	14.777		56.46	15.641	0.000
					C	5.885	14.777		56.46	51.680	0.000
T28	50.000	1.094	0.021	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
60.000-40.000					B	5.885	14.777		56.46	15.910	0.000
					C	5.885	14.777		56.46	53.570	0.000
T29	30.000	0.982	0.019	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
40.000-20.000					B	5.885	14.777		56.46	16.532	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	5.885	14.777		56.46	55.460	0.000
T30	14.000	0.85	0.017	63.500	A	3.924	8.854	7.000	54.78	13.986	0.000
20.000-8.000					B	3.924	8.854		54.78	10.236	0.000
					C	3.924	8.854		54.78	33.276	0.000
T31	4.000	0.85	0.017	22.445	A	6.787	4.961	4.961	42.23	0.000	0.000
8.000-0.000					B	6.787	4.961		42.23	0.000	0.000
					C	6.787	4.961		42.23	0.000	0.000

Tower Pressure - With Ice

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	608.524	1.851	0.010	2.0076	40.604	A	0.000	40.604	40.604	100.00	0.000	0.000
625.000-592.000						B	0.000	40.604		100.00	0.000	0.000
						C	0.000	40.604		100.00	0.000	0.000
T1	586.000	1.836	0.010	2.0000	66.250	A	5.414	33.319	12.500	32.27	0.000	0.000
592.000-580.000						B	5.414	33.319		32.27	10.345	0.000
						C	5.414	33.319		32.27	7.010	0.000
T2	570.000	1.826	0.010	1.9945	110.398	A	6.016	53.862	20.796	34.73	0.000	0.000
580.000-560.000						B	6.016	53.862		34.73	17.202	0.000
						C	6.016	53.862		34.73	13.998	0.000
T3	550.000	1.812	0.010	1.9874	110.375	A	6.016	53.708	20.749	34.74	6.985	0.000
560.000-540.000						B	6.016	53.708		34.74	17.152	0.000
						C	6.016	53.708		34.74	13.969	0.000
T4	530.000	1.798	0.010	1.9800	110.767	A	7.387	54.873	21.533	34.59	13.940	0.000
540.000-520.000						B	7.387	54.873		34.59	17.100	0.000
						C	7.387	54.873		34.59	13.940	0.000
T5	510.000	1.783	0.010	1.9724	110.741	A	5.990	54.076	21.483	35.77	13.910	0.000
520.000-500.000						B	5.990	54.076		35.77	32.936	0.000
						C	5.990	54.076		35.77	13.910	0.000
T6	490.000	1.769	0.010	1.9645	110.715	A	5.990	53.906	21.430	35.78	13.878	0.000
500.000-480.000						B	5.990	53.906		35.78	32.849	0.000
						C	5.990	53.906		35.78	13.878	0.000
T7	470.000	1.753	0.010	1.9564	111.105	A	7.355	55.052	22.209	35.59	13.845	0.000
480.000-460.000						B	7.355	55.052		35.59	35.260	0.000
						C	7.355	55.052		35.59	13.845	0.000
T8	450.000	1.737	0.009	1.9479	111.076	A	5.964	54.870	22.153	36.42	13.812	0.000
460.000-440.000						B	5.964	54.870		36.42	42.636	0.000
						C	5.964	54.870		36.42	13.812	0.000
T9	430.000	1.721	0.009	1.9390	111.047	A	5.964	54.049	22.094	36.81	13.776	0.000
440.000-420.000						B	5.964	54.049		36.81	42.503	0.000
						C	5.964	54.049		36.81	13.776	0.000
T10	410.000	1.703	0.009	1.9298	111.016	A	5.964	53.851	22.032	36.83	13.739	0.000
420.000-400.000						B	5.964	53.851		36.83	42.364	0.000
						C	5.964	53.851		36.83	13.739	0.000
T11	390.000	1.686	0.009	1.9202	110.984	A	5.964	53.644	21.968	36.85	39.058	0.000
400.000-380.000						B	5.964	53.644		36.85	42.219	0.000
						C	5.964	53.644		36.85	25.342	0.000
T12	370.000	1.667	0.009	1.9101	111.367	A	6.927	55.378	22.734	36.49	41.264	0.000
380.000-360.000						B	6.927	55.378		36.49	42.067	0.000
						C	6.927	55.378		36.49	32.626	0.000
T13	350.000	1.648	0.009	1.8995	111.332	A	5.938	53.895	22.664	37.88	50.920	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
360.000-340.000						B	5.938	53.895		37.88	41.907	0.000
						C	5.938	53.895		37.88	34.954	0.000
T14	330.000	1.627	0.009	1.8884	111.295	A	5.938	53.656	22.589	37.91	59.544	0.000
340.000-320.000						B	5.938	53.656		37.91	41.740	0.000
						C	5.938	53.656		37.91	34.821	0.000
T15	310.000	1.606	0.009	1.8766	111.255	A	5.938	53.404	22.511	37.93	59.273	0.000
320.000-300.000						B	5.938	53.404		37.93	41.562	0.000
						C	5.938	53.404		37.93	34.679	0.000
T16	290.000	1.584	0.009	1.8641	111.630	A	5.911	54.460	23.261	38.53	68.192	0.000
300.000-280.000						B	5.911	54.460		38.53	41.374	0.000
						C	5.911	54.460		38.53	34.530	0.000
T17	270.000	1.56	0.008	1.8509	111.586	A	7.291	54.176	23.172	37.70	67.833	0.000
280.000-260.000						B	7.291	54.176		37.70	41.174	0.000
						C	7.291	54.176		37.70	115.252	0.000
T18	250.000	1.535	0.008	1.8367	111.539	A	5.911	53.247	23.078	39.01	71.997	0.000
260.000-240.000						B	5.911	53.247		39.01	40.960	0.000
						C	5.911	53.247		39.01	114.795	0.000
T19	230.000	1.508	0.008	1.8214	111.488	A	5.911	52.921	22.976	39.05	78.279	0.000
240.000-220.000						B	5.911	52.921		39.05	40.731	0.000
						C	5.911	52.921		39.05	114.304	0.000
T20	210.000	1.48	0.008	1.8049	111.433	A	5.911	52.568	22.866	39.10	84.320	0.000
220.000-200.000						B	5.911	52.568		39.10	40.482	0.000
						C	5.911	52.568		39.10	113.772	0.000
T21	190.000	1.449	0.008	1.7870	111.373	A	7.291	53.433	22.746	37.46	94.145	0.000
200.000-180.000						B	7.291	53.433		37.46	40.211	0.000
						C	7.291	53.433		37.46	113.193	0.000
T22	170.000	1.415	0.008	1.7672	111.307	A	5.911	52.386	22.615	38.79	93.548	0.000
180.000-160.000						B	5.911	52.386		38.79	39.913	0.000
						C	5.911	52.386		38.79	112.557	0.000
T23	150.000	1.378	0.007	1.7452	111.234	A	5.911	51.291	22.468	39.28	92.691	0.000
160.000-140.000						B	5.911	51.291		39.28	39.582	0.000
						C	5.911	51.291		39.28	111.849	0.000
T24	130.000	1.337	0.007	1.7204	111.151	A	5.911	50.760	22.303	39.35	91.725	0.000
140.000-120.000						B	5.911	50.760		39.35	39.209	0.000
						C	5.911	50.760		39.35	130.525	0.000
T25	110.000	1.291	0.007	1.6919	111.056	A	5.911	50.775	22.113	39.01	90.614	0.000
120.000-100.000						B	5.911	50.775		39.01	38.779	0.000
						C	5.911	50.775		39.01	129.409	0.000
T26	90.000	1.238	0.007	1.6583	111.361	A	7.259	50.765	22.722	39.16	89.304	0.000
100.000-80.000						B	7.259	50.765		39.16	38.273	0.000
						C	7.259	50.765		39.16	128.094	0.000
T27	70.000	1.174	0.006	1.6171	111.224	A	5.885	49.266	22.448	40.70	87.700	0.000
80.000-60.000						B	5.885	49.266		40.70	37.652	0.000
						C	5.885	49.266		40.70	126.483	0.000
T28	50.000	1.094	0.006	1.5636	111.045	A	5.885	48.125	22.091	40.90	85.616	0.000
60.000-40.000						B	5.885	48.125		40.90	36.846	0.000
						C	5.885	48.125		40.90	132.227	0.000
T29	30.000	0.982	0.005	1.4858	110.786	A	5.885	46.464	21.572	41.21	82.582	0.000
40.000-20.000						B	5.885	46.464		41.21	38.402	0.000
						C	5.885	46.464		41.21	136.475	0.000
T30	14.000	0.85	0.005	1.3767	66.253	A	3.924	26.850	12.507	40.64	47.001	0.000
20.000-8.000						B	3.924	26.850		40.64	24.250	0.000
						C	3.924	26.850		40.64	78.876	0.000
T31 8.000-0.000	4.000	0.85	0.005	1.2146	24.141	A	6.787	13.729	8.405	40.97	0.000	0.000
						B	6.787	13.729		40.97	0.000	0.000
						C	6.787	13.729		40.97	0.000	0.000

Tower Pressure - Service

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	608.524	1.851	0.014	29.563	A	0.000	29.563	29.563	100.00	0.000	0.000
625.000-592.0					B	0.000	29.563		100.00	0.000	0.000
00					C	0.000	29.563		100.00	0.000	0.000
T1	586.000	1.836	0.014	62.250	A	5.414	6.774	4.500	36.92	0.000	0.000
592.000-580.0					B	5.414	6.774		36.92	3.600	0.000
00					C	5.414	6.774		36.92	2.983	0.000
T2	570.000	1.826	0.014	103.750	A	6.016	10.679	7.500	44.93	0.000	0.000
580.000-560.0					B	6.016	10.679		44.93	6.000	0.000
00					C	6.016	10.679		44.93	5.983	0.000
T3	550.000	1.812	0.014	103.750	A	6.016	10.679	7.500	44.93	3.006	0.000
560.000-540.0					B	6.016	10.679		44.93	6.000	0.000
00					C	6.016	10.679		44.93	6.006	0.000
T4	530.000	1.798	0.014	104.167	A	7.387	12.131	8.333	42.69	6.020	0.000
540.000-520.0					B	7.387	12.131		42.69	6.000	0.000
00					C	7.387	12.131		42.69	6.020	0.000
T5	510.000	1.783	0.014	104.167	A	5.990	11.498	8.333	47.65	6.020	0.000
520.000-500.0					B	5.990	11.498		47.65	12.053	0.000
00					C	5.990	11.498		47.65	6.020	0.000
T6	490.000	1.769	0.014	104.167	A	5.990	11.498	8.333	47.65	6.020	0.000
500.000-480.0					B	5.990	11.498		47.65	12.079	0.000
00					C	5.990	11.498		47.65	6.020	0.000
T7	470.000	1.753	0.014	104.583	A	7.355	12.948	9.167	45.15	6.020	0.000
480.000-460.0					B	7.355	12.948		45.15	12.651	0.000
00					C	7.355	12.948		45.15	6.020	0.000
T8	450.000	1.737	0.014	104.583	A	5.964	12.948	9.167	48.47	6.020	0.000
460.000-440.0					B	5.964	12.948		48.47	14.314	0.000
00					C	5.964	12.948		48.47	6.020	0.000
T9	430.000	1.721	0.013	104.583	A	5.964	12.318	9.167	50.14	6.020	0.000
440.000-420.0					B	5.964	12.318		50.14	14.343	0.000
00					C	5.964	12.318		50.14	6.020	0.000
T10	410.000	1.703	0.013	104.583	A	5.964	12.318	9.167	50.14	6.020	0.000
420.000-400.0					B	5.964	12.318		50.14	14.374	0.000
00					C	5.964	12.318		50.14	6.020	0.000
T11	390.000	1.686	0.013	104.583	A	5.964	12.318	9.167	50.14	10.833	0.000
400.000-380.0					B	5.964	12.318		50.14	14.407	0.000
00					C	5.964	12.318		50.14	9.980	0.000
T12	370.000	1.667	0.013	105.000	A	6.927	14.393	10.000	46.91	11.270	0.000
380.000-360.0					B	6.927	14.393		46.91	14.441	0.000
00					C	6.927	14.393		46.91	11.615	0.000
T13	350.000	1.648	0.013	105.000	A	5.938	13.138	10.000	52.42	13.108	0.000
360.000-340.0					B	5.938	13.138		52.42	14.478	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T14	330.000	1.627	0.013	105.000	A	5.938	13.138	10.000	52.42	14.770	0.000
340.000-320.0					B	5.938	13.138		52.42	14.517	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T15	310.000	1.606	0.013	105.000	A	5.938	13.138	10.000	52.42	14.770	0.000
320.000-300.0					B	5.938	13.138		52.42	14.559	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T16	290.000	1.584	0.012	105.417	A	5.911	14.582	10.833	52.86	16.520	0.000
300.000-280.0					B	5.911	14.582		52.86	14.604	0.000
00					C	5.911	14.582		52.86	12.160	0.000
T17	270.000	1.56	0.012	105.417	A	7.291	14.582	10.833	49.53	16.520	0.000
280.000-260.0					B	7.291	14.582		49.53	14.653	0.000
00					C	7.291	14.582		49.53	47.220	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T18	250.000	1.535	0.012	105.417	A	5.911	13.957	10.833	54.52	17.395	0.000
260.000-240.0					B	5.911	13.957		54.52	14.705	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T19	230.000	1.508	0.012	105.417	A	5.911	13.957	10.833	54.52	18.655	0.000
240.000-220.0					B	5.911	13.957		54.52	14.763	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T20	210.000	1.48	0.012	105.417	A	5.911	13.957	10.833	54.52	19.810	0.000
220.000-200.0					B	5.911	13.957		54.52	14.826	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T21	190.000	1.449	0.011	105.417	A	7.291	15.207	10.833	48.15	23.135	0.000
200.000-180.0					B	7.291	15.207		48.15	14.897	0.000
00					C	7.291	15.207		48.15	47.220	0.000
T22	170.000	1.415	0.011	105.417	A	5.911	14.582	10.833	52.86	23.310	0.000
180.000-160.0					B	5.911	14.582		52.86	14.976	0.000
00					C	5.911	14.582		52.86	47.220	0.000
T23	150.000	1.378	0.011	105.417	A	5.911	13.957	10.833	54.52	23.310	0.000
160.000-140.0					B	5.911	13.957		54.52	15.066	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T24	130.000	1.337	0.010	105.417	A	5.911	13.957	10.833	54.52	23.310	0.000
140.000-120.0					B	5.911	13.957		54.52	15.170	0.000
00					C	5.911	13.957		54.52	51.680	0.000
T25	110.000	1.291	0.010	105.417	A	5.911	14.582	10.833	52.86	23.310	0.000
120.000-100.0					B	5.911	14.582		52.86	15.294	0.000
00					C	5.911	14.582		52.86	51.680	0.000
T26	90.000	1.238	0.010	105.833	A	7.259	15.399	11.667	51.49	23.310	0.000
100.000-80.00					B	7.259	15.399		51.49	15.446	0.000
0					C	7.259	15.399		51.49	51.680	0.000
T27	70.000	1.174	0.009	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
80.000-60.000					B	5.885	14.777		56.46	15.641	0.000
					C	5.885	14.777		56.46	51.680	0.000
T28	50.000	1.094	0.009	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
60.000-40.000					B	5.885	14.777		56.46	15.910	0.000
					C	5.885	14.777		56.46	53.570	0.000
T29	30.000	0.982	0.008	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
40.000-20.000					B	5.885	14.777		56.46	16.532	0.000
					C	5.885	14.777		56.46	55.460	0.000
T30	14.000	0.85	0.007	63.500	A	3.924	8.854	7.000	54.78	13.986	0.000
20.000-8.000					B	3.924	8.854		54.78	10.236	0.000
					C	3.924	8.854		54.78	33.276	0.000
T31	4.000	0.85	0.007	22.445	A	6.787	4.961	4.961	42.23	0.000	0.000
8.000-0.000					B	6.787	4.961		42.23	0.000	0.000
					C	6.787	4.961		42.23	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.036	1	1	29.563	0.870	0.026	C
625.000-592.0			B	1	0.6		1	1	29.563			
00			C	1	0.6		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.036	1	1	9.301	0.863	0.072	B
592.000-580.0			B	0.196	2.61		1	1	9.301			
00			C	0.196	2.61		1	1	9.301			
T2	0.036	1.287	A	0.161	2.732	0.036	1	1	12.089	1.235	0.062	B
580.000-560.0			B	0.161	2.732		1	1	12.089			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
00			C	0.161	2.732		1	1	12.089			
T3	0.053	1.287	A	0.161	2.732	0.036	1	1	12.089	1.317	0.066	B
560.000-540.0			B	0.161	2.732		1	1	12.089			
00			C	0.161	2.732		1	1	12.089			
T4	0.071	1.825	A	0.187	2.639	0.035	1	1	14.331	1.397	0.070	B
540.000-520.0			B	0.187	2.639		1	1	14.331			
00			C	0.187	2.639		1	1	14.331			
T5	0.071	1.477	A	0.168	2.707	0.035	1	1	12.539	1.450	0.073	B
520.000-500.0			B	0.168	2.707		1	1	12.539			
00			C	0.168	2.707		1	1	12.539			
T6	0.071	1.477	A	0.168	2.707	0.035	1	1	12.539	1.439	0.072	B
500.000-480.0			B	0.168	2.707		1	1	12.539			
00			C	0.168	2.707		1	1	12.539			
T7	0.073	2.035	A	0.194	2.616	0.034	1	1	14.781	1.575	0.079	B
480.000-460.0			B	0.194	2.616		1	1	14.781			
00			C	0.194	2.616		1	1	14.781			
T8	0.078	1.775	A	0.181	2.661	0.034	1	1	13.362	1.500	0.075	B
460.000-440.0			B	0.181	2.661		1	1	13.362			
00			C	0.181	2.661		1	1	13.362			
T9	0.078	1.688	A	0.175	2.682	0.034	1	1	12.991	1.466	0.073	B
440.000-420.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T10	0.078	1.688	A	0.175	2.682	0.033	1	1	12.991	1.452	0.073	B
420.000-400.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T11	0.112	1.688	A	0.175	2.682	0.033	1	1	12.991	1.578	0.079	A
400.000-380.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T12	0.119	2.417	A	0.203	2.586	0.033	1	1	15.203	1.721	0.086	A
380.000-360.0			B	0.203	2.586		1	1	15.203			
00			C	0.203	2.586		1	1	15.203			
T13	0.128	1.918	A	0.182	2.658	0.032	1	1	13.446	1.643	0.082	A
360.000-340.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T14	0.134	1.918	A	0.182	2.658	0.032	1	1	13.446	1.651	0.083	A
340.000-320.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T15	0.134	1.918	A	0.182	2.658	0.032	1	1	13.446	1.630	0.082	A
320.000-300.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T16	0.140	2.256	A	0.194	2.615	0.031	1	1	14.258	1.677	0.084	A
300.000-280.0			B	0.194	2.615		1	1	14.258			
00			C	0.194	2.615		1	1	14.258			
T17	0.312	2.516	A	0.207	2.571	0.031	1	1	15.682	2.268	0.113	C
280.000-260.0			B	0.207	2.571		1	1	15.682			
00			C	0.207	2.571		1	1	15.682			
T18	0.315	2.169	A	0.188	2.635	0.030	1	1	13.903	2.152	0.108	C
260.000-240.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T19	0.324	2.169	A	0.188	2.635	0.030	1	1	13.903	2.135	0.107	C
240.000-220.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T20	0.340	2.169	A	0.188	2.635	0.029	1	1	13.903	2.113	0.106	C
220.000-200.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T21	0.353	2.693	A	0.213	2.552	0.028	1	1	16.064	2.209	0.110	C
200.000-180.0			B	0.213	2.552		1	1	16.064			
00			C	0.213	2.552		1	1	16.064			
T22	0.353	2.256	A	0.194	2.615	0.028	1	1	14.274	2.074	0.104	C
180.000-160.0			B	0.194	2.615		1	1	14.274			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
00			C	0.194	2.615		1	1	14.274			
T23	0.353	2.169	A	0.188	2.635	0.027	1	1	13.903	2.006	0.100	C
160.000-140.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T24	0.377	2.169	A	0.188	2.635	0.026	1	1	13.903	2.009	0.100	C
140.000-120.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T25	0.377	2.256	A	0.194	2.615	0.025	1	1	14.274	1.957	0.098	C
120.000-100.0			B	0.194	2.615		1	1	14.274			
00			C	0.194	2.615		1	1	14.274			
T26	0.377	2.787	A	0.214	2.55	0.024	1	1	16.145	1.958	0.098	C
100.000-80.00			B	0.214	2.55		1	1	16.145			
0			C	0.214	2.55		1	1	16.145			
T27	0.377	2.439	A	0.195	2.612	0.023	1	1	14.362	1.790	0.089	C
80.000-60.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T28	0.381	2.439	A	0.195	2.612	0.021	1	1	14.362	1.693	0.085	C
60.000-40.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T29	0.386	2.439	A	0.195	2.612	0.019	1	1	14.362	1.494	0.075	C
40.000-20.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T30	0.232	1.481	A	0.201	2.592	0.017	1	1	9.012	0.791	0.066	C
20.000-8.000			B	0.201	2.592		1	1	9.012			
			C	0.201	2.592		1	1	9.012			
T31	0.000	1.466	A	0.523	1.871	0.017	1	1	10.249	0.272	0.034	C
8.000-0.000			B	0.523	1.871		1	1	10.249			
			C	0.523	1.871		1	1	10.249			
Sum Weight:	6.251	62.706								51.383		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.036	1	1	29.563	0.870	0.026	C
625.000-592.0			B	1	0.6		1	1	29.563			
00			C	1	0.6		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.036	0.8	1	8.218	0.777	0.065	C
592.000-580.0			B	0.196	2.61		0.8	1	8.218			
00			C	0.196	2.61		0.8	1	8.218			
T2	0.036	1.287	A	0.161	2.732	0.036	0.8	1	10.886	1.134	0.057	C
580.000-560.0			B	0.161	2.732		0.8	1	10.886			
00			C	0.161	2.732		0.8	1	10.886			
T3	0.053	1.287	A	0.161	2.732	0.036	0.8	1	10.886	1.217	0.061	C
560.000-540.0			B	0.161	2.732		0.8	1	10.886			
00			C	0.161	2.732		0.8	1	10.886			
T4	0.071	1.825	A	0.187	2.639	0.035	0.8	1	12.854	1.280	0.064	C
540.000-520.0			B	0.187	2.639		0.8	1	12.854			
00			C	0.187	2.639		0.8	1	12.854			
T5	0.071	1.477	A	0.168	2.707	0.035	0.8	1	11.341	1.354	0.068	C
520.000-500.0			B	0.168	2.707		0.8	1	11.341			
00			C	0.168	2.707		0.8	1	11.341			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T6	0.071	1.477	A	0.168	2.707	0.035	0.8	1	11.341	1.343	0.067	C
500.000-480.0			B	0.168	2.707		0.8	1	11.341			
00			C	0.168	2.707		0.8	1	11.341			
T7	0.073	2.035	A	0.194	2.616	0.034	0.8	1	13.310	1.462	0.073	C
480.000-460.0			B	0.194	2.616		0.8	1	13.310			
00			C	0.194	2.616		0.8	1	13.310			
T8	0.078	1.775	A	0.181	2.661	0.034	0.8	1	12.169	1.408	0.070	C
460.000-440.0			B	0.181	2.661		0.8	1	12.169			
00			C	0.181	2.661		0.8	1	12.169			
T9	0.078	1.688	A	0.175	2.682	0.034	0.8	1	11.799	1.374	0.069	C
440.000-420.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T10	0.078	1.688	A	0.175	2.682	0.033	0.8	1	11.799	1.361	0.068	C
420.000-400.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T11	0.112	1.688	A	0.175	2.682	0.033	0.8	1	11.799	1.488	0.074	B
400.000-380.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T12	0.119	2.417	A	0.203	2.586	0.033	0.8	1	13.818	1.621	0.081	B
380.000-360.0			B	0.203	2.586		0.8	1	13.818			
00			C	0.203	2.586		0.8	1	13.818			
T13	0.128	1.918	A	0.182	2.658	0.032	0.8	1	12.258	1.556	0.078	B
360.000-340.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T14	0.134	1.918	A	0.182	2.658	0.032	0.8	1	12.258	1.565	0.078	B
340.000-320.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T15	0.134	1.918	A	0.182	2.658	0.032	0.8	1	12.258	1.546	0.077	B
320.000-300.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T16	0.140	2.256	A	0.194	2.615	0.031	0.8	1	13.075	1.595	0.080	B
300.000-280.0			B	0.194	2.615		0.8	1	13.075			
00			C	0.194	2.615		0.8	1	13.075			
T17	0.312	2.516	A	0.207	2.571	0.031	0.8	1	14.224	2.171	0.109	A
280.000-260.0			B	0.207	2.571		0.8	1	14.224			
00			C	0.207	2.571		0.8	1	14.224			
T18	0.315	2.169	A	0.188	2.635	0.030	0.8	1	12.720	2.072	0.104	A
260.000-240.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T19	0.324	2.169	A	0.188	2.635	0.030	0.8	1	12.720	2.057	0.103	A
240.000-220.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T20	0.340	2.169	A	0.188	2.635	0.029	0.8	1	12.720	2.036	0.102	A
220.000-200.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T21	0.353	2.693	A	0.213	2.552	0.028	0.8	1	14.606	2.119	0.106	A
200.000-180.0			B	0.213	2.552		0.8	1	14.606			
00			C	0.213	2.552		0.8	1	14.606			
T22	0.353	2.256	A	0.194	2.615	0.028	0.8	1	13.092	2.001	0.100	A
180.000-160.0			B	0.194	2.615		0.8	1	13.092			
00			C	0.194	2.615		0.8	1	13.092			
T23	0.353	2.169	A	0.188	2.635	0.027	0.8	1	12.720	1.934	0.097	A
160.000-140.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T24	0.377	2.169	A	0.188	2.635	0.026	0.8	1	12.720	1.939	0.097	A
140.000-120.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T25	0.377	2.256	A	0.194	2.615	0.025	0.8	1	13.092	1.890	0.095	A
120.000-100.0			B	0.194	2.615		0.8	1	13.092			
00			C	0.194	2.615		0.8	1	13.092			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T26	0.377	2.787	A	0.214	2.55	0.024	0.8	1	14.693	1.882	0.094	A
100.000-80.00			B	0.214	2.55		0.8	1	14.693			
0			C	0.214	2.55		0.8	1	14.693			
T27	0.377	2.439	A	0.195	2.612	0.023	0.8	1	13.185	1.729	0.086	A
80.000-60.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T28	0.381	2.439	A	0.195	2.612	0.021	0.8	1	13.185	1.637	0.082	A
60.000-40.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T29	0.386	2.439	A	0.195	2.612	0.019	0.8	1	13.185	1.444	0.072	A
40.000-20.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T30	0.232	1.481	A	0.201	2.592	0.017	0.8	1	8.227	0.762	0.063	A
20.000-8.000			B	0.201	2.592		0.8	1	8.227			
			C	0.201	2.592		0.8	1	8.227			
T31	0.000	1.466	A	0.523	1.871	0.017	0.8	1	8.892	0.236	0.030	C
8.000-0.000			B	0.523	1.871		0.8	1	8.892			
			C	0.523	1.871		0.8	1	8.892			
Sum Weight:	6.251	62.706								48.860		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.036	1	1	29.563	0.870	0.026	C
625.000-592.0			B	1	0.6		1	1	29.563			
00			C	1	0.6		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.036	0.85	1	8.489	0.796	0.066	C
592.000-580.0			B	0.196	2.61		0.85	1	8.489			
00			C	0.196	2.61		0.85	1	8.489			
T2	0.036	1.287	A	0.161	2.732	0.036	0.85	1	11.187	1.157	0.058	C
580.000-560.0			B	0.161	2.732		0.85	1	11.187			
00			C	0.161	2.732		0.85	1	11.187			
T3	0.053	1.287	A	0.161	2.732	0.036	0.85	1	11.187	1.239	0.062	C
560.000-540.0			B	0.161	2.732		0.85	1	11.187			
00			C	0.161	2.732		0.85	1	11.187			
T4	0.071	1.825	A	0.187	2.639	0.035	0.85	1	13.223	1.306	0.065	C
540.000-520.0			B	0.187	2.639		0.85	1	13.223			
00			C	0.187	2.639		0.85	1	13.223			
T5	0.071	1.477	A	0.168	2.707	0.035	0.85	1	11.641	1.375	0.069	C
520.000-500.0			B	0.168	2.707		0.85	1	11.641			
00			C	0.168	2.707		0.85	1	11.641			
T6	0.071	1.477	A	0.168	2.707	0.035	0.85	1	11.641	1.364	0.068	C
500.000-480.0			B	0.168	2.707		0.85	1	11.641			
00			C	0.168	2.707		0.85	1	11.641			
T7	0.073	2.035	A	0.194	2.616	0.034	0.85	1	13.677	1.488	0.074	C
480.000-460.0			B	0.194	2.616		0.85	1	13.677			
00			C	0.194	2.616		0.85	1	13.677			
T8	0.078	1.775	A	0.181	2.661	0.034	0.85	1	12.467	1.428	0.071	C
460.000-440.0			B	0.181	2.661		0.85	1	12.467			
00			C	0.181	2.661		0.85	1	12.467			
T9	0.078	1.688	A	0.175	2.682	0.034	0.85	1	12.097	1.394	0.070	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
440.000-420.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T10	0.078	1.688	A	0.175	2.682	0.033	0.85	1	12.097	1.381	0.069	C
420.000-400.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T11	0.112	1.688	A	0.175	2.682	0.033	0.85	1	12.097	1.516	0.076	C
400.000-380.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T12	0.119	2.417	A	0.203	2.586	0.033	0.85	1	14.164	1.651	0.083	C
380.000-360.0			B	0.203	2.586		0.85	1	14.164			
00			C	0.203	2.586		0.85	1	14.164			
T13	0.128	1.918	A	0.182	2.658	0.032	0.85	1	12.555	1.583	0.079	C
360.000-340.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T14	0.134	1.918	A	0.182	2.658	0.032	0.85	1	12.555	1.591	0.080	C
340.000-320.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T15	0.134	1.918	A	0.182	2.658	0.032	0.85	1	12.555	1.572	0.079	C
320.000-300.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T16	0.140	2.256	A	0.194	2.615	0.031	0.85	1	13.371	1.621	0.081	C
300.000-280.0			B	0.194	2.615		0.85	1	13.371			
00			C	0.194	2.615		0.85	1	13.371			
T17	0.312	2.516	A	0.207	2.571	0.031	0.85	1	14.588	2.199	0.110	B
280.000-260.0			B	0.207	2.571		0.85	1	14.588			
00			C	0.207	2.571		0.85	1	14.588			
T18	0.315	2.169	A	0.188	2.635	0.030	0.85	1	13.016	2.096	0.105	B
260.000-240.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T19	0.324	2.169	A	0.188	2.635	0.030	0.85	1	13.016	2.080	0.104	B
240.000-220.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T20	0.340	2.169	A	0.188	2.635	0.029	0.85	1	13.016	2.059	0.103	B
220.000-200.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T21	0.353	2.693	A	0.213	2.552	0.028	0.85	1	14.971	2.161	0.108	B
200.000-180.0			B	0.213	2.552		0.85	1	14.971			
00			C	0.213	2.552		0.85	1	14.971			
T22	0.353	2.256	A	0.194	2.615	0.028	0.85	1	13.388	2.040	0.102	B
180.000-160.0			B	0.194	2.615		0.85	1	13.388			
00			C	0.194	2.615		0.85	1	13.388			
T23	0.353	2.169	A	0.188	2.635	0.027	0.85	1	13.016	1.972	0.099	B
160.000-140.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T24	0.377	2.169	A	0.188	2.635	0.026	0.85	1	13.016	1.976	0.099	B
140.000-120.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T25	0.377	2.256	A	0.194	2.615	0.025	0.85	1	13.388	1.926	0.096	B
120.000-100.0			B	0.194	2.615		0.85	1	13.388			
00			C	0.194	2.615		0.85	1	13.388			
T26	0.377	2.787	A	0.214	2.55	0.024	0.85	1	15.056	1.919	0.096	B
100.000-80.00			B	0.214	2.55		0.85	1	15.056			
0			C	0.214	2.55		0.85	1	15.056			
T27	0.377	2.439	A	0.195	2.612	0.023	0.85	1	13.479	1.762	0.088	B
80.000-60.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T28	0.381	2.439	A	0.195	2.612	0.021	0.85	1	13.479	1.667	0.083	B
60.000-40.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T29	0.386	2.439	A	0.195	2.612	0.019	0.85	1	13.479	1.471	0.074	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
40.000-20.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T30	0.232	1.481	A	0.201	2.592	0.017	0.85	1	8.423	0.776	0.065	B
20.000-8.000			B	0.201	2.592		0.85	1	8.423			
			C	0.201	2.592		0.85	1	8.423			
T31	0.000	1.466	A	0.523	1.871	0.017	0.85	1	9.231	0.245	0.031	C
8.000-0.000			B	0.523	1.871		0.85	1	9.231			
			C	0.523	1.871		0.85	1	9.231			
Sum Weight:	6.251	62.706								49.683		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	2.370	A	1	1.2	0.010	1	1	40.604	0.662	0.020	C
625.000-592.0			B	1	1.2		1	1	40.604			
00			C	1	1.2		1	1	40.604			
T1	0.230	3.143	A	0.585	1.814	0.010	1	1	29.875	0.511	0.043	B
592.000-580.0			B	0.585	1.814		1	1	29.875			
00			C	0.585	1.814		1	1	29.875			
T2	0.429	4.334	A	0.542	1.851	0.010	1	1	44.191	0.793	0.040	B
580.000-560.0			B	0.542	1.851		1	1	44.191			
00			C	0.542	1.851		1	1	44.191			
T3	0.566	4.317	A	0.541	1.852	0.010	1	1	44.042	0.812	0.041	B
560.000-540.0			B	0.541	1.852		1	1	44.042			
00			C	0.541	1.852		1	1	44.042			
T4	0.702	5.024	A	0.562	1.832	0.010	1	1	46.917	0.861	0.043	B
540.000-520.0			B	0.562	1.832		1	1	46.917			
00			C	0.562	1.832		1	1	46.917			
T5	0.986	4.509	A	0.542	1.851	0.010	1	1	44.317	0.888	0.044	B
520.000-500.0			B	0.542	1.851		1	1	44.317			
00			C	0.542	1.851		1	1	44.317			
T6	0.981	4.490	A	0.541	1.852	0.010	1	1	44.153	0.879	0.044	B
500.000-480.0			B	0.541	1.852		1	1	44.153			
00			C	0.541	1.852		1	1	44.153			
T7	1.013	5.213	A	0.562	1.833	0.010	1	1	47.002	0.905	0.045	B
480.000-460.0			B	0.562	1.833		1	1	47.002			
00			C	0.562	1.833		1	1	47.002			
T8	1.121	4.841	A	0.548	1.846	0.009	1	1	45.023	0.906	0.045	B
460.000-440.0			B	0.548	1.846		1	1	45.023			
00			C	0.548	1.846		1	1	45.023			
T9	1.114	4.677	A	0.54	1.853	0.009	1	1	44.211	0.891	0.045	B
440.000-420.0			B	0.54	1.853		1	1	44.211			
00			C	0.54	1.853		1	1	44.211			
T10	1.107	4.655	A	0.539	1.855	0.009	1	1	44.019	0.880	0.044	B
420.000-400.0			B	0.539	1.855		1	1	44.019			
00			C	0.539	1.855		1	1	44.019			
T11	1.574	4.633	A	0.537	1.856	0.009	1	1	43.820	0.985	0.049	A
400.000-380.0			B	0.537	1.856		1	1	43.820			
00			C	0.537	1.856		1	1	43.820			
T12	1.707	5.524	A	0.559	1.835	0.009	1	1	46.734	1.023	0.051	A
380.000-360.0			B	0.559	1.835		1	1	46.734			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
00			C	0.559	1.835		1	1	46.734			
T13	1.872	4.850	A	0.537	1.856	0.009	1	1	43.982	1.040	0.052	A
360.000-340.0			B	0.537	1.856		1	1	43.982			
00			C	0.537	1.856		1	1	43.982			
T14	1.984	4.824	A	0.535	1.858	0.009	1	1	43.753	1.055	0.053	A
340.000-320.0			B	0.535	1.858		1	1	43.753			
00			C	0.535	1.858		1	1	43.753			
T15	1.967	4.797	A	0.533	1.86	0.009	1	1	43.511	1.039	0.052	A
320.000-300.0			B	0.533	1.86		1	1	43.511			
00			C	0.533	1.86		1	1	43.511			
T16	2.080	5.194	A	0.541	1.853	0.009	1	1	44.461	1.057	0.053	A
300.000-280.0			B	0.541	1.853		1	1	44.461			
00			C	0.541	1.853		1	1	44.461			
T17	3.077	5.510	A	0.551	1.843	0.008	1	1	45.957	1.273	0.064	C
280.000-260.0			B	0.551	1.843		1	1	45.957			
00			C	0.551	1.843		1	1	45.957			
T18	3.111	4.989	A	0.53	1.864	0.008	1	1	43.284	1.265	0.063	C
260.000-240.0			B	0.53	1.864		1	1	43.284			
00			C	0.53	1.864		1	1	43.284			
T19	3.175	4.954	A	0.528	1.867	0.008	1	1	42.974	1.263	0.063	C
240.000-220.0			B	0.528	1.867		1	1	42.974			
00			C	0.528	1.867		1	1	42.974			
T20	3.239	4.917	A	0.525	1.87	0.008	1	1	42.640	1.257	0.063	C
220.000-200.0			B	0.525	1.87		1	1	42.640			
00			C	0.525	1.87		1	1	42.640			
T21	3.349	5.587	A	0.545	1.848	0.008	1	1	45.251	1.252	0.063	C
200.000-180.0			B	0.545	1.848		1	1	45.251			
00			C	0.545	1.848		1	1	45.251			
T22	3.305	4.970	A	0.524	1.871	0.008	1	1	42.482	1.223	0.061	C
180.000-160.0			B	0.524	1.871		1	1	42.482			
00			C	0.524	1.871		1	1	42.482			
T23	3.252	4.782	A	0.514	1.882	0.007	1	1	41.445	1.190	0.060	C
160.000-140.0			B	0.514	1.882		1	1	41.445			
00			C	0.514	1.882		1	1	41.445			
T24	3.358	4.727	A	0.51	1.888	0.007	1	1	40.955	1.197	0.060	C
140.000-120.0			B	0.51	1.888		1	1	40.955			
00			C	0.51	1.888		1	1	40.955			
T25	3.287	4.802	A	0.51	1.887	0.007	1	1	40.981	1.148	0.057	C
120.000-100.0			B	0.51	1.887		1	1	40.981			
00			C	0.51	1.887		1	1	40.981			
T26	3.204	5.366	A	0.521	1.874	0.007	1	1	42.621	1.093	0.055	C
100.000-80.00			B	0.521	1.874		1	1	42.621			
0			C	0.521	1.874		1	1	42.621			
T27	3.104	4.805	A	0.496	1.905	0.006	1	1	39.523	1.034	0.052	C
80.000-60.000			B	0.496	1.905		1	1	39.523			
			C	0.496	1.905		1	1	39.523			
T28	3.039	4.692	A	0.486	1.918	0.006	1	1	38.501	0.972	0.049	C
60.000-40.000			B	0.486	1.918		1	1	38.501			
			C	0.486	1.918		1	1	38.501			
T29	2.941	4.531	A	0.473	1.938	0.005	1	1	37.042	0.884	0.044	C
40.000-20.000			B	0.473	1.938		1	1	37.042			
			C	0.473	1.938		1	1	37.042			
T30	1.632	2.654	A	0.464	1.95	0.005	1	1	21.818	0.454	0.038	C
20.000-8.000			B	0.464	1.95		1	1	21.818			
			C	0.464	1.95		1	1	21.818			
T31	0.000	2.376	A	0.85	1.861	0.005	1	1	19.484	0.143	0.018	C
8.000-0.000			B	0.85	1.861		1	1	19.484			
			C	0.85	1.861		1	1	19.484			
Sum Weight:	62.508	147.059								30.836		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	2.370	A	1	1.2	0.010	1	1	40.604	0.662	0.020	C
625.000-592.0			B	1	1.2		1	1	40.604			
00			C	1	1.2		1	1	40.604			
T1	0.230	3.143	A	0.585	1.814	0.010	0.8	1	28.792	0.495	0.041	C
592.000-580.0			B	0.585	1.814		0.8	1	28.792			
00			C	0.585	1.814		0.8	1	28.792			
T2	0.429	4.334	A	0.542	1.851	0.010	0.8	1	42.988	0.774	0.039	C
580.000-560.0			B	0.542	1.851		0.8	1	42.988			
00			C	0.542	1.851		0.8	1	42.988			
T3	0.566	4.317	A	0.541	1.852	0.010	0.8	1	42.839	0.793	0.040	C
560.000-540.0			B	0.541	1.852		0.8	1	42.839			
00			C	0.541	1.852		0.8	1	42.839			
T4	0.702	5.024	A	0.562	1.832	0.010	0.8	1	45.440	0.839	0.042	C
540.000-520.0			B	0.562	1.832		0.8	1	45.440			
00			C	0.562	1.832		0.8	1	45.440			
T5	0.986	4.509	A	0.542	1.851	0.010	0.8	1	43.119	0.870	0.043	C
520.000-500.0			B	0.542	1.851		0.8	1	43.119			
00			C	0.542	1.851		0.8	1	43.119			
T6	0.981	4.490	A	0.541	1.852	0.010	0.8	1	42.955	0.861	0.043	C
500.000-480.0			B	0.541	1.852		0.8	1	42.955			
00			C	0.541	1.852		0.8	1	42.955			
T7	1.013	5.213	A	0.562	1.833	0.010	0.8	1	45.531	0.884	0.044	C
480.000-460.0			B	0.562	1.833		0.8	1	45.531			
00			C	0.562	1.833		0.8	1	45.531			
T8	1.121	4.841	A	0.548	1.846	0.009	0.8	1	43.830	0.888	0.044	C
460.000-440.0			B	0.548	1.846		0.8	1	43.830			
00			C	0.548	1.846		0.8	1	43.830			
T9	1.114	4.677	A	0.54	1.853	0.009	0.8	1	43.018	0.873	0.044	C
440.000-420.0			B	0.54	1.853		0.8	1	43.018			
00			C	0.54	1.853		0.8	1	43.018			
T10	1.107	4.655	A	0.539	1.855	0.009	0.8	1	42.827	0.863	0.043	C
420.000-400.0			B	0.539	1.855		0.8	1	42.827			
00			C	0.539	1.855		0.8	1	42.827			
T11	1.574	4.633	A	0.537	1.856	0.009	0.8	1	42.627	0.968	0.048	B
400.000-380.0			B	0.537	1.856		0.8	1	42.627			
00			C	0.537	1.856		0.8	1	42.627			
T12	1.707	5.524	A	0.559	1.835	0.009	0.8	1	45.348	1.003	0.050	B
380.000-360.0			B	0.559	1.835		0.8	1	45.348			
00			C	0.559	1.835		0.8	1	45.348			
T13	1.872	4.850	A	0.537	1.856	0.009	0.8	1	42.795	1.023	0.051	B
360.000-340.0			B	0.537	1.856		0.8	1	42.795			
00			C	0.537	1.856		0.8	1	42.795			
T14	1.984	4.824	A	0.535	1.858	0.009	0.8	1	42.565	1.039	0.052	B
340.000-320.0			B	0.535	1.858		0.8	1	42.565			
00			C	0.535	1.858		0.8	1	42.565			
T15	1.967	4.797	A	0.533	1.86	0.009	0.8	1	42.323	1.023	0.051	B
320.000-300.0			B	0.533	1.86		0.8	1	42.323			
00			C	0.533	1.86		0.8	1	42.323			
T16	2.080	5.194	A	0.541	1.853	0.009	0.8	1	43.279	1.041	0.052	B
300.000-280.0			B	0.541	1.853		0.8	1	43.279			
00			C	0.541	1.853		0.8	1	43.279			
T17	3.077	5.510	A	0.551	1.843	0.008	0.8	1	44.499	1.253	0.063	A

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
280.000-260.0			B	0.551	1.843		0.8	1	44.499			
00			C	0.551	1.843		0.8	1	44.499			
T18	3.111	4.989	A	0.53	1.864	0.008	0.8	1	42.101	1.250	0.062	A
260.000-240.0			B	0.53	1.864		0.8	1	42.101			
00			C	0.53	1.864		0.8	1	42.101			
T19	3.175	4.954	A	0.528	1.867	0.008	0.8	1	41.792	1.248	0.062	A
240.000-220.0			B	0.528	1.867		0.8	1	41.792			
00			C	0.528	1.867		0.8	1	41.792			
T20	3.239	4.917	A	0.525	1.87	0.008	0.8	1	41.458	1.242	0.062	A
220.000-200.0			B	0.525	1.87		0.8	1	41.458			
00			C	0.525	1.87		0.8	1	41.458			
T21	3.349	5.587	A	0.545	1.848	0.008	0.8	1	43.793	1.234	0.062	A
200.000-180.0			B	0.545	1.848		0.8	1	43.793			
00			C	0.545	1.848		0.8	1	43.793			
T22	3.305	4.970	A	0.524	1.871	0.008	0.8	1	41.300	1.209	0.060	A
180.000-160.0			B	0.524	1.871		0.8	1	41.300			
00			C	0.524	1.871		0.8	1	41.300			
T23	3.252	4.782	A	0.514	1.882	0.007	0.8	1	40.263	1.176	0.059	A
160.000-140.0			B	0.514	1.882		0.8	1	40.263			
00			C	0.514	1.882		0.8	1	40.263			
T24	3.358	4.727	A	0.51	1.888	0.007	0.8	1	39.773	1.183	0.059	A
140.000-120.0			B	0.51	1.888		0.8	1	39.773			
00			C	0.51	1.888		0.8	1	39.773			
T25	3.287	4.802	A	0.51	1.887	0.007	0.8	1	39.799	1.134	0.057	A
120.000-100.0			B	0.51	1.887		0.8	1	39.799			
00			C	0.51	1.887		0.8	1	39.799			
T26	3.204	5.366	A	0.521	1.874	0.007	0.8	1	41.169	1.078	0.054	A
100.000-80.00			B	0.521	1.874		0.8	1	41.169			
0			C	0.521	1.874		0.8	1	41.169			
T27	3.104	4.805	A	0.496	1.905	0.006	0.8	1	38.346	1.022	0.051	A
80.000-60.000			B	0.496	1.905		0.8	1	38.346			
			C	0.496	1.905		0.8	1	38.346			
T28	3.039	4.692	A	0.486	1.918	0.006	0.8	1	37.324	0.961	0.048	A
60.000-40.000			B	0.486	1.918		0.8	1	37.324			
			C	0.486	1.918		0.8	1	37.324			
T29	2.941	4.531	A	0.473	1.938	0.005	0.8	1	35.864	0.873	0.044	A
40.000-20.000			B	0.473	1.938		0.8	1	35.864			
			C	0.473	1.938		0.8	1	35.864			
T30	1.632	2.654	A	0.464	1.95	0.005	0.8	1	21.034	0.448	0.037	A
20.000-8.000			B	0.464	1.95		0.8	1	21.034			
			C	0.464	1.95		0.8	1	21.034			
T31	0.000	2.376	A	0.85	1.861	0.005	0.8	1	18.127	0.133	0.017	C
8.000-0.000			B	0.85	1.861		0.8	1	18.127			
			C	0.85	1.861		0.8	1	18.127			
Sum Weight:	62.508	147.059								30.341		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	2.370	A	1	1.2	0.010	1	1	40.604	0.662	0.020	C
625.000-592.0			B	1	1.2		1	1	40.604			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
00			C	1	1.2		1	1	40.604			
T1	0.230	3.143	A	0.585	1.814	0.010	0.85	1	29.063	0.499	0.042	C
592.000-580.0			B	0.585	1.814		0.85	1	29.063			
00			C	0.585	1.814		0.85	1	29.063			
T2	0.429	4.334	A	0.542	1.851	0.010	0.85	1	43.289	0.778	0.039	C
580.000-560.0			B	0.542	1.851		0.85	1	43.289			
00			C	0.542	1.851		0.85	1	43.289			
T3	0.566	4.317	A	0.541	1.852	0.010	0.85	1	43.140	0.797	0.040	C
560.000-540.0			B	0.541	1.852		0.85	1	43.140			
00			C	0.541	1.852		0.85	1	43.140			
T4	0.702	5.024	A	0.562	1.832	0.010	0.85	1	45.809	0.844	0.042	C
540.000-520.0			B	0.562	1.832		0.85	1	45.809			
00			C	0.562	1.832		0.85	1	45.809			
T5	0.986	4.509	A	0.542	1.851	0.010	0.85	1	43.419	0.874	0.044	C
520.000-500.0			B	0.542	1.851		0.85	1	43.419			
00			C	0.542	1.851		0.85	1	43.419			
T6	0.981	4.490	A	0.541	1.852	0.010	0.85	1	43.254	0.865	0.043	C
500.000-480.0			B	0.541	1.852		0.85	1	43.254			
00			C	0.541	1.852		0.85	1	43.254			
T7	1.013	5.213	A	0.562	1.833	0.010	0.85	1	45.899	0.888	0.044	C
480.000-460.0			B	0.562	1.833		0.85	1	45.899			
00			C	0.562	1.833		0.85	1	45.899			
T8	1.121	4.841	A	0.548	1.846	0.009	0.85	1	44.128	0.892	0.045	C
460.000-440.0			B	0.548	1.846		0.85	1	44.128			
00			C	0.548	1.846		0.85	1	44.128			
T9	1.114	4.677	A	0.54	1.853	0.009	0.85	1	43.316	0.877	0.044	C
440.000-420.0			B	0.54	1.853		0.85	1	43.316			
00			C	0.54	1.853		0.85	1	43.316			
T10	1.107	4.655	A	0.539	1.855	0.009	0.85	1	43.125	0.866	0.043	C
420.000-400.0			B	0.539	1.855		0.85	1	43.125			
00			C	0.539	1.855		0.85	1	43.125			
T11	1.574	4.633	A	0.537	1.856	0.009	0.85	1	42.925	0.971	0.049	C
400.000-380.0			B	0.537	1.856		0.85	1	42.925			
00			C	0.537	1.856		0.85	1	42.925			
T12	1.707	5.524	A	0.559	1.835	0.009	0.85	1	45.695	1.008	0.050	C
380.000-360.0			B	0.559	1.835		0.85	1	45.695			
00			C	0.559	1.835		0.85	1	45.695			
T13	1.872	4.850	A	0.537	1.856	0.009	0.85	1	43.092	1.026	0.051	C
360.000-340.0			B	0.537	1.856		0.85	1	43.092			
00			C	0.537	1.856		0.85	1	43.092			
T14	1.984	4.824	A	0.535	1.858	0.009	0.85	1	42.862	1.042	0.052	C
340.000-320.0			B	0.535	1.858		0.85	1	42.862			
00			C	0.535	1.858		0.85	1	42.862			
T15	1.967	4.797	A	0.533	1.86	0.009	0.85	1	42.620	1.026	0.051	C
320.000-300.0			B	0.533	1.86		0.85	1	42.620			
00			C	0.533	1.86		0.85	1	42.620			
T16	2.080	5.194	A	0.541	1.853	0.009	0.85	1	43.574	1.044	0.052	C
300.000-280.0			B	0.541	1.853		0.85	1	43.574			
00			C	0.541	1.853		0.85	1	43.574			
T17	3.077	5.510	A	0.551	1.843	0.008	0.85	1	44.863	1.232	0.062	B
280.000-260.0			B	0.551	1.843		0.85	1	44.863			
00			C	0.551	1.843		0.85	1	44.863			
T18	3.111	4.989	A	0.53	1.864	0.008	0.85	1	42.397	1.227	0.061	B
260.000-240.0			B	0.53	1.864		0.85	1	42.397			
00			C	0.53	1.864		0.85	1	42.397			
T19	3.175	4.954	A	0.528	1.867	0.008	0.85	1	42.087	1.225	0.061	B
240.000-220.0			B	0.528	1.867		0.85	1	42.087			
00			C	0.528	1.867		0.85	1	42.087			
T20	3.239	4.917	A	0.525	1.87	0.008	0.85	1	41.754	1.220	0.061	B
220.000-200.0			B	0.525	1.87		0.85	1	41.754			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
00			C	0.525	1.87		0.85	1	41.754			
T21	3.349	5.587	A	0.545	1.848	0.008	0.85	1	44.157	1.217	0.061	B
200.000-180.0			B	0.545	1.848		0.85	1	44.157			
00			C	0.545	1.848		0.85	1	44.157			
T22	3.305	4.970	A	0.524	1.871	0.008	0.85	1	41.595	1.191	0.060	B
180.000-160.0			B	0.524	1.871		0.85	1	41.595			
00			C	0.524	1.871		0.85	1	41.595			
T23	3.252	4.782	A	0.514	1.882	0.007	0.85	1	40.559	1.158	0.058	B
160.000-140.0			B	0.514	1.882		0.85	1	40.559			
00			C	0.514	1.882		0.85	1	40.559			
T24	3.358	4.727	A	0.51	1.888	0.007	0.85	1	40.068	1.162	0.058	B
140.000-120.0			B	0.51	1.888		0.85	1	40.068			
00			C	0.51	1.888		0.85	1	40.068			
T25	3.287	4.802	A	0.51	1.887	0.007	0.85	1	40.095	1.114	0.056	B
120.000-100.0			B	0.51	1.887		0.85	1	40.095			
00			C	0.51	1.887		0.85	1	40.095			
T26	3.204	5.366	A	0.521	1.874	0.007	0.85	1	41.532	1.059	0.053	B
100.000-80.00			B	0.521	1.874		0.85	1	41.532			
0			C	0.521	1.874		0.85	1	41.532			
T27	3.104	4.805	A	0.496	1.905	0.006	0.85	1	38.640	1.003	0.050	B
80.000-60.000			B	0.496	1.905		0.85	1	38.640			
			C	0.496	1.905		0.85	1	38.640			
T28	3.039	4.692	A	0.486	1.918	0.006	0.85	1	37.618	0.941	0.047	B
60.000-40.000			B	0.486	1.918		0.85	1	37.618			
			C	0.486	1.918		0.85	1	37.618			
T29	2.941	4.531	A	0.473	1.938	0.005	0.85	1	36.159	0.854	0.043	B
40.000-20.000			B	0.473	1.938		0.85	1	36.159			
			C	0.473	1.938		0.85	1	36.159			
T30	1.632	2.654	A	0.464	1.95	0.005	0.85	1	21.230	0.438	0.036	B
20.000-8.000			B	0.464	1.95		0.85	1	21.230			
			C	0.464	1.95		0.85	1	21.230			
T31	0.000	2.376	A	0.85	1.861	0.005	0.85	1	18.466	0.135	0.017	C
8.000-0.000			B	0.85	1.861		0.85	1	18.466			
			C	0.85	1.861		0.85	1	18.466			
Sum Weight:	62.508	147.059								30.137		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.014	1	1	29.563	0.347	0.011	C
625.000-592.0			B	1	0.6		1	1	29.563			
00			C	1	0.6		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.014	1	1	9.301	0.344	0.029	B
592.000-580.0			B	0.196	2.61		1	1	9.301			
00			C	0.196	2.61		1	1	9.301			
T2	0.036	1.287	A	0.161	2.732	0.014	1	1	12.089	0.492	0.025	B
580.000-560.0			B	0.161	2.732		1	1	12.089			
00			C	0.161	2.732		1	1	12.089			
T3	0.053	1.287	A	0.161	2.732	0.014	1	1	12.089	0.525	0.026	B
560.000-540.0			B	0.161	2.732		1	1	12.089			
00			C	0.161	2.732		1	1	12.089			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T4	0.071	1.825	A	0.187	2.639	0.014	1	1	14.331	0.557	0.028	B
540.000-520.0			B	0.187	2.639		1	1	14.331			
00			C	0.187	2.639		1	1	14.331			
T5	0.071	1.477	A	0.168	2.707	0.014	1	1	12.539	0.579	0.029	B
520.000-500.0			B	0.168	2.707		1	1	12.539			
00			C	0.168	2.707		1	1	12.539			
T6	0.071	1.477	A	0.168	2.707	0.014	1	1	12.539	0.574	0.029	B
500.000-480.0			B	0.168	2.707		1	1	12.539			
00			C	0.168	2.707		1	1	12.539			
T7	0.073	2.035	A	0.194	2.616	0.014	1	1	14.781	0.628	0.031	B
480.000-460.0			B	0.194	2.616		1	1	14.781			
00			C	0.194	2.616		1	1	14.781			
T8	0.078	1.775	A	0.181	2.661	0.014	1	1	13.362	0.598	0.030	B
460.000-440.0			B	0.181	2.661		1	1	13.362			
00			C	0.181	2.661		1	1	13.362			
T9	0.078	1.688	A	0.175	2.682	0.013	1	1	12.991	0.585	0.029	B
440.000-420.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T10	0.078	1.688	A	0.175	2.682	0.013	1	1	12.991	0.579	0.029	B
420.000-400.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T11	0.112	1.688	A	0.175	2.682	0.013	1	1	12.991	0.629	0.031	A
400.000-380.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T12	0.119	2.417	A	0.203	2.586	0.013	1	1	15.203	0.686	0.034	A
380.000-360.0			B	0.203	2.586		1	1	15.203			
00			C	0.203	2.586		1	1	15.203			
T13	0.128	1.918	A	0.182	2.658	0.013	1	1	13.446	0.655	0.033	A
360.000-340.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T14	0.134	1.918	A	0.182	2.658	0.013	1	1	13.446	0.658	0.033	A
340.000-320.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T15	0.134	1.918	A	0.182	2.658	0.013	1	1	13.446	0.650	0.033	A
320.000-300.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T16	0.140	2.256	A	0.194	2.615	0.012	1	1	14.258	0.669	0.033	A
300.000-280.0			B	0.194	2.615		1	1	14.258			
00			C	0.194	2.615		1	1	14.258			
T17	0.312	2.516	A	0.207	2.571	0.012	1	1	15.682	0.905	0.045	C
280.000-260.0			B	0.207	2.571		1	1	15.682			
00			C	0.207	2.571		1	1	15.682			
T18	0.315	2.169	A	0.188	2.635	0.012	1	1	13.903	0.858	0.043	C
260.000-240.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T19	0.324	2.169	A	0.188	2.635	0.012	1	1	13.903	0.852	0.043	C
240.000-220.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T20	0.340	2.169	A	0.188	2.635	0.012	1	1	13.903	0.843	0.042	C
220.000-200.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T21	0.353	2.693	A	0.213	2.552	0.011	1	1	16.064	0.881	0.044	C
200.000-180.0			B	0.213	2.552		1	1	16.064			
00			C	0.213	2.552		1	1	16.064			
T22	0.353	2.256	A	0.194	2.615	0.011	1	1	14.274	0.827	0.041	C
180.000-160.0			B	0.194	2.615		1	1	14.274			
00			C	0.194	2.615		1	1	14.274			
T23	0.353	2.169	A	0.188	2.635	0.011	1	1	13.903	0.800	0.040	C
160.000-140.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T24	0.377	2.169	A	0.188	2.635	0.010	1	1	13.903	0.801	0.040	C
140.000-120.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T25	0.377	2.256	A	0.194	2.615	0.010	1	1	14.274	0.781	0.039	C
120.000-100.0			B	0.194	2.615		1	1	14.274			
00			C	0.194	2.615		1	1	14.274			
T26	0.377	2.787	A	0.214	2.55	0.010	1	1	16.145	0.781	0.039	C
100.000-80.00			B	0.214	2.55		1	1	16.145			
0			C	0.214	2.55		1	1	16.145			
T27	0.377	2.439	A	0.195	2.612	0.009	1	1	14.362	0.714	0.036	C
80.000-60.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T28	0.381	2.439	A	0.195	2.612	0.009	1	1	14.362	0.675	0.034	C
60.000-40.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T29	0.386	2.439	A	0.195	2.612	0.008	1	1	14.362	0.596	0.030	C
40.000-20.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T30	0.232	1.481	A	0.201	2.592	0.007	1	1	9.012	0.315	0.026	C
20.000-8.000			B	0.201	2.592		1	1	9.012			
			C	0.201	2.592		1	1	9.012			
T31	0.000	1.466	A	0.523	1.871	0.007	1	1	10.249	0.109	0.014	C
8.000-0.000			B	0.523	1.871		1	1	10.249			
			C	0.523	1.871		1	1	10.249			
Sum Weight:	6.251	62.706								20.496		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.014	1	1	29.563	0.347	0.011	C
625.000-592.0			B	1	0.6		1	1	29.563			
00			C	1	0.6		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.014	0.8	1	8.218	0.310	0.026	C
592.000-580.0			B	0.196	2.61		0.8	1	8.218			
00			C	0.196	2.61		0.8	1	8.218			
T2	0.036	1.287	A	0.161	2.732	0.014	0.8	1	10.886	0.452	0.023	C
580.000-560.0			B	0.161	2.732		0.8	1	10.886			
00			C	0.161	2.732		0.8	1	10.886			
T3	0.053	1.287	A	0.161	2.732	0.014	0.8	1	10.886	0.486	0.024	C
560.000-540.0			B	0.161	2.732		0.8	1	10.886			
00			C	0.161	2.732		0.8	1	10.886			
T4	0.071	1.825	A	0.187	2.639	0.014	0.8	1	12.854	0.510	0.026	C
540.000-520.0			B	0.187	2.639		0.8	1	12.854			
00			C	0.187	2.639		0.8	1	12.854			
T5	0.071	1.477	A	0.168	2.707	0.014	0.8	1	11.341	0.540	0.027	C
520.000-500.0			B	0.168	2.707		0.8	1	11.341			
00			C	0.168	2.707		0.8	1	11.341			
T6	0.071	1.477	A	0.168	2.707	0.014	0.8	1	11.341	0.536	0.027	C
500.000-480.0			B	0.168	2.707		0.8	1	11.341			
00			C	0.168	2.707		0.8	1	11.341			
T7	0.073	2.035	A	0.194	2.616	0.014	0.8	1	13.310	0.583	0.029	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
480.000-460.0			B	0.194	2.616		0.8	1	13.310			
00			C	0.194	2.616		0.8	1	13.310			
T8	0.078	1.775	A	0.181	2.661	0.014	0.8	1	12.169	0.562	0.028	C
460.000-440.0			B	0.181	2.661		0.8	1	12.169			
00			C	0.181	2.661		0.8	1	12.169			
T9	0.078	1.688	A	0.175	2.682	0.013	0.8	1	11.799	0.548	0.027	C
440.000-420.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T10	0.078	1.688	A	0.175	2.682	0.013	0.8	1	11.799	0.543	0.027	C
420.000-400.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T11	0.112	1.688	A	0.175	2.682	0.013	0.8	1	11.799	0.594	0.030	B
400.000-380.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T12	0.119	2.417	A	0.203	2.586	0.013	0.8	1	13.818	0.647	0.032	B
380.000-360.0			B	0.203	2.586		0.8	1	13.818			
00			C	0.203	2.586		0.8	1	13.818			
T13	0.128	1.918	A	0.182	2.658	0.013	0.8	1	12.258	0.621	0.031	B
360.000-340.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T14	0.134	1.918	A	0.182	2.658	0.013	0.8	1	12.258	0.624	0.031	B
340.000-320.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T15	0.134	1.918	A	0.182	2.658	0.013	0.8	1	12.258	0.617	0.031	B
320.000-300.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T16	0.140	2.256	A	0.194	2.615	0.012	0.8	1	13.075	0.636	0.032	B
300.000-280.0			B	0.194	2.615		0.8	1	13.075			
00			C	0.194	2.615		0.8	1	13.075			
T17	0.312	2.516	A	0.207	2.571	0.012	0.8	1	14.224	0.866	0.043	A
280.000-260.0			B	0.207	2.571		0.8	1	14.224			
00			C	0.207	2.571		0.8	1	14.224			
T18	0.315	2.169	A	0.188	2.635	0.012	0.8	1	12.720	0.827	0.041	A
260.000-240.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T19	0.324	2.169	A	0.188	2.635	0.012	0.8	1	12.720	0.820	0.041	A
240.000-220.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T20	0.340	2.169	A	0.188	2.635	0.012	0.8	1	12.720	0.812	0.041	A
220.000-200.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T21	0.353	2.693	A	0.213	2.552	0.011	0.8	1	14.606	0.845	0.042	A
200.000-180.0			B	0.213	2.552		0.8	1	14.606			
00			C	0.213	2.552		0.8	1	14.606			
T22	0.353	2.256	A	0.194	2.615	0.011	0.8	1	13.092	0.798	0.040	A
180.000-160.0			B	0.194	2.615		0.8	1	13.092			
00			C	0.194	2.615		0.8	1	13.092			
T23	0.353	2.169	A	0.188	2.635	0.011	0.8	1	12.720	0.772	0.039	A
160.000-140.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T24	0.377	2.169	A	0.188	2.635	0.010	0.8	1	12.720	0.773	0.039	A
140.000-120.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T25	0.377	2.256	A	0.194	2.615	0.010	0.8	1	13.092	0.754	0.038	A
120.000-100.0			B	0.194	2.615		0.8	1	13.092			
00			C	0.194	2.615		0.8	1	13.092			
T26	0.377	2.787	A	0.214	2.55	0.010	0.8	1	14.693	0.751	0.038	A
100.000-80.00			B	0.214	2.55		0.8	1	14.693			
0			C	0.214	2.55		0.8	1	14.693			
T27	0.377	2.439	A	0.195	2.612	0.009	0.8	1	13.185	0.690	0.034	A

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
80.000-60.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T28	0.381	2.439	A	0.195	2.612	0.009	0.8	1	13.185	0.653	0.033	A
60.000-40.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T29	0.386	2.439	A	0.195	2.612	0.008	0.8	1	13.185	0.576	0.029	A
40.000-20.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T30	0.232	1.481	A	0.201	2.592	0.007	0.8	1	8.227	0.304	0.025	A
20.000-8.000			B	0.201	2.592		0.8	1	8.227			
			C	0.201	2.592		0.8	1	8.227			
T31	0.000	1.466	A	0.523	1.871	0.007	0.8	1	8.892	0.094	0.012	C
8.000-0.000			B	0.523	1.871		0.8	1	8.892			
			C	0.523	1.871		0.8	1	8.892			
Sum Weight:	6.251	62.706								19.490		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.014	1	1	29.563	0.347	0.011	C
625.000-592.0			B	1	0.6		1	1	29.563			
00			C	1	0.6		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.014	0.85	1	8.489	0.318	0.026	C
592.000-580.0			B	0.196	2.61		0.85	1	8.489			
00			C	0.196	2.61		0.85	1	8.489			
T2	0.036	1.287	A	0.161	2.732	0.014	0.85	1	11.187	0.461	0.023	C
580.000-560.0			B	0.161	2.732		0.85	1	11.187			
00			C	0.161	2.732		0.85	1	11.187			
T3	0.053	1.287	A	0.161	2.732	0.014	0.85	1	11.187	0.494	0.025	C
560.000-540.0			B	0.161	2.732		0.85	1	11.187			
00			C	0.161	2.732		0.85	1	11.187			
T4	0.071	1.825	A	0.187	2.639	0.014	0.85	1	13.223	0.521	0.026	C
540.000-520.0			B	0.187	2.639		0.85	1	13.223			
00			C	0.187	2.639		0.85	1	13.223			
T5	0.071	1.477	A	0.168	2.707	0.014	0.85	1	11.641	0.549	0.027	C
520.000-500.0			B	0.168	2.707		0.85	1	11.641			
00			C	0.168	2.707		0.85	1	11.641			
T6	0.071	1.477	A	0.168	2.707	0.014	0.85	1	11.641	0.544	0.027	C
500.000-480.0			B	0.168	2.707		0.85	1	11.641			
00			C	0.168	2.707		0.85	1	11.641			
T7	0.073	2.035	A	0.194	2.616	0.014	0.85	1	13.677	0.593	0.030	C
480.000-460.0			B	0.194	2.616		0.85	1	13.677			
00			C	0.194	2.616		0.85	1	13.677			
T8	0.078	1.775	A	0.181	2.661	0.014	0.85	1	12.467	0.570	0.028	C
460.000-440.0			B	0.181	2.661		0.85	1	12.467			
00			C	0.181	2.661		0.85	1	12.467			
T9	0.078	1.688	A	0.175	2.682	0.013	0.85	1	12.097	0.556	0.028	C
440.000-420.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T10	0.078	1.688	A	0.175	2.682	0.013	0.85	1	12.097	0.551	0.028	C
420.000-400.0			B	0.175	2.682		0.85	1	12.097			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
00			C	0.175	2.682		0.85	1	12.097			
T11	0.112	1.688	A	0.175	2.682	0.013	0.85	1	12.097	0.605	0.030	C
400.000-380.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T12	0.119	2.417	A	0.203	2.586	0.013	0.85	1	14.164	0.659	0.033	C
380.000-360.0			B	0.203	2.586		0.85	1	14.164			
00			C	0.203	2.586		0.85	1	14.164			
T13	0.128	1.918	A	0.182	2.658	0.013	0.85	1	12.555	0.631	0.032	C
360.000-340.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T14	0.134	1.918	A	0.182	2.658	0.013	0.85	1	12.555	0.635	0.032	C
340.000-320.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T15	0.134	1.918	A	0.182	2.658	0.013	0.85	1	12.555	0.627	0.031	C
320.000-300.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T16	0.140	2.256	A	0.194	2.615	0.012	0.85	1	13.371	0.646	0.032	C
300.000-280.0			B	0.194	2.615		0.85	1	13.371			
00			C	0.194	2.615		0.85	1	13.371			
T17	0.312	2.516	A	0.207	2.571	0.012	0.85	1	14.588	0.877	0.044	B
280.000-260.0			B	0.207	2.571		0.85	1	14.588			
00			C	0.207	2.571		0.85	1	14.588			
T18	0.315	2.169	A	0.188	2.635	0.012	0.85	1	13.016	0.836	0.042	B
260.000-240.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T19	0.324	2.169	A	0.188	2.635	0.012	0.85	1	13.016	0.830	0.041	B
240.000-220.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T20	0.340	2.169	A	0.188	2.635	0.012	0.85	1	13.016	0.822	0.041	B
220.000-200.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T21	0.353	2.693	A	0.213	2.552	0.011	0.85	1	14.971	0.862	0.043	B
200.000-180.0			B	0.213	2.552		0.85	1	14.971			
00			C	0.213	2.552		0.85	1	14.971			
T22	0.353	2.256	A	0.194	2.615	0.011	0.85	1	13.388	0.814	0.041	B
180.000-160.0			B	0.194	2.615		0.85	1	13.388			
00			C	0.194	2.615		0.85	1	13.388			
T23	0.353	2.169	A	0.188	2.635	0.011	0.85	1	13.016	0.787	0.039	B
160.000-140.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T24	0.377	2.169	A	0.188	2.635	0.010	0.85	1	13.016	0.788	0.039	B
140.000-120.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T25	0.377	2.256	A	0.194	2.615	0.010	0.85	1	13.388	0.768	0.038	B
120.000-100.0			B	0.194	2.615		0.85	1	13.388			
00			C	0.194	2.615		0.85	1	13.388			
T26	0.377	2.787	A	0.214	2.55	0.010	0.85	1	15.056	0.765	0.038	B
100.000-80.00			B	0.214	2.55		0.85	1	15.056			
0			C	0.214	2.55		0.85	1	15.056			
T27	0.377	2.439	A	0.195	2.612	0.009	0.85	1	13.479	0.703	0.035	B
80.000-60.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T28	0.381	2.439	A	0.195	2.612	0.009	0.85	1	13.479	0.665	0.033	B
60.000-40.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T29	0.386	2.439	A	0.195	2.612	0.008	0.85	1	13.479	0.587	0.029	B
40.000-20.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T30	0.232	1.481	A	0.201	2.592	0.007	0.85	1	8.423	0.310	0.026	B
20.000-8.000			B	0.201	2.592		0.85	1	8.423			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
			C	0.201	2.592		0.85	1	8.423			
T31	0.000	1.466	A	0.523	1.871	0.007	0.85	1	9.231	0.098	0.012	C
8.000-0.000			B	0.523	1.871		0.85	1	9.231			
			C	0.523	1.871		0.85	1	9.231			
Sum Weight:	6.251	62.706								19.818		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Leg Weight	45.099			
Bracing Weight	17.607			
Total Member Self-Weight	62.706			
Guy Weight	17.926			
Total Weight	92.356			
Wind 0 deg - No Ice		1.774	-61.420	-4.384
Wind 90 deg - No Ice		55.933	-1.055	-7.486
Wind 180 deg - No Ice		-1.240	58.728	8.102
Member Ice	84.353			
Guy Ice	55.682			
Total Weight Ice	301.841			
Wind 0 deg - Ice		0.538	-35.783	-0.889
Wind 90 deg - Ice		34.335	-0.319	-0.685
Wind 180 deg - Ice		-0.374	35.241	2.021
Total Weight	92.356			
Wind 0 deg - Service		0.708	-24.500	-1.749
Wind 90 deg - Service		22.311	-0.421	-2.986
Wind 180 deg - Service		-0.495	23.426	3.232

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2D+1.6W (pattern 1) 0 deg - No Ice+1.0 Guy
3	1.2D+1.6W (pattern 2) 0 deg - No Ice+1.0 Guy
4	1.2D+1.6W (pattern 3) 0 deg - No Ice+1.0 Guy
5	1.2D+1.6W (pattern 4) 0 deg - No Ice+1.0 Guy
6	1.2D+1.6W (pattern 1) 90 deg - No Ice+1.0 Guy
7	1.2D+1.6W (pattern 2) 90 deg - No Ice+1.0 Guy
8	1.2D+1.6W (pattern 3) 90 deg - No Ice+1.0 Guy
9	1.2D+1.6W (pattern 4) 90 deg - No Ice+1.0 Guy
10	1.2D+1.6W (pattern 1) 180 deg - No Ice+1.0 Guy
11	1.2D+1.6W (pattern 2) 180 deg - No Ice+1.0 Guy
12	1.2D+1.6W (pattern 3) 180 deg - No Ice+1.0 Guy
13	1.2D+1.6W (pattern 4) 180 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy

Comb. No.	Description
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	Dead+Wind 0 deg - Service+Guy
19	Dead+Wind 90 deg - Service+Guy
20	Dead+Wind 180 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	16	572.358	-0.461	-0.125
	Max. H_x	17	568.764	0.094	-0.593
	Max. H_z	2	429.419	-0.031	1.131
	Max. M_x	1	0.000	0.018	-0.044
	Max. M_z	1	0.000	0.018	-0.044
	Max. Torsion	3	6.297	-0.059	1.043
	Min. Vert	1	267.201	0.018	-0.044
	Min. H_x	6	404.710	-1.269	0.348
	Min. H_z	13	382.000	-0.122	-1.947
	Min. M_x	1	0.000	0.018	-0.044
	Min. M_z	1	0.000	0.018	-0.044
	Min. Torsion	11	-8.580	-0.113	-1.911
Guy C @ 245 ft Elev 51 ft Azimuth 240 deg	Max. Vert	20	-33.219	-17.371	9.041
	Max. H_x	20	-33.219	-17.371	9.041
	Max. H_z	5	-106.657	-54.815	36.315
	Min. Vert	9	-122.928	-67.198	36.170
	Min. H_x	9	-122.928	-67.198	36.170
	Min. H_z	13	-36.716	-18.473	6.611
Guy B @ 279 ft Elev -12 ft Azimuth 120 deg	Max. Vert	9	-22.847	7.705	6.780
	Max. H_x	5	-104.672	53.031	35.611
	Max. H_z	5	-104.672	53.031	35.611
	Min. Vert	5	-104.672	53.031	35.611
	Min. H_x	9	-22.847	7.705	6.780
	Min. H_z	13	-37.483	19.091	6.575
Guy A @ 300 ft Elev -53 ft Azimuth 0 deg	Max. Vert	5	-18.222	0.004	-6.862
	Max. H_x	2	-18.291	0.004	-6.997
	Max. H_z	5	-18.222	0.004	-6.862
	Min. Vert	13	-121.337	-0.048	-74.943
	Min. H_x	9	-72.035	-5.052	-41.913
	Min. H_z	13	-121.337	-0.048	-74.943
Guy C @ 179 ft Elev 38 ft Azimuth 240 deg	Max. Vert	12	-7.843	-8.998	4.093
	Max. H_x	12	-7.843	-8.998	4.093
	Max. H_z	3	-48.056	-50.151	30.397
	Min. Vert	7	-50.694	-52.964	29.903
	Min. H_x	7	-50.694	-52.964	29.903
	Min. H_z	12	-7.843	-8.998	4.093
Guy B @ 216 ft Elev -9 ft Azimuth 120 deg	Max. Vert	7	-4.733	4.390	3.126

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H_x	3	-51.012	49.012	29.812
	Max. H_z	3	-51.012	49.012	29.812
	Min. Vert	4	-51.044	48.856	29.725
	Min. H_x	7	-4.733	4.390	3.126
	Min. H_z	7	-4.733	4.390	3.126
Guy A @ 242 ft Elev -43 ft Azimuth 0 deg	Max. Vert	4	-2.011	0.000	-2.189
	Max. H_x	11	-61.099	0.012	-65.187
	Max. H_z	3	-2.016	0.000	-2.180
	Min. Vert	11	-61.099	0.012	-65.187
	Min. H_x	7	-30.385	-1.546	-32.556
	Min. H_z	11	-61.099	0.012	-65.187

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	267.201	-0.018	0.044	0.000	0.000	-0.007
1.2D+1.6W (pattern 1) 0 deg - No Ice+1.0 Guy	429.419	0.031	-1.131	0.000	0.000	-6.198
1.2D+1.6W (pattern 2) 0 deg - No Ice+1.0 Guy	430.855	0.059	-1.043	0.000	0.000	-6.297
1.2D+1.6W (pattern 3) 0 deg - No Ice+1.0 Guy	435.893	0.056	-1.070	0.000	0.000	-6.215
1.2D+1.6W (pattern 4) 0 deg - No Ice+1.0 Guy	437.851	0.054	-1.083	0.000	0.000	-6.224
1.2D+1.6W (pattern 1) 90 deg - No Ice+1.0 Guy	404.710	1.269	-0.348	0.000	0.000	-4.789
1.2D+1.6W (pattern 2) 90 deg - No Ice+1.0 Guy	405.058	1.224	-0.433	0.000	0.000	-5.137
1.2D+1.6W (pattern 3) 90 deg - No Ice+1.0 Guy	409.107	1.255	-0.417	0.000	0.000	-4.823
1.2D+1.6W (pattern 4) 90 deg - No Ice+1.0 Guy	410.297	1.265	-0.409	0.000	0.000	-4.883
1.2D+1.6W (pattern 1) 180 deg - No Ice+1.0 Guy	379.486	0.111	1.911	0.000	0.000	8.163
1.2D+1.6W (pattern 2) 180 deg - No Ice+1.0 Guy	379.752	0.113	1.911	0.000	0.000	8.580
1.2D+1.6W (pattern 3) 180 deg - No Ice+1.0 Guy	381.480	0.122	1.939	0.000	0.000	8.394
1.2D+1.6W (pattern 4) 180 deg - No Ice+1.0 Guy	382.000	0.122	1.947	0.000	0.000	8.395
1.2 Dead+1.0 Ice+1.0 Temp+Guy	553.363	-0.044	0.181	0.000	0.000	-0.010
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	565.751	0.011	-0.213	0.000	0.000	-1.343
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	572.358	0.461	0.125	0.000	0.000	-1.438
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	568.764	-0.094	0.593	0.000	0.000	1.664
Dead+Wind 0 deg - Service+Guy	273.350	-0.032	-0.706	0.000	0.000	-1.646
Dead+Wind 90 deg - Service+Guy	274.442	0.558	0.058	0.000	0.000	-1.541
Dead+Wind 180 deg -	270.568	-0.001	0.744	0.000	0.000	2.204

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Service+Guy						

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.000	-92.353	0.000	-0.008	92.353	0.017	0.020%
2	1.939	-107.306	-120.640	-1.947	107.301	120.505	0.084%
3	3.322	-107.306	-121.337	-3.332	107.302	121.199	0.085%
4	2.979	-107.306	-123.277	-2.989	107.302	123.133	0.089%
5	2.979	-107.306	-124.014	-2.990	107.301	123.864	0.092%
6	112.306	-106.762	-1.165	-112.229	106.760	1.241	0.070%
7	113.050	-106.762	-2.057	-112.974	106.760	2.137	0.071%
8	115.094	-106.762	-1.828	-115.013	106.760	1.911	0.074%
9	115.697	-106.762	-1.828	-115.613	106.760	1.913	0.076%
10	-1.494	-107.172	116.608	1.566	107.170	-116.580	0.049%
11	-2.379	-107.172	117.321	2.389	107.170	-117.284	0.024%
12	-2.124	-107.172	119.153	2.150	107.170	-119.122	0.025%
13	-2.124	-107.172	119.707	2.150	107.170	-119.676	0.025%
14	0.000	-316.713	0.000	0.023	316.713	-0.041	0.015%
15	0.636	-316.816	-58.089	-0.629	316.816	58.055	0.011%
16	56.944	-316.356	-0.420	-56.920	316.355	0.397	0.010%
17	-0.473	-316.610	57.547	0.491	316.609	-57.515	0.011%
18	0.743	-92.370	-31.227	-0.744	92.370	31.215	0.012%
19	29.154	-92.234	-0.456	-29.144	92.234	0.450	0.011%
20	-0.530	-92.336	30.153	0.534	92.336	-30.134	0.020%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	31	0.00030000	0.00001465
2	Yes	85	0.00029320	0.00010530
3	Yes	82	0.00029363	0.00009591
4	Yes	82	0.00029217	0.00009699
5	Yes	82	0.00029848	0.00010062
6	Yes	90	0.00029179	0.00007743
7	Yes	86	0.00029226	0.00006713
8	Yes	87	0.00028889	0.00006812
9	Yes	87	0.00029483	0.00007015
10	Yes	47	0.00029942	0.00009022
11	Yes	43	0.00029945	0.00012946
12	Yes	45	0.00029469	0.00012190
13	Yes	45	0.00029370	0.00012226
14	Yes	32	0.00030000	0.00003007
15	Yes	47	0.00028728	0.00003944
16	Yes	52	0.00028637	0.00003208
17	Yes	62	0.00028918	0.00002192
18	Yes	23	0.00028514	0.00002808
19	Yes	29	0.00026357	0.00001637
20	Yes	31	0.00027322	0.00001471

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	625 - 592	6.229	20	0.3042	0.3562
T1	592 - 580	4.673	20	0.0480	0.3561
T2	580 - 560	4.637	20	0.0480	0.3581
T3	560 - 540	4.565	20	0.0481	0.3621
T4	540 - 520	4.483	20	0.0438	0.3654
T5	520 - 500	4.437	20	0.0388	0.3560
T6	500 - 480	4.387	20	0.0392	0.3220
T7	480 - 460	4.300	20	0.0385	0.3414
T8	460 - 440	4.203	20	0.0310	0.3598
T9	440 - 420	4.148	20	0.0310	0.3861
T10	420 - 400	4.050	20	0.0384	0.4160
T11	400 - 380	3.883	20	0.0472	0.4339
T12	380 - 360	3.662	20	0.0470	0.4361
T13	360 - 340	3.497	20	0.0348	0.4376
T14	340 - 320	3.387	20	0.0321	0.4415
T15	320 - 300	3.252	20	0.0362	0.4402
T16	300 - 280	3.084	20	0.0393	0.4337
T17	280 - 260	2.904	20	0.0380	0.4279
T18	260 - 240	2.772	20	0.0369	0.4176
T19	240 - 220	2.632	20	0.0421	0.4040
T20	220 - 200	2.436	20	0.0488	0.3873
T21	200 - 180	2.196	20	0.0522	0.3663
T22	180 - 160	1.979	20	0.0446	0.3698
T23	160 - 140	1.826	20	0.0430	0.3847
T24	140 - 120	1.650	20	0.0488	0.3958
T25	120 - 100	1.422	20	0.0545	0.3649
T26	100 - 80	1.172	20	0.0531	0.3371
T27	80 - 60	0.967	20	0.0477	0.3089
T28	60 - 40	0.789	20	0.0509	0.2659
T29	40 - 20	0.569	20	0.0585	0.2156
T30	20 - 8	0.299	20	0.0661	0.1578
T31	8 - 0	0.117	20	0.0687	0.1148

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
612.500	SHPX-4AC	20	5.461	0.1759	0.3555	10395
591.750	Guy	20	4.670	0.0475	0.3562	4472
545.000	SHP-2AE	20	4.499	0.0449	0.3650	96683
540.000	ERI ALP8L1-HSB-34	20	4.483	0.0438	0.3654	93982
535.000	ERI ALP8L1-HSB-34	20	4.469	0.0424	0.3652	118817
531.950	Guy	20	4.462	0.0415	0.3645	149809
530.000	ERI ALP8L1-HSB-34	20	4.458	0.0410	0.3639	179792
525.000	ERI ALP8L1-HSB-34	20	4.447	0.0397	0.3610	369322
520.000	5' Stand Off	20	4.437	0.0388	0.3560	404357
480.000	5' HP Dish (230lbs 24.77CaAa)	20	4.300	0.0385	0.3414	194204
465.000	6810	20	4.223	0.0327	0.3547	62898
460.250	Guy	20	4.203	0.0311	0.3595	50671
425.000	4' Dish w/o Radome	20	4.080	0.0361	0.4091	74592

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
400.000	MRC Proscann III	20	3.883	0.0472	0.4339	52642
394.000	Scala PR450	20	3.818	0.0487	0.4357	117124
375.000	PD220	20	3.613	0.0444	0.4362	48229
368.050	Guy	20	3.554	0.0397	0.4365	49868
360.000	4' Omni	20	3.497	0.0348	0.4376	55088
310.000	Beacon (10lbs 0.5CaAa)	20	3.172	0.0384	0.4371	103897
299.000	20'*3" Omni (40lbs)	20	3.074	0.0393	0.4334	113165
280.000	Sabre C10857001C-MC	20	2.904	0.0380	0.4279	64708
275.850	Guy	20	2.873	0.0375	0.4262	76947
255.000	20'*3" Omni (40lbs)	20	2.740	0.0377	0.4144	104042
198.000	Scala PR450	20	2.172	0.0518	0.3646	127106
184.150	Guy	20	2.019	0.0463	0.3680	54235
159.000	Beacon (10lbs 0.5CaAa)	20	1.819	0.0432	0.3857	111110
140.000	8' Dish w/ Radome	20	1.650	0.0488	0.3958	78617
91.950	Guy	20	1.083	0.0507	0.3270	69969
50.000	AWS	20	0.686	0.0545	0.2412	89753
28.000	Scala FM10 yagi	20	0.413	0.0634	0.1828	92725

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	625 - 592	62.507	2	1.8499	1.0658
T1	592 - 580	51.435	2	0.7542	1.0656
T2	580 - 560	49.553	2	0.7546	1.0774
T3	560 - 540	46.371	2	0.7558	1.1028
T4	540 - 520	43.175	2	0.7284	1.1257
T5	520 - 500	40.541	5	0.6964	1.1009
T6	500 - 480	39.269	5	0.6871	1.1835
T7	480 - 460	37.756	5	0.6578	1.2477
T8	460 - 440	36.139	5	0.5896	1.3001
T9	440 - 420	34.672	5	0.5343	1.3858
T10	420 - 400	33.018	5	0.4895	1.4784
T11	400 - 380	31.107	5	0.4588	1.5220
T12	380 - 360	28.972	5	0.4448	1.5266
T13	360 - 340	27.209	5	0.3827	1.5231
T14	340 - 320	25.782	5	0.3647	1.5347
T15	320 - 300	24.289	5	0.3756	1.5246
T16	300 - 280	22.663	5	0.3909	1.4936
T17	280 - 260	20.961	5	0.3848	1.4668
T18	260 - 240	19.436	4	0.3831	1.4317
T19	240 - 220	17.848	4	0.4131	1.3901
T20	220 - 200	16.080	3	0.4425	1.3357
T21	200 - 180	14.110	3	0.4424	1.4890
T22	180 - 160	12.314	3	0.3925	1.5315
T23	160 - 140	10.858	3	0.3661	1.5946
T24	140 - 120	9.445	2	0.3707	1.6412
T25	120 - 100	7.864	2	0.3735	1.5138
T26	100 - 80	6.251	2	0.3428	1.3829
T27	80 - 60	4.953	2	0.2936	1.2520
T28	60 - 40	3.909	2	0.2845	1.0496
T29	40 - 20	2.747	2	0.3010	0.8516
T30	20 - 8	1.425	2	0.3234	0.6228
T31	8 - 0	0.564	2	0.3321	0.4470

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
612.500	SHPX-4AC	2	57.591	1.3011	1.0620	2587
591.750	Guy	2	51.385	0.7523	1.0658	1112
545.000	SHP-2AE	2	43.952	0.7361	1.1217	13550
540.000	ERI ALP8L1-HSB-34	2	43.175	0.7284	1.1257	12866
535.000	ERI ALP8L1-HSB-34	2	42.414	0.7197	1.1274	14209
531.950	Guy	2	41.957	0.7142	1.1265	15582
530.000	ERI ALP8L1-HSB-34	2	41.666	0.7108	1.1249	16608
525.000	ERI ALP8L1-HSB-34	2	40.929	0.7027	1.1165	19980
520.000	5' Stand Off	5	40.541	0.6964	1.1009	24481
480.000	5' HP Dish (230lbs 24.77CaAa)	5	37.756	0.6578	1.2477	27115
465.000	6810	5	36.531	0.6072	1.2849	10353
460.250	Guy	5	36.159	0.5904	1.2992	8857
425.000	4' Dish w/o Radome	5	33.455	0.5006	1.4584	20517
400.000	MRC Proscann III	5	31.107	0.4588	1.5220	11748
394.000	Scala PR450	5	30.466	0.4614	1.5262	18159
375.000	PD220	5	28.485	0.4304	1.5250	7747
368.050	Guy	5	27.861	0.4069	1.5230	7714
360.000	4' Omni	5	27.209	0.3827	1.5231	8095
310.000	Beacon (10lbs 0.5CaAa)	5	23.493	0.3849	1.5098	23252
299.000	20'*3" Omni (40lbs)	5	22.578	0.3911	1.4922	24528
280.000	Sabre C10857001C-MC	5	20.961	0.3848	1.4668	14933
275.850	Guy	5	20.628	0.3826	1.4604	17602
255.000	20'*3" Omni (40lbs)	4	19.055	0.3883	1.4218	20466
198.000	Scala PR450	3	13.916	0.4389	1.4984	17369
184.150	Guy	3	12.655	0.4032	1.5262	10362
159.000	Beacon (10lbs 0.5CaAa)	3	10.787	0.3658	1.5989	27525
140.000	8' Dish w/ Radome	2	9.445	0.3707	1.6412	22880
91.950	Guy	2	5.683	0.3211	1.3361	12047
50.000	AWS	2	3.350	0.2909	0.9495	23844
28.000	Scala FM10 yagi	2	1.974	0.3151	0.7235	24472

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	592	Leg	A325N	0.7500	4	3.293	29.821	0.110 ✔	1	Bolt Tension
T2	580	Leg	A325N	0.7500	4	2.023	29.821	0.068 ✔	1	Bolt Tension
T3	560	Leg	A325N	0.7500	4	2.286	29.821	0.077 ✔	1	Bolt Tension
T4	540	Leg	A325N	0.7500	4	3.702	29.821	0.124 ✔	1	Bolt Tension
T5	520	Leg	A325N	0.7500	4	4.754	29.821	0.159 ✔	1	Bolt Tension
T6	500	Leg	A325N	0.7500	4	4.829	29.821	0.162 ✔	1	Bolt Tension
T7	480	Leg	A325N	0.7500	4	5.455	29.821	0.183 ✔	1	Bolt Tension
T8	460	Leg	A325N	0.7500	4	7.983	29.821	0.268 ✔	1	Bolt Tension
T9	440	Leg	A325N	0.7500	4	7.348	29.821	0.246 ✔	1	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T10	420	Leg	A325N	0.7500	4	7.356	29.821	0.247 ✔	1	Bolt Tension
T11	400	Leg	A325N	0.7500	4	8.106	29.821	0.272 ✔	1	Bolt Tension
T12	380	Leg	A325N	0.7500	4	9.958	29.821	0.334 ✔	1	Bolt Tension
T13	360	Leg	A325N	0.7500	4	10.518	29.821	0.353 ✔	1	Bolt Tension
T14	340	Leg	A325N	0.7500	4	9.385	29.821	0.315 ✔	1	Bolt Tension
T15	320	Leg	A325N	0.7500	4	9.451	29.821	0.317 ✔	1	Bolt Tension
T16	300	Leg	A325N	0.7500	4	9.520	29.821	0.319 ✔	1	Bolt Tension
T17	280	Leg	A325N	0.7500	4	10.345	29.821	0.347 ✔	1	Bolt Tension
T18	260	Leg	A325N	0.7500	4	11.551	29.821	0.387 ✔	1	Bolt Tension
T19	240	Leg	A325N	0.7500	4	12.001	29.821	0.402 ✔	1	Bolt Tension
T20	220	Leg	A325N	0.7500	4	12.102	29.821	0.406 ✔	1	Bolt Tension
T21	200	Leg	A325N	0.7500	4	12.176	29.821	0.408 ✔	1	Bolt Tension
T22	180	Leg	A325N	0.7500	4	13.622	29.821	0.457 ✔	1	Bolt Tension
T23	160	Leg	A325N	0.7500	4	13.779	29.821	0.462 ✔	1	Bolt Tension
T24	140	Leg	A325N	0.7500	4	14.303	29.821	0.480 ✔	1	Bolt Tension
T25	120	Leg	A325N	0.7500	4	14.325	29.821	0.480 ✔	1	Bolt Tension
T26	100	Leg	A325N	0.7500	4	14.900	29.821	0.500 ✔	1	Bolt Tension
T27	80	Leg	A325N	0.7500	4	15.513	29.821	0.520 ✔	1	Bolt Tension
T28	60	Leg	A325N	0.7500	4	15.902	29.821	0.533 ✔	1	Bolt Tension
T29	40	Leg	A325N	0.7500	4	16.296	29.821	0.546 ✔	1	Bolt Tension
T30	20	Leg	A325N	0.7500	4	16.232	29.821	0.544 ✔	1	Bolt Tension
T31	8	Leg	A325N	0.7500	4	16.484	29.821	0.553 ✔	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	591.750 (A) (1531)	7/8 BS	9.200	92.000	31.248	55.200	1.000	1.767 ✔
	591.750 (B) (1530)	7/8 BS	9.200	92.000	27.335	55.200	1.000	2.019 ✔
	591.750 (C) (1529)	7/8 BS	9.200	92.000	31.608	55.200	1.000	1.746 ✔
T4	531.950 (A) (1534)	1 BS	12.200	122.000	39.017	73.200	1.000	1.876 ✔
	531.950 (B) (1533)	1 BS	12.200	122.000	33.895	73.200	1.000	2.160 ✔
	531.950 (C) (1532)	1 BS	12.200	122.000	39.482	73.200	1.000	1.854 ✔
T7	460.250 (A) (1537)	1 BS	12.200	122.000	39.678	73.200	1.000	1.845 ✔
	460.250 (B)	1 BS	12.200	122.000	33.967	73.200	1.000	2.155 ✔

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
	(1536)							
	460.250 (C)	1 BS	12.200	122.000	40.097	73.200	1.000	1.826 ✔
	(1535)							
T12	368.050 (A)	1 BS	12.200	122.000	39.650	73.200	1.000	1.846 ✔
	(1540)							
	368.050 (B)	1 BS	12.200	122.000	33.817	73.200	1.000	2.165 ✔
	(1539)							
	368.050 (C)	1 BS	12.200	122.000	40.193	73.200	1.000	1.821 ✔
	(1538)							
T17	275.850 (A)	1 BS	12.200	122.000	39.596	73.200	1.000	1.849 ✔
	(1543)							
	275.850 (B)	1 BS	12.200	122.000	33.788	73.200	1.000	2.166 ✔
	(1542)							
	275.850 (C)	1 BS	12.200	122.000	36.918	73.200	1.000	1.983 ✔
	(1541)							
T21	184.150 (A)	7/8 BS	9.200	92.000	29.306	55.200	1.000	1.884 ✔
	(1546)							
	184.150 (B)	7/8 BS	9.200	92.000	25.403	55.200	1.000	2.173 ✔
	(1545)							
	184.150 (C)	7/8 BS	9.200	92.000	26.441	55.200	1.000	2.088 ✔
	(1544)							
T26	91.950 (A)	7/8 BS	9.200	92.000	23.202	55.200	1.000	2.379 ✔
	(1549)							
	91.950 (B)	7/8 BS	9.200	92.000	20.720	55.200	1.000	2.664 ✔
	(1548)							
	91.950 (C)	7/8 BS	9.200	92.000	19.813	55.200	1.000	2.786 ✔
	(1547)							

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	625 - 592 (1)	P10x.365	33.000	33.000	107.8	11.9083	-2.145	229.160	0.009

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	625 - 592 (1)	P10x.365	58.735	147.678	0.398	0.000	147.678	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	625 - 592 (1)	P10x.365	3.100	267.936	0.012	0.016	224.280	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	625 - 592 (1)	0.009	0.398	0.000	0.012	0.000	0.407 ✔	1.000	4.8.2 ✔

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	2 1/4	12.000	3.833	81.8 K=1.00	3.9761	1.00	-28.687	109.725	0.261 [1]
T2	580 - 560	2 1/4	20.000	3.900	83.2 K=1.00	3.9761	1.00	-29.971	107.859	0.278 [1]
T3	560 - 540	2 1/4	20.000	3.900	83.2 K=1.00	3.9761	1.00	-45.605	107.859	0.423 [1]
T4	540 - 520	2 1/2	20.000	3.900	74.9 K=1.00	4.9087	1.00	-64.671	146.600	0.441 [1]
T5	520 - 500	2 1/2	20.000	3.900	74.9 K=1.00	4.9087	1.00	-60.856	146.600	0.415 [1]
T6	500 - 480	2 1/2	20.000	3.900	74.9 K=1.00	4.9087	1.00	-67.476	146.600	0.460 [1]
T7	480 - 460	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-95.791	190.468	0.503 [1]
T8	460 - 440	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-98.636	190.468	0.518 [1]
T9	440 - 420	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-90.732	190.468	0.476 [1]
T10	420 - 400	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-98.388	190.468	0.517 [1]
T11	400 - 380	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-119.688	190.468	0.628 [1]
T12	380 - 360	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-141.742	239.277	0.592 [1]
T13	360 - 340	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-126.364	239.277	0.528 [1]
T14	340 - 320	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-115.899	239.277	0.484 [1]
T15	320 - 300	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-116.473	239.277	0.487 [1]
T16	300 - 280	3 1/4	20.000	3.900	57.6	8.2958	1.00	-125.285	292.897	0.428 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T17	280 - 260	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-141.160	292.897	0.482 [1]
T18	260 - 240	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-146.057	292.897	0.499 [1]
T19	240 - 220	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-147.680	292.897	0.504 [1]
T20	220 - 200	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-148.158	292.897	0.506 [1]
T21	200 - 180	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-169.226	292.897	0.578 [1]
T22	180 - 160	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-167.762	292.897	0.573 [1]
T23	160 - 140	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-173.287	292.897	0.592 [1]
T24	140 - 120	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-174.144	292.897	0.595 [1]
T25	120 - 100	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-179.810	292.897	0.614 [1]
T26	100 - 80	3 1/2	20.000	3.900	K=1.00 53.5	9.6211	1.00	-194.327	351.235	0.553 [1]
T27	80 - 60	3 1/2	20.000	3.900	K=1.00 53.5	9.6211	1.00	-192.158	351.235	0.547 [1]
T28	60 - 40	3 1/2	20.000	3.900	K=1.00 53.5	9.6211	1.00	-197.430	351.235	0.562 [1]
T29	40 - 20	3 1/2	20.000	3.900	K=1.00 53.5	9.6211	1.00	-197.868	351.235	0.563 [1]
T30	20 - 8	3 1/2	12.000	3.833	K=1.00 52.6	9.6211	1.00	-197.959	353.734	0.560 [1]
T31	8 - 0	3 1/2	8.505	2.185	K=1.00 30.0	9.6211	0.92	-204.167	371.711	0.549 [1]

[1] $P_u / \phi P_n$ controls

Leg Bending Design Data (Compression)

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	592 - 580	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T2	580 - 560	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T3	560 - 540	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T4	540 - 520	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000
T5	520 - 500	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000
T6	500 - 480	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000
T7	480 - 460	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T8	460 - 440	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T9	440 - 420	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T10	420 - 400	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T11	400 - 380	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T12	380 - 360	3	0.000	16.875	0.000	0.000	16.875	0.000
T13	360 - 340	3	0.000	16.875	0.000	0.000	16.875	0.000
T14	340 - 320	3	0.000	16.875	0.000	0.000	16.875	0.000
T15	320 - 300	3	0.000	16.875	0.000	0.000	16.875	0.000
T16	300 - 280	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T17	280 - 260	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T18	260 - 240	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T19	240 - 220	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T20	220 - 200	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T21	200 - 180	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T22	180 - 160	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T23	160 - 140	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T24	140 - 120	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T25	120 - 100	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T26	100 - 80	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000
T27	80 - 60	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000
T28	60 - 40	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000
T29	40 - 20	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000
T30	20 - 8	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000
T31	8 - 0	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	592 - 580	2 1/4	0.261	0.000	0.000	0.261 [1] ✔	1.000	4.8.1 ✔
T2	580 - 560	2 1/4	0.278	0.000	0.000	0.278 [1] ✔	1.000	4.8.1 ✔
T3	560 - 540	2 1/4	0.423	0.000	0.000	0.423 [1] ✔	1.000	4.8.1 ✔
T4	540 - 520	2 1/2	0.441	0.000	0.000	0.441 [1] ✔	1.000	4.8.1 ✔
T5	520 - 500	2 1/2	0.415	0.000	0.000	0.415 [1] ✔	1.000	4.8.1 ✔
T6	500 - 480	2 1/2	0.460	0.000	0.000	0.460 [1] ✔	1.000	4.8.1 ✔
T7	480 - 460	2 3/4	0.503	0.000	0.000	0.503 [1] ✔	1.000	4.8.1 ✔
T8	460 - 440	2 3/4	0.518	0.000	0.000	0.518 [1] ✔	1.000	4.8.1 ✔
T9	440 - 420	2 3/4	0.476	0.000	0.000	0.476 [1] ✔	1.000	4.8.1 ✔
T10	420 - 400	2 3/4	0.517	0.000	0.000	0.517 [1] ✔	1.000	4.8.1 ✔
T11	400 - 380	2 3/4	0.628	0.000	0.000	0.628 [1] ✔	1.000	4.8.1 ✔
T12	380 - 360	3	0.592	0.000	0.000	0.592 [1] ✔	1.000	4.8.1 ✔
T13	360 - 340	3	0.528	0.000	0.000	0.528 [1] ✔	1.000	4.8.1 ✔
T14	340 - 320	3	0.484	0.000	0.000	0.484 [1] ✔	1.000	4.8.1 ✔
T15	320 - 300	3	0.487	0.000	0.000	0.487 [1] ✔	1.000	4.8.1 ✔
T16	300 - 280	3 1/4	0.428	0.000	0.000	0.428 [1] ✔	1.000	4.8.1 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T17	280 - 260	3 1/4	0.482	0.000	0.000	0.482 [1]	1.000	4.8.1
T18	260 - 240	3 1/4	0.499	0.000	0.000	0.499 [1]	1.000	4.8.1
T19	240 - 220	3 1/4	0.504	0.000	0.000	0.504 [1]	1.000	4.8.1
T20	220 - 200	3 1/4	0.506	0.000	0.000	0.506 [1]	1.000	4.8.1
T21	200 - 180	3 1/4	0.578	0.000	0.000	0.578 [1]	1.000	4.8.1
T22	180 - 160	3 1/4	0.573	0.000	0.000	0.573 [1]	1.000	4.8.1
T23	160 - 140	3 1/4	0.592	0.000	0.000	0.592 [1]	1.000	4.8.1
T24	140 - 120	3 1/4	0.595	0.000	0.000	0.595 [1]	1.000	4.8.1
T25	120 - 100	3 1/4	0.614	0.000	0.000	0.614 [1]	1.000	4.8.1
T26	100 - 80	3 1/2	0.553	0.000	0.000	0.553 [1]	1.000	4.8.1
T27	80 - 60	3 1/2	0.547	0.000	0.000	0.547 [1]	1.000	4.8.1
T28	60 - 40	3 1/2	0.562	0.000	0.000	0.562 [1]	1.000	4.8.1
T29	40 - 20	3 1/2	0.563	0.000	0.000	0.563 [1]	1.000	4.8.1
T30	20 - 8	3 1/2	0.560	0.000	0.000	0.560 [1]	1.000	4.8.1
T31	8 - 0	3 1/2	0.549	0.000	0.000	0.549 [1]	1.000	4.8.1

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T31	8 - 0	L3x3x3/8	2.417	1.570	54.1 K=1.68	2.1100	-27.287	58.614	0.466 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-6.712	13.983	0.480 [1] ✔
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-4.769	13.983	0.341 [1] ✔
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-4.724	13.983	0.338 [1] ✔
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-7.273	14.027	0.519 [1] ✔
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-4.388	14.027	0.313 [1] ✔
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-4.341	14.027	0.309 [1] ✔
T7	480 - 460	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-6.261	14.071	0.445 [1] ✔
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-5.290	14.071	0.376 [1] ✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-4.285	14.071	0.305 [1] ✔
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-4.114	14.071	0.292 [1] ✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-5.628	14.071	0.400 [1] ✔
T12	380 - 360	L2 1/2x2 1/2x1/4	5.000	4.750	118.0 K=1.02	1.1900	-8.198	18.514	0.443 [1] ✔
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-4.919	14.115	0.348 [1] ✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-3.883	14.115	0.275 [1] ✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-3.867	14.115	0.274 [1] ✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-5.204	14.159	0.368 [1] ✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-5.823	14.159	0.411 [1] ✔
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-4.131	14.159	0.292 [1] ✔
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.942	14.159	0.278 [1] ✔
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-5.312	14.159	0.375 [1] ✔
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	117.8 K=1.02	1.1900	-6.754	18.573	0.364 [1] ✔
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-5.004	14.159	0.353 [1] ✔
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.599	14.159	0.254 [1] ✔
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.573	14.159	0.252 [1] ✔
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-5.276	14.159	0.373 [1] ✔
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-5.952	14.204	0.419 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-4.615	14.204	0.325 [1] ✔
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-3.692	14.204	0.260 [1] ✔
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-3.686	14.204	0.260 [1] ✔
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-4.829	14.204	0.340 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-2.499	13.983	0.179 [1] ✔
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-2.607	13.983	0.186 [1] ✔
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-3.551	14.027	0.253 [1] ✔
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-2.346	14.027	0.167 [1] ✔
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-2.341	14.027	0.167 [1] ✔
T7	480 - 460	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-3.314	14.071	0.236 [1] ✔
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.580	14.071	0.183 [1] ✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.311	14.071	0.164 [1] ✔
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.232	14.071	0.159 [1] ✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.557	14.071	0.182 [1] ✔
T12	380 - 360	L1 1/2x1 1/2x1/4	5.000	4.750	166.2 K=0.85	0.6875	-3.511	5.620	0.625 [1] ✔
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.691	14.115	0.191 [1] ✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.201	14.115	0.156 [1] ✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.031	14.115	0.144 [1] ✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.842	14.159	0.201 [1] ✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.939	14.159	0.278 [1] ✔
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.457	14.159	0.174 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.037	14.159	0.144 [1]
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.232	14.159	0.158 [1]
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	117.8 K=1.02	1.1900	-3.748	18.573	0.202 [1]
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.052	14.159	0.216 [1]
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-1.977	14.159	0.140 [1]
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-1.965	14.159	0.139 [1]
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.525	14.159	0.178 [1]
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-3.410	14.204	0.240 [1]
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.663	14.204	0.188 [1]
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-1.909	14.204	0.134 [1]
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-1.922	14.204	0.135 [1]
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.012	14.204	0.142 [1]

[1] $P_u / \phi P_n$ controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-3.322	13.983	0.238 [1]
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-2.693	13.983	0.193 [1]
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-3.162	13.983	0.226 [1]
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-3.107	14.027	0.222 [1]
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-2.255	14.027	0.161 [1]
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-2.613	14.027	0.186 [1]
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.943	14.071	0.209 [1]
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.144	14.071	0.152 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.237	14.071	0.159 [1] ✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-3.341	14.071	0.237 [1] ✔
T12	380 - 360	L2 1/2x2 1/2x1/4	5.000	4.750	118.0 K=1.02	1.1900	-3.677	18.514	0.199 [1] ✔
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.239	14.115	0.159 [1] ✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.070	14.115	0.147 [1] ✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.151	14.115	0.152 [1] ✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.252	14.159	0.230 [1] ✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.807	14.159	0.198 [1] ✔
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.098	14.159	0.148 [1] ✔
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-1.935	14.159	0.137 [1] ✔
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.667	14.159	0.188 [1] ✔
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	117.8 K=1.02	1.1900	-3.777	18.573	0.203 [1] ✔
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.528	14.159	0.179 [1] ✔
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-1.910	14.159	0.135 [1] ✔
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.006	14.159	0.142 [1] ✔
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.110	14.159	0.220 [1] ✔
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.877	14.204	0.203 [1] ✔
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.094	14.204	0.147 [1] ✔
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-1.964	14.204	0.138 [1] ✔
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-1.876	14.204	0.132 [1] ✔

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	6*1	5.000	4.813	200.1 K=1.00	6.0000	-0.994	33.869	0.029 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
		KL/R > 200 (C) - 5							✔
T4	540 - 520	6*1	5.000	4.792	199.2 K=1.00	6.0000	-4.094	34.164	0.120 [1] ✔
T7	480 - 460	6*1	5.000	4.771	198.3 K=1.00	6.0000	-1.778	34.464	0.052 [1] ✔
T12	380 - 360	6*1	5.000	4.750	197.5 K=1.00	6.0000	-4.810	34.766	0.138 [1] ✔
T17	280 - 260	6*1	5.000	4.729	196.6 K=1.00	6.0000	-3.981	35.073	0.114 [1] ✔
T21	200 - 180	6*1	5.000	4.729	196.6 K=1.00	6.0000	-5.349	35.073	0.153 [1] ✔
T26	100 - 80	6*1	5.000	4.708	195.7 K=1.00	6.0000	-3.243	35.385	0.092 [1] ✔

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	2 1/4	12.000	3.833	81.8	3.9761	13.171	178.924	0.074 [1]
T3	560 - 540	2 1/4	20.000	3.900	83.2	3.9761	2.725	178.924	0.015 [1]
T4	540 - 520	2 1/2	20.000	3.900	74.9	4.9087	3.761	220.893	0.017 [1]

[1] $P_u / \phi P_n$ controls

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	592 - 580	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T3	560 - 540	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T4	540 - 520	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	592 - 580	2 1/4	0.074	0.000	0.000	0.074 [1] ✔	1.000	4.8.1 ✔
T3	560 - 540	2 1/4	0.015	0.000	0.000	0.015 [1] ✔	1.000	4.8.1 ✔
T4	540 - 520	2 1/2	0.017	0.000	0.000	0.017 [1] ✔	1.000	4.8.1 ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	3/4	6.300	6.064	388.1	0.4418	5.386	14.314	0.376 [1] ✔
T2	580 - 560	5/8	6.341	6.103	468.7	0.3068	4.158	9.940	0.418 [1] ✔
T3	560 - 540	5/8	6.341	6.103	468.7	0.3068	5.003	9.940	0.503 [1] ✔
T4	540 - 520	3/4	6.341	6.077	388.9	0.4418	6.713	14.314	0.469 [1] ✔
T5	520 - 500	5/8	6.341	6.077	466.7	0.3068	4.297	9.940	0.432 [1] ✔
T6	500 - 480	5/8	6.341	6.077	466.7	0.3068	4.784	9.940	0.481 [1] ✔
T7	480 - 460	3/4	6.341	6.051	387.2	0.4418	7.938	14.314	0.555 [1] ✔
T8	460 - 440	3/4	6.341	6.051	387.2	0.4418	6.440	14.314	0.450 [1] ✔
T9	440 - 420	5/8	6.341	6.051	464.7	0.3068	4.642	9.940	0.467 [1] ✔
T10	420 - 400	5/8	6.341	6.051	464.7	0.3068	4.629	9.940	0.466 [1] ✔
T11	400 - 380	5/8	6.341	6.051	464.7	0.3068	7.600	9.940	0.765 [1] ✔
T12	380 - 360	7/8	6.341	6.024	330.5	0.6013	9.313	19.483	0.478 [1] ✔
T13	360 - 340	5/8	6.341	6.024	462.6	0.3068	6.549	9.940	0.659 [1] ✔
T14	340 - 320	5/8	6.341	6.024	462.6	0.3068	4.798	9.940	0.483 [1] ✔
T15	320 - 300	5/8	6.341	6.024	462.6	0.3068	3.870	9.940	0.389 [1] ✔
T16	300 - 280	3/4	6.341	5.998	383.9	0.4418	6.444	14.314	0.450 [1] ✔
T17	280 - 260	3/4	6.341	5.998	383.9	0.4418	10.278	14.314	0.718 [1] ✔
T18	260 - 240	5/8	6.341	5.998	460.6	0.3068	5.858	9.940	0.589 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T19	240 - 220	5/8	6.341	5.998	460.6	0.3068	4.840	9.940	0.487 [1]
T20	220 - 200	5/8	6.341	5.998	460.6	0.3068	7.093	9.940	0.714 [1]
T21	200 - 180	7/8	6.341	5.998	329.0	0.6013	8.394	19.483	0.431 [1]
T22	180 - 160	3/4	6.341	5.998	383.9	0.4418	6.823	14.314	0.477 [1]
T23	160 - 140	5/8	6.341	5.998	460.6	0.3068	4.019	9.940	0.404 [1]
T24	140 - 120	5/8	6.341	5.998	460.6	0.3068	4.589	9.940	0.462 [1]
T25	120 - 100	3/4	6.341	5.998	383.9	0.4418	7.409	14.314	0.518 [1]
T26	100 - 80	3/4	6.341	5.971	382.2	0.4418	8.074	14.314	0.564 [1]
T27	80 - 60	5/8	6.341	5.971	458.6	0.3068	6.217	9.940	0.625 [1]
T28	60 - 40	5/8	6.341	5.971	458.6	0.3068	4.485	9.940	0.451 [1]
T29	40 - 20	5/8	6.341	5.971	458.6	0.3068	4.387	9.940	0.441 [1]
T30	20 - 8	5/8	6.300	5.933	455.6	0.3068	7.034	9.940	0.708 [1]
T31	8 - 0	L3x3x3/8	4.323	2.251	29.6	2.1100	0.560	68.364	0.008 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.497	29.225	0.017 [1]
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.519	29.225	0.018 [1]
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.790	29.225	0.027 [1]
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.120	29.225	0.038 [1]
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.054	29.225	0.036 [1]
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.169	29.225	0.040 [1]
T7	480 - 460	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.598	29.225	0.055 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.708	29.225	0.058 [1] ✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.572	29.225	0.054 [1] ✔
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.704	29.225	0.058 [1] ✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	2.073	29.225	0.071 [1] ✔
T12	380 - 360	L2 1/2x2 1/2x1/4	5.000	4.750	74.1	1.1900	2.455	38.556	0.064 [1] ✔
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	2.189	29.225	0.075 [1] ✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	2.007	29.225	0.069 [1] ✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	2.017	29.225	0.069 [1] ✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.170	29.225	0.074 [1] ✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.445	29.225	0.084 [1] ✔
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.530	29.225	0.087 [1] ✔
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.558	29.225	0.088 [1] ✔
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.566	29.225	0.088 [1] ✔
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	73.8	1.1900	2.931	38.556	0.076 [1] ✔
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.906	29.225	0.099 [1] ✔
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	3.001	29.225	0.103 [1] ✔
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	3.016	29.225	0.103 [1] ✔
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	3.114	29.225	0.107 [1] ✔
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	3.366	29.225	0.115 [1] ✔
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	3.328	29.225	0.114 [1] ✔
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	3.420	29.225	0.117 [1] ✔
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	3.427	29.225	0.117 [1] ✔
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	3.429	29.225	0.117 [1] ✔
T31	8 - 0	L3x3x3/8	1.858	1.566	20.6	2.1100	17.589	68.364	0.257 [1] ✔

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation (ft)	Size	L (ft)	L_u (ft)	Kl/r	A (in^2)	P_u (K)	ϕP_n (K)	Ratio $\frac{P_u}{\phi P_n}$
T31	8 - 0	C3x5	4.427	4.135	121.0	1.4700	13.827	47.628	0.290 [1] ✔

[1] $P_u / \phi P_n$ controls

Bottom Girt Design Data (Tension)

Section No.	Elevation (ft)	Size	L (ft)	L_u (ft)	Kl/r	A (in^2)	P_u (K)	ϕP_n (K)	Ratio $\frac{P_u}{\phi P_n}$
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	25.302	29.225	0.866 [1] ✔
T31	8 - 0	12x3/8	0.573	0.281	31.2	4.5000	17.546	145.800	0.120 [1] ✔

[1] $P_u / \phi P_n$ controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation (ft)	Size	L (ft)	L_u (ft)	Kl/r	A (in^2)	P_u (K)	ϕP_n (K)	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	6*1	5.000	4.813	200.1	4.5000	20.897	219.375	0.095 [1] ✔
T4	540 - 520	6*1	5.000	4.792	199.2	4.5000	2.702	219.375	0.012 [1] ✔
T7	480 - 460	6*1	5.000	4.771	198.3	4.5000	6.910	219.375	0.031 [1] ✔
T12	380 - 360	6*1	5.000	4.750	197.5	4.5000	4.095	219.375	0.019 [1] ✔
T17	280 - 260	6*1	5.000	4.729	196.6	4.5000	6.105	219.375	0.028 [1] ✔
T21	200 - 180	6*1	5.000	4.729	196.6	4.5000	3.643	219.375	0.017 [1] ✔
T26	100 - 80	6*1	5.000	4.708	195.7	4.5000	5.483	219.375	0.025 [1] ✔

[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	625 - 592	Pole	P10x.365	1	-2.145	229.160	40.7	Pass
T1	592 - 580	Leg	2 1/4	4	-14.377	109.725	32.8	Pass
T2	580 - 560	Leg	2 1/4	37	-29.971	107.859	27.8	Pass
T3	560 - 540	Leg	2 1/4	88	-45.605	107.859	42.3	Pass
T4	540 - 520	Leg	2 1/2	139	-64.671	146.600	44.1	Pass
T5	520 - 500	Leg	2 1/2	189	-60.856	146.600	41.5	Pass
T6	500 - 480	Leg	2 1/2	241	-67.476	146.600	46.0	Pass
T7	480 - 460	Leg	2 3/4	292	-95.791	190.468	50.3	Pass
T8	460 - 440	Leg	2 3/4	343	-98.636	190.468	51.8	Pass
T9	440 - 420	Leg	2 3/4	394	-90.732	190.468	47.6	Pass
T10	420 - 400	Leg	2 3/4	445	-98.388	190.468	51.7	Pass
T11	400 - 380	Leg	2 3/4	496	-119.688	190.468	62.8	Pass
T12	380 - 360	Leg	3	547	-141.742	239.277	59.2	Pass
T13	360 - 340	Leg	3	598	-126.364	239.277	52.8	Pass
T14	340 - 320	Leg	3	649	-115.899	239.277	48.4	Pass
T15	320 - 300	Leg	3	700	-116.473	239.277	48.7	Pass
T16	300 - 280	Leg	3 1/4	749	-125.285	292.897	42.8	Pass
T17	280 - 260	Leg	3 1/4	800	-141.160	292.897	48.2	Pass
T18	260 - 240	Leg	3 1/4	851	-146.057	292.897	49.9	Pass
T19	240 - 220	Leg	3 1/4	904	-147.680	292.897	50.4	Pass
T20	220 - 200	Leg	3 1/4	955	-148.158	292.897	50.6	Pass
T21	200 - 180	Leg	3 1/4	1006	-169.226	292.897	57.8	Pass
T22	180 - 160	Leg	3 1/4	1057	-167.762	292.897	57.3	Pass
T23	160 - 140	Leg	3 1/4	1108	-173.287	292.897	59.2	Pass
T24	140 - 120	Leg	3 1/4	1159	-174.144	292.897	59.5	Pass
T25	120 - 100	Leg	3 1/4	1210	-179.810	292.897	61.4	Pass
T26	100 - 80	Leg	3 1/2	1261	-194.327	351.235	55.3	Pass
T27	80 - 60	Leg	3 1/2	1312	-192.158	351.235	54.7	Pass
T28	60 - 40	Leg	3 1/2	1363	-197.430	351.235	56.2	Pass
T29	40 - 20	Leg	3 1/2	1414	-197.868	351.235	56.3	Pass
T30	20 - 8	Leg	3 1/2	1465	-197.959	353.734	56.0	Pass
T31	8 - 0	Leg	3 1/2	1498	-204.167	371.711	54.9	Pass
							55.3 (b)	
T1	592 - 580	Diagonal	3/4	32	5.386	14.314	37.6	Pass
T2	580 - 560	Diagonal	5/8	44	4.158	9.940	41.8	Pass
T3	560 - 540	Diagonal	5/8	95	5.003	9.940	50.3	Pass
T4	540 - 520	Diagonal	3/4	173	6.713	14.314	46.9	Pass
T5	520 - 500	Diagonal	5/8	238	4.297	9.940	43.2	Pass
T6	500 - 480	Diagonal	5/8	251	4.784	9.940	48.1	Pass
T7	480 - 460	Diagonal	3/4	299	7.938	14.314	55.5	Pass
T8	460 - 440	Diagonal	3/4	391	6.440	14.314	45.0	Pass
T9	440 - 420	Diagonal	5/8	442	4.642	9.940	46.7	Pass
T10	420 - 400	Diagonal	5/8	455	4.629	9.940	46.6	Pass
T11	400 - 380	Diagonal	5/8	503	7.600	9.940	76.5	Pass
T12	380 - 360	Diagonal	7/8	572	9.313	19.483	47.8	Pass
T13	360 - 340	Diagonal	5/8	645	6.549	9.940	65.9	Pass
T14	340 - 320	Diagonal	5/8	696	4.798	9.940	48.3	Pass
T15	320 - 300	Diagonal	5/8	710	3.870	9.940	38.9	Pass
T16	300 - 280	Diagonal	3/4	761	6.444	14.314	45.0	Pass
T17	280 - 260	Diagonal	3/4	847	10.278	14.314	71.8	Pass
T18	260 - 240	Diagonal	5/8	901	5.858	9.940	58.9	Pass
T19	240 - 220	Diagonal	5/8	913	4.840	9.940	48.7	Pass
T20	220 - 200	Diagonal	5/8	964	7.093	9.940	71.4	Pass
T21	200 - 180	Diagonal	7/8	1025	8.394	19.483	43.1	Pass
T22	180 - 160	Diagonal	3/4	1104	6.823	14.314	47.7	Pass
T23	160 - 140	Diagonal	5/8	1152	4.019	9.940	40.4	Pass
T24	140 - 120	Diagonal	5/8	1170	4.589	9.940	46.2	Pass
T25	120 - 100	Diagonal	3/4	1221	7.409	14.314	51.8	Pass
T26	100 - 80	Diagonal	3/4	1308	8.074	14.314	56.4	Pass
T27	80 - 60	Diagonal	5/8	1358	6.217	9.940	62.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T28	60 - 40	Diagonal	5/8	1408	4.485	9.940	45.1	Pass
T29	40 - 20	Diagonal	5/8	1425	4.387	9.940	44.1	Pass
T30	20 - 8	Diagonal	5/8	1476	7.034	9.940	70.8	Pass
T31	8 - 0	Diagonal	L3x3x3/8	1510	-27.287	58.614	46.6	Pass
T1	592 - 580	Horizontal	L2 1/2x2 1/2x3/16	28	-6.712	13.983	48.0	Pass
T2	580 - 560	Horizontal	L2 1/2x2 1/2x3/16	50	-4.769	13.983	34.1	Pass
T3	560 - 540	Horizontal	L2 1/2x2 1/2x3/16	101	-4.724	13.983	33.8	Pass
T4	540 - 520	Horizontal	L2 1/2x2 1/2x3/16	179	-7.273	14.027	51.9	Pass
T5	520 - 500	Horizontal	L2 1/2x2 1/2x3/16	203	-4.388	14.027	31.3	Pass
T6	500 - 480	Horizontal	L2 1/2x2 1/2x3/16	281	-4.341	14.027	30.9	Pass
T7	480 - 460	Horizontal	L2 1/2x2 1/2x3/16	305	-6.261	14.071	44.5	Pass
T8	460 - 440	Horizontal	L2 1/2x2 1/2x3/16	383	-5.290	14.071	37.6	Pass
T9	440 - 420	Horizontal	L2 1/2x2 1/2x3/16	407	-4.285	14.071	30.5	Pass
T10	420 - 400	Horizontal	L2 1/2x2 1/2x3/16	485	-4.114	14.071	29.2	Pass
T11	400 - 380	Horizontal	L2 1/2x2 1/2x3/16	509	-5.628	14.071	40.0	Pass
T12	380 - 360	Horizontal	L2 1/2x2 1/2x1/4	578	-8.198	18.514	44.3	Pass
T13	360 - 340	Horizontal	L2 1/2x2 1/2x3/16	640	-4.919	14.115	34.8	Pass
T14	340 - 320	Horizontal	L2 1/2x2 1/2x3/16	689	-3.883	14.115	27.5	Pass
T15	320 - 300	Horizontal	L2 1/2x2 1/2x3/16	740	-3.867	14.115	27.4	Pass
T16	300 - 280	Horizontal	L2 1/2x2 1/2x3/16	791	-5.204	14.159	36.8	Pass
T17	280 - 260	Horizontal	L2 1/2x2 1/2x3/16	835	-5.823	14.159	41.1	Pass
T18	260 - 240	Horizontal	L2 1/2x2 1/2x3/16	895	-4.131	14.159	29.2	Pass
T19	240 - 220	Horizontal	L2 1/2x2 1/2x3/16	944	-3.942	14.159	27.8	Pass
T20	220 - 200	Horizontal	L2 1/2x2 1/2x3/16	969	-5.312	14.159	37.5	Pass
T21	200 - 180	Horizontal	L2 1/2x2 1/2x1/4	1030	-6.754	18.573	36.4	Pass
T22	180 - 160	Horizontal	L2 1/2x2 1/2x3/16	1099	-5.004	14.159	35.3	Pass
T23	160 - 140	Horizontal	L2 1/2x2 1/2x3/16	1121	-3.599	14.159	25.4	Pass
T24	140 - 120	Horizontal	L2 1/2x2 1/2x3/16	1199	-3.573	14.159	25.2	Pass
T25	120 - 100	Horizontal	L2 1/2x2 1/2x3/16	1225	-5.276	14.159	37.3	Pass
T26	100 - 80	Horizontal	L2 1/2x2 1/2x3/16	1303	-5.952	14.204	41.9	Pass
T27	80 - 60	Horizontal	L2 1/2x2 1/2x3/16	1353	-4.615	14.204	32.5	Pass
T28	60 - 40	Horizontal	L2 1/2x2 1/2x3/16	1376	-3.692	14.204	26.0	Pass
T29	40 - 20	Horizontal	L2 1/2x2 1/2x3/16	1454	-3.686	14.204	26.0	Pass
T30	20 - 8	Horizontal	L2 1/2x2 1/2x3/16	1480	-4.829	14.204	34.0	Pass
T31	8 - 0	Horizontal	L3x3x3/8	1513	17.589	68.364	25.7	Pass
T2	580 - 560	Top Girt	L2 1/2x2 1/2x3/16	38	-2.499	13.983	17.9	Pass
T3	560 - 540	Top Girt	L2 1/2x2 1/2x3/16	89	-2.607	13.983	18.6	Pass
T4	540 - 520	Top Girt	L2 1/2x2 1/2x3/16	140	-3.551	14.027	25.3	Pass
T5	520 - 500	Top Girt	L2 1/2x2 1/2x3/16	191	-2.346	14.027	16.7	Pass
T6	500 - 480	Top Girt	L2 1/2x2 1/2x3/16	242	-2.341	14.027	16.7	Pass
T7	480 - 460	Top Girt	L2 1/2x2 1/2x3/16	293	-3.314	14.071	23.6	Pass
T8	460 - 440	Top Girt	L2 1/2x2 1/2x3/16	344	-2.580	14.071	18.3	Pass
T9	440 - 420	Top Girt	L2 1/2x2 1/2x3/16	395	-2.311	14.071	16.4	Pass
T10	420 - 400	Top Girt	L2 1/2x2 1/2x3/16	446	-2.232	14.071	15.9	Pass
T11	400 - 380	Top Girt	L2 1/2x2 1/2x3/16	497	-2.557	14.071	18.2	Pass
T12	380 - 360	Top Girt	L1 1/2x1 1/2x1/4	548	-3.511	5.620	62.5	Pass
T13	360 - 340	Top Girt	L2 1/2x2 1/2x3/16	599	-2.691	14.115	19.1	Pass
T14	340 - 320	Top Girt	L2 1/2x2 1/2x3/16	650	-2.201	14.115	15.6	Pass
T15	320 - 300	Top Girt	L2 1/2x2 1/2x3/16	701	-2.031	14.115	14.4	Pass
T16	300 - 280	Top Girt	L2 1/2x2 1/2x3/16	752	-2.842	14.159	20.1	Pass
T17	280 - 260	Top Girt	L2 1/2x2 1/2x3/16	804	-3.939	14.159	27.8	Pass
T18	260 - 240	Top Girt	L2 1/2x2 1/2x3/16	856	-2.457	14.159	17.4	Pass
T19	240 - 220	Top Girt	L2 1/2x2 1/2x3/16	905	-2.037	14.159	14.4	Pass
T20	220 - 200	Top Girt	L2 1/2x2 1/2x3/16	956	-2.232	14.159	15.8	Pass
T21	200 - 180	Top Girt	L2 1/2x2 1/2x1/4	1008	-3.748	18.573	20.2	Pass
T22	180 - 160	Top Girt	L2 1/2x2 1/2x3/16	1058	-3.052	14.159	21.6	Pass
T23	160 - 140	Top Girt	L2 1/2x2 1/2x3/16	1111	-1.977	14.159	14.0	Pass
T24	140 - 120	Top Girt	L2 1/2x2 1/2x3/16	1160	-1.965	14.159	13.9	Pass
T25	120 - 100	Top Girt	L2 1/2x2 1/2x3/16	1211	-2.525	14.159	17.8	Pass
T26	100 - 80	Top Girt	L2 1/2x2 1/2x3/16	1264	-3.410	14.204	24.0	Pass
T27	80 - 60	Top Girt	L2 1/2x2 1/2x3/16	1314	-2.663	14.204	18.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T28	60 - 40	Top Girt	L2 1/2x2 1/2x3/16	1365	-1.909	14.204	13.4	Pass
T29	40 - 20	Top Girt	L2 1/2x2 1/2x3/16	1415	-1.922	14.204	13.5	Pass
T30	20 - 8	Top Girt	L2 1/2x2 1/2x3/16	1466	-2.012	14.204	14.2	Pass
T31	8 - 0	Top Girt	C3x5	1501	13.827	47.628	29.0	Pass
T1	592 - 580	Bottom Girt	L2 1/2x2 1/2x3/16	8	-3.322	13.983	23.8	Pass
T2	580 - 560	Bottom Girt	L2 1/2x2 1/2x3/16	41	-2.693	13.983	19.3	Pass
T3	560 - 540	Bottom Girt	L2 1/2x2 1/2x3/16	92	-3.162	13.983	22.6	Pass
T4	540 - 520	Bottom Girt	L2 1/2x2 1/2x3/16	143	-3.107	14.027	22.2	Pass
T5	520 - 500	Bottom Girt	L2 1/2x2 1/2x3/16	194	-2.255	14.027	16.1	Pass
T6	500 - 480	Bottom Girt	L2 1/2x2 1/2x3/16	245	-2.613	14.027	18.6	Pass
T8	460 - 440	Bottom Girt	L2 1/2x2 1/2x3/16	347	-2.943	14.071	20.9	Pass
T9	440 - 420	Bottom Girt	L2 1/2x2 1/2x3/16	399	-2.144	14.071	15.2	Pass
T10	420 - 400	Bottom Girt	L2 1/2x2 1/2x3/16	449	-2.237	14.071	15.9	Pass
T11	400 - 380	Bottom Girt	L2 1/2x2 1/2x3/16	500	-3.341	14.071	23.7	Pass
T12	380 - 360	Bottom Girt	L2 1/2x2 1/2x1/4	551	-3.677	18.514	19.9	Pass
T13	360 - 340	Bottom Girt	L2 1/2x2 1/2x3/16	604	-2.239	14.115	15.9	Pass
T14	340 - 320	Bottom Girt	L2 1/2x2 1/2x3/16	653	-2.070	14.115	14.7	Pass
T15	320 - 300	Bottom Girt	L2 1/2x2 1/2x3/16	705	-2.151	14.115	15.2	Pass
T16	300 - 280	Bottom Girt	L2 1/2x2 1/2x3/16	756	-3.252	14.159	23.0	Pass
T17	280 - 260	Bottom Girt	L2 1/2x2 1/2x3/16	806	-2.807	14.159	19.8	Pass
T18	260 - 240	Bottom Girt	L2 1/2x2 1/2x3/16	857	-2.098	14.159	14.8	Pass
T19	240 - 220	Bottom Girt	L2 1/2x2 1/2x3/16	910	-1.935	14.159	13.7	Pass
T20	220 - 200	Bottom Girt	L2 1/2x2 1/2x3/16	960	-2.667	14.159	18.8	Pass
T21	200 - 180	Bottom Girt	L2 1/2x2 1/2x1/4	1010	-3.777	18.573	20.3	Pass
T22	180 - 160	Bottom Girt	L2 1/2x2 1/2x3/16	1061	-2.528	14.159	17.9	Pass
T23	160 - 140	Bottom Girt	L2 1/2x2 1/2x3/16	1112	-1.910	14.159	13.5	Pass
T24	140 - 120	Bottom Girt	L2 1/2x2 1/2x3/16	1165	-2.006	14.159	14.2	Pass
T25	120 - 100	Bottom Girt	L2 1/2x2 1/2x3/16	1216	-3.110	14.159	22.0	Pass
T26	100 - 80	Bottom Girt	L2 1/2x2 1/2x3/16	1266	-2.877	14.204	20.3	Pass
T27	80 - 60	Bottom Girt	L2 1/2x2 1/2x3/16	1316	-2.094	14.204	14.7	Pass
T28	60 - 40	Bottom Girt	L2 1/2x2 1/2x3/16	1367	-1.964	14.204	13.8	Pass
T29	40 - 20	Bottom Girt	L2 1/2x2 1/2x3/16	1420	-1.876	14.204	13.2	Pass
T30	20 - 8	Bottom Girt	L2 1/2x2 1/2x3/16	1471	25.302	29.225	86.6	Pass
T31	8 - 0	Bottom Girt	12x3/8	1504	17.546	145.800	12.0	Pass
T1	592 - 580	Guy A@591.75	7/8	1531	31.248	55.200	56.6	Pass
T4	540 - 520	Guy A@531.95	1	1534	39.017	73.200	53.3	Pass
T7	480 - 460	Guy A@460.25	1	1537	39.678	73.200	54.2	Pass
T12	380 - 360	Guy A@368.05	1	1540	39.650	73.200	54.2	Pass
T17	280 - 260	Guy A@275.85	1	1543	39.596	73.200	54.1	Pass
T21	200 - 180	Guy A@184.15	7/8	1546	29.306	55.200	53.1	Pass
T26	100 - 80	Guy A@91.95	7/8	1549	23.202	55.200	42.0	Pass
T1	592 - 580	Guy B@591.75	7/8	1530	27.335	55.200	49.5	Pass
T4	540 - 520	Guy B@531.95	1	1533	33.895	73.200	46.3	Pass
T7	480 - 460	Guy B@460.25	1	1536	33.967	73.200	46.4	Pass
T12	380 - 360	Guy B@368.05	1	1539	33.817	73.200	46.2	Pass
T17	280 - 260	Guy B@275.85	1	1542	33.788	73.200	46.2	Pass
T21	200 - 180	Guy B@184.15	7/8	1545	25.403	55.200	46.0	Pass
T26	100 - 80	Guy B@91.95	7/8	1548	20.720	55.200	37.5	Pass
T1	592 - 580	Guy C@591.75	7/8	1529	31.608	55.200	57.3	Pass
T4	540 - 520	Guy C@531.95	1	1532	39.482	73.200	53.9	Pass
T7	480 - 460	Guy C@460.25	1	1535	40.097	73.200	54.8	Pass
T12	380 - 360	Guy C@368.05	1	1538	40.193	73.200	54.9	Pass
T17	280 - 260	Guy C@275.85	1	1541	36.918	73.200	50.4	Pass
T21	200 - 180	Guy C@184.15	7/8	1544	26.441	55.200	47.9	Pass
T26	100 - 80	Guy C@91.95	7/8	1547	19.813	55.200	35.9	Pass
T1	592 - 580	Top Guy Pull-Off@591.75	6*1	7	20.897	219.375	9.5	Pass
T4	540 - 520	Top Guy Pull-Off@531.95	6*1	170	-4.094	34.164	12.0	Pass
T7	480 - 460	Top Guy Pull-Off@460.25	6*1	296	-1.778	34.464	5.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T12	380 - 360	Top Guy Pull-Off@368.05	6*1	569	-4.810	34.766	13.8	Pass
T17	280 - 260	Top Guy Pull-Off@275.85	6*1	842	-3.981	35.073	11.4	Pass
T21	200 - 180	Top Guy Pull-Off@184.15	6*1	1019	-5.349	35.073	15.3	Pass
T26	100 - 80	Top Guy Pull-Off@91.95	6*1	1292	-3.243	35.385	9.2	Pass
							Summary	
						Pole (L1)	40.7	Pass
						Leg (T11)	62.8	Pass
						Diagonal (T11)	76.5	Pass
						Horizontal (T4)	51.9	Pass
						Top Girt (T12)	62.5	Pass
						Bottom Girt (T30)	86.6	Pass
						Guy A (T1)	56.6	Pass
						Guy B (T1)	49.5	Pass
						Guy C (T1)	57.3	Pass
						Top Guy Pull-Off (T21)	15.3	Pass
						Bolt Checks	55.3	Pass
						RATING =	**86.6**	**Pass**

Guyed Tower Foundation Reaction Comparison

Site#	US-CT-5004	Date	2/21/2019
Carrier	AT&T	Engineer	JW

TIA Rev	TIA-222-G	
Conversion Factor	1.35	*Use (1) if tower was designed in Rev G

Origional Design Reactions					Current Analysis Reactions				
	Base	Inner Anchor	Middle Anchor	Outer Anchor		Base	Inner Anchor	Middle Anchor	Outer Anchor
Horizontal (kip)	6.3	127.0	0.0	68.5	Horizontal (kip)	2.0	65.0	0.0	76.0
Vertical (kip)	609.0	133.0	0.0	118.0	Vertical (kip)	572.0	61.0	0.0	123.0

Foundation Reactions	**Factored Original Design**		**Current Analysis**		**Percentage**		
	Horizontal (kips)	Vertical (kips)	Horizontal (kips)	Vertical (kips)	Horizontal (kips)	Vertical (kips)	Controlling (kips)
Base	8.5	822.2	2.0	572.0	23.5%	69.6%	82.2%
Inner Anchor	171.5	179.6	65.0	61.0	37.9%	34.0%	
Middle Anchor	0.0	0.0	0.0	0.0	0.0%	0.0%	
Outer Anchor	92.5	159.3	76.0	123.0	82.2%	77.2%	

Notes:

1. Original design reactions increased by 1.35 for conversion to Rev G
2. Foundations are within acceptable engineering tolerance at 110%.

Attachment 2:
Collocation Application

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☐ NEW LEASE	☑ AMENDMENT TO EXISTING LEASE	☐ RECONTRACT	☐ BTS ANCHOR TENANT	INTERNAL USE ONLY	
				APP VERSION #	
				LEASE #	3418
				AMENDMENT #	2

PLEASE RETURN THIS APPLICATION VIA EMAIL TO:			
Vertical Bridge 750 Park of Commerce Drive Suite 200 Boca Raton, FL 33487 Attn: Regional Leasing Manager	E-Mail: fjenkins@verticalbridge.com Phone: 301-667-0069	VB Site Number:	US-CT-5004
		VB Site Name:	NHA-003-FM
		Application Date:	January 11, 2019
		Revision Dates:	
		RSM Approval:	

APPLICANT / CARRIER INFORMATION			
Carrier Name:	AT&T	**Contact Name:**	MARK ROBERTS
Carrier Site Number:	CT5663	**Contact Number:**	860-670-9068
Carrier Site Name:	HAMDEN - TALMADGE	**Contact Fax:**	
Carrier Legal Entity Name:	NEW CINGULAR WIRELESS PCS, LLC	**Contact Address:**	PO BOX 916 STORRS, CT 06268
State of registration:	DELAWARE		
Type of entity (LP, LLC, Corp) d/b/a (If applicable)	LLC		
Notice Address for Lease:	New Cingular Wireless PCS, LLC Attn. Network Real Estate Administration Re: Cell Site # CT5663 / FA# 10071061 575 Morosgo Drive Atalanta, GA 30324	**Contact E-mail:**	MARK.ROBERTS@QCDEVELOPMENT.NET
With copies to:	New Cingular Wireless PCS, LLC Attn. AT&T Legal Department Re: Cell Site # CT5663 / FA# 10071061 208 S. Akard Street Dallas, TX 75202-4206	**Additional E-mail:**	
Carrier Invoice Address:		**Other:**	
Carrier Invoice Contact - Name, Title, Phone No.		**Carrier NOC#**	

ADDITIONAL CONTACT INFORMATION	
Leasing Contact Name/Number:	MARK ROBERTS / 860-670-9068
RF Contact Name/Number:	
Construction Contact Name/Number:	
Emergency Contact Name/Number:	

SITE INFORMATION – This information can be found and should match the information on www.verticalbridge.com				
Latitude:	41.43370833	N	**Existing Structure Type:**	GUYED TOWER
Longitude:	-72.94518889	W	**Existing Structure Height:**	625
Site Address:	360 GAYLORD MOUNTAIN ROAD, HAMDEN, CT			

FREQUENCY/TECHNOLOGY INFORMATION		
Type of Technology for all equipment (i.e., 3G, LTE, CMDA, MW, WiFi, TV, etc.)		UMTS, LTE, 5G
TX Frequency (MHz)	Licensed	700 / 850 / 1900 / 2100 / 2300
RX Frequency (MHz)	Licensed	700 / 850 / 1900 / 2100 / 2300
Tenants using an unlicensed band must provide exact Frequency Channels and Call Sign(s) to be utilized. (Providing the band range only will not be accepted.)		

PLEASE PROVIDE BRIEF DESCRIPTION OF GENERAL SCOPE OF WORK

REQUEST MOVE TO NEW RAD CENTER @ 280' AGL +/-
* INSTALL NEW MOUNT (SABRE C10857001C-MC) WITH (12) ANTENNAS; (9) RRUs; (3) SQUIDS WITH (6) RUNS 1-5/8" COAX, (2) FIBER AND (6) DC TRUNKS;
* DECOMM. EXISTING ANTENNA EQUIPMENT AT 180' AGL;
* NO CHANGE TO GROUND SPACE REQUIREMENTS

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EXISTING EQUIPMENT Applicant's Existing Equipment Configuration and Specifications										
Equipment Type (ex: panel, TMA, RRU)	**RAD (feet)**	**Mount Height (feet)**	**Mount Type**	**Equip Qty**	**Equipment Manufacturer**	**Equipment Model #**	**Equip Dim (HxWxD) (ft or in)**	**Equip Weight (lbs)**	**Az**	**Remain**
PANEL	180	180	T-Arms	3	POWERWAVE	7770	55x11x5	35	35	No
PANEL	180	180	T-Arms	1	ANDREW	SBNHH-1065A	55x11.9x7.1	33.5	90	No
RET	180	180	T-Arms	6	POWERWAVE	7020	1x1x1	1		No
DIPLEXER	180	180	T-Arms	6	POWERWAVE	LGP 21901	4x6x3	2.5		No
TMA	180	180	T-Arms	6	POWERWAVE	LGP 21401	2.6x8.4x	12		No
TMA	180	180	T-Arms	6	POLYPHASER	1000860				No
RRUS	180	180	T-Frames	3	ERICSSON	RRUS-11	7.6x16.97x19.69	50.7		No
SURGE	180	180	Flush Mount	1	RAYCAP	DC6-48-60-18-8F				No
PANEL	180	180	T-Arms	2	CCI	HPA-65R-BUU-H6	72x14.8x9	51	200/300	No
RRUS	180	180	T-Arms	3	ERICSSON	RRUS-12	20.4x18.5x7.5	50	90/200/300	No
RRUS	180	180	T-Arms	3	ERICSSON	RRUS-A2	16.4x15.2x3.4	22	90/200/300	No

EXISTING LINES Applicant's Existing Lines and Specifications					
Line Type	**Line Size (Inches)**	**Total # of Lines**	**Coax interior or exterior (for monopoles)**	**Remain**	**Comments:**
COAX	1-5/8"	6		No	
DC	#8 AWG	2		No	
FIBER	1/4"	1		No	
FIBER	1/2"	1		No	18 PAIR SINGLE MODE FIBER CABLE

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PROPOSED EQUIPMENT Applicant's Proposed Equipment Configuration and Specifications									
Equipment Type (ex: panel, TMA, RRU, ice shields)	**RAD (feet)**	**Mount Height (feet)**	**Mount Type**	**Equip Qty**	**Equipment Manufacturer**	**Equipment Model #**	**Equip Dim (HxWxD) (ft or in)**	**Equip Weight (lbs)**	**Azimuth**
PANEL	280	280	Sector Frames	3	POWERWAVE	7770	55 x 11 x 5	35	90 / 200 / 300
PANEL	280	280	Sector Frames	1	ANDREW	SBNHH-1D65A	55.6 x 11.9 x 7.1	34	90
PANEL	280	280	Sector Frames	1	ANDREW	SBNHH-1D65A	55.6 x 11.9 x 7.1	34	90
PANEL	280	280	Sector Frames	1	KATHREIN	800-10964	59 x 20 x 6.9	84	90
PANEL	280	280	Sector Frames	2	CCI	HPA-65R-BUU-H6	72 x 14.8 x 9	51	200 / 300
PANEL	280	280	Sector Frames	2	CCI	HPA-65R-BU6AA	71.1 x 11.7 x 7.6	42	200 / 300
PANEL	280	280	Sector Frames	2	KATHREIN	800-10965	78.7 x 20 x 6.9	109	200 / 300
RRU	280	280	Sector Frames	3	ERICSSON	RRUS-32	27.2 x 12.1 x 7	60	90 / 200 / 300
RRU	280	280	Sector Frames	3	ERICSSON	8843 B2/B66A	14.9 x 13.2 x 10.9	72	90 / 200 / 300
RRU	280	280	Sector Frames	3	ERICSSON	4449 B5/B12	17.9 x 13.2 x 9.4	71	90 / 200 / 300
TMA	280	280	Sector Frames	6	POWERWAVE	LGP 21401	14.4 x 9 x 2.7	19	90 / 200 / 300
SQUID	280	280	Sector Frames	3	RAYCAP	DC6-48-60-18-8C	23.5 X 9.7 X 9.7	20	90 / 200 / 300

PROPOSED LINES Applicant's Proposed Lines and Specifications				
Line Type	**Line Size (Inches)**	**Total # of Lines**	**Coax interior or exterior (for monopoles)**	**Comments:**
Coax	1-5/8"	6		
RET Home Run Cable				
Fiber	3/8"	2		
DC Power	3/4"	6		

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PROPOSED FINAL CONFIGURATION TOTALS	
EQUIPMENT TYPE	TOTAL
Panel Antennas	12
Omni/Whip Antennas	
RRU	9
TMA	6
Diplexer / Triplexer	
Bias T	
Surge Suppressor	3
MW Dish	
Ice Shield	
ODU	
Filter	
Combiner	
Junction Box	
RET	
Equipment Cabinets	
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	

PROPOSED FINAL CONFIGURATION TOTALS	
LINE TYPE	TOTAL
Coax	6
Hybrid	
CAT5	
DC/Power	6
RET	
Fiber	2

ADDITIONAL EQUIPMENT INFORMATION

- RRUs, TMAs and ODUs are required to be installed directly behind the antennas / MW dish. Otherwise there will be an additional charge.
- All equipment lines are required to be installed inside the tower when space is available. Carriers will be charged an additional $25.00 per line per month if equipment lines are installed on the outside of the tower even though there is available space inside the tower. Vertical Bridge must approve any installation of lines on the outside of the tower.
- All tenant equipment must be installed within one continuous 10 ft vertical envelope. Exceeding this vertical space will be subject to additional rent.

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GROUND / INTERIOR SPACE REQUIREMENTS						
Total Ground / Interior Area Dimensions: **L' x W' = Total Square Feet Required**	7' X 16'	(Including all Equipment (i.e., Shelter, Equipment Platform or Pad, Generator Pad, Generator Fuel Tank Pad, Antenna Sleds, etc. – provide details below)				
Cabinet Area Dimensions (Pad/Platform)	X	Cabinet Installation Type				
Shelter Pad Dimensions	X	Shelter Manufacturer				
Rooftop Antenna Total Area Required	X	Antenna Sled Dimensions (per sector)	X	Antenna Wall Mount Dimensions (per sector)	X	

EQUIPMENT CABINET REQUIREMENTS (Required for rooftops or Vertical Bridge interior space)					
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Equipment Cabinet Comments	N/A				

GENERATOR REQUIREMENTS					
Generator Required?:		Generator Fuel Type		Generator Size	
Generator Pad Dimensions			Generator Manufacturer		
Generator Fuel Tank Pad Dimensions			Fuel Tank Manufacturer		

AC POWER REQUIREMENTS			
Meter Type		Estimated Monthly Utility Usage Amount	
Voltage		Total Amperage	

FIBER / BACKHAUL					
Fiber Installation Status		Fiber Provider			
Cable Type		Number of Points of Entry		Conduit/Riser Size (in inches)	

STRUCTURAL ANALYSIS DETAILS			
Structural Hardcopies Required?		If wet seals required, please provide address:	

ADDITIONAL COMMENTS
PLEASE SPECIFY THE FOLLOWING MOUNTS - SABRE INDUSTRIES C10857001C-MC NO CHANGE IN GROUND SPACE REQUIREMENTS

December 14, 2018

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT5663 (LTE 3C/4C/5C)
	FA Number:	10071061
	PACE Number:	MRCTB035177
	PT Number:	2051A0KPHH
	Site Name:	HAMDEN – TALMADGE
	Site Address:	360 Gaylord Mountain Road Hamden, CT 06518

To Whom It May Concern:

Hudson Design Engineering PLLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the proposed AT&T antenna mounts to determine their capability of supporting the following equipment loading:

- (3) 7770 Antenna (55.0"x11.0"x5.0" – Wt. = 35 lbs. /each)
- (1) SBNHH-1D65A Antenna (55.6"x11.9"x7.1" – Wt. = 34 lbs.)
- (2) HPA-65R-BUU-H6 Antennas (72.0"x14.8"x9.0" – Wt. = 51 lbs. /each)
- (6) LPG21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" Ø – Wt. = 33 lbs.) (Tower Mounted)
- **(1) SBNHH-1D65A Antenna (55.6"x11.9"x7.1" – Wt. = 34 lbs.)**
- **(1) 800-10964 Antenna (59.0"x20.0"x6.9" – Wt. = 84 lbs.)**
- **(2) HPA65R-BU6A Antennas (71.1"x11.7"x7.6" – Wt. = 42 lbs. /each)**
- **(2) 800-10965 Antennas (78.7"x20.0"x6.9" – Wt. = 109 lbs. /each)**
- **(3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)**
- **(3) B5/B12 4449 RRH's (17.9"x13.2"x9.4" – Wt. = 71 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Ø – Wt. = 33 lbs.) (Tower Mounted)**

**Proposed equipment shown in bold*

HDG performed a ground audit of the existing AT&T antenna mounts on November 7, 2018. Mount fabrication drawings prepared by Sabre Industries Towers & Poles, P/N C10857001C–MC, dated January 20, 2017 were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-G, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code Amendments and AT&T Mount Technical Directive – R11.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-G Annex B, the max basic wind speed for this site is equal to 115 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 0.75 in. Per the AT&T Mount Technical Directive and Appendix N of the Connecticut State Building Code, an ultimate wind speed of 125 mph was converted to a nominal wind speed of 97 mph and an escalated ice thickness of 1.89 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban and wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 3; tower is located at the upper half of a hill.
- The mount has been analyzed with load combinations consisting of 250 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.

Based on our evaluation, we have determined that the new Sabre Industries C10857001C-MC mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed (LTE 3C/4C/5C) Mount Rating	13	LC36	75%	**PASS**

Reference Documents:

- Fabrication drawings prepared by Sabre Industries Towers & Poles dated January 20, 2017.

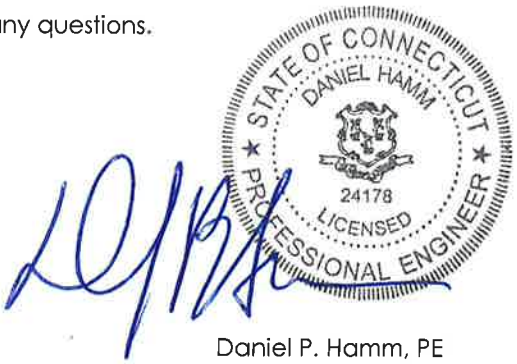
This determination was based on the following limitations and assumptions:

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
Structural Dept. Head



Daniel P. Hamm, PE
Principal

FIELD PHOTOS:






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 413.588.8139 f: 413.517.0590 a: 116 Pleasant Street, Ste 302, Easthampton, MA 01027






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 413.588.8139 f: 413.517.0590 a: 116 Pleasant Street, Ste 302, Easthampton, MA 01027

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 12/13/2018
Project Name: HAMDEN – TALMADGE
Project Number: CT5663
Designed By: BD **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	280 (ft)
z_g=	1200 (ft)
α=	7.0
K_z=	**1.326**

$K_{zmin} \le K_z \le 2.01$

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_e
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.4 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_e K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}=	**1.042967671**
K_h=	22.438731
K_e=	0.9 (from Table 2-4)
K_t=	0.53 (from Table 2-5)
f=	2 (from Table 2-5)
z=	280
H=	180 (Ht. of the crest above surrounding terrain)
K_{zt}=	1.04
K_{iz} =	1.24 (from Sec. 2.6.8)

(If Category 1 then K_{zt} =1.0)

Category=	**3**

2.6.8 Design Ice Thickness

Max Ice Thickness = t_i = 0.75 in

$t_{iz} = 2.0*t_i*I*K_{iz}*(Kzt)^{0.35}$ t_{iz} = 1.89 in

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2.6.7 Gust Effect Factor

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

Gh = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	625	Gh=	1.03

2.6.7.2 Guyed Masts Gh= 0.85

2.6.7.3 Pole Structures Gh= 1.1

2.6.9 Appurtenances Gh= 1.0

2.6.7.4 Structures Supported on Other Structures
(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

Gh=	1.35	**Gh=**	**1.00**

2.6.9.2 Design Wind Force on Appurtenances

State Code Ultimate Design Wind Speed: V_{ult} = 125 mph

Nomial Design Wind Speed, $V_{asd} = V_{ult}\sqrt{(0.6)}$ V_{asd} = 97 mph

V_{asd} per the AT&T Mount Technical Directive and Connecticut Supplement, Latest Addition.
Per TIA-222-G, V_{min} = 95 mph V_{max} = 115 mph

$F = q_z * Gh * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_d * V_{max}^2 * I$

		K_z=	1.326
		K_{zt}=	1.0
q_z=	**31.54**	K_d=	0.95
$q_{z\,(ice)}$=	**8.41**	V_{asd}=	97 mph
$q_{z\,(30)}$=	**3.03**	$V_{max\,(ice)}$=	50 mph
		V_{30}=	30 mph
		I=	1.0

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95

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Determine Ca:

Table 2-8

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Round	C < 32 (Subcritical)	0.7	0.8	1.2
	32 ≤ C ≤ 64 (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	C > 64 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.89 in** **Angle = 0 (deg)** **Equivalent Angle = 180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	**174**	**66**	**17**
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.86	1.31	**305**	**107**	**29**
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	6.08	1.36	**248**	**92**	**24**
800-10965 Antenna	78.7	20.0	6.9	10.93	3.94	1.26	**436**	**145**	**42**
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	**86**	**34**	**8**
RRUS-32 RRH (Shielded)	27.2	0.4	7.0	0.08	0.00	1.20	**3**	**0**	**0**
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.36	1.20	**62**	**26**	**6**
B5/B12 4449 RRH (Shielded)	17.9	0.0	9.4	0.00	0.00	1.20	**0**	**0**	**0**
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.20	**52**	**22**	**5**
B2/B66A 8843 RRH (Shielded)	14.9	0.0	10.9	0.00	0.00	1.20	**0**	**0**	**0**
LPG21401 TMA	14.4	9.0	2.7	0.90	1.60	1.20	**34**	**16**	**3**
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	**36**	**15**	**3**
3/4" Round Bar	0.8	12.0	0.8	0.06	0.06	1.20	**2**	**5**	**0**
2" Pipe	2.4	12.0	2.4	0.20	0.20	1.20	**8**	**7**	**1**

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HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.89	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	174	92	153
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	305	203	279
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	248	175	229
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	436	184	373
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	86	53	78
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	46	53	48
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	62	44	58
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	31	44	35
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	52	43	49
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	26	43	30
LPG21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	34	11	28

WIND LOADS WITH ICE:

7770 Antenna	58.8	14.8	8.8	6.03	3.58	3.98	6.70	1.27	1.39	64	42	59
HPA-65R-BUU-H6 Antenna	75.8	18.6	12.8	9.77	6.72	4.08	5.93	1.27	1.35	104	76	97
HPA65R-BU6A Antenna	74.9	15.5	11.4	8.04	5.91	4.84	6.58	1.30	1.38	88	69	83
800-10965 Antenna	82.5	23.8	10.7	13.61	6.11	3.47	7.73	1.24	1.42	142	73	125
RRUS-32 RRH	31.0	15.9	10.8	3.41	2.32	1.95	2.88	1.20	1.22	34	24	32
RRUS-32 RRH (Shielded)	31.0	7.9	10.8	1.71	2.32	3.90	2.88	1.26	1.22	18	24	20
B5/B12 4449 RRH	21.7	17.0	13.2	2.55	1.98	1.28	1.65	1.20	1.20	26	20	24
B5/B12 4449 RRH (Shielded)	21.7	8.5	13.2	1.28	1.98	2.55	1.65	1.20	1.20	13	20	15
B2/B66A 8843 RRH	18.7	17.0	14.7	2.20	1.90	1.10	1.27	1.20	1.20	22	19	21
B2/B66A 8843 RRH (Shielded)	18.7	8.5	14.7	1.10	1.90	2.20	1.27	1.20	1.20	11	19	13
LPG21401 TMA	18.2	12.8	6.5	1.61	0.82	1.42	2.81	1.20	1.21	16	8	14

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	17	9	15
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	29	20	27
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	24	17	22
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	42	18	36
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	4	5	5
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	6
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	3	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	5	4	5
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	2	4	3
LPG21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	3

Date: 12/13/2018
Project Name: HAMDEN – TALMADGE
Project Number: CT5663
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.89	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	174	92	113
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	305	203	229
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	248	175	193
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	436	184	247
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	86	53	61
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	66	53	56
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	62	44	49
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	47	44	45
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	52	43	45
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	39	43	42
LPG21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	34	11	17

WIND LOADS WITH ICE:

7770 Antenna	58.8	14.8	8.8	6.03	3.58	3.98	6.70	1.27	1.39	64	42	47
HPA-65R-BUU-H6 Antenna	75.8	18.6	12.8	9.77	6.72	4.08	5.93	1.27	1.35	104	76	83
HPA65R-BU6A Antenna	74.9	15.5	11.4	8.04	5.91	4.84	6.58	1.30	1.38	88	69	74
800-10965 Antenna	82.5	23.8	10.7	13.61	6.11	3.47	7.73	1.24	1.42	142	73	90
RRUS-32 RRH	31.0	15.9	10.8	3.41	2.32	1.95	2.88	1.20	1.22	34	24	26
RRUS-32 RRH (Shielded)	31.0	11.9	10.8	2.56	2.32	2.60	2.88	1.20	1.22	26	24	24
B5/B12 4449 RRH	21.7	17.0	13.2	2.55	1.98	1.28	1.65	1.20	1.20	26	20	21
B5/B12 4449 RRH (Shielded)	21.7	12.7	13.2	1.92	1.98	1.70	1.65	1.20	1.20	19	20	20
B2/B66A 8843 RRH	18.7	17.0	14.7	2.20	1.90	1.10	1.27	1.20	1.20	22	19	20
B2/B66A 8843 RRH (Shielded)	18.7	12.7	14.7	1.65	1.90	1.47	1.27	1.20	1.20	17	19	19
LPG21401 TMA	18.2	12.8	6.5	1.61	0.82	1.42	2.81	1.20	1.21	16	8	10

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	17	9	11
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	29	20	22
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	24	17	19
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	42	18	24
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	5
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	4	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	5	4	4
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	4	4	4
LPG21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	2

Date: 12/13/2018
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Project Number: CT5663
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.89	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	174	92	92
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	305	203	203
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	248	175	175
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	436	184	184
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	86	53	53
RRUS-32 RRH (Shielded)	27.2	0.4	7.0	0.08	1.32	0.00	3.89	1.20	1.26	3	53	53
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	62	44	44
B5/B12 4449 RRH (Shielded)	17.9	0.0	9.4	0.00	1.17	0.00	1.90	1.20	1.20	0	44	44
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	52	43	43
B2/B66A 8843 RRH (Shielded)	14.9	0.0	10.9	0.00	1.13	0.00	1.37	1.20	1.20	0	43	43
LPG21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	34	11	11

WIND LOADS WITH ICE:

7770 Antenna	58.8	14.8	8.8	6.03	3.58	3.98	6.70	1.27	1.39	64	42	42
HPA-65R-BUU-H6 Antenna	75.8	18.6	12.8	9.77	6.72	4.08	5.93	1.27	1.35	104	76	76
HPA65R-BU6A Antenna	74.9	15.5	11.4	8.04	5.91	4.84	6.58	1.30	1.38	88	69	69
800-10965 Antenna	82.5	23.8	10.7	13.61	6.11	3.47	7.73	1.24	1.42	142	73	73
RRUS-32 RRH	31.0	15.9	10.8	3.41	2.32	1.95	2.88	1.20	1.22	34	24	24
RRUS-32 RRH (Shielded)	31.0	4.2	10.8	0.90	2.32	7.43	2.88	1.41	1.22	11	24	24
B5/B12 4449 RRH	21.7	17.0	13.2	2.55	1.98	1.28	1.65	1.20	1.20	26	20	20
B5/B12 4449 RRH (Shielded)	21.7	3.8	13.2	0.57	1.98	5.75	1.65	1.34	1.20	6	20	20
B2/B66A 8843 RRH	18.7	17.0	14.7	2.20	1.90	1.10	1.27	1.20	1.20	22	19	19
B2/B66A 8843 RRH (Shielded)	18.7	3.8	14.7	0.49	1.90	4.95	1.27	1.31	1.20	5	19	19
LPG21401 TMA	18.2	12.8	6.5	1.61	0.82	1.42	2.81	1.20	1.21	16	8	8

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	17	9	9
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	29	20	20
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	24	17	17
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	42	18	18
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	5
RRUS-32 RRH (Shielded)	27.2	0.4	7.0	0.08	1.32	0.00	3.89	1.20	1.26	0	5	5
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	4
B5/B12 4449 RRH (Shielded)	17.9	0.0	9.4	0.00	1.17	0.00	1.90	1.20	1.20	0	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	5	4	4
B2/B66A 8843 RRH (Shielded)	14.9	0.0	10.9	0.00	1.13	0.00	1.37	1.20	1.20	0	4	4
LPG21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1

Date: 12/13/2018
Project Name: HAMDEN – TALMADGE
Project Number: CT5663
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.89	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	174	92	113
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	305	203	229
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	248	175	193
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	436	184	247
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	86	53	61
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	66	53	56
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	62	44	49
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	47	44	45
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	52	43	45
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	39	43	42
LPG21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	34	11	17

WIND LOADS WITH ICE:

7770 Antenna	58.8	14.8	8.8	6.03	3.58	3.98	6.70	1.27	1.39	64	42	47
HPA-65R-BUU-H6 Antenna	75.8	18.6	12.8	9.77	6.72	4.08	5.93	1.27	1.35	104	76	83
HPA65R-BU6A Antenna	74.9	15.5	11.4	8.04	5.91	4.84	6.58	1.30	1.38	88	69	74
800-10965 Antenna	82.5	23.8	10.7	13.61	6.11	3.47	7.73	1.24	1.42	142	73	90
RRUS-32 RRH	31.0	15.9	10.8	3.41	2.32	1.95	2.88	1.20	1.22	34	24	26
RRUS-32 RRH (Shielded)	31.0	11.9	10.8	2.56	2.32	2.60	2.88	1.20	1.22	26	24	24
B5/B12 4449 RRH	21.7	17.0	13.2	2.55	1.98	1.28	1.65	1.20	1.20	26	20	21
B5/B12 4449 RRH (Shielded)	21.7	12.7	13.2	1.92	1.98	1.70	1.65	1.20	1.20	19	20	20
B2/B66A 8843 RRH	18.7	17.0	14.7	2.20	1.90	1.10	1.27	1.20	1.20	22	19	20
B2/B66A 8843 RRH (Shielded)	18.7	12.7	14.7	1.65	1.90	1.47	1.27	1.20	1.20	17	19	19
LPG21401 TMA	18.2	12.8	6.5	1.61	0.82	1.42	2.81	1.20	1.21	16	8	10

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	17	9	11
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	29	20	22
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	24	17	19
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	42	18	24
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	5
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	4	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	5	4	4
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	4	4	4
LPG21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	2

Date: 12/13/2018
Project Name: HAMDEN – TALMADGE
Project Number: CT5663
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.89	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	174	92	153
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	305	203	279
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	248	175	229
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	436	184	373
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	86	53	78
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	46	53	48
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	62	44	58
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	31	44	35
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	52	43	49
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	26	43	30
LPG21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	34	11	28

WIND LOADS WITH ICE:

7770 Antenna	58.8	14.8	8.8	6.03	3.58	3.98	6.70	1.27	1.39	64	42	59
HPA-65R-BUU-H6 Antenna	75.8	18.6	12.8	9.77	6.72	4.08	5.93	1.27	1.35	104	76	97
HPA65R-BU6A Antenna	74.9	15.5	11.4	8.04	5.91	4.84	6.58	1.30	1.38	88	69	83
800-10965 Antenna	82.5	23.8	10.7	13.61	6.11	3.47	7.73	1.24	1.42	142	73	125
RRUS-32 RRH	31.0	15.9	10.8	3.41	2.32	1.95	2.88	1.20	1.22	34	24	32
RRUS-32 RRH (Shielded)	31.0	7.9	10.8	1.71	2.32	3.90	2.88	1.26	1.22	18	24	20
B5/B12 4449 RRH	21.7	17.0	13.2	2.55	1.98	1.28	1.65	1.20	1.20	26	20	24
B5/B12 4449 RRH (Shielded)	21.7	8.5	13.2	1.28	1.98	2.55	1.65	1.20	1.20	13	20	15
B2/B66A 8843 RRH	18.7	17.0	14.7	2.20	1.90	1.10	1.27	1.20	1.20	22	19	21
B2/B66A 8843 RRH (Shielded)	18.7	8.5	14.7	1.10	1.90	2.20	1.27	1.20	1.20	11	19	13
LPG21401 TMA	18.2	12.8	6.5	1.61	0.82	1.42	2.81	1.20	1.21	16	8	14

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	17	9	15
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	29	20	27
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	24	17	22
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	42	18	36
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	4	5	5
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	6
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	3	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	5	4	5
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	2	4	3
LPG21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	3

Date: 12/14/2018
Project Name: HAMDEN – TALMADGE
Project Number: CT5663
Designed By: BD **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.89 in.
Density of ice: 56 pcf

7770 Antenna

Weight of ice based on total radial SF area:

Height (in):	55.0	
Width (in):	11.0	
Depth (in):	5.0	
Total weight of ice on object:		148 lbs
Weight of object:	35 lbs	
Combined weight of ice and object:		183 lbs

SBNHH-1D65A Antenna

Weight of ice based on total radial SF area:

Height (in):	55.6	
Width (in):	11.9	
Depth (in):	7.1	
Total weight of ice on object:		168 lbs
Weight of object:	34 lbs	
Combined weight of ice and object:		202 lbs

HPA-65R-BUU-H6 Antenna

Weight of ice based on total radial SF area:

Height (in):	72.0	
Width (in):	14.8	
Depth (in):	9.0	
Total weight of ice on object:		266 lbs
Weight of object:	51 lbs	
Combined weight of ice and object:		317 lbs

800-10964 Antenna

Weight of ice based on total radial SF area:

Height (in):	59.0	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		262 lbs
Weight of object:	84 lbs	
Combined weight of ice and object:		346 lbs

HPA65R-BU6A Antenna

Weight of ice based on total radial SF area:

Height (in):	71.1	
Width (in):	11.7	
Depth (in):	7.6	
Total weight of ice on object:		217 lbs
Weight of object:	42 lbs	
Combined weight of ice and object:		259 lbs

800-10965 Antenna

Weight of ice based on total radial SF area:

Height (in):	78.7	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		349 lbs
Weight of object:	109 lbs	
Combined weight of ice and object:		458 lbs

RRUS-32 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		83 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		143 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		62 lbs
Weight of object:	71 lbs	
Combined weight of ice and object:		133 lbs

B2/B66A 8843 RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		54 lbs
Weight of object:	72 lbs	
Combined weight of ice and object:		126 lbs

LPG21401 TMA

Weight of ice based on total radial SF area:

Height (in):	14.4	
Width (in):	9.0	
Depth (in):	2.7	
Total weight of ice on object:		31 lbs
Weight of object:	19 lbs	
Combined weight of ice and object:		50 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		54 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		87 lbs

3/4" Round Bar

Per foot weight of ice:

diameter (in):	0.75	
Per foot weight of ice on object:		6 plf

2" pipe

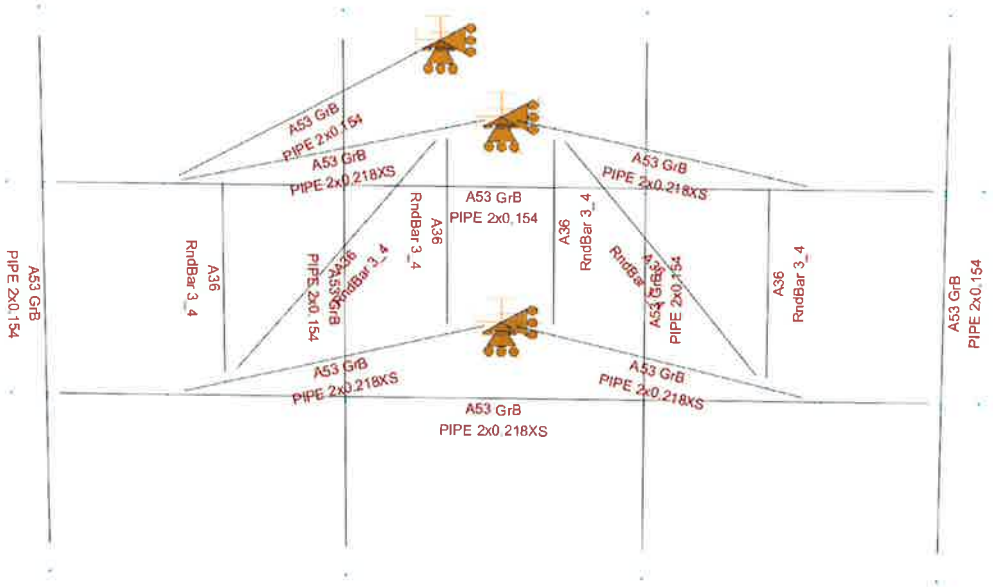
Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		10 plf

HUDSON
Design Group LLC

Proposed Mount Calculations


Y
X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RndBar 3_4
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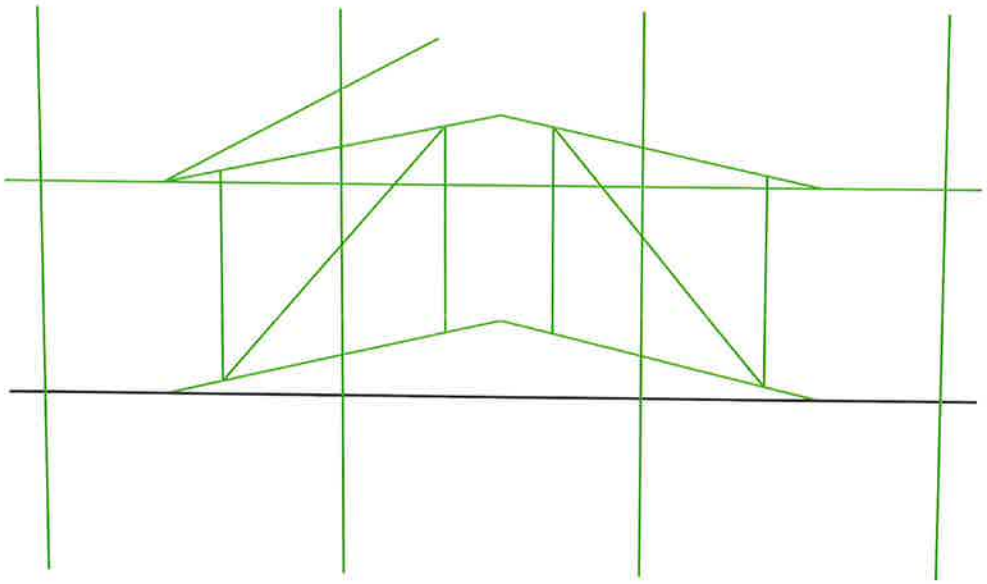
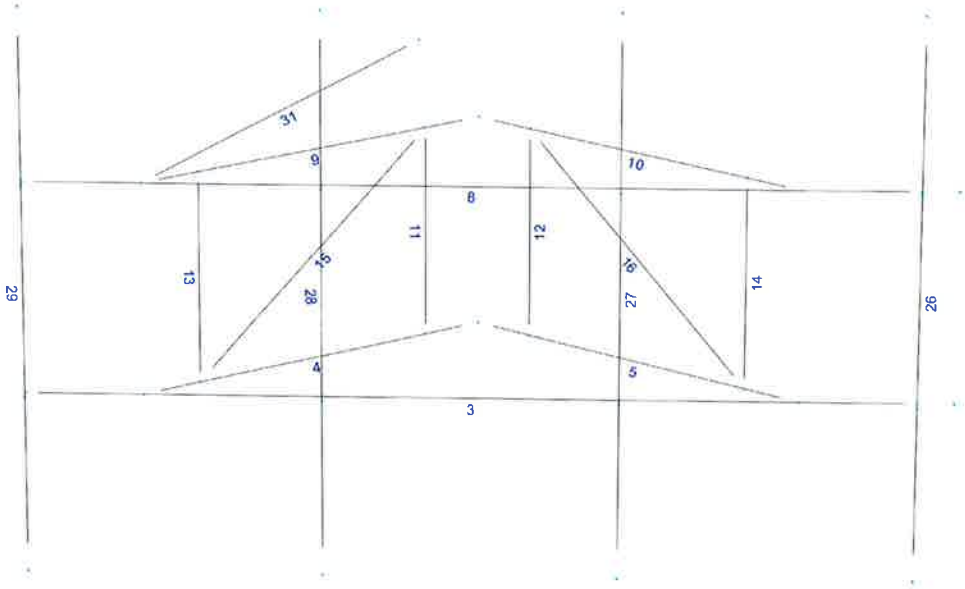
Design status

- Not designed
- Error on design
- Design O.K.
- With warnings

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Bentley

Current Date: 12/14/2018 9:11 AM
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Load data

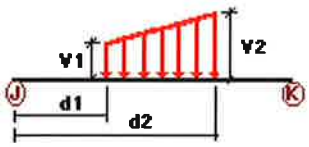
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load on Left End	No	LL
LL2	250 lb Live Load on Center	No	LL
LL3	250 lb Live Load on Right End	No	LL
LLa1	250 lb Live Load on Antenna 1	No	LL
LLa2	250 lb Live Load on Antenna 2	No	LL
LLa3	250 lb Live Load on Antenna 3	No	LL
LLa4	250 lb Live Load on Antenna 4	No	LL

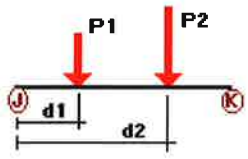
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	3	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	4	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	5	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	9	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	10	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	11	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	31	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	8	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
W30	3	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	4	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	5	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	9	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	10	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	11	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	31	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	8	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
W60	4	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	5	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	9	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	10	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	11	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	27	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	28	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	29	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	31	X	-0.008	-0.008	0.00	Yes	100.00	Yes
W90	4	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	5	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	9	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	10	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	27	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	28	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	29	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	31	X	-0.007	-0.007	0.00	Yes	100.00	Yes
W120	4	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	5	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	9	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	10	X	-0.007	-0.007	0.00	Yes	100.00	Yes

	11	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	X	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	27	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	28	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	29	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	31	X	-0.007	-0.007	0.00	Yes	100.00	Yes
W150	3	Z	0.008	0.008	0.00	Yes	100.00	Yes
	4	Z	0.008	0.008	0.00	Yes	100.00	Yes
	5	Z	0.008	0.008	0.00	Yes	100.00	Yes
	9	Z	0.008	0.008	0.00	Yes	100.00	Yes
	10	Z	0.008	0.008	0.00	Yes	100.00	Yes
	11	Z	0.002	0.002	0.00	Yes	100.00	Yes
	12	Z	0.002	0.002	0.00	Yes	100.00	Yes
	13	Z	0.002	0.002	0.00	Yes	100.00	Yes
	14	Z	0.002	0.002	0.00	Yes	100.00	Yes
	15	Z	0.002	0.002	0.00	Yes	100.00	Yes
	16	Z	0.002	0.002	0.00	Yes	100.00	Yes
	26	Z	0.008	0.008	0.00	Yes	100.00	Yes
	27	Z	0.008	0.008	0.00	Yes	100.00	Yes
	28	Z	0.008	0.008	0.00	Yes	100.00	Yes
	29	Z	0.008	0.008	0.00	Yes	100.00	Yes
	31	Z	0.008	0.008	0.00	Yes	100.00	Yes
	8	Z	0.008	0.008	0.00	Yes	100.00	Yes
Di	3	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	4	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	5	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	9	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	10	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	11	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	12	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	13	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	14	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	15	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	16	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	26	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	27	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	28	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	29	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	31	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	8	Y	-0.01	-0.01	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	26	y	-0.018	1.71	No
		y	-0.018	6.29	No
		y	-0.019	4.00	No
	27	y	-0.026	1.50	No
		y	-0.026	6.50	No
		y	-0.072	4.00	No
	28	y	-0.021	1.54	No
		y	-0.021	6.46	No
		y	-0.06	4.00	No
	29	y	-0.055	1.22	No
		y	-0.055	6.78	No
		y	-0.071	4.00	No
Wo	26	z	-0.087	1.71	No
		z	-0.087	6.29	No
	27	z	-0.153	1.50	No
		z	-0.153	6.50	No
	28	z	-0.124	1.54	No
		z	-0.124	6.46	No
		z	-0.003	4.00	No
	29	z	-0.218	1.22	No
		z	-0.218	6.78	No
W30	26	2	-0.076	1.71	No
		2	-0.076	6.29	No
		2	-0.028	4.00	No
	27	2	-0.14	1.50	No
		2	-0.14	6.50	No
		2	-0.03	4.00	No
	28	2	-0.115	1.54	No
		2	-0.115	6.46	No
		2	-0.048	4.00	No
	29	2	-0.187	1.22	No
		2	-0.187	6.78	No
		2	-0.035	4.00	No
W60	26	2	-0.057	1.71	No
		2	-0.057	6.29	No
		2	-0.017	4.00	No
	27	2	-0.115	1.50	No
		2	-0.115	6.50	No
		2	-0.042	4.00	No
	28	2	-0.097	1.54	No
		2	-0.097	6.46	No
		2	-0.056	4.00	No
	29	2	-0.124	1.22	No
		2	-0.124	6.78	No
		2	-0.045	4.00	No
W90	26	x	-0.046	1.71	No
		x	-0.046	6.29	No
		x	-0.011	4.00	No
	27	x	-0.102	1.50	No
		x	-0.102	6.50	No
		x	-0.043	4.00	No
	28	x	-0.088	1.54	No
		x	-0.088	6.46	No
		x	-0.053	4.00	No
	29	x	-0.092	1.22	No
		x	-0.092	6.78	No
		x	-0.044	4.00	No
W120	26	3	0.057	1.71	No
		3	0.057	6.29	No
		3	0.017	4.00	No

	27	3	0.115	1.50	No
		3	0.115	6.50	No
		3	0.042	4.00	No
	28	3	0.097	1.54	No
		3	0.097	6.46	No
		3	0.056	4.00	No
	29	3	0.124	1.22	No
		3	0.124	6.78	No
		3	0.045	4.00	No
W150	26	3	0.076	1.71	No
		3	0.076	6.29	No
		3	0.028	4.00	No
	27	3	0.14	1.50	No
		3	0.14	6.50	No
		3	0.03	4.00	No
	28	3	0.115	1.54	No
		3	0.115	6.46	No
		3	0.048	4.00	No
	29	3	0.187	1.22	No
		3	0.187	6.78	No
		3	0.035	4.00	No
Di	26	y	-0.074	1.71	No
		y	-0.074	6.29	No
		y	-0.031	4.00	No
	27	y	-0.133	1.50	No
		y	-0.133	6.50	No
		y	-0.054	4.00	No
	28	y	-0.109	1.54	No
		y	-0.109	6.46	No
		y	-0.083	4.00	No
	29	y	-0.175	1.22	No
		y	-0.175	6.78	No
		y	-0.062	4.00	No
WI0	26	z	-0.033	1.71	No
		z	-0.033	6.29	No
	27	z	-0.054	1.50	No
		z	-0.054	6.50	No
	28	z	-0.046	1.54	No
		z	-0.046	6.46	No
	29	z	-0.073	1.22	No
		z	-0.073	6.78	No
WI30	26	2	-0.03	1.71	No
		2	-0.03	6.29	No
		2	-0.014	4.00	No
	27	2	-0.049	1.50	No
		2	-0.049	6.50	No
		2	-0.013	4.00	No
	28	2	-0.042	1.54	No
		2	-0.042	6.46	No
		2	-0.02	4.00	No
	29	2	-0.063	1.22	No
		2	-0.063	6.78	No
		2	-0.015	4.00	No
WI60	26	2	-0.024	1.71	No
		2	-0.024	6.29	No
		2	-0.01	4.00	No
	27	2	-0.042	1.50	No
		2	-0.042	6.50	No
		2	-0.019	4.00	No
	28	2	-0.037	1.54	No

		2	-0.037	6.46	No
		2	-0.024	4.00	No
	29	2	-0.045	1.22	No
		2	-0.045	6.78	No
		2	-0.02	4.00	No
WI90	26	x	-0.021	1.71	No
		x	-0.021	6.29	No
		x	-0.008	4.00	No
	27	x	-0.038	1.50	No
		x	-0.038	6.50	No
		x	-0.019	4.00	No
	28	x	-0.035	1.54	No
		x	-0.035	6.46	No
		x	-0.024	4.00	No
	29	x	-0.037	1.22	No
		x	-0.037	6.78	No
		x	-0.02	4.00	No
WI120	26	3	0.024	1.71	No
		3	0.024	6.29	No
		3	0.01	4.00	No
	27	3	0.042	1.50	No
		3	0.042	6.50	No
		3	0.019	4.00	No
	28	3	0.037	1.54	No
		3	0.037	6.46	No
		3	0.024	4.00	No
	29	3	0.045	1.22	No
		3	0.045	6.78	No
		3	0.02	4.00	No
WI150	26	3	0.03	1.71	No
		3	0.03	6.29	No
		3	0.014	4.00	No
	27	3	0.049	1.50	No
		3	0.049	6.50	No
		3	0.013	4.00	No
	28	3	0.042	1.54	No
		3	0.042	6.46	No
		3	0.02	4.00	No
	29	3	0.063	1.22	No
		3	0.063	6.78	No
		3	0.015	4.00	No
WL0	26	z	-0.009	1.71	No
		z	-0.009	6.29	No
	27	z	-0.015	1.50	No
		z	-0.015	6.50	No
	28	z	-0.012	1.54	No
		z	-0.012	6.46	No
	29	z	-0.021	1.22	No
		z	-0.021	6.78	No
WL30	26	2	-0.008	1.71	No
		2	-0.008	6.29	No
		2	-0.003	4.00	No
	27	2	-0.014	1.50	No
		2	-0.014	6.50	No
		2	-0.003	4.00	No
	28	2	-0.011	1.54	No
		2	-0.011	6.46	No
		2	-0.005	4.00	No
	29	2	-0.018	1.22	No
		2	-0.018	6.78	No

		2	-0.003	4.00	No
WL60	26	2	-0.006	1.71	No
		2	-0.006	6.29	No
		2	-0.002	4.00	No
	27	2	-0.011	1.50	No
		2	-0.011	6.50	No
		2	-0.004	4.00	No
	28	2	-0.01	1.54	No
		2	-0.01	6.46	No
		2	-0.005	4.00	No
	29	2	-0.012	1.22	No
		2	-0.012	6.78	No
		2	-0.004	4.00	No
WL90	26	x	-0.005	1.71	No
		x	-0.005	6.29	No
		x	-0.001	4.00	No
	27	x	-0.01	1.50	No
		x	-0.01	6.50	No
		x	-0.004	4.00	No
	28	x	-0.009	1.54	No
		x	-0.009	6.46	No
		x	-0.005	4.00	No
	29	x	-0.009	1.22	No
		x	-0.009	6.78	No
		x	-0.004	4.00	No
WL120	26	3	0.006	1.71	No
		3	0.006	6.29	No
		3	0.002	4.00	No
	27	3	0.011	1.50	No
		3	0.011	6.50	No
		3	0.004	4.00	No
	28	3	0.01	1.54	No
		3	0.01	6.46	No
		3	0.005	4.00	No
	29	3	0.012	1.22	No
		3	0.012	6.78	No
		3	0.004	4.00	No
WL150	26	3	0.008	1.71	No
		3	0.008	6.29	No
		3	0.003	4.00	No
	27	3	0.014	1.50	No
		3	0.014	6.50	No
		3	0.003	4.00	No
	28	3	0.011	1.54	No
		3	0.011	6.46	No
		3	0.005	4.00	No
	29	3	0.018	1.22	No
		3	0.018	6.78	No
		3	0.003	4.00	No
LL1	8	y	-0.25	0.00	No
LL2	8	y	-0.25	6.50	No
LL3	8	y	-0.25	13.00	No
LLa1	26	y	-0.25	4.00	No
LLa2	27	y	-0.25	4.00	No
LLa3	28	y	-0.25	4.00	No
LLa4	29	y	-0.25	4.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load on Left End	No	0.00	0.00	0.00
LL2	250 lb Live Load on Center	No	0.00	0.00	0.00
LL3	250 lb Live Load on Right End	No	0.00	0.00	0.00
LLa1	250 lb Live Load on Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load on Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load on Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load on Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00

LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

Bentley

Current Date: 12/14/2018 9:11 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5663\CT5663 (LTE 3C-4C-5C).etz\

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+1.6Wo
LC2=1.2D+1.6W30
LC3=1.2D+1.6W60
LC4=1.2D+1.6W90
LC5=1.2D+1.6W120
LC6=1.2D+1.6W150
LC7=1.2D-1.6Wo
LC8=1.2D-1.6W30
LC9=1.2D-1.6W60
LC10=1.2D-1.6W90
LC11=1.2D-1.6W120
LC12=1.2D-1.6W150
LC13=0.9D+1.6Wo
LC14=0.9D+1.6W30
LC15=0.9D+1.6W60
LC16=0.9D+1.6W90
LC17=0.9D+1.6W120
LC18=0.9D+1.6W150
LC19=0.9D-1.6Wo
LC20=0.9D-1.6W30
LC21=0.9D-1.6W60
LC22=0.9D-1.6W90
LC23=0.9D-1.6W120
LC24=0.9D-1.6W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=0.9D
LC38=1.2D+1.6LL1
LC39=1.2D+1.6LL2
LC40=1.2D+1.6LL3
LC41=1.2D+WL0+LLa1
LC42=1.2D+WL30+LLa1
LC43=1.2D+WL60+LLa1
LC44=1.2D+WL90+LLa1
LC45=1.2D+WL120+LLa1
LC46=1.2D+WL150+LLa1
LC47=1.2D-WL0+LLa1
LC48=1.2D-WL30+LLa1
LC49=1.2D-WL60+LLa1
LC50=1.2D-WL90+LLa1
LC51=1.2D-WL120+LLa1
LC52=1.2D-WL150+LLa1
LC53=1.2D+WL0+LLa2

LC54=1.2D+WL30+LLa2
LC55=1.2D+WL60+LLa2
LC56=1.2D+WL90+LLa2
LC57=1.2D+WL120+LLa2
LC58=1.2D+WL150+LLa2
LC59=1.2D-WL0+LLa2
LC60=1.2D-WL30+LLa2
LC61=1.2D-WL60+LLa2
LC62=1.2D-WL90+LLa2
LC63=1.2D-WL120+LLa2
LC64=1.2D-WL150+LLa2
LC65=1.2D+WL0+LLa3
LC66=1.2D+WL30+LLa3
LC67=1.2D+WL60+LLa3
LC68=1.2D+WL90+LLa3
LC69=1.2D+WL120+LLa3
LC70=1.2D+WL150+LLa3
LC71=1.2D-WL0+LLa3
LC72=1.2D-WL30+LLa3
LC73=1.2D-WL60+LLa3
LC74=1.2D-WL90+LLa3
LC75=1.2D-WL120+LLa3
LC76=1.2D-WL150+LLa3
LC77=1.2D+WL0+LLa4
LC78=1.2D+WL30+LLa4
LC79=1.2D+WL60+LLa4
LC80=1.2D+WL90+LLa4
LC81=1.2D+WL120+LLa4
LC82=1.2D+WL150+LLa4
LC83=1.2D-WL0+LLa4
LC84=1.2D-WL30+LLa4
LC85=1.2D-WL60+LLa4
LC86=1.2D-WL90+LLa4
LC87=1.2D-WL120+LLa4
LC88=1.2D-WL150+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2x0.154	**8**	LC6 at 16.96%	**0.67**	**OK**	Eq. H1-1a
		26	LC40 at 31.25%	0.37	OK	Eq. H1-1b
		27	LC3 at 31.25%	0.41	OK	Eq. H1-1b
		28	LC9 at 31.25%	0.39	OK	Eq. H1-1b
		29	LC1 at 68.75%	0.51	OK	Eq. H1-1b
		31	LC3 at 0.00%	0.30	OK	Eq. H1-1a
	PIPE 2x0.218XS	**3**	LC7 at 16.96%	**0.60**	**With warnings**	Eq. H1-1b
		4	LC36 at 100.00%	0.39	OK	Eq. H1-1b
		5	LC34 at 100.00%	0.34	OK	Eq. H1-1b
		9	LC31 at 100.00%	0.45	OK	Eq. H1-1b
		10	LC30 at 100.00%	0.36	OK	Eq. H1-1b
	RndBar 3_4	**11**	LC32 at 0.00%	0.57	OK	Eq. H1-1a
		12	LC26 at 100.00%	0.43	OK	Eq. H1-1a
		13	LC36 at 100.00%	**0.75**	**OK**	Eq. H1-1a
		14	LC26 at 0.00%	0.48	OK	Eq. H1-1a
		15	LC36 at 100.00%	0.48	OK	Eq. H1-1a
		16	LC26 at 100.00%	0.37	OK	Eq. H1-1a

Bentley

Current Date: 12/14/2018 9:11 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5663\CT5663 (LTE 3C-4C-5C).etz\

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
2	6.50	0.00	0.00	0
3	-6.50	0.00	0.00	0
4	6.00	0.00	0.00	0
5	-6.00	0.00	0.00	0
6	6.00	0.00	0.20	0
7	-6.00	0.00	0.20	0
8	-4.40	0.00	0.00	0
9	4.40	0.00	0.00	0
10	0.00	0.00	-3.00	0
11	-3.6667	0.00	-0.50	0
12	3.6667	0.00	-0.50	0
13	0.7333	0.00	-2.50	0
14	-0.7333	0.00	-2.50	0
16	6.50	3.00	0.00	0
17	-6.50	3.00	0.00	0
18	6.00	3.00	0.00	0
19	-6.00	3.00	0.00	0
20	6.00	3.00	0.20	0
21	-6.00	3.00	0.20	0
22	-4.40	3.00	0.00	0
23	4.40	3.00	0.00	0
24	0.00	3.00	-3.00	0

25	-3.6667	3.00	-0.50	0
26	3.6667	3.00	-0.50	0
27	0.7333	3.00	-2.50	0
28	-0.7333	3.00	-2.50	0
33	-6.00	5.50	0.20	0
34	6.00	5.50	0.20	0
35	-6.00	-2.50	0.20	0
36	6.00	-2.50	0.20	0
38	2.00	0.00	0.00	0
39	2.00	0.00	0.20	0
40	2.00	3.00	0.00	0
41	2.00	3.00	0.20	0
42	2.00	5.50	0.20	0
43	2.00	-2.50	0.20	0
44	-2.00	0.00	0.00	0
45	-2.00	0.00	0.20	0
46	-2.00	3.00	0.00	0
47	-2.00	3.00	0.20	0
48	-2.00	5.50	0.20	0
49	-2.00	-2.50	0.20	0
51	-1.00	3.00	-6.50	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
10	1	1	1	1	1	1
24	1	1	1	1	1	1
51	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
3	3	2		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
4	8	10		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
5	9	10		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
9	22	24		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
10	23	24		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
11	14	28		RndBar 3_4	A36	0.00	0.00	0.00
12	27	13		RndBar 3_4	A36	0.00	0.00	0.00
13	25	11		RndBar 3_4	A36	0.00	0.00	0.00
14	12	26		RndBar 3_4	A36	0.00	0.00	0.00
15	28	11		RndBar 3_4	A36	0.00	0.00	0.00
16	27	12		RndBar 3_4	A36	0.00	0.00	0.00
26	34	36		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
27	42	43		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	48	49		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
29	33	35		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
31	22	51		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
8	17	16		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
26	45.00	0	0.00	0.00	0.00
27	45.00	0	0.00	0.00	0.00
28	45.00	0	0.00	0.00	0.00
29	45.00	0	0.00	0.00	0.00

Hinges

	Node-J				Node-K						
Member	M33	M22	V3	V2	M33	M22	V3	V2	TOR	AXL	Axial rigidity
15	0	0	0	0	0	0	0	0	0	0	Tension only
16	0	0	0	0	0	0	0	0	0	0	Tension only

Town of Hamden, CT

Property Listing Report

Map Block Lot: 3224-025-01-0000

Account:

Property Information

Property Location	360 GAYLORD MT RD
Owner	VERTICAL BRIDGE LANDCO LLC
Co-Owner	
Mailing Address	750 PARK OF COMMERCE DR S200 BOCA RATON FL 33487
Land Use	4330 RAD/TV TR M96
Land Class	I
Zoning Code	R2
Census Tract	1
Sub Lot	
Neighborhood	140
Acreage	33.64
Lot Setting/Desc	Suburban Level,Rolling
Survey Map	
Utilities	Well,Septic,Electric
Additional Info	

Photo

Sketch

Primary Construction Details

Year Built	0
Stories	
Building Style	
Building Use	
Building Condition	
Floors	Concr-Finished
Total Rooms	

Bedrooms	
Full Bathrooms	0
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Steel Frm/Trus
Roof Cover	Metal/Tin

Exterior Walls	Pre-finsh Metl
Interior Walls	Minim/Masonry
Heating Type	None
Heating Fuel	None
AC Type	None
Gross Bldg Area	2580
Total Living Area	2400

Report Created On 3/13/2019

Town of Hamden, CT

Property Listing Report | Map Block Lot 3224-025-01-0000 | Account

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	95500	66850
Extras	6600	4620
Outbuildings	57000	39900
Land	500200	350140
Total	659300	461510

Outbuilding and Extra Items

Type	Description
DRY	2400.00 S.F.
PAVING-ASPHALT	5000.00 S.F.
FENCE-8' CHAIN	1200.00 L.F.
CANOPY, AV	8400.00 S.F.
AIR CONDITIONING	2400.00 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	2400	2400
Slab	0	0
Loading Platform, Unfinished	180	0
Total Area		0

Sales History

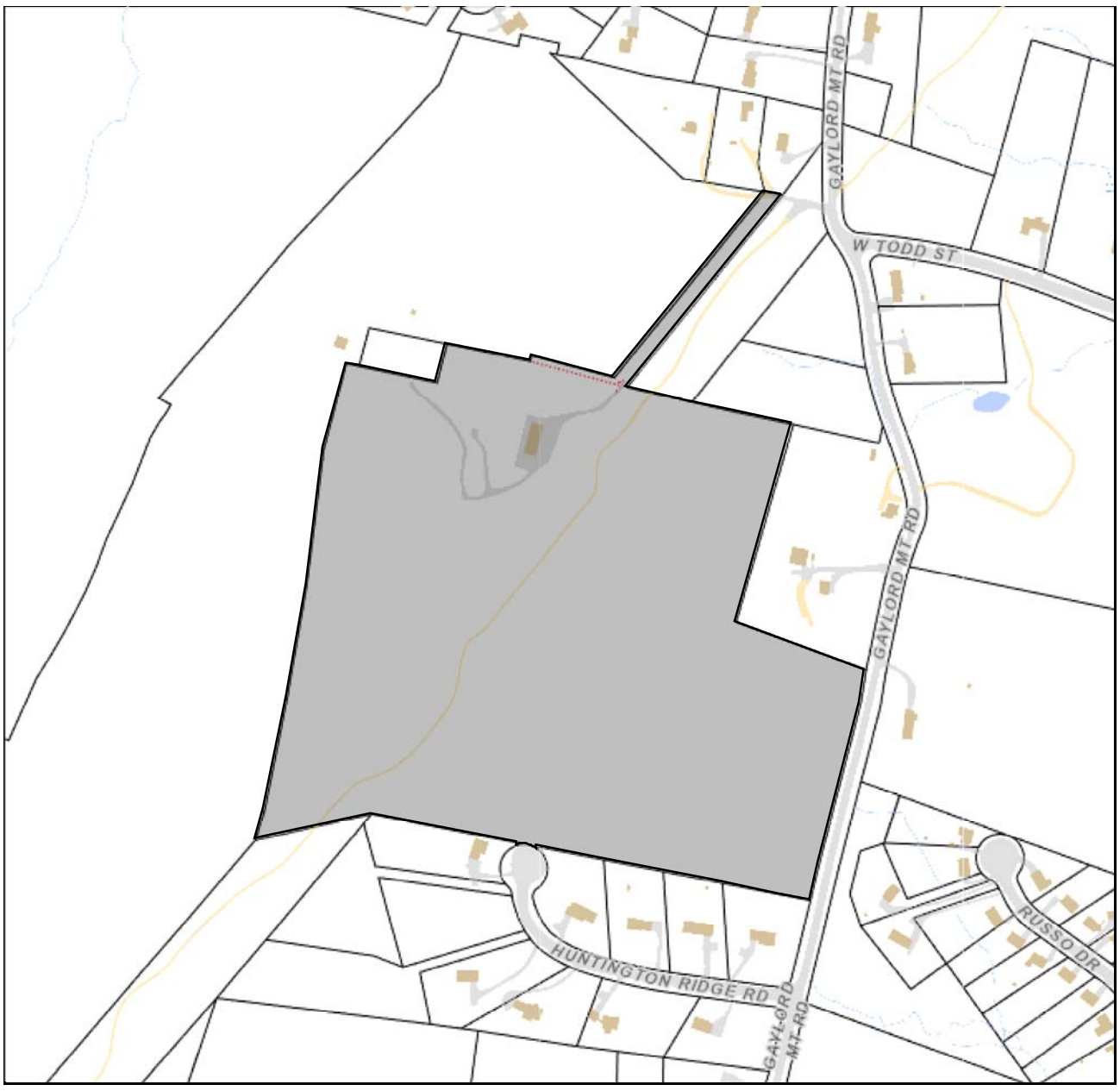
Owner of Record	Book/ Page	Sale Date	Sale Price
VERTICAL BRIDGE LANDCO LLC	4385/ 028	1/19/2017	10
IHEARTMEDIA TOWER CO I LLC	4248/ 162	8/25/2015	10
CLEAR CHANNEL BROADCASTING INC	1856/ 151	6/11/1999	350000

Report Created On 3/13/2019

Town of Hamden

Geographic Information System (GIS)

Date Printed: 3/13/2019



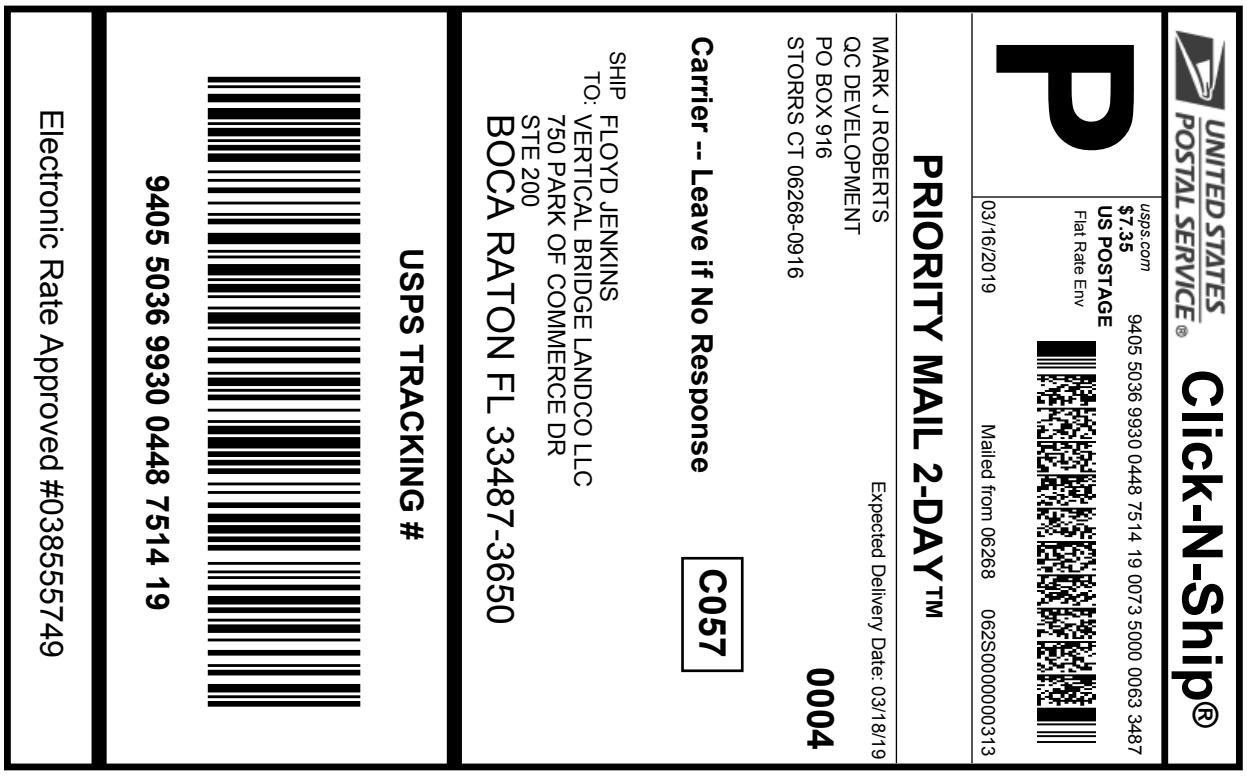
MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Hamden and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 400 feet

0 400 Feet

N W E S



Cut on dotted line.

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2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0448 7514 19

Trans. #:	459257813
Print Date:	03/15/2019
Ship Date:	03/16/2019
Expected Delivery Date:	03/18/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

From: MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

To: FLOYD JENKINS
VERTICAL BRIDGE LANDCO LLC
750 PARK OF COMMERCE DR
STE 200
BOCA RATON FL 33487-3650

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0448 7514 40 0073 5000 0010 6518

usps.com
$7.35
US POSTAL SERVICE
Flat Rate Env

03/16/2019 Mailed from 06268 062S0000000309

P

PRIORITY MAIL 1-DAY™

Expected Delivery Date: 03/18/19

MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

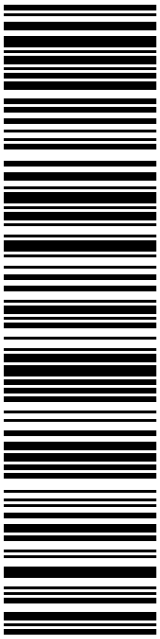
0024

Carrier -- Leave if No Response

C052

SHIP TO: MAYOR CURT B LENG
TOWN OF HAMDEN
2750 DIXWELL AVE
CC: DANIEL KOPS, JR - TOWN PLANNER
HAMDEN CT 06518-3320

USPS TRACKING #



9405 5036 9930 0448 7514 40

Electronic Rate Approved #038555749

Cut on dotted line.

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0448 7514 40

Trans. #:	459257813
Print Date:	03/15/2019
Ship Date:	03/16/2019
Expected Delivery Date:	03/18/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

From: MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

To: MAYOR CURT B LENG
TOWN OF HAMDEN
2750 DIXWELL AVE
CC: DANIEL KOPS, JR - TOWN PLANNER
HAMDEN CT 06518-3320

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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