June 12, 2020

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

Re: Notice of Exempt Modification New Cingular Wireless PCS, LLC ("AT&T") Site CT5663
360 Gaylord Mountain Road, Hamden, CT 06518 (the "Property")
Latitude: 41.433491N Longitude: 71.944898W

Dear Ms. Bachman:

AT&T currently maintains (12) antennas at the 280-foot level on the existing 625-foot guyed tower ("Tower") at 360 Gaylord Mountain Road, Hamden, CT. The tower and property are owned by Vertical Bridge Land Co, LLC. ("Vertical"). AT&T intends to modify its facility by adding (1) WCS Filter to the Beta Sector. The height of AT&Ts antennas and ancillary tower mounted equipment will remain at the 280-foot level of the tower.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with R.C.S.A §16-50j-73, a copy of this letter is being sent to the Honorable Curt Leng, Mayor, City of Hamden, Mr. Daniel Kops, Town Planner, City of Hamden and Vertical as tower & property owner.

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

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

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

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

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

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 foundation can support the proposed loading.

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

Please contact me at 860-834-6964 if you should have any questions regarding this matter. Thank you for your time & consideration.

Sincerely,

Hollis M. Redding

Hollis M. Redding
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
Mobile: 860-834-6964
hredding@saigrp.com

Enclosures

Cc: The Honorable Curt Leng, Mayor, City of Hamden
Mr. Daniel Kops, Town Planner, City of Hamden
Vertical Bridge Land Co. as tower & property 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 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

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%
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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

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING GUYED TOWER:
- NEW AT&T FILTER (WCS–IMFQ–AMT) (TOTAL OF 1 FOR BETA SECTOR).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- NONE.

ITEMS TO BE REMOVED:
- NONE.

ITEMS TO REMAIN:
- (12) ANTENNAS, (9) RRU'S, (6) TMA'S, (3) SURGE ARRESTORS, (6) COAX CABLES, (6) DC POWER & (2) FIBER.

SITE ADDRESS:	360 GAYLORD MOUNTAIN ROAD HAMDEN, CT 06518
LATITUDE:	41.433491° N, 41° 26' 00.57" N
LONGITUDE:	72.944898° W, 72° 56' 41.64" W
TYPE OF SITE:	GUYED TOWER / OUTDOOR EQUIPMENT
STRUCTURE HEIGHT:	625'–0"±
RAD CENTER:	280'–0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

SITE NUMBER: CT5663

SITE NAME: HAMDEN - TALMADGE

FA CODE: 10071061

PACE ID: MRCTB042635

PROJECT: LTE RF MOD/WCS FILTER 2020 UPGRADE

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
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GN–1	GENERAL NOTES	1
A–1	ANTENNA LAYOUTS & ELEVATION	1
A–2	DETAILS	1
G–1	GROUNDING DETAILS	1
RF–1	RF PLUMBING DIAGRAM	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

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ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/29/20	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	05/14/20	ISSUED FOR REVIEW	AM	HC	DPH

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

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET

LTE RF MOD/WCS FILTER 2020 UPGRADE

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 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – 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. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

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

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

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

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

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

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

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	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
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FAX: (978) 336-5586

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SITE NUMBER: CT5663
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: AM

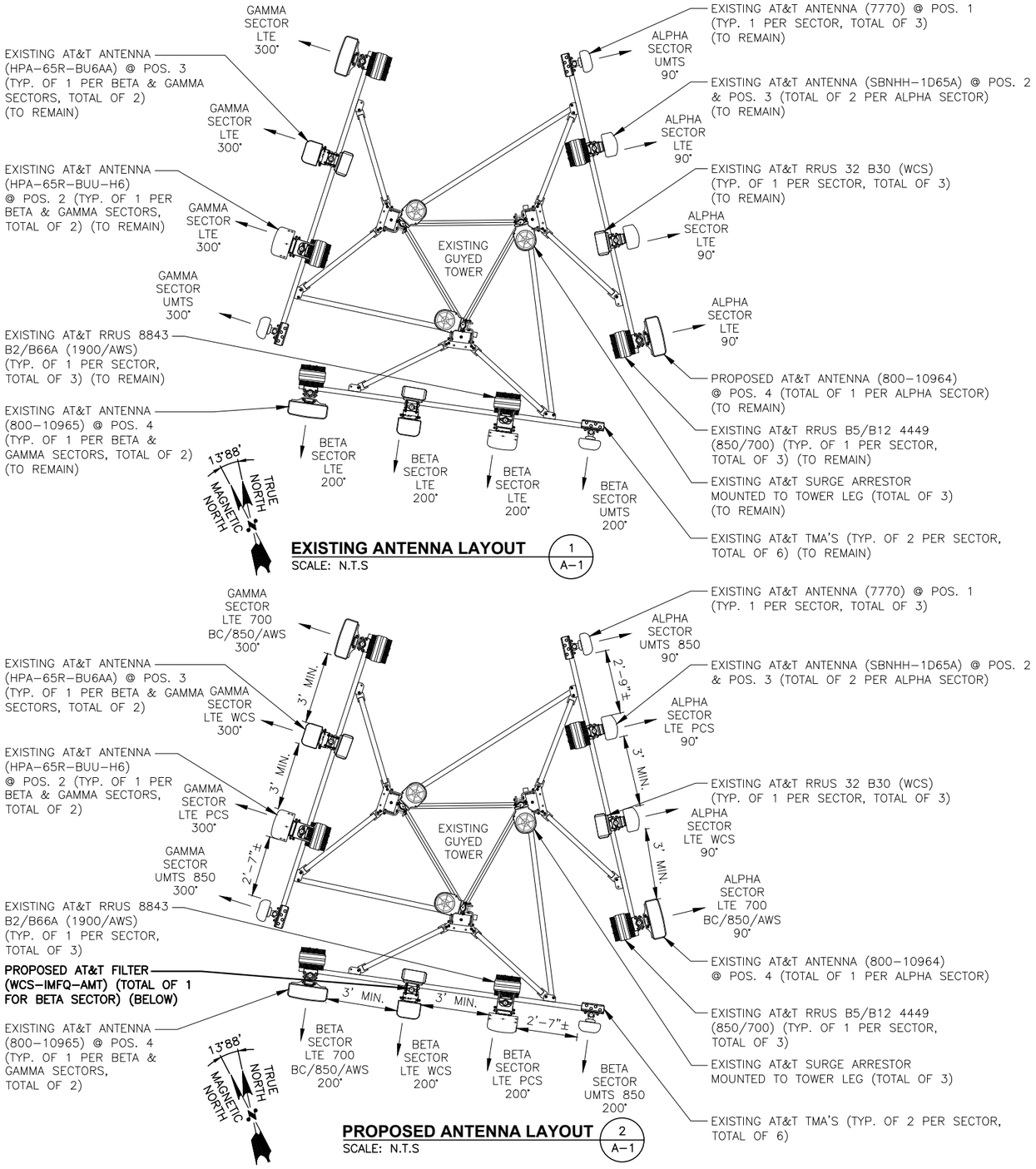
STATE OF CONNECTICUT · DANIEL P. HAMM · No.24178 · LICENSED PROFESSIONAL ENGINEER

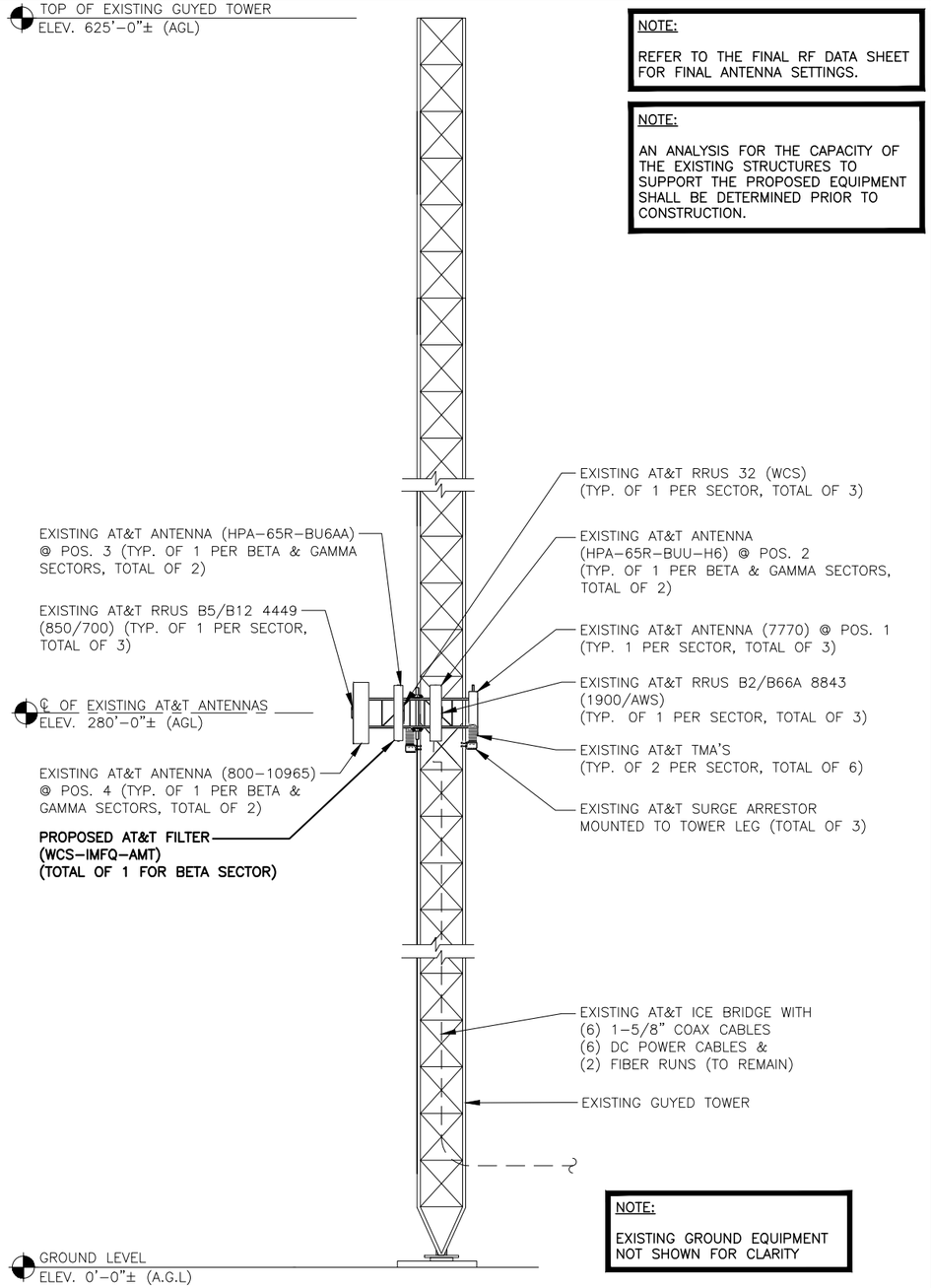
AT&T

GENERAL NOTES

LTE RF MOD/WCS FILTER 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5663	GN-1	1





NOTE:

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

NOTE:

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

NOTE:

EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION 3 A-1
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

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

Daniel P. Hamm
No. 24178
LICENSED PROFESSIONAL ENGINEER
STATE OF CONNECTICUT
DANIEL P. HAMM

AT&T

ANTENNA LAYOUTS & ELEVATION
LTE RF MOD/WCS FILTER 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5663	A-1	1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	FREQUENCY	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	7770	55X11X5	280'-0"±	90°	(2)(E) LGP21401 (2)(E)(G) LGP21901	–	–	–	(2)1-5/8 COAX	(E) (1) RAYCAP DC6-48-60-18-8F
A2	EXISTING	LTE PCS	HPA-65R-BUU-H6	72X14.8X9	280'-0"±	90°	–	(E)(1) RRUS 8843 B2/B66A	(PCS/AWS)	–	–	
A3	EXISTING	LTE WCS	HPA-65R-BU6AA	71X11.7X7.6	280'-0"±	90°	–	(E)(1) RRUS 32 B30	(WCS)	–	(2)(E) DC & (1)(E) FIBER	
A4	EXISTING	LTE 700 BC/ 850/AWS	800-10965	78.7X20X6.9	280'-0"±	90°	–	(E)(1) RRUS 4449 B5/B12	(850/700)	–	–	
B1	EXISTING	UMTS 850	7770	55X11X5	280'-0"±	200°	(2)(E) LGP21401 (2)(E)(G) LGP21901	–	–	–	(2)1-5/8 COAX	(E) (1) RAYCAP DC6-48-60-18-8F
B2	–	LTE PCS	HPA-65R-BUU-H6	72X14.8X9	280'-0"±	200°	–	(E)(1) RRUS 8843 B2/B66A	(PCS/AWS)	–	–	
B3	EXISTING	LTE WCS	HPA-65R-BU6AA	71X11.7X7.6	280'-0"±	200°	**(1)(P) FILTER WCS-IMFQ-AMT**	(E)(1) RRUS 32 B30	(WCS)	–	(2)(E) DC & (1)(E) FIBER	
B4	EXISTING	LTE 700 BC/ 850/AWS	800-10965	78.7X20X6.9	280'-0"±	200°	–	(E)(1) RRUS 4449 B5/B12	(850/700)	–	–	
C1	EXISTING	UMTS 850	7770	55X11X5	280'-0"±	300°	(2)(E) LGP21401 (2)(E)(G) LGP21901	–	–	–	(2)1-5/8 COAX	(E) (1) RAYCAP DC6-48-60-18-8F
C2	–	LTE PCS	HPA-65R-BUU-H6	72X14.8X9	280'-0"±	300°	–	(E)(1) RRUS 8843 B2/B66A	(PCS/AWS)	–	–	
C3	EXISTING	LTE WCS	HPA-65R-BU6AA	71X11.7X7.6	280'-0"±	300°	–	(E)(1) RRUS 32 B30	(WCS)	–	(2)(E) DC	
C4	EXISTING	LTE 700 BC/ 850/AWS	800-10965	78.7X20X6.9	280'-0"±	300°	–	(E)(1) RRUS 4449 B5/B12	(850/700)	–	–	

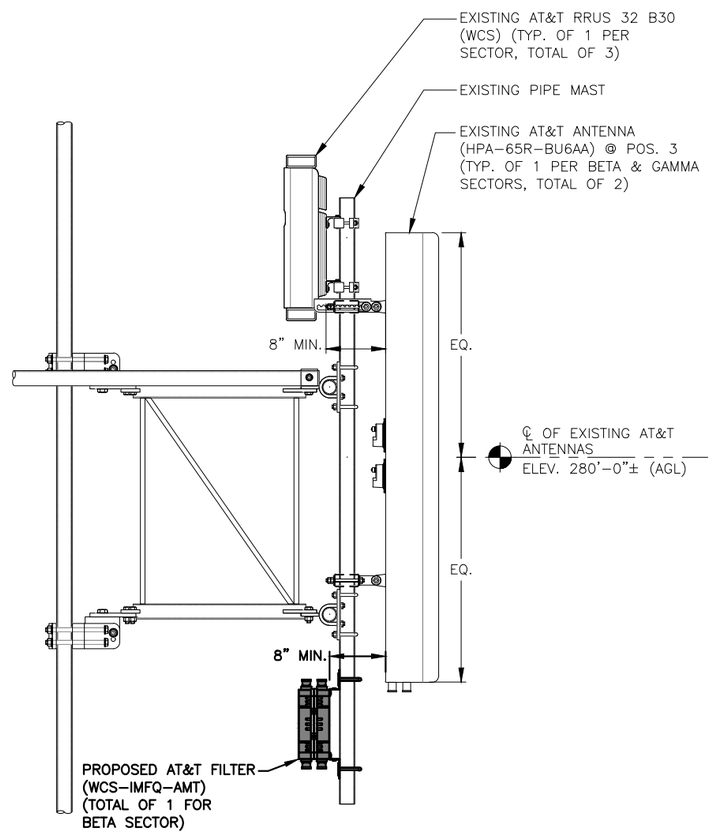
FINAL ANTENNA SCHEDULE (1 / A-2)
SCALE: N.T.S

NOTE:

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

NOTE:

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



PROPOSED WCS FILTER (2 / A-2)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

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
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/29/20	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	05/14/20	ISSUED FOR REVIEW	AM	HC	DPH

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

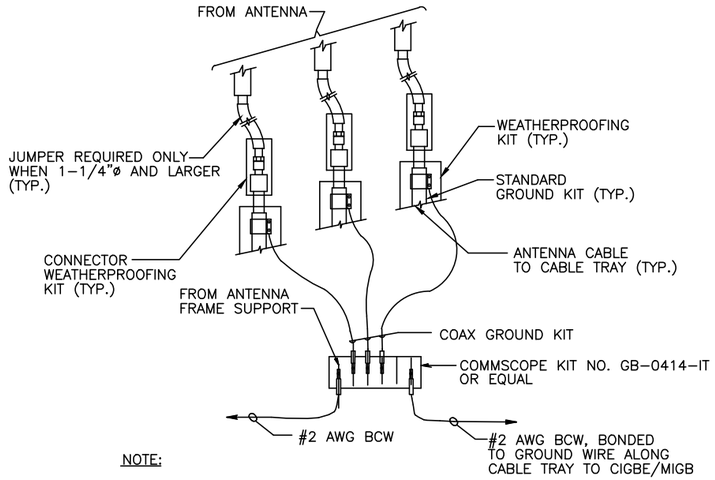
CONNECTICUT LICENSED PROFESSIONAL ENGINEER No.24178

AT&T

DETAILS

LTE RF MOD/WCS FILTER 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5663	A-2	1

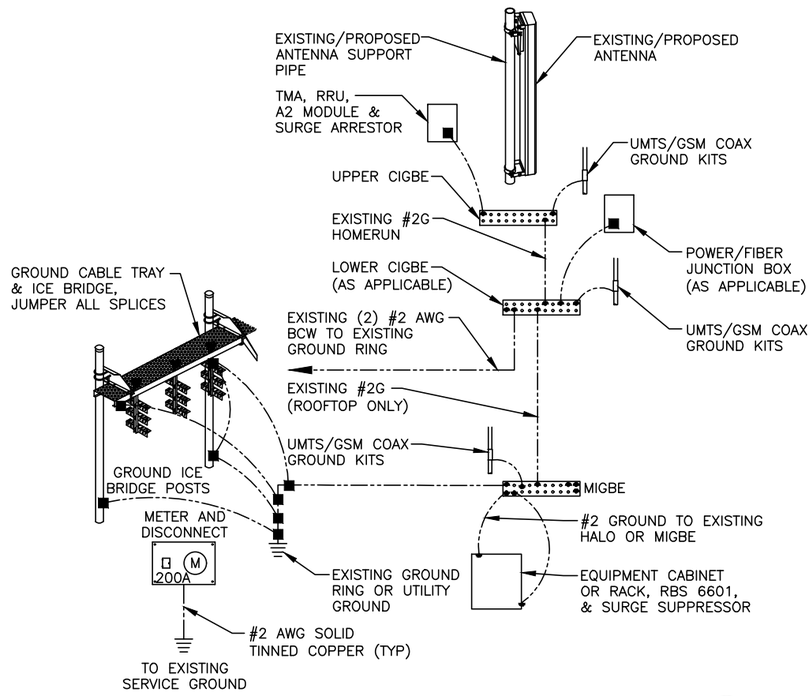


NOTE:

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

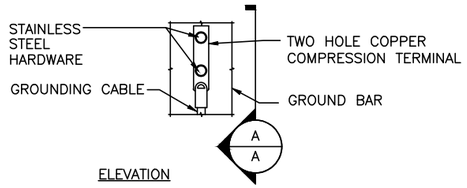
GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S



NOTES:
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

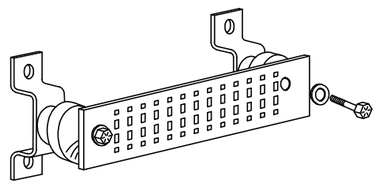
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (AS REQUIRED) (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

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
500 ENTERPRISE DRIVE, SUITE 3A
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NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/29/20	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	05/14/20	ISSUED FOR REVIEW	AM	HC	DPH

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

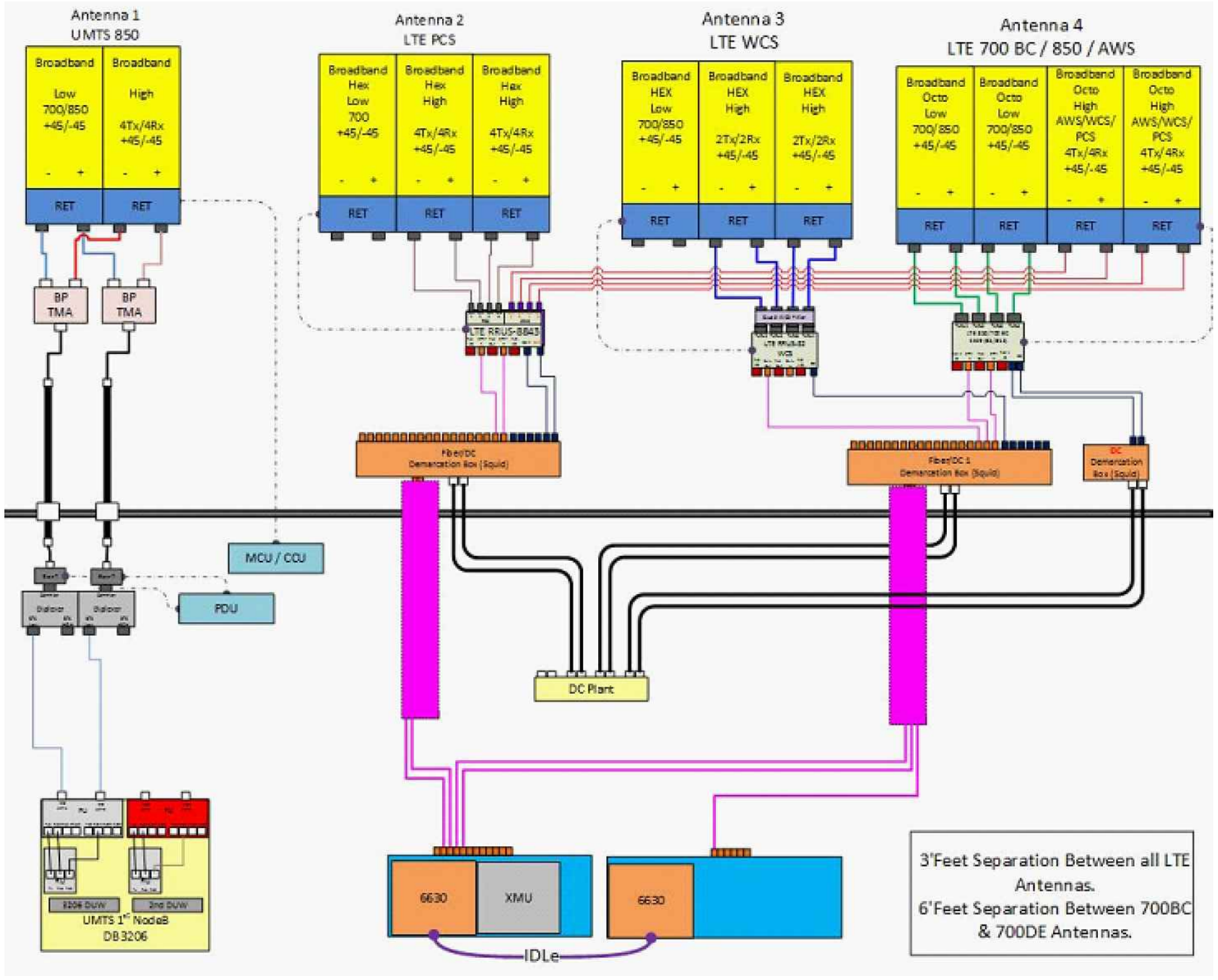
STATE OF CONNECTICUT DANIEL P. HAMM No.24178 LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
LTE RF MOD/WCS FILTER 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5663	G-1	1

BETA SECTOR



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.

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
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NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
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NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/29/20	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	05/14/20	ISSUED FOR REVIEW	AM	HC	DPH

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

AT&T

RF PLUMBING DIAGRAM
LTE RF MOD/WCS FILTER 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5663	RF–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	: AWE - 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	: June 11, 2020
Max Member Stress Level	: 85% (Foundation) 82% (Tower)
Result	: **PASS**

Prepared by: 06/11/2020

VERTICAL BRIDGE ENGINEERING, LLC

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

Table of Contents

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 Version 1.
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	Sector Frame	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-65R-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		
		1	**Commscope WCS-IMFQ-AMT**	Filter		

Note: Proposed equipment shown in bold.
Note: Other existing loading can be found on the tower profile attached.

Design Criteria

The tower was analyzed using tnxTower (Version 8.0.7.4) tower analysis software using the following design criteria.

State	Connecticut
City / County Building Code	New Haven County (IBC 2018)
TIA/EIA Standard Code	TIA-222-H
Basic Wind Speed	119 MPH (V_{ult})
Basic Wind Speed w/ Ice	50 MPH w/ 1" 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
S_s	0.2
Seismic design Category	B

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 tower base, inner, and outer anchor foundation are considered to be structurally capable of supporting the proposed equipment loads. A seismic analysis has been performed on this site and is not controlling.**

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 also been evaluated and are acceptable**. **A seismic analysis has been performed on this site and is not controlling.**

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:

Thierry Kabore
Design Engineer

Reviewed by:

06/11/2020

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

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-H 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

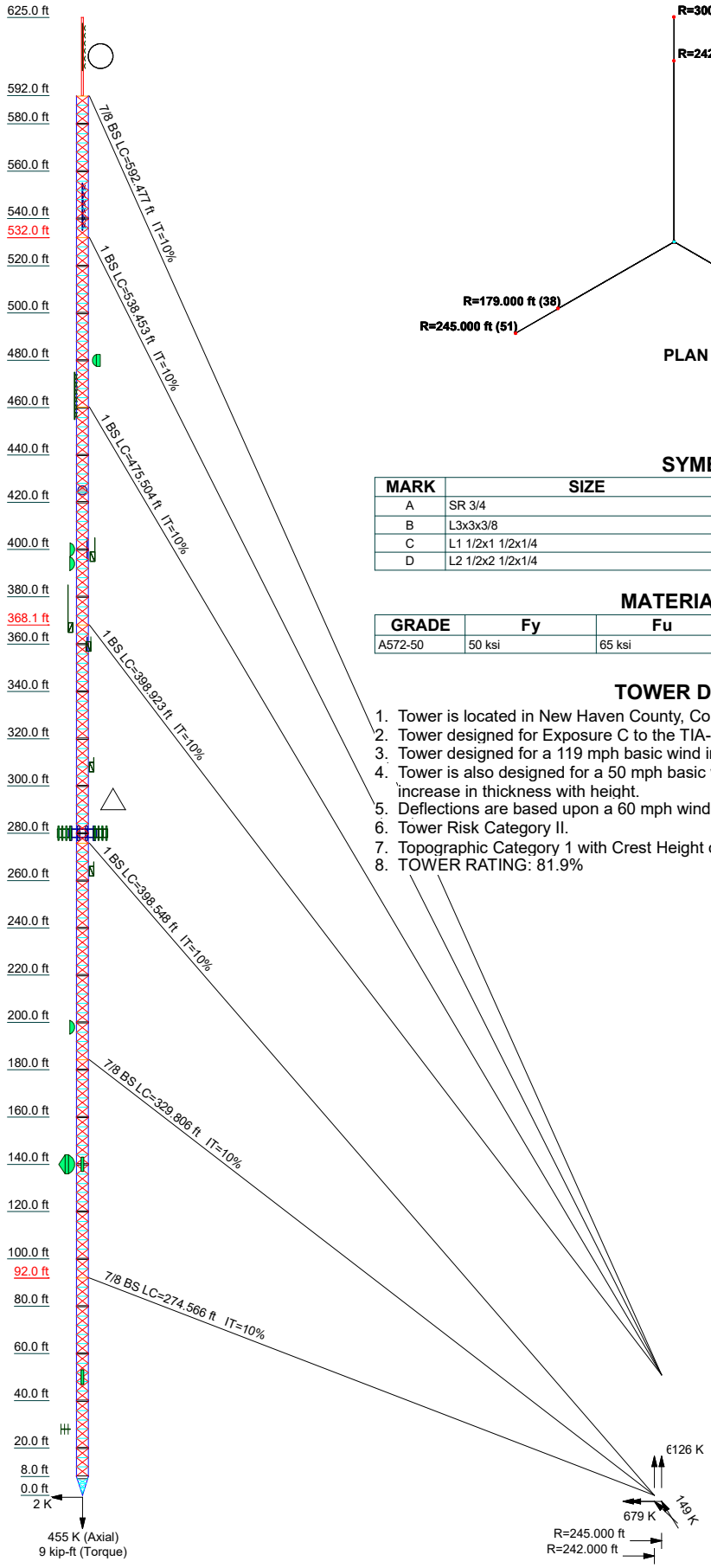
The engineering services by Vertical Bridge Engineering, LLC in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. Vertical Bridge Engineering, LLC does not analyze the fabrication, including welding, except as may be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

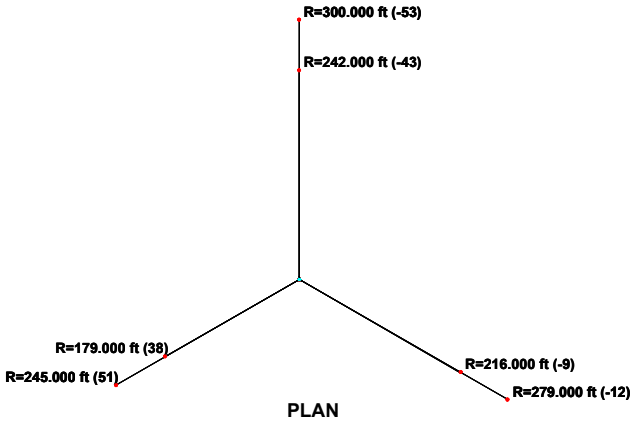
The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines. Any mention of structural modifications are reasonable estimates and should not be used a precise construction document. Precise modification drawings are obtainable from Vertical 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 3/4		SR 2 3/4				SR 3							SR 3 1/4							SR 3 1/2				
Leg Grade		A572-50																														
Diagonals	B	N.A.	SR 5/8	A	SR 5/8	SR 3/4		N.A.	L2 1/2x2 1/2x3/16		SR 5/8	SR 3/4	SR 7/8	C	SR 5/8	SR 3/4	SR 7/8	D	SR 5/8	SR 3/4	SR 7/8	D	SR 5/8	SR 3/4	SR 5/8	SR 3/4	SR 5/8	SR 3/4	SR 5/8	SR 3/4	SR 5/8	B
Diagonal Grade		N.A.														A36																
Top Girts	E	N.A.						L2 1/2x2 1/2x3/16										D															
Bottom Girts	F	N.A.						L2 1/2x2 1/2x3/16						D				D															
Horizontals	B	N.A.						L2 1/2x2 1/2x3/16						D				D															
Top Guy Pull-Offs		N.A.	N.A.		6*1	N.A.		6*1	N.A.		N.A.		6*1		N.A.	6*1		6*1	N.A.			6*1				N.A.						
Face Width (ft)		5																														
# Panels @ (ft)	G	0.895833	140 @ 3.9																													
Weight (K)	62.7	N.A.	G	1.1	1.3	1.3	1.8	1.5	1.5	2.0	1.8	1.7	1.7	2.4	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	1.5	1.5





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-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 81.9%

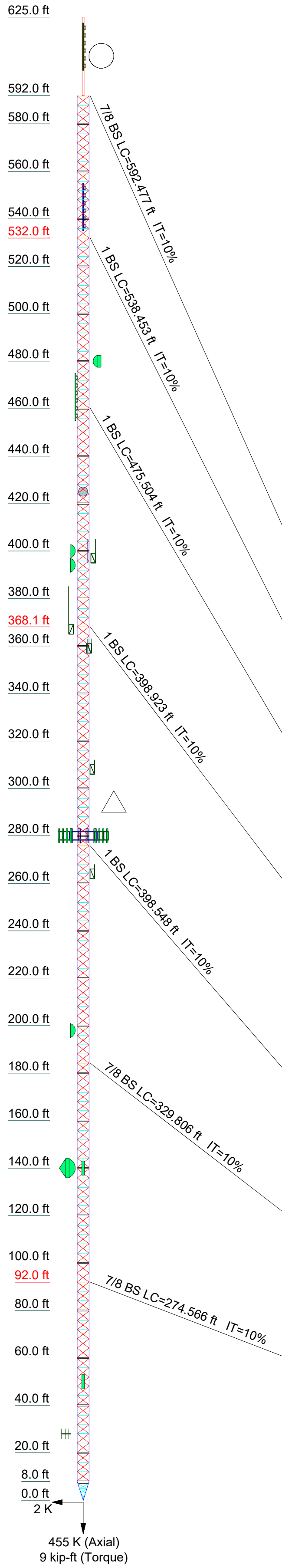
ALL REACTIONS ARE FACTORED

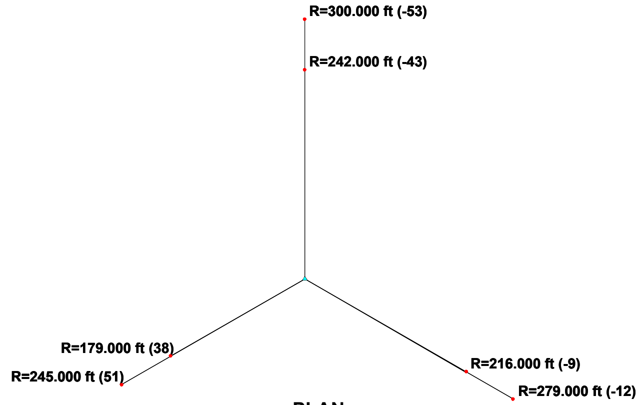
Vertical Bridge Engineering, LLC
550 River Dr.
North Sioux City, SD 57049
Phone: (561) 948-6367
FAX:

Job: ***US-CT-5004***			
Project: ***Guyed Tower Structural Analysis***			
Client:	Drawn by: TKabore	App'd:	
Code: TIA-222-H	Date: 06/10/20	Scale: NTS	
Path: C:\Users\TKabore\OneDrive - Vertical Bridge\Desktop\Tower Work\US-CT-5004 SA-06-10-2020\US-CT-5004_SA_060920_ATTeri		Dwg No. E-1	

Section	L1	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 2 3/4					SR 3					SR 3 1/4									SR 3 1/2					
Leg Grade	A572-50																															
Diagonals	N.A.	A	SR 5/8		SR 3/4	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 3/4		SR 5/8				B
Diagonal Grade	N.A.	A36																														
Top Girts	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	N.A.	L2 1/2x2 1/2x3/16						N.A.	L2 1/2x2 1/2x3/16				D	L2 1/2x2 1/2x3/16								D	L2 1/2x2 1/2x3/16									F
Horizontals	N.A.	L2 1/2x2 1/2x3/16											D	L2 1/2x2 1/2x3/16								D	L2 1/2x2 1/2x3/16									B
Top Guy Pull-Offs	N.A.	6*1	N.A.		6*1	N.A.		6*1	N.A.				6*1	N.A.				6*1	N.A.			6*1	N.A.				6*1	N.A.				
Face Width (ft)	0.895833	5																														
# Panels @ (ft)	N.A.	G	140 @ 3.9																												G	H
Weight (K)	1.3	1.1	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	1.5	1.5

Weight (K) total: 62.7





PLAN

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
SHPX-4AC (iHeart Media)	612.5	Kathrein 800-10965K (78.7x20x6.9) (ATT)	280
SHP-2AE (iHeart Media)	545	RRUS 32 (ATT)	280
ERI ALP8L1-HSB-34 (Tyche Media)	540 - 520	RRUS 32 (ATT)	280
5' Stand Off (Tyche Media)	520	RRUS 32 (ATT)	280
5' HP Dish (230lbs 24.77CaAa) (Unknown)	480	Ericsson 8843 B2/B66 (14.9x13.2x10.9) (ATT)	280
Kathrein 754154 (Office Radio)	465	Ericsson 8843 B2/B66 (14.9x13.2x10.9) (ATT)	280
4' Dish w/o Radome (iHeart Media)	425	Ericsson 8843 B2/B66 (14.9x13.2x10.9) (ATT)	280
14' Omni (iHeart Media)	400	Ericsson 4449 B5/B12 (17.9x13.2x9.4) (ATT)	280
14' Omni (Unknown)	400	Ericsson 4449 B5/B12 (17.9x13.2x9.4) (ATT)	280
CMA-B/6519/E0-8 (Unknown)	400	Ericsson 4449 B5/B12 (17.9x13.2x9.4) (ATT)	280
3' x 4' Side Arm (Unknown)	400	Kathrein 800-10964 (59x20x6.9) (ATT)	280
MRC Proscann III (Meridith)	400	CCI HPA-65R-BU6AA (71.1x11.7x7.6) (ATT)	280
Scala PR450 (iHeart Media)	394	CCI HPA-65R-BU6AA (71.1x11.7x7.6) (ATT)	280
PD220 (MCLM)	375	Commscope WCS-IMFQ-AMT-R40 (ATT)	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 (ATT)	280	8' Dish w/ Radome (Meridith)	140
(2) LGP21401 (ATT)	280	Pelco Camera (Meridith)	140
(2) LGP21401 (ATT)	280	AWS (Earth Network)	50
(2) LGP21401 (ATT)	280	Scala FM10 yagi (Office Radio)	28
CCI HPA-65R-BUU-H6 (ATT)	280		
CCI HPA-65R-BUU-H6 (ATT)	280		
Powerwave 7770 (55x11x5) (ATT)	280		
Powerwave 7770 (55x11x5) (ATT)	280		
Powerwave 7770 (55x11x5) (ATT)	280		
SBNHH-1D65A w/ Mount Pipe (ATT)	280		
SBNHH-1D65A w/ Mount Pipe (ATT)	280		
DC6-48-60-18-8C (ATT)	280		
DC6-48-60-18-8C (ATT)	280		
DC6-48-60-18-8C (ATT)	280		
Kathrein 800-10965K (78.7x20x6.9) (ATT)	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-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 81.9%

ALL REACTIONS ARE FACTORED

Vertical Bridge Engineering, LLC
550 River Dr.
North Sioux City, SD 57049
Phone: (561) 948-6367
FAX:

Job: **US-CT-5004**		
Project: **Guyed Tower Structural Analysis**		
Client:	Drawn by: TKabore	App'd:
Code: TIA-222-H	Date: 06/10/20	Scale: NTS
Path: C:\Users\TKabore\OneDrive - Vertical Bridge\Desktop\Tower Work\US-CT-5004 SA-06-10-2020\US-CT-5004_SA_060920_ATT.eri		Dwg No. E-1

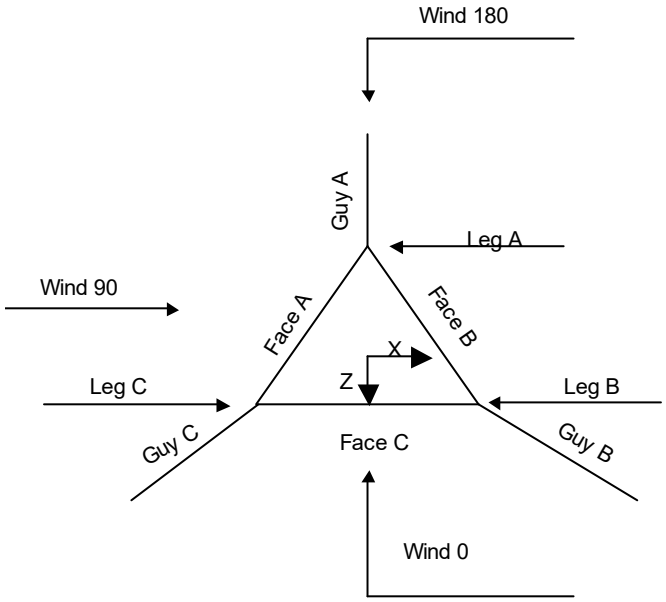
Tower Input Data

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-H standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 637.000 ft.
Basic wind speed of 119 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.0000 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-H Bracing Resist. Exemption
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Use TIA-222-H 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) 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
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	X Brace Diags Y	K Brace Diags X	K Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
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
184.150	(50 ksi) A572-50 (50 ksi)	Solid Round			No	(50 ksi) A572-50 (50 ksi)	Flat Bar	6*1
91.950	(50 ksi) A572-50 (50 ksi)	Solid Round			No	(50 ksi) 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				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	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	0.047	0.008	1.2336
	B	289.875	0.048	0.008	1.2427
	C	321.375	0.049	0.009	1.2556
531.95	A	239.475	0.046	0.008	1.2192
	B	259.975	0.047	0.008	1.2293
	C	291.475	0.048	0.008	1.2434
460.25	A	203.625	0.044	0.008	1.1996
	B	224.125	0.045	0.008	1.2111
	C	255.625	0.046	0.008	1.2272
368.05	A	157.525	0.042	0.007	1.1692
	B	178.025	0.043	0.008	1.1836
	C	209.525	0.045	0.008	1.2030
275.85	A	116.425	0.039	0.007	1.1344
	B	133.425	0.040	0.007	1.1499
	C	156.925	0.042	0.007	1.1687
184.15	A	70.575	0.035	0.006	1.0790
	B	87.575	0.037	0.007	1.1025
	C	111.075	0.039	0.007	1.1290
91.95	A	24.475	0.028	0.005	0.9706
	B	41.475	0.032	0.006	1.0231
	C	64.975	0.035	0.006	1.0701

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

				Temperature At Time Of Tensioning													
				0 F		20 F		40 F		60 F		80 F		100 F		120 F	
Guy Elevation		H	V	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept
ft		ft	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	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	2.936	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	5.889	0.000	0.036
T3	560.000-540.000	A	0.000	0.000	2.958	0.000	0.018
		B	0.000	0.000	6.000	0.000	0.000
		C	0.000	0.000	5.911	0.000	0.036
T4	540.000-520.000	A	0.000	0.000	5.934	0.000	0.036
		B	0.000	0.000	6.000	0.000	0.000
		C	0.000	0.000	5.934	0.000	0.036
T5	520.000-500.000	A	0.000	0.000	5.958	0.000	0.036
		B	0.000	0.000	11.958	0.000	0.000
		C	0.000	0.000	5.958	0.000	0.036
T6	500.000-480.000	A	0.000	0.000	5.983	0.000	0.036
		B	0.000	0.000	11.983	0.000	0.000
		C	0.000	0.000	5.983	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	6.009	0.000	0.036
		B	0.000	0.000	12.554	0.000	0.002
		C	0.000	0.000	6.009	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	14.217	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	14.246	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	14.277	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	14.309	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	14.343	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	14.379	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	14.417	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	14.459	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	14.503	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	14.551	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	14.602	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	14.659	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	14.721	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	14.791	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	14.868	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	14.957	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	15.060	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	15.182	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	15.332	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	15.523	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	15.788	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	1.338	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	1.333	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	7.518	0.000	0.047
		C		0.000	0.000	5.677	0.000	0.089
T2	580.000-560.000	A	1.330	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	12.503	0.000	0.078
		C		0.000	0.000	11.339	0.000	0.177
T3	560.000-540.000	A	1.325	0.000	0.000	5.660	0.000	0.088
		B		0.000	0.000	12.470	0.000	0.078
		C		0.000	0.000	11.320	0.000	0.176
T4	540.000-520.000	A	1.320	0.000	0.000	11.300	0.000	0.175
		B		0.000	0.000	12.435	0.000	0.077
		C		0.000	0.000	11.300	0.000	0.175
T5	520.000-500.000	A	1.315	0.000	0.000	11.280	0.000	0.175
		B		0.000	0.000	25.659	0.000	0.248
		C		0.000	0.000	11.280	0.000	0.175
T6	500.000-480.000	A	1.310	0.000	0.000	11.259	0.000	0.174
		B		0.000	0.000	25.601	0.000	0.246
		C		0.000	0.000	11.259	0.000	0.174
T7	480.000-460.000	A	1.304	0.000	0.000	11.237	0.000	0.173
		B		0.000	0.000	27.390	0.000	0.266
		C		0.000	0.000	11.237	0.000	0.173
T8	460.000-440.000	A	1.299	0.000	0.000	11.214	0.000	0.172
		B		0.000	0.000	32.853	0.000	0.326
		C		0.000	0.000	11.214	0.000	0.172
T9	440.000-420.000	A	1.293	0.000	0.000	11.191	0.000	0.172
		B		0.000	0.000	32.764	0.000	0.324
		C		0.000	0.000	11.191	0.000	0.172
T10	420.000-400.000	A	1.287	0.000	0.000	11.166	0.000	0.171
		B		0.000	0.000	32.671	0.000	0.322
		C		0.000	0.000	11.166	0.000	0.171
T11	400.000-380.000	A	1.280	0.000	0.000	30.073	0.000	0.325
		B		0.000	0.000	32.575	0.000	0.320
		C		0.000	0.000	20.221	0.000	0.288
T12	380.000-360.000	A	1.273	0.000	0.000	31.689	0.000	0.341
		B		0.000	0.000	32.473	0.000	0.318

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	25.623	0.000	0.347
T13	360.000-340.000	A	1.266	0.000	0.000	38.740	0.000	0.415
		B		0.000	0.000	32.367	0.000	0.315
		C		0.000	0.000	27.356	0.000	0.364
T14	340.000-320.000	A	1.259	0.000	0.000	45.043	0.000	0.481
		B		0.000	0.000	32.255	0.000	0.313
		C		0.000	0.000	27.267	0.000	0.362
T15	320.000-300.000	A	1.251	0.000	0.000	44.863	0.000	0.477
		B		0.000	0.000	32.137	0.000	0.310
		C		0.000	0.000	27.173	0.000	0.359
T16	300.000-280.000	A	1.243	0.000	0.000	51.392	0.000	0.544
		B		0.000	0.000	32.012	0.000	0.307
		C		0.000	0.000	27.073	0.000	0.356
T17	280.000-260.000	A	1.234	0.000	0.000	51.153	0.000	0.539
		B		0.000	0.000	31.878	0.000	0.304
		C		0.000	0.000	95.455	0.000	1.046
T18	260.000-240.000	A	1.224	0.000	0.000	54.221	0.000	0.569
		B		0.000	0.000	31.736	0.000	0.301
		C		0.000	0.000	95.153	0.000	1.039
T19	240.000-220.000	A	1.214	0.000	0.000	58.829	0.000	0.617
		B		0.000	0.000	31.583	0.000	0.298
		C		0.000	0.000	94.828	0.000	1.030
T20	220.000-200.000	A	1.203	0.000	0.000	63.242	0.000	0.670
		B		0.000	0.000	31.417	0.000	0.294
		C		0.000	0.000	94.477	0.000	1.022
T21	200.000-180.000	A	1.191	0.000	0.000	70.939	0.000	0.750
		B		0.000	0.000	31.236	0.000	0.290
		C		0.000	0.000	94.095	0.000	1.012
T22	180.000-160.000	A	1.178	0.000	0.000	70.604	0.000	0.742
		B		0.000	0.000	31.038	0.000	0.286
		C		0.000	0.000	93.675	0.000	1.002
T23	160.000-140.000	A	1.163	0.000	0.000	70.034	0.000	0.731
		B		0.000	0.000	30.817	0.000	0.281
		C		0.000	0.000	93.208	0.000	0.990
T24	140.000-120.000	A	1.147	0.000	0.000	69.390	0.000	0.718
		B		0.000	0.000	30.568	0.000	0.276
		C		0.000	0.000	108.158	0.000	1.081
T25	120.000-100.000	A	1.128	0.000	0.000	68.651	0.000	0.703
		B		0.000	0.000	30.282	0.000	0.270
		C		0.000	0.000	107.420	0.000	1.065
T26	100.000-80.000	A	1.106	0.000	0.000	67.779	0.000	0.686
		B		0.000	0.000	29.944	0.000	0.263
		C		0.000	0.000	106.551	0.000	1.045
T27	80.000-60.000	A	1.078	0.000	0.000	66.712	0.000	0.665
		B		0.000	0.000	29.531	0.000	0.255
		C		0.000	0.000	105.487	0.000	1.022
T28	60.000-40.000	A	1.042	0.000	0.000	65.324	0.000	0.639
		B		0.000	0.000	28.993	0.000	0.244
		C		0.000	0.000	110.122	0.000	1.028
T29	40.000-20.000	A	0.991	0.000	0.000	63.306	0.000	0.602
		B		0.000	0.000	30.148	0.000	0.243
		C		0.000	0.000	113.769	0.000	1.017
T30	20.000-8.000	A	0.918	0.000	0.000	36.288	0.000	0.331
		B		0.000	0.000	19.001	0.000	0.143
		C		0.000	0.000	66.273	0.000	0.571
T31	8.000-0.000	A	0.810	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	0.7779	2.7114	1.7336	2.2682
T2	580.000-560.000	0.9027	3.6042	1.9842	2.8607
T3	560.000-540.000	0.2065	1.7105	1.5155	1.7735
T4	540.000-520.000	-0.3650	0.0599	0.9987	0.7149
T5	520.000-500.000	0.3456	-3.2115	1.5054	-1.7230
T6	500.000-480.000	0.3437	-3.2221	1.5056	-1.7271
T7	480.000-460.000	0.3652	-3.0795	1.4865	-1.8117
T8	460.000-440.000	0.5455	-3.5351	1.8168	-2.4800
T9	440.000-420.000	0.5555	-3.5969	1.8435	-2.5211
T10	420.000-400.000	0.5586	-3.6108	1.8438	-2.5259
T11	400.000-380.000	1.0073	-3.3958	1.9135	-2.7057
T12	380.000-360.000	1.2764	-2.9128	2.3536	-2.1077
T13	360.000-340.000	1.2332	-3.1618	2.1425	-2.4441
T14	340.000-320.000	1.0120	-3.3372	1.6623	-2.7888
T15	320.000-300.000	1.0153	-3.3531	1.6636	-2.7928
T16	300.000-280.000	0.8098	-3.5162	1.2368	-3.1930
T17	280.000-260.000	-4.6228	-1.9592	-4.1159	-0.7951
T18	260.000-240.000	-4.8123	-2.2550	-4.2813	-1.1932
T19	240.000-220.000	-4.8200	-2.5118	-4.3396	-1.6669
T20	220.000-200.000	-4.8520	-2.6909	-4.4496	-2.0042
T21	200.000-180.000	-4.6411	-3.1008	-4.3092	-2.6618
T22	180.000-160.000	-4.8183	-3.2780	-4.4647	-2.7651
T23	160.000-140.000	-4.8439	-3.3383	-4.5181	-2.7948
T24	140.000-120.000	-4.3272	-3.1194	-3.7324	-2.2180
T25	120.000-100.000	-4.2824	-3.1299	-3.7269	-2.2067
T26	100.000-80.000	-4.1013	-3.0438	-3.6417	-2.1457
T27	80.000-60.000	-4.2366	-3.2311	-3.7814	-2.2238
T28	60.000-40.000	-3.9879	-3.2887	-3.5364	-1.9530
T29	40.000-20.000	-3.7271	-3.3378	-3.2413	-1.8576
T30	20.000-8.000	-3.6345	-3.3630	-3.1684	-2.0805
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	0.5396
T1	12	CAT5-E (1/4")	580.00 - 592.00	0.6000	0.5396
T2	1	3" Coax	560.00 - 580.00	1.0000	0.5796
T2	12	CAT5-E (1/4")	560.00 - 580.00	0.6000	0.5796
T3	1	3" Coax	540.00 - 560.00	1.0000	0.5805

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	0.5805
T3	12	CAT5-E (1/4")	540.00 - 560.00	0.6000	0.5805
T4	1	3" Coax	520.00 - 540.00	1.0000	0.5578
T4	2	3" Coax	520.00 - 540.00	1.0000	0.5578
T4	12	CAT5-E (1/4")	520.00 - 540.00	0.6000	0.5578
T5	1	3" Coax	500.00 - 520.00	1.0000	0.5774
T5	2	3" Coax	500.00 - 520.00	1.0000	0.5774
T5	12	CAT5-E (1/4")	500.00 - 520.00	0.6000	0.5774
T5	20	4" Flex	500.00 - 520.00	1.0000	0.5774
T6	1	3" Coax	480.00 - 500.00	1.0000	0.5784
T6	2	3" Coax	480.00 - 500.00	1.0000	0.5784
T6	12	CAT5-E (1/4")	480.00 - 500.00	0.6000	0.5784
T6	20	4" Flex	480.00 - 500.00	1.0000	0.5784
T7	1	3" Coax	460.00 - 480.00	1.0000	0.5559
T7	2	3" Coax	460.00 - 480.00	1.0000	0.5559
T7	12	CAT5-E (1/4")	460.00 - 480.00	0.6000	0.5559
T7	18	LDF5-50A(7/8")	460.00 - 465.00	0.6000	0.5559
T7	20	4" Flex	460.00 - 480.00	1.0000	0.5559
T8	1	3" Coax	440.00 - 460.00	1.0000	0.5697
T8	2	3" Coax	440.00 - 460.00	1.0000	0.5697
T8	12	CAT5-E (1/4")	440.00 - 460.00	0.6000	0.5697
T8	18	LDF5-50A(7/8")	440.00 - 460.00	0.6000	0.5697
T8	20	4" Flex	440.00 - 460.00	1.0000	0.5697
T9	1	3" Coax	420.00 - 440.00	1.0000	0.5766
T9	2	3" Coax	420.00 - 440.00	1.0000	0.5766
T9	12	CAT5-E (1/4")	420.00 - 440.00	0.6000	0.5766
T9	18	LDF5-50A(7/8")	420.00 - 440.00	0.6000	0.5766
T9	20	4" Flex	420.00 - 440.00	1.0000	0.5766
T10	1	3" Coax	400.00 - 420.00	1.0000	0.5778
T10	2	3" Coax	400.00 - 420.00	1.0000	0.5778
T10	12	CAT5-E (1/4")	400.00 - 420.00	0.6000	0.5778

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	0.5778
T10	20	4" Flex	400.00 - 420.00	1.0000	0.5778
T11	1	3" Coax	380.00 - 400.00	1.0000	0.5789
T11	2	3" Coax	380.00 - 400.00	1.0000	0.5789
T11	5	LDF5-50A (7/8" FOAM)	380.00 - 400.00	0.6000	0.5789
T11	6	LDF5-50A (7/8" FOAM)	380.00 - 395.00	0.6000	0.5789
T11	12	CAT5-E (1/4")	380.00 - 400.00	0.6000	0.5789
T11	16	LDF7-50A(1-5/8")	380.00 - 400.00	0.6000	0.5789
T11	18	LDF5-50A(7/8")	380.00 - 400.00	0.6000	0.5789
T11	20	4" Flex	380.00 - 400.00	1.0000	0.5789
T12	1	3" Coax	360.00 - 380.00	1.0000	0.5547
T12	2	3" Coax	360.00 - 380.00	1.0000	0.5547
T12	5	LDF5-50A (7/8" FOAM)	360.00 - 380.00	0.6000	0.5547
T12	6	LDF5-50A (7/8" FOAM)	360.00 - 380.00	0.6000	0.5547
T12	12	CAT5-E (1/4")	360.00 - 380.00	0.6000	0.5547
T12	16	LDF7-50A(1-5/8")	360.00 - 380.00	0.6000	0.5547
T12	17	LDF5-50A(7/8")	360.00 - 375.00	0.6000	0.5547
T12	18	LDF5-50A(7/8")	360.00 - 380.00	0.6000	0.5547
T12	20	4" Flex	360.00 - 380.00	1.0000	0.5547
T13	1	3" Coax	340.00 - 360.00	1.0000	0.5766
T13	2	3" Coax	340.00 - 360.00	1.0000	0.5766
T13	5	LDF5-50A (7/8" FOAM)	340.00 - 360.00	0.6000	0.5766
T13	6	LDF5-50A (7/8" FOAM)	340.00 - 360.00	0.6000	0.5766
T13	7	LDF5-50A (7/8" FOAM)	340.00 - 353.00	0.6000	0.5766
T13	8	LDF5-50A (7/8" FOAM)	340.00 - 348.00	0.6000	0.5766
T13	12	CAT5-E (1/4")	340.00 - 360.00	0.6000	0.5766
T13	16	LDF7-50A(1-5/8")	340.00 - 360.00	0.6000	0.5766
T13	17	LDF5-50A(7/8")	340.00 - 360.00	0.6000	0.5766
T13	18	LDF5-50A(7/8")	340.00 - 360.00	0.6000	0.5766
T13	20	4" Flex	340.00 - 360.00	1.0000	0.5766
T14	1	3" Coax	320.00 - 340.00	1.0000	0.5779

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	1.0000	0.5779
T14	5	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.5779
T14	6	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.5779
T14	7	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.5779
T14	8	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.5779
T14	12	CAT5-E (1/4")	320.00 - 340.00	0.6000	0.5779
T14	16	LDF7-50A(1-5/8")	320.00 - 340.00	0.6000	0.5779
T14	17	LDF5-50A(7/8")	320.00 - 340.00	0.6000	0.5779
T14	18	LDF5-50A(7/8")	320.00 - 340.00	0.6000	0.5779
T14	20	4" Flex	320.00 - 340.00	1.0000	0.5779
T15	1	3" Coax	300.00 - 320.00	1.0000	0.5794
T15	2	3" Coax	300.00 - 320.00	1.0000	0.5794
T15	5	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.5794
T15	6	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.5794
T15	7	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.5794
T15	8	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.5794
T15	12	CAT5-E (1/4")	300.00 - 320.00	0.6000	0.5794
T15	16	LDF7-50A(1-5/8")	300.00 - 320.00	0.6000	0.5794
T15	17	LDF5-50A(7/8")	300.00 - 320.00	0.6000	0.5794
T15	18	LDF5-50A(7/8")	300.00 - 320.00	0.6000	0.5794
T15	20	4" Flex	300.00 - 320.00	1.0000	0.5794
T16	1	3" Coax	280.00 - 300.00	1.0000	0.5703
T16	2	3" Coax	280.00 - 300.00	1.0000	0.5703
T16	5	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.5703
T16	6	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.5703
T16	7	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.5703
T16	8	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.5703
T16	9	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.5703
T16	12	CAT5-E (1/4")	280.00 - 300.00	0.6000	0.5703
T16	16	LDF7-50A(1-5/8")	280.00 - 300.00	0.6000	0.5703
T16	17	LDF5-50A(7/8")	280.00 - 300.00	0.6000	0.5703

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	0.5703
T16	20	4" Flex	280.00 - 300.00	1.0000	0.5703
T17	1	3" Coax	260.00 - 280.00	1.0000	0.5593
T17	2	3" Coax	260.00 - 280.00	1.0000	0.5593
T17	5	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.5593
T17	6	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.5593
T17	7	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.5593
T17	8	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.5593
T17	9	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.5593
T17	12	CAT5-E (1/4")	260.00 - 280.00	0.6000	0.5593
T17	16	LDF7-50A(1-5/8")	260.00 - 280.00	0.6000	0.5593
T17	17	LDF5-50A(7/8")	260.00 - 280.00	0.6000	0.5593
T17	18	LDF5-50A(7/8")	260.00 - 280.00	0.6000	0.5593
T17	20	4" Flex	260.00 - 280.00	1.0000	0.5593
T17	21	LDF7-50A (1 5/8 FOAM)	260.00 - 280.00	0.6000	0.5593
T17	22	LDF2-50A(3/8") Fiber	260.00 - 280.00	0.6000	0.5593
T17	23	3/4" DC Power Cable	260.00 - 280.00	0.6000	0.5593
T18	1	3" Coax	240.00 - 260.00	1.0000	0.5793
T18	2	3" Coax	240.00 - 260.00	1.0000	0.5793
T18	5	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.5793
T18	6	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.5793
T18	7	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.5793
T18	8	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.5793
T18	9	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.5793
T18	10	LDF5-50A (7/8" FOAM)	240.00 - 250.00	0.6000	0.5793
T18	12	CAT5-E (1/4")	240.00 - 260.00	0.6000	0.5793
T18	16	LDF7-50A(1-5/8")	240.00 - 260.00	0.6000	0.5793
T18	17	LDF5-50A(7/8")	240.00 - 260.00	0.6000	0.5793
T18	18	LDF5-50A(7/8")	240.00 - 260.00	0.6000	0.5793
T18	20	4" Flex	240.00 - 260.00	1.0000	0.5793
T18	21	LDF7-50A (1 5/8 FOAM)	240.00 - 260.00	0.6000	0.5793

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	0.5793
T18	23	3/4" DC Power Cable	240.00 - 260.00	0.6000	0.5793
T19	1	3" Coax	220.00 - 240.00	1.0000	0.5812
T19	2	3" Coax	220.00 - 240.00	1.0000	0.5812
T19	3	5/8" Coax	220.00 - 225.00	0.6000	0.5812
T19	5	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	6	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	7	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	8	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	9	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	10	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	12	CAT5-E (1/4")	220.00 - 240.00	0.6000	0.5812
T19	16	LDF7-50A(1-5/8")	220.00 - 240.00	0.6000	0.5812
T19	17	LDF5-50A(7/8")	220.00 - 240.00	0.6000	0.5812
T19	18	LDF5-50A(7/8")	220.00 - 240.00	0.6000	0.5812
T19	20	4" Flex	220.00 - 240.00	1.0000	0.5812
T19	21	LDF7-50A (1 5/8 FOAM)	220.00 - 240.00	0.6000	0.5812
T19	22	LDF2-50A(3/8") Fiber	220.00 - 240.00	0.6000	0.5812
T19	23	3/4" DC Power Cable	220.00 - 240.00	0.6000	0.5812
T20	1	3" Coax	200.00 - 220.00	1.0000	0.5832
T20	2	3" Coax	200.00 - 220.00	1.0000	0.5832
T20	3	5/8" Coax	200.00 - 220.00	0.6000	0.5832
T20	5	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	6	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	7	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	8	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	9	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	10	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	12	CAT5-E (1/4")	200.00 - 220.00	0.6000	0.5832
T20	16	LDF7-50A(1-5/8")	200.00 - 220.00	0.6000	0.5832
T20	17	LDF5-50A(7/8")	200.00 - 220.00	0.6000	0.5832

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	0.5832
T20	20	4" Flex	200.00 - 220.00	1.0000	0.5832
T20	21	LDF7-50A (1 5/8 FOAM)	200.00 - 220.00	0.6000	0.5832
T20	22	LDF2-50A(3/8") Fiber	200.00 - 220.00	0.6000	0.5832
T20	23	3/4" DC Power Cable	200.00 - 220.00	0.6000	0.5832
T21	1	3" Coax	180.00 - 200.00	1.0000	0.5614
T21	2	3" Coax	180.00 - 200.00	1.0000	0.5614
T21	3	5/8" Coax	180.00 - 200.00	0.6000	0.5614
T21	4	LDF5-50A (7/8" FOAM)	180.00 - 198.00	0.6000	0.5614
T21	5	LDF5-50A (7/8" FOAM)	198.00 - 200.00	0.6000	0.5614
T21	6	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	7	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	8	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	9	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	10	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	11	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	12	CAT5-E (1/4")	180.00 - 200.00	0.6000	0.5614
T21	16	LDF7-50A(1-5/8")	180.00 - 200.00	0.6000	0.5614
T21	17	LDF5-50A(7/8")	180.00 - 200.00	0.6000	0.5614
T21	18	LDF5-50A(7/8")	180.00 - 200.00	0.6000	0.5614
T21	20	4" Flex	180.00 - 200.00	1.0000	0.5614
T21	21	LDF7-50A (1 5/8 FOAM)	180.00 - 200.00	0.6000	0.5614
T21	22	LDF2-50A(3/8") Fiber	180.00 - 200.00	0.6000	0.5614
T21	23	3/4" DC Power Cable	180.00 - 200.00	0.6000	0.5614
T22	1	3" Coax	160.00 - 180.00	1.0000	0.5821
T22	2	3" Coax	160.00 - 180.00	1.0000	0.5821
T22	3	5/8" Coax	160.00 - 180.00	0.6000	0.5821
T22	4	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	6	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	7	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	8	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821

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	0.5821
T22	10	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	11	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	12	CAT5-E (1/4")	160.00 - 180.00	0.6000	0.5821
T22	16	LDF7-50A(1-5/8")	160.00 - 180.00	0.6000	0.5821
T22	17	LDF5-50A(7/8")	160.00 - 180.00	0.6000	0.5821
T22	18	LDF5-50A(7/8")	160.00 - 180.00	0.6000	0.5821
T22	20	4" Flex	160.00 - 180.00	1.0000	0.5821
T22	21	LDF7-50A (1 5/8 FOAM)	160.00 - 180.00	0.6000	0.5821
T22	22	LDF2-50A(3/8") Fiber	160.00 - 180.00	0.6000	0.5821
T22	23	3/4" DC Power Cable	160.00 - 180.00	0.6000	0.5821
T23	1	3" Coax	140.00 - 160.00	1.0000	0.5905
T23	2	3" Coax	140.00 - 160.00	1.0000	0.5905
T23	3	5/8" Coax	140.00 - 160.00	0.6000	0.5905
T23	4	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	6	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	7	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	8	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	9	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	10	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	11	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	12	CAT5-E (1/4")	140.00 - 160.00	0.6000	0.5905
T23	16	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.5905
T23	17	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.5905
T23	18	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.5905
T23	20	4" Flex	140.00 - 160.00	1.0000	0.5905
T23	21	LDF7-50A (1 5/8 FOAM)	140.00 - 160.00	0.6000	0.5905
T23	22	LDF2-50A(3/8") Fiber	140.00 - 160.00	0.6000	0.5905
T23	23	3/4" DC Power Cable	140.00 - 160.00	0.6000	0.5905
T24	1	3" Coax	120.00 - 140.00	1.0000	0.5935
T24	2	3" Coax	120.00 - 140.00	1.0000	0.5935

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	0.5935
T24	4	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	6	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	7	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	8	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	9	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	10	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	11	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	12	CAT5-E (1/4")	120.00 - 140.00	0.6000	0.5935
T24	14	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.5935
T24	15	CAT6-Shielded Cable	120.00 - 140.00	0.6000	0.5935
T24	17	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.5935
T24	18	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.5935
T24	20	4" Flex	120.00 - 140.00	1.0000	0.5935
T24	21	LDF7-50A (1 5/8 FOAM)	120.00 - 140.00	0.6000	0.5935
T24	22	LDF2-50A(3/8") Fiber	120.00 - 140.00	0.6000	0.5935
T24	23	3/4" DC Power Cable	120.00 - 140.00	0.6000	0.5935
T25	1	3" Coax	100.00 - 120.00	1.0000	0.5913
T25	2	3" Coax	100.00 - 120.00	1.0000	0.5913
T25	3	5/8" Coax	100.00 - 120.00	0.6000	0.5913
T25	4	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	6	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	7	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	8	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	9	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	10	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	11	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	12	CAT5-E (1/4")	100.00 - 120.00	0.6000	0.5913
T25	14	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.5913
T25	15	CAT6-Shielded Cable	100.00 - 120.00	0.6000	0.5913
T25	17	LDF5-50A(7/8")	100.00 - 120.00	0.6000	0.5913

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	0.5913
T25	20	4" Flex	100.00 - 120.00	1.0000	0.5913
T25	21	LDF7-50A (1 5/8 FOAM)	100.00 - 120.00	0.6000	0.5913
T25	22	LDF2-50A(3/8") Fiber	100.00 - 120.00	0.6000	0.5913
T25	23	3/4" DC Power Cable	100.00 - 120.00	0.6000	0.5913
T26	1	3" Coax	80.00 - 100.00	1.0000	0.5778
T26	2	3" Coax	80.00 - 100.00	1.0000	0.5778
T26	3	5/8" Coax	80.00 - 100.00	0.6000	0.5778
T26	4	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	6	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	7	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	8	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	9	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	10	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	11	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	12	CAT5-E (1/4")	80.00 - 100.00	0.6000	0.5778
T26	14	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.5778
T26	15	CAT6-Shielded Cable	80.00 - 100.00	0.6000	0.5778
T26	17	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.5778
T26	18	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.5778
T26	20	4" Flex	80.00 - 100.00	1.0000	0.5778
T26	21	LDF7-50A (1 5/8 FOAM)	80.00 - 100.00	0.6000	0.5778
T26	22	LDF2-50A(3/8") Fiber	80.00 - 100.00	0.6000	0.5778
T26	23	3/4" DC Power Cable	80.00 - 100.00	0.6000	0.5778
T27	1	3" Coax	60.00 - 80.00	1.0000	0.6000
T27	2	3" Coax	60.00 - 80.00	1.0000	0.6000
T27	3	5/8" Coax	60.00 - 80.00	0.6000	0.6000
T27	4	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	6	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	7	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	8	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	9	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	10	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	11	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	12	CAT5-E (1/4")	60.00 - 80.00	0.6000	0.6000
T27	14	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T27	15	CAT6-Shielded Cable	60.00 - 80.00	0.6000	0.6000
T27	17	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.6000
T27	18	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.6000
T27	20	4" Flex	60.00 - 80.00	1.0000	0.6000
T27	21	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T27	22	LDF2-50A(3/8") Fiber	60.00 - 80.00	0.6000	0.6000
T27	23	3/4" DC Power Cable	60.00 - 80.00	0.6000	0.6000
T28	1	3" Coax	40.00 - 60.00	0.6000	0.6000
T28	2	3" Coax	40.00 - 60.00	0.6000	0.6000
T28	3	5/8" Coax	40.00 - 60.00	0.6000	0.6000
T28	4	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	6	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	7	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	8	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	9	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	10	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	11	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	12	CAT5-E (1/4")	40.00 - 60.00	0.6000	0.6000
T28	13	LDF4-50A(1/2") Synflex Tubing	40.00 - 50.00	0.6000	0.6000
T28	14	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000

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	0.6000
T28	17	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T28	18	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T28	20	4" Flex	40.00 - 60.00	1.0000	0.6000
T28	21	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T28	22	LDF2-50A(3/8") Fiber	40.00 - 60.00	0.6000	0.6000
T28	23	3/4" DC Power Cable	40.00 - 60.00	0.6000	0.6000
T29	1	3" Coax	20.00 - 40.00	0.6000	0.6000
T29	2	3" Coax	20.00 - 40.00	0.6000	0.6000
T29	3	5/8" Coax	20.00 - 40.00	0.6000	0.6000
T29	4	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	6	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	7	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	8	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	9	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	10	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	11	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	12	CAT5-E (1/4")	20.00 - 40.00	0.6000	0.6000
T29	13	LDF4-50A(1/2") Synflex Tubing	20.00 - 40.00	0.6000	0.6000
T29	14	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T29	15	CAT6-Shielded Cable	20.00 - 40.00	0.6000	0.6000
T29	17	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T29	18	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T29	19	LDF2-50A(3/8")	20.00 - 28.00	0.6000	0.6000
T29	20	4" Flex	20.00 - 40.00	1.0000	0.6000
T29	21	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T29	22	LDF2-50A(3/8") Fiber	20.00 - 40.00	0.6000	0.6000
T29	23	3/4" DC Power Cable	20.00 - 40.00	0.6000	0.6000
T30	1	3" Coax	8.00 - 20.00	0.6000	0.6000
T30	2	3" Coax	8.00 - 20.00	0.6000	0.6000
T30	3	5/8" Coax	8.00 - 20.00	0.6000	0.6000
T30	4	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	6	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	7	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	8	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	9	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	10	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	11	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	12	CAT5-E (1/4")	8.00 - 20.00	0.6000	0.6000
T30	13	LDF4-50A(1/2") Synflex Tubing	8.00 - 20.00	0.6000	0.6000
T30	14	LDF7-50A(1-5/8")	8.00 - 20.00	0.6000	0.6000
T30	15	CAT6-Shielded Cable	8.00 - 20.00	0.6000	0.6000
T30	17	LDF5-50A(7/8")	8.00 - 20.00	0.6000	0.6000
T30	18	LDF5-50A(7/8")	8.00 - 20.00	0.6000	0.6000
T30	19	LDF2-50A(3/8")	8.00 - 20.00	0.6000	0.6000
T30	20	4" Flex	8.00 - 20.00	1.0000	0.6000
T30	21	LDF7-50A (1 5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T30	22	LDF2-50A(3/8") Fiber	8.00 - 20.00	0.6000	0.6000
T30	23	3/4" DC Power Cable	8.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
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 ft^2	C_AA_A Side ft^2	Weight K
3' Stand-off	C	From Leg	1.500	0.0000	375.000	No Ice	0.500	0.500	0.010
(MCLM)			0.000			1/2" Ice	0.700	0.700	0.015
			0.000			1" Ice	0.900	0.900	0.020
Kathrein 754154	C	From Leg	1.000	0.0000	465.000	No Ice	23.000	23.000	0.354
(Office Radio)			0.000			1/2" Ice	30.000	30.000	0.460
			0.000			1" Ice	37.000	37.000	0.566
Scala FM10 yagi	C	From Leg	3.000	0.0000	28.000	No Ice	4.108	2.900	0.022
(Office Radio)			0.000			1/2" Ice	4.368	3.131	0.058
			0.000			1" Ice	4.634	3.370	0.098
5' Stand Off	B	From Leg	2.500	0.0000	520.000	No Ice	5.500	5.500	0.129
(Tyche Media)			0.000			1/2" Ice	6.900	6.900	0.170
			0.000			1" Ice	8.300	8.300	0.211
ERI ALP8L1-HSB-34	B	From Leg	5.000	0.0000	540.000 -	No Ice	30.240	17.170	0.229
(Tyche Media)			0.000		520.000	1/2" Ice	40.570	26.590	0.466
			0.000			1" Ice	50.900	36.010	0.704
****ATT****									
Sabre C10857001C-MC	C	None		0.0000	280.000	No Ice	30.000	30.000	1.500
(AT&T)						1/2" Ice	35.000	35.000	1.750
						1" Ice	40.000	40.000	2.000
(2) LGP21401	A	From Leg	4.000	0.0000	280.000	No Ice	1.104	0.347	0.014
(AT&T)			0.000			1/2" Ice	1.239	0.442	0.021
			0.000			1" Ice	1.381	0.544	0.030
(2) LGP21401	B	From Leg	4.000	0.0000	280.000	No Ice	1.104	0.347	0.014
(AT&T)			0.000			1/2" Ice	1.239	0.442	0.021
			0.000			1" Ice	1.381	0.544	0.030
(2) LGP21401	C	From Leg	4.000	0.0000	280.000	No Ice	1.104	0.347	0.014
(AT&T)			0.000			1/2" Ice	1.239	0.442	0.021
			0.000			1" Ice	1.381	0.544	0.030
CCI HPA-65R-BUU-H6	B	From Leg	4.000	0.0000	280.000	No Ice	9.486	6.423	0.043
(AT&T)			0.000			1/2" Ice	9.956	6.888	0.105
			0.000			1" Ice	10.434	7.360	0.173
CCI HPA-65R-BUU-H6	C	From Leg	4.000	0.0000	280.000	No Ice	9.486	6.423	0.043
(AT&T)			0.000			1/2" Ice	9.956	6.888	0.105
			0.000			1" Ice	10.434	7.360	0.173
Powerwave 7770 (55x11x5)	A	From Leg	4.000	0.0000	280.000	No Ice	5.508	2.928	0.035
(AT&T)			0.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
Powerwave 7770 (55x11x5)	B	From Leg	4.000	0.0000	280.000	No Ice	5.508	2.928	0.035
(AT&T)			0.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
Powerwave 7770 (55x11x5)	C	From Leg	4.000	0.0000	280.000	No Ice	5.508	2.928	0.035
(AT&T)			0.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
SBNHH-1D65A w/ Mount Pipe	A	From Leg	4.000	0.0000	280.000	No Ice	6.120	5.190	0.054
(AT&T)			0.000			1/2" Ice	6.558	5.961	0.108
			0.000			1" Ice	6.990	6.658	0.168
SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.000	0.0000	280.000	No Ice	6.120	5.190	0.054
(AT&T)			0.000			1/2" Ice	6.558	5.961	0.108
			0.000			1" Ice	6.990	6.658	0.168
DC6-48-60-18-8C	A	From Leg	4.000	0.0000	280.000	No Ice	4.818	2.901	0.019
(AT&T)			0.000			1/2" Ice	5.098	3.130	0.057
			0.000			1" Ice	5.385	3.366	0.100
DC6-48-60-18-8C	A	From Leg	4.000	0.0000	280.000	No Ice	4.818	2.901	0.019
(AT&T)			0.000			1/2" Ice	5.098	3.130	0.057
			0.000			1" Ice	5.385	3.366	0.100
DC6-48-60-18-8C	A	From Leg	4.000	0.0000	280.000	No Ice	4.818	2.901	0.019
(AT&T)			0.000			1/2" Ice	5.098	3.130	0.057

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	5.385	3.366	0.100
Kathrein 800-10965K	A	From Leg	4.000	0.0000	280.000	No Ice	15.303	5.833	0.109
(78.7x20x6.9)			0.000			1/2" Ice	15.947	6.324	0.185
(AT&T)			0.000			1" Ice	16.600	6.821	0.269
Kathrein 800-10965K	B	From Leg	4.000	0.0000	280.000	No Ice	15.303	5.833	0.109
(78.7x20x6.9)			0.000			1/2" Ice	15.947	6.324	0.185
(AT&T)			0.000			1" Ice	16.600	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	8.088	5.548	0.042
(71.1x11.7x7.6)			0.000			1/2" Ice	8.629	5.999	0.092
(AT&T)			0.000			1" Ice	9.178	6.457	0.149
CCI HPA-65R-BU6AA	C	From Leg	4.000	0.0000	280.000	No Ice	8.088	5.548	0.042
(71.1x11.7x7.6)			0.000			1/2" Ice	8.629	5.999	0.092
(AT&T)			0.000			1" Ice	9.178	6.457	0.149
Commscope	B	From Leg	3.000	0.0000	280.000	No Ice	0.989	0.644	0.035
WCS-IMFQ-AMT-R40			0.000			1/2" Ice	1.114	0.748	0.045
(AT&T)			0.000			1" Ice	1.246	0.860	0.056

Dishes

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 ft²	Weight K
4' Dish w/o Radome (iHeart Media)	A	Paraboloid w/o Radome	From Leg	2.000 0.000 0.000	0.0000		425.000	4.000	No Ice 1/2" Ice 1" Ice	12.566 13.095 13.624	0.080 0.147 0.214
5' HP Dish (230lbs 24.77CaAa) (Unknown)	B	Paraboloid w/Shroud (HP)	From Leg	2.000 0.000 0.000	0.0000		480.000	5.000	No Ice 1/2" Ice 1" Ice	19.630 20.290 20.950	0.230 0.334 0.438
8' Dish w/ Radome (Meridith)	C	Paraboloid w/Radome	From Leg	1.000 0.000 0.000	0.0000		140.000	8.000	No Ice 1/2" Ice 1" Ice	50.265 51.318 52.371	0.300 0.563 0.827
Scala PR450 (iHeart Media)	C	Passive Reflector	From Leg	1.000 0.000 0.000	0.0000		394.000	6.000	No Ice 1/2" Ice 1" Ice	28.270 29.070 29.860	0.030 0.170 0.320
Scala PR450 (iHeart Media)	C	Passive Reflector	From Leg	1.000 0.000 0.000	0.0000		198.000	6.000	No Ice 1/2" Ice 1" Ice	28.270 29.070 29.860	0.030 0.170 0.320
MRC Proscann III (Meridith)	C	Paraboloid w/o Radome	From Leg	1.000 0.000 0.000	0.0000		400.000	5.610	No Ice 1/2" Ice 1" Ice	24.718 25.458 26.198	0.185 0.316 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 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	0.056	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	0.055	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	2.936	0.000
T2	570.000	1.826	0.055	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	5.889	0.000
T3	550.000	1.812	0.055	103.750	A	6.016	10.679	7.500	44.93	2.958	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	5.911	0.000
T4	530.000	1.798	0.054	104.167	A	7.387	12.131	8.333	42.69	5.934	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	5.934	0.000
T5	510.000	1.783	0.054	104.167	A	5.990	11.498	8.333	47.65	5.958	0.000
520.000-500.0					B	5.990	11.498		47.65	11.958	0.000
00					C	5.990	11.498		47.65	5.958	0.000
T6	490.000	1.769	0.053	104.167	A	5.990	11.498	8.333	47.65	5.983	0.000
500.000-480.0					B	5.990	11.498		47.65	11.983	0.000
00					C	5.990	11.498		47.65	5.983	0.000
T7	470.000	1.753	0.053	104.583	A	7.355	12.948	9.167	45.15	6.009	0.000
480.000-460.0					B	7.355	12.948		45.15	12.554	0.000
00					C	7.355	12.948		45.15	6.009	0.000
T8	450.000	1.737	0.052	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	14.217	0.000
00					C	5.964	12.948		48.47	6.020	0.000
T9	430.000	1.721	0.052	104.583	A	5.964	12.318	9.167	50.14	6.020	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
440.000-420.0					B	5.964	12.318		50.14	14.246	0.000
00					C	5.964	12.318		50.14	6.020	0.000
T10	410.000	1.703	0.051	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	14.277	0.000
00					C	5.964	12.318		50.14	6.020	0.000
T11	390.000	1.686	0.051	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	14.309	0.000
00					C	5.964	12.318		50.14	9.980	0.000
T12	370.000	1.667	0.050	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	14.343	0.000
00					C	6.927	14.393		46.91	11.615	0.000
T13	350.000	1.648	0.050	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	14.379	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T14	330.000	1.627	0.049	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	14.417	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T15	310.000	1.606	0.048	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	14.459	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T16	290.000	1.584	0.048	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	14.503	0.000
00					C	5.911	14.582		52.86	12.160	0.000
T17	270.000	1.56	0.047	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	14.551	0.000
00					C	7.291	14.582		49.53	47.220	0.000
T18	250.000	1.535	0.046	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	14.602	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T19	230.000	1.508	0.045	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	14.659	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T20	210.000	1.48	0.045	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	14.721	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T21	190.000	1.449	0.044	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	14.791	0.000
00					C	7.291	15.207		48.15	47.220	0.000
T22	170.000	1.415	0.043	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	14.868	0.000
00					C	5.911	14.582		52.86	47.220	0.000
T23	150.000	1.378	0.042	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	14.957	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T24	130.000	1.337	0.040	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	15.060	0.000
00					C	5.911	13.957		54.52	51.680	0.000
T25	110.000	1.291	0.039	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	15.182	0.000
00					C	5.911	14.582		52.86	51.680	0.000
T26	90.000	1.238	0.037	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	15.332	0.000
0					C	7.259	15.399		51.49	51.680	0.000
T27	70.000	1.174	0.035	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	15.523	0.000
					C	5.885	14.777		56.46	51.680	0.000
T28	50.000	1.094	0.033	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	15.788	0.000
					C	5.885	14.777		56.46	53.570	0.000
T29	30.000	0.982	0.030	105.833	A	5.885	14.777	11.667	56.46	23.310	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
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	0.026	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	0.026	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	1.3384	36.924	A	0.000	36.924	36.924	100.00	0.000	0.000
625.000-592.000						B	0.000	36.924		100.00	0.000	0.000
						C	0.000	36.924		100.00	0.000	0.000
T1	586.000	1.836	0.010	1.3333	64.917	A	5.414	24.471	9.833	32.90	0.000	0.000
592.000-580.000						B	5.414	24.471		32.90	7.518	0.000
						C	5.414	24.471		32.90	5.677	0.000
T2	570.000	1.826	0.010	1.3296	108.182	A	6.016	39.468	16.364	35.98	0.000	0.000
580.000-560.000						B	6.016	39.468		35.98	12.503	0.000
						C	6.016	39.468		35.98	11.339	0.000
T3	550.000	1.812	0.010	1.3249	108.166	A	6.016	39.365	16.333	35.99	5.660	0.000
560.000-540.000						B	6.016	39.365		35.99	12.470	0.000
						C	6.016	39.365		35.99	11.320	0.000
T4	530.000	1.798	0.010	1.3200	108.567	A	7.387	40.626	17.133	35.68	11.300	0.000
540.000-520.000						B	7.387	40.626		35.68	12.435	0.000
						C	7.387	40.626		35.68	11.300	0.000
T5	510.000	1.783	0.009	1.3149	108.550	A	5.990	39.883	17.100	37.28	11.280	0.000
520.000-500.000						B	5.990	39.883		37.28	25.659	0.000
						C	5.990	39.883		37.28	11.280	0.000
T6	490.000	1.769	0.009	1.3097	108.532	A	5.990	39.770	17.065	37.29	11.259	0.000
500.000-480.000						B	5.990	39.770		37.29	25.601	0.000
						C	5.990	39.770		37.29	11.259	0.000
T7	470.000	1.753	0.009	1.3042	108.931	A	7.355	41.018	17.862	36.92	11.237	0.000
480.000-460.000						B	7.355	41.018		36.92	27.390	0.000
						C	7.355	41.018		36.92	11.237	0.000
T8	450.000	1.737	0.009	1.2986	108.912	A	5.964	40.896	17.824	38.04	11.214	0.000
460.000-440.000						B	5.964	40.896		38.04	32.853	0.000
						C	5.964	40.896		38.04	11.214	0.000
T9	430.000	1.721	0.009	1.2927	108.892	A	5.964	40.139	17.785	38.58	11.191	0.000
440.000-420.000						B	5.964	40.139		38.58	32.764	0.000
						C	5.964	40.139		38.58	11.191	0.000
T10	410.000	1.703	0.009	1.2866	108.872	A	5.964	40.007	17.744	38.60	11.166	0.000
420.000-400.000						B	5.964	40.007		38.60	32.671	0.000
						C	5.964	40.007		38.60	11.166	0.000
T11	390.000	1.686	0.009	1.2801	108.850	A	5.964	39.869	17.701	38.62	30.073	0.000
400.000-380.000						B	5.964	39.869		38.62	32.575	0.000
						C	5.964	39.869		38.62	20.221	0.000
T12	370.000	1.667	0.009	1.2734	109.245	A	6.927	41.716	18.489	38.01	31.689	0.000
380.000-360.000						B	6.927	41.716		38.01	32.473	0.000
						C	6.927	41.716		38.01	25.623	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
T13	350.000	1.648	0.009	1.2664	109.221	A	5.938	40.309	18.442	39.88	38.740	0.000
360.000-340.000						B	5.938	40.309		39.88	32.367	0.000
						C	5.938	40.309		39.88	27.356	0.000
T14	330.000	1.627	0.009	1.2589	109.196	A	5.938	40.150	18.393	39.91	45.043	0.000
340.000-320.000						B	5.938	40.150		39.91	32.255	0.000
						C	5.938	40.150		39.91	27.267	0.000
T15	310.000	1.606	0.009	1.2511	109.170	A	5.938	39.982	18.341	39.94	44.863	0.000
320.000-300.000						B	5.938	39.982		39.94	32.137	0.000
						C	5.938	39.982		39.94	27.173	0.000
T16	290.000	1.584	0.008	1.2428	109.559	A	5.911	41.167	19.118	40.61	51.392	0.000
300.000-280.000						B	5.911	41.167		40.61	32.012	0.000
						C	5.911	41.167		40.61	27.073	0.000
T17	270.000	1.56	0.008	1.2339	109.530	A	7.291	40.978	19.059	39.49	51.153	0.000
280.000-260.000						B	7.291	40.978		39.49	31.878	0.000
						C	7.291	40.978		39.49	95.455	0.000
T18	250.000	1.535	0.008	1.2245	109.498	A	5.911	40.151	18.996	41.24	54.221	0.000
260.000-240.000						B	5.911	40.151		41.24	31.736	0.000
						C	5.911	40.151		41.24	95.153	0.000
T19	230.000	1.508	0.008	1.2143	109.464	A	5.911	39.933	18.929	41.29	58.829	0.000
240.000-220.000						B	5.911	39.933		41.29	31.583	0.000
						C	5.911	39.933		41.29	94.828	0.000
T20	210.000	1.48	0.008	1.2033	109.428	A	5.911	39.698	18.855	41.34	63.242	0.000
220.000-200.000						B	5.911	39.698		41.34	31.417	0.000
						C	5.911	39.698		41.34	94.477	0.000
T21	190.000	1.449	0.008	1.1913	109.388	A	7.291	40.691	18.775	39.13	70.939	0.000
200.000-180.000						B	7.291	40.691		39.13	31.236	0.000
						C	7.291	40.691		39.13	94.095	0.000
T22	170.000	1.415	0.008	1.1781	109.344	A	5.911	39.784	18.688	40.90	70.604	0.000
180.000-160.000						B	5.911	39.784		40.90	31.038	0.000
						C	5.911	39.784		40.90	93.675	0.000
T23	150.000	1.378	0.007	1.1635	109.295	A	5.911	38.846	18.590	41.53	70.034	0.000
160.000-140.000						B	5.911	38.846		41.53	30.817	0.000
						C	5.911	38.846		41.53	93.208	0.000
T24	130.000	1.337	0.007	1.1469	109.240	A	5.911	38.492	18.480	41.62	69.390	0.000
140.000-120.000						B	5.911	38.492		41.62	30.568	0.000
						C	5.911	38.492		41.62	108.158	0.000
T25	110.000	1.291	0.007	1.1279	109.176	A	5.911	38.711	18.353	41.13	68.651	0.000
120.000-100.000						B	5.911	38.711		41.13	30.282	0.000
						C	5.911	38.711		41.13	107.420	0.000
T26	90.000	1.238	0.007	1.1055	109.518	A	7.259	38.977	19.037	41.17	67.779	0.000
100.000-80.000						B	7.259	38.977		41.17	29.944	0.000
						C	7.259	38.977		41.17	106.551	0.000
T27	70.000	1.174	0.006	1.0781	109.427	A	5.885	37.769	18.854	43.19	66.712	0.000
80.000-60.000						B	5.885	37.769		43.19	29.531	0.000
						C	5.885	37.769		43.19	105.487	0.000
T28	50.000	1.094	0.006	1.0424	109.308	A	5.885	37.009	18.616	43.40	65.324	0.000
60.000-40.000						B	5.885	37.009		43.40	28.993	0.000
						C	5.885	37.009		43.40	110.122	0.000
T29	30.000	0.982	0.005	0.9905	109.135	A	5.885	35.901	18.270	43.72	63.306	0.000
40.000-20.000						B	5.885	35.901		43.72	30.148	0.000
						C	5.885	35.901		43.72	113.769	0.000
T30	14.000	0.85	0.005	0.9178	65.336	A	3.924	20.852	10.671	43.07	36.288	0.000
20.000-8.000						B	3.924	20.852		43.07	19.001	0.000
						C	3.924	20.852		43.07	66.273	0.000
T31 8.000-0.000	4.000	0.85	0.005	0.8098	23.576	A	6.787	10.807	7.257	41.25	0.000	0.000
						B	6.787	10.807		41.25	0.000	0.000
						C	6.787	10.807		41.25	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	2.936	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	5.889	0.000
T3	550.000	1.812	0.014	103.750	A	6.016	10.679	7.500	44.93	2.958	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	5.911	0.000
T4	530.000	1.798	0.014	104.167	A	7.387	12.131	8.333	42.69	5.934	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	5.934	0.000
T5	510.000	1.783	0.014	104.167	A	5.990	11.498	8.333	47.65	5.958	0.000
520.000-500.0					B	5.990	11.498		47.65	11.958	0.000
00					C	5.990	11.498		47.65	5.958	0.000
T6	490.000	1.769	0.014	104.167	A	5.990	11.498	8.333	47.65	5.983	0.000
500.000-480.0					B	5.990	11.498		47.65	11.983	0.000
00					C	5.990	11.498		47.65	5.983	0.000
T7	470.000	1.753	0.013	104.583	A	7.355	12.948	9.167	45.15	6.009	0.000
480.000-460.0					B	7.355	12.948		45.15	12.554	0.000
00					C	7.355	12.948		45.15	6.009	0.000
T8	450.000	1.737	0.013	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	14.217	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	14.246	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	14.277	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	14.309	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	14.343	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	14.379	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T14	330.000	1.627	0.012	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	14.417	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T15	310.000	1.606	0.012	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	14.459	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	14.503	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	14.551	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	7.291	14.582		49.53	47.220	0.000
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	14.602	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	14.659	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T20	210.000	1.48	0.011	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	14.721	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	14.791	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	14.868	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	14.957	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	15.060	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	15.182	0.000
00					C	5.911	14.582		52.86	51.680	0.000
T26	90.000	1.238	0.009	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	15.332	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	15.523	0.000
					C	5.885	14.777		56.46	51.680	0.000
T28	50.000	1.094	0.008	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	15.788	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	0.056	1	1	29.563	1.335	0.040	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	0.055	1	1	9.301	1.321	0.110	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	0.055	1	1	12.089	1.888	0.094	B

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
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	0.055	1	1	12.089	2.013	0.101	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	0.054	1	1	14.331	2.355	0.118	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	0.054	1	1	12.539	2.434	0.122	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	0.053	1	1	12.539	2.417	0.121	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	0.053	1	1	14.781	2.626	0.131	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	0.052	1	1	13.362	2.510	0.125	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	0.052	1	1	12.991	2.456	0.123	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	0.051	1	1	12.991	2.432	0.122	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	0.051	1	1	12.991	2.623	0.131	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	0.050	1	1	15.203	2.839	0.142	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	0.050	1	1	13.446	2.718	0.136	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	0.049	1	1	13.446	2.727	0.136	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	0.048	1	1	13.446	2.693	0.135	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	0.048	1	1	14.235	2.760	0.138	A
300.000-280.0			B	0.194	2.615		1	1	14.235			
00			C	0.194	2.615		1	1	14.235			
T17	0.312	2.516	A	0.207	2.571	0.047	1	1	15.660	3.664	0.183	C
280.000-260.0			B	0.207	2.571		1	1	15.660			
00			C	0.207	2.571		1	1	15.660			
T18	0.315	2.169	A	0.188	2.635	0.046	1	1	13.885	3.483	0.174	C
260.000-240.0			B	0.188	2.635		1	1	13.885			
00			C	0.188	2.635		1	1	13.885			
T19	0.324	2.169	A	0.188	2.635	0.045	1	1	13.898	3.455	0.173	C
240.000-220.0			B	0.188	2.635		1	1	13.898			
00			C	0.188	2.635		1	1	13.898			
T20	0.340	2.169	A	0.188	2.635	0.045	1	1	13.903	3.419	0.171	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	0.044	1	1	16.064	3.562	0.178	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	0.043	1	1	14.274	3.350	0.168	C

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
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	0.042	1	1	13.903	3.242	0.162	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	0.040	1	1	13.903	3.241	0.162	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	0.039	1	1	14.274	3.156	0.158	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	0.037	1	1	16.145	3.152	0.158	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	0.035	1	1	14.362	2.885	0.144	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	0.033	1	1	14.362	2.592	0.130	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	0.030	1	1	14.362	2.372	0.119	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	0.026	1	1	9.012	1.254	0.104	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	0.026	1	1	10.249	0.417	0.052	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								83.390		

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 ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.056	1	1	29.563	1.335	0.040	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	0.055	0.8	1	8.218	1.189	0.099	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	0.055	0.8	1	10.886	1.735	0.087	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	0.055	0.8	1	10.886	1.860	0.093	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	0.054	0.8	1	12.854	2.176	0.109	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	0.054	0.8	1	11.341	2.286	0.114	C
520.000-500.0			B	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 ft²	F K	w klf	Ctrl. Face
00			C	0.168	2.707		0.8	1	11.341			
T6	0.071	1.477	A	0.168	2.707	0.053	0.8	1	11.341	2.270	0.113	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	0.053	0.8	1	13.310	2.453	0.123	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	0.052	0.8	1	12.169	2.368	0.118	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	0.052	0.8	1	11.799	2.315	0.116	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	0.051	0.8	1	11.799	2.293	0.115	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	0.051	0.8	1	11.799	2.485	0.124	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	0.050	0.8	1	13.818	2.687	0.134	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	0.050	0.8	1	12.258	2.585	0.129	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	0.049	0.8	1	12.258	2.596	0.130	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	0.048	0.8	1	12.258	2.564	0.128	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	0.048	0.8	1	13.052	2.635	0.132	B
300.000-280.0			B	0.194	2.615		0.8	1	13.052			
00			C	0.194	2.615		0.8	1	13.052			
T17	0.312	2.516	A	0.207	2.571	0.047	0.8	1	14.202	3.514	0.176	A
280.000-260.0			B	0.207	2.571		0.8	1	14.202			
00			C	0.207	2.571		0.8	1	14.202			
T18	0.315	2.169	A	0.188	2.635	0.046	0.8	1	12.703	3.361	0.168	A
260.000-240.0			B	0.188	2.635		0.8	1	12.703			
00			C	0.188	2.635		0.8	1	12.703			
T19	0.324	2.169	A	0.188	2.635	0.045	0.8	1	12.716	3.335	0.167	A
240.000-220.0			B	0.188	2.635		0.8	1	12.716			
00			C	0.188	2.635		0.8	1	12.716			
T20	0.340	2.169	A	0.188	2.635	0.045	0.8	1	12.720	3.301	0.165	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	0.044	0.8	1	14.606	3.424	0.171	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	0.043	0.8	1	13.092	3.238	0.162	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	0.042	0.8	1	12.720	3.132	0.157	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	0.040	0.8	1	12.720	3.134	0.157	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	0.039	0.8	1	13.092	3.054	0.153	A
120.000-100.0			B	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 ft²	F K	w klf	Ctrl. Face
00			C	0.194	2.615		0.8	1	13.092			
T26	0.377	2.787	A	0.214	2.55	0.037	0.8	1	14.693	3.034	0.152	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	0.035	0.8	1	13.185	2.793	0.140	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	0.033	0.8	1	13.185	2.506	0.125	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	0.030	0.8	1	13.185	2.294	0.115	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	0.026	0.8	1	8.227	1.210	0.101	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	0.026	0.8	1	8.892	0.362	0.045	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								79.521		

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 ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.056	1	1	29.563	1.335	0.040	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	0.055	0.85	1	8.489	1.219	0.102	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	0.055	0.85	1	11.187	1.769	0.088	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	0.055	0.85	1	11.187	1.894	0.095	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	0.054	0.85	1	13.223	2.217	0.111	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	0.054	0.85	1	11.641	2.318	0.116	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	0.053	0.85	1	11.641	2.302	0.115	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	0.053	0.85	1	13.677	2.492	0.125	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	0.052	0.85	1	12.467	2.400	0.120	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			

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
T9	0.078	1.688	A	0.175	2.682	0.052	0.85	1	12.097	2.346	0.117	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	0.051	0.85	1	12.097	2.324	0.116	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	0.051	0.85	1	12.097	2.528	0.126	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	0.050	0.85	1	14.164	2.733	0.137	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	0.050	0.85	1	12.555	2.626	0.131	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	0.049	0.85	1	12.555	2.637	0.132	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	0.048	0.85	1	12.555	2.604	0.130	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	0.048	0.85	1	13.348	2.674	0.134	C
300.000-280.0			B	0.194	2.615		0.85	1	13.348			
00			C	0.194	2.615		0.85	1	13.348			
T17	0.312	2.516	A	0.207	2.571	0.047	0.85	1	14.566	3.558	0.178	B
280.000-260.0			B	0.207	2.571		0.85	1	14.566			
00			C	0.207	2.571		0.85	1	14.566			
T18	0.315	2.169	A	0.188	2.635	0.046	0.85	1	12.999	3.398	0.170	B
260.000-240.0			B	0.188	2.635		0.85	1	12.999			
00			C	0.188	2.635		0.85	1	12.999			
T19	0.324	2.169	A	0.188	2.635	0.045	0.85	1	13.011	3.371	0.169	B
240.000-220.0			B	0.188	2.635		0.85	1	13.011			
00			C	0.188	2.635		0.85	1	13.011			
T20	0.340	2.169	A	0.188	2.635	0.045	0.85	1	13.016	3.336	0.167	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	0.044	0.85	1	14.971	3.488	0.174	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	0.043	0.85	1	13.388	3.298	0.165	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	0.042	0.85	1	13.016	3.190	0.160	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	0.040	0.85	1	13.016	3.191	0.160	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	0.039	0.85	1	13.388	3.108	0.155	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	0.037	0.85	1	15.056	3.091	0.155	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	0.035	0.85	1	13.479	2.842	0.142	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	0.033	0.85	1	13.479	2.552	0.128	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			

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
T29	0.386	2.439	A	0.195	2.612	0.030	0.85	1	13.479	2.336	0.117	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	0.026	0.85	1	8.423	1.232	0.103	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	0.026	0.85	1	9.231	0.376	0.047	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								80.784		

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 ft²	F K	w klf	Ctrl. Face
L1	0.000	1.989	A	1	1.2	0.010	1	1	36.924	0.589	0.018	C
625.000-592.0			B	1	1.2		1	1	36.924			
00			C	1	1.2		1	1	36.924			
T1	0.136	2.235	A	0.46	1.957	0.010	1	1	21.672	0.402	0.033	B
592.000-580.0			B	0.46	1.957		1	1	21.672			
00			C	0.46	1.957		1	1	21.672			
T2	0.255	2.951	A	0.42	2.025	0.010	1	1	31.485	0.624	0.031	B
580.000-560.0			B	0.42	2.025		1	1	31.485			
00			C	0.42	2.025		1	1	31.485			
T3	0.342	2.942	A	0.42	2.027	0.010	1	1	31.403	0.645	0.032	B
560.000-540.0			B	0.42	2.027		1	1	31.403			
00			C	0.42	2.027		1	1	31.403			
T4	0.428	3.596	A	0.442	1.986	0.010	1	1	34.018	0.693	0.035	B
540.000-520.0			B	0.442	1.986		1	1	34.018			
00			C	0.442	1.986		1	1	34.018			
T5	0.597	3.139	A	0.423	2.021	0.009	1	1	31.767	0.726	0.036	B
520.000-500.0			B	0.423	2.021		1	1	31.767			
00			C	0.423	2.021		1	1	31.767			
T6	0.594	3.129	A	0.422	2.023	0.009	1	1	31.676	0.719	0.036	B
500.000-480.0			B	0.422	2.023		1	1	31.676			
00			C	0.422	2.023		1	1	31.676			
T7	0.612	3.800	A	0.444	1.983	0.009	1	1	34.279	0.744	0.037	B
480.000-460.0			B	0.444	1.983		1	1	34.279			
00			C	0.444	1.983		1	1	34.279			
T8	0.671	3.469	A	0.43	2.007	0.009	1	1	32.540	0.745	0.037	B
460.000-440.0			B	0.43	2.007		1	1	32.540			
00			C	0.43	2.007		1	1	32.540			
T9	0.667	3.333	A	0.423	2.02	0.009	1	1	31.920	0.734	0.037	B
440.000-420.0			B	0.423	2.02		1	1	31.920			
00			C	0.423	2.02		1	1	31.920			
T10	0.663	3.322	A	0.422	2.022	0.009	1	1	31.814	0.725	0.036	B
420.000-400.0			B	0.422	2.022		1	1	31.814			
00			C	0.422	2.022		1	1	31.814			
T11	0.933	3.310	A	0.421	2.024	0.009	1	1	31.703	0.824	0.041	A
400.000-380.0			B	0.421	2.024		1	1	31.703			
00			C	0.421	2.024		1	1	31.703			
T12	1.005	4.151	A	0.445	1.981	0.009	1	1	34.334	0.860	0.043	A

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
380.000-360.0			B	0.445	1.981		1	1	34.334			
00			C	0.445	1.981		1	1	34.334			
T13	1.095	3.539	A	0.423	2.019	0.009	1	1	32.005	0.875	0.044	A
360.000-340.0			B	0.423	2.019		1	1	32.005			
00			C	0.423	2.019		1	1	32.005			
T14	1.155	3.526	A	0.422	2.022	0.009	1	1	31.877	0.890	0.045	A
340.000-320.0			B	0.422	2.022		1	1	31.877			
00			C	0.422	2.022		1	1	31.877			
T15	1.146	3.512	A	0.421	2.025	0.009	1	1	31.742	0.877	0.044	A
320.000-300.0			B	0.421	2.025		1	1	31.742			
00			C	0.421	2.025		1	1	31.742			
T16	1.208	3.894	A	0.43	2.008	0.008	1	1	32.653	0.893	0.045	A
300.000-280.0			B	0.43	2.008		1	1	32.653			
00			C	0.43	2.008		1	1	32.653			
T17	1.890	4.195	A	0.441	1.989	0.008	1	1	34.122	1.126	0.056	C
280.000-260.0			B	0.441	1.989		1	1	34.122			
00			C	0.441	1.989		1	1	34.122			
T18	1.909	3.737	A	0.421	2.025	0.008	1	1	31.826	1.117	0.056	C
260.000-240.0			B	0.421	2.025		1	1	31.826			
00			C	0.421	2.025		1	1	31.826			
T19	1.945	3.719	A	0.419	2.028	0.008	1	1	31.652	1.115	0.056	C
240.000-220.0			B	0.419	2.028		1	1	31.652			
00			C	0.419	2.028		1	1	31.652			
T20	1.986	3.700	A	0.417	2.032	0.008	1	1	31.464	1.110	0.056	C
220.000-200.0			B	0.417	2.032		1	1	31.464			
00			C	0.417	2.032		1	1	31.464			
T21	2.052	4.328	A	0.439	1.993	0.008	1	1	33.895	1.108	0.055	C
200.000-180.0			B	0.439	1.993		1	1	33.895			
00			C	0.439	1.993		1	1	33.895			
T22	2.030	3.777	A	0.418	2.03	0.008	1	1	31.539	1.080	0.054	C
180.000-160.0			B	0.418	2.03		1	1	31.539			
00			C	0.418	2.03		1	1	31.539			
T23	2.002	3.630	A	0.41	2.045	0.007	1	1	30.789	1.051	0.053	C
160.000-140.0			B	0.41	2.045		1	1	30.789			
00			C	0.41	2.045		1	1	30.789			
T24	2.075	3.601	A	0.406	2.051	0.007	1	1	30.511	1.060	0.053	C
140.000-120.0			B	0.406	2.051		1	1	30.511			
00			C	0.406	2.051		1	1	30.511			
T25	2.038	3.689	A	0.409	2.047	0.007	1	1	30.689	1.017	0.051	C
120.000-100.0			B	0.409	2.047		1	1	30.689			
00			C	0.409	2.047		1	1	30.689			
T26	1.994	4.253	A	0.422	2.022	0.007	1	1	32.442	0.970	0.049	C
100.000-80.00			B	0.422	2.022		1	1	32.442			
0			C	0.422	2.022		1	1	32.442			
T27	1.942	3.775	A	0.399	2.066	0.006	1	1	29.898	0.915	0.046	C
80.000-60.000			B	0.399	2.066		1	1	29.898			
			C	0.399	2.066		1	1	29.898			
T28	1.911	3.715	A	0.392	2.079	0.006	1	1	29.311	0.854	0.043	C
60.000-40.000			B	0.392	2.079		1	1	29.311			
			C	0.392	2.079		1	1	29.311			
T29	1.862	3.630	A	0.383	2.099	0.005	1	1	28.468	0.768	0.038	C
40.000-20.000			B	0.383	2.099		1	1	28.468			
			C	0.383	2.099		1	1	28.468			
T30	1.046	2.155	A	0.379	2.107	0.005	1	1	17.008	0.394	0.033	C
20.000-8.000			B	0.379	2.107		1	1	17.008			
			C	0.379	2.107		1	1	17.008			
T31	0.000	2.027	A	0.746	1.786	0.005	1	1	15.915	0.109	0.014	C
8.000-0.000			B	0.746	1.786		1	1	15.915			
			C	0.746	1.786		1	1	15.915			
Sum Weight:	38.187	109.768								26.358		

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	1.989	A	1	1.2	0.010	1	1	36.924	0.589	0.018	C
625.000-592.0			B	1	1.2		1	1	36.924			
00			C	1	1.2		1	1	36.924			
T1	0.136	2.235	A	0.46	1.957	0.010	0.8	1	20.589	0.384	0.032	C
592.000-580.0			B	0.46	1.957		0.8	1	20.589			
00			C	0.46	1.957		0.8	1	20.589			
T2	0.255	2.951	A	0.42	2.025	0.010	0.8	1	30.282	0.604	0.030	C
580.000-560.0			B	0.42	2.025		0.8	1	30.282			
00			C	0.42	2.025		0.8	1	30.282			
T3	0.342	2.942	A	0.42	2.027	0.010	0.8	1	30.200	0.625	0.031	C
560.000-540.0			B	0.42	2.027		0.8	1	30.200			
00			C	0.42	2.027		0.8	1	30.200			
T4	0.428	3.596	A	0.442	1.986	0.010	0.8	1	32.541	0.669	0.033	C
540.000-520.0			B	0.442	1.986		0.8	1	32.541			
00			C	0.442	1.986		0.8	1	32.541			
T5	0.597	3.139	A	0.423	2.021	0.009	0.8	1	30.569	0.707	0.035	C
520.000-500.0			B	0.423	2.021		0.8	1	30.569			
00			C	0.423	2.021		0.8	1	30.569			
T6	0.594	3.129	A	0.422	2.023	0.009	0.8	1	30.478	0.700	0.035	C
500.000-480.0			B	0.422	2.023		0.8	1	30.478			
00			C	0.422	2.023		0.8	1	30.478			
T7	0.612	3.800	A	0.444	1.983	0.009	0.8	1	32.808	0.720	0.036	C
480.000-460.0			B	0.444	1.983		0.8	1	32.808			
00			C	0.444	1.983		0.8	1	32.808			
T8	0.671	3.469	A	0.43	2.007	0.009	0.8	1	31.347	0.726	0.036	C
460.000-440.0			B	0.43	2.007		0.8	1	31.347			
00			C	0.43	2.007		0.8	1	31.347			
T9	0.667	3.333	A	0.423	2.02	0.009	0.8	1	30.727	0.715	0.036	C
440.000-420.0			B	0.423	2.02		0.8	1	30.727			
00			C	0.423	2.02		0.8	1	30.727			
T10	0.663	3.322	A	0.422	2.022	0.009	0.8	1	30.621	0.707	0.035	C
420.000-400.0			B	0.422	2.022		0.8	1	30.621			
00			C	0.422	2.022		0.8	1	30.621			
T11	0.933	3.310	A	0.421	2.024	0.009	0.8	1	30.510	0.806	0.040	B
400.000-380.0			B	0.421	2.024		0.8	1	30.510			
00			C	0.421	2.024		0.8	1	30.510			
T12	1.005	4.151	A	0.445	1.981	0.009	0.8	1	32.948	0.839	0.042	B
380.000-360.0			B	0.445	1.981		0.8	1	32.948			
00			C	0.445	1.981		0.8	1	32.948			
T13	1.095	3.539	A	0.423	2.019	0.009	0.8	1	30.818	0.857	0.043	B
360.000-340.0			B	0.423	2.019		0.8	1	30.818			
00			C	0.423	2.019		0.8	1	30.818			
T14	1.155	3.526	A	0.422	2.022	0.009	0.8	1	30.689	0.872	0.044	B
340.000-320.0			B	0.422	2.022		0.8	1	30.689			
00			C	0.422	2.022		0.8	1	30.689			
T15	1.146	3.512	A	0.421	2.025	0.009	0.8	1	30.554	0.859	0.043	B
320.000-300.0			B	0.421	2.025		0.8	1	30.554			
00			C	0.421	2.025		0.8	1	30.554			
T16	1.208	3.894	A	0.43	2.008	0.008	0.8	1	31.471	0.876	0.044	B
300.000-280.0			B	0.43	2.008		0.8	1	31.471			
00			C	0.43	2.008		0.8	1	31.471			
T17	1.890	4.195	A	0.441	1.989	0.008	0.8	1	32.664	1.105	0.055	A

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
280.000-260.0			B	0.441	1.989		0.8	1	32.664			
00			C	0.441	1.989		0.8	1	32.664			
T18	1.909	3.737	A	0.421	2.025	0.008	0.8	1	30.643	1.101	0.055	A
260.000-240.0			B	0.421	2.025		0.8	1	30.643			
00			C	0.421	2.025		0.8	1	30.643			
T19	1.945	3.719	A	0.419	2.028	0.008	0.8	1	30.469	1.099	0.055	A
240.000-220.0			B	0.419	2.028		0.8	1	30.469			
00			C	0.419	2.028		0.8	1	30.469			
T20	1.986	3.700	A	0.417	2.032	0.008	0.8	1	30.281	1.094	0.055	A
220.000-200.0			B	0.417	2.032		0.8	1	30.281			
00			C	0.417	2.032		0.8	1	30.281			
T21	2.052	4.328	A	0.439	1.993	0.008	0.8	1	32.437	1.089	0.054	A
200.000-180.0			B	0.439	1.993		0.8	1	32.437			
00			C	0.439	1.993		0.8	1	32.437			
T22	2.030	3.777	A	0.418	2.03	0.008	0.8	1	30.357	1.065	0.053	A
180.000-160.0			B	0.418	2.03		0.8	1	30.357			
00			C	0.418	2.03		0.8	1	30.357			
T23	2.002	3.630	A	0.41	2.045	0.007	0.8	1	29.607	1.036	0.052	A
160.000-140.0			B	0.41	2.045		0.8	1	29.607			
00			C	0.41	2.045		0.8	1	29.607			
T24	2.075	3.601	A	0.406	2.051	0.007	0.8	1	29.329	1.045	0.052	A
140.000-120.0			B	0.406	2.051		0.8	1	29.329			
00			C	0.406	2.051		0.8	1	29.329			
T25	2.038	3.689	A	0.409	2.047	0.007	0.8	1	29.506	1.003	0.050	A
120.000-100.0			B	0.409	2.047		0.8	1	29.506			
00			C	0.409	2.047		0.8	1	29.506			
T26	1.994	4.253	A	0.422	2.022	0.007	0.8	1	30.990	0.954	0.048	A
100.000-80.00			B	0.422	2.022		0.8	1	30.990			
0			C	0.422	2.022		0.8	1	30.990			
T27	1.942	3.775	A	0.399	2.066	0.006	0.8	1	28.721	0.902	0.045	A
80.000-60.000			B	0.399	2.066		0.8	1	28.721			
			C	0.399	2.066		0.8	1	28.721			
T28	1.911	3.715	A	0.392	2.079	0.006	0.8	1	28.134	0.842	0.042	A
60.000-40.000			B	0.392	2.079		0.8	1	28.134			
			C	0.392	2.079		0.8	1	28.134			
T29	1.862	3.630	A	0.383	2.099	0.005	0.8	1	27.290	0.757	0.038	A
40.000-20.000			B	0.383	2.099		0.8	1	27.290			
			C	0.383	2.099		0.8	1	27.290			
T30	1.046	2.155	A	0.379	2.107	0.005	0.8	1	16.223	0.387	0.032	A
20.000-8.000			B	0.379	2.107		0.8	1	16.223			
			C	0.379	2.107		0.8	1	16.223			
T31	0.000	2.027	A	0.746	1.786	0.005	0.8	1	14.558	0.100	0.012	C
8.000-0.000			B	0.746	1.786		0.8	1	14.558			
			C	0.746	1.786		0.8	1	14.558			
Sum Weight:	38.187	109.768								25.834		

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 ft²	F K	w klf	Ctrl. Face
L1	0.000	1.989	A	1	1.2	0.010	1	1	36.924	0.589	0.018	C
625.000-592.0			B	1	1.2		1	1	36.924			

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	36.924			
T1	0.136	2.235	A	0.46	1.957	0.010	0.85	1	20.860	0.388	0.032	C
592.000-580.0			B	0.46	1.957		0.85	1	20.860			
00			C	0.46	1.957		0.85	1	20.860			
T2	0.255	2.951	A	0.42	2.025	0.010	0.85	1	30.582	0.608	0.030	C
580.000-560.0			B	0.42	2.025		0.85	1	30.582			
00			C	0.42	2.025		0.85	1	30.582			
T3	0.342	2.942	A	0.42	2.027	0.010	0.85	1	30.500	0.629	0.031	C
560.000-540.0			B	0.42	2.027		0.85	1	30.500			
00			C	0.42	2.027		0.85	1	30.500			
T4	0.428	3.596	A	0.442	1.986	0.010	0.85	1	32.910	0.674	0.034	C
540.000-520.0			B	0.442	1.986		0.85	1	32.910			
00			C	0.442	1.986		0.85	1	32.910			
T5	0.597	3.139	A	0.423	2.021	0.009	0.85	1	30.868	0.711	0.036	C
520.000-500.0			B	0.423	2.021		0.85	1	30.868			
00			C	0.423	2.021		0.85	1	30.868			
T6	0.594	3.129	A	0.422	2.023	0.009	0.85	1	30.777	0.704	0.035	C
500.000-480.0			B	0.422	2.023		0.85	1	30.777			
00			C	0.422	2.023		0.85	1	30.777			
T7	0.612	3.800	A	0.444	1.983	0.009	0.85	1	33.176	0.726	0.036	C
480.000-460.0			B	0.444	1.983		0.85	1	33.176			
00			C	0.444	1.983		0.85	1	33.176			
T8	0.671	3.469	A	0.43	2.007	0.009	0.85	1	31.645	0.730	0.037	C
460.000-440.0			B	0.43	2.007		0.85	1	31.645			
00			C	0.43	2.007		0.85	1	31.645			
T9	0.667	3.333	A	0.423	2.02	0.009	0.85	1	31.025	0.719	0.036	C
440.000-420.0			B	0.423	2.02		0.85	1	31.025			
00			C	0.423	2.02		0.85	1	31.025			
T10	0.663	3.322	A	0.422	2.022	0.009	0.85	1	30.919	0.710	0.036	C
420.000-400.0			B	0.422	2.022		0.85	1	30.919			
00			C	0.422	2.022		0.85	1	30.919			
T11	0.933	3.310	A	0.421	2.024	0.009	0.85	1	30.808	0.810	0.040	C
400.000-380.0			B	0.421	2.024		0.85	1	30.808			
00			C	0.421	2.024		0.85	1	30.808			
T12	1.005	4.151	A	0.445	1.981	0.009	0.85	1	33.295	0.843	0.042	C
380.000-360.0			B	0.445	1.981		0.85	1	33.295			
00			C	0.445	1.981		0.85	1	33.295			
T13	1.095	3.539	A	0.423	2.019	0.009	0.85	1	31.115	0.861	0.043	C
360.000-340.0			B	0.423	2.019		0.85	1	31.115			
00			C	0.423	2.019		0.85	1	31.115			
T14	1.155	3.526	A	0.422	2.022	0.009	0.85	1	30.986	0.876	0.044	C
340.000-320.0			B	0.422	2.022		0.85	1	30.986			
00			C	0.422	2.022		0.85	1	30.986			
T15	1.146	3.512	A	0.421	2.025	0.009	0.85	1	30.851	0.863	0.043	C
320.000-300.0			B	0.421	2.025		0.85	1	30.851			
00			C	0.421	2.025		0.85	1	30.851			
T16	1.208	3.894	A	0.43	2.008	0.008	0.85	1	31.767	0.880	0.044	C
300.000-280.0			B	0.43	2.008		0.85	1	31.767			
00			C	0.43	2.008		0.85	1	31.767			
T17	1.890	4.195	A	0.441	1.989	0.008	0.85	1	33.029	1.079	0.054	B
280.000-260.0			B	0.441	1.989		0.85	1	33.029			
00			C	0.441	1.989		0.85	1	33.029			
T18	1.909	3.737	A	0.421	2.025	0.008	0.85	1	30.939	1.073	0.054	B
260.000-240.0			B	0.421	2.025		0.85	1	30.939			
00			C	0.421	2.025		0.85	1	30.939			
T19	1.945	3.719	A	0.419	2.028	0.008	0.85	1	30.765	1.071	0.054	B
240.000-220.0			B	0.419	2.028		0.85	1	30.765			
00			C	0.419	2.028		0.85	1	30.765			
T20	1.986	3.700	A	0.417	2.032	0.008	0.85	1	30.577	1.067	0.053	B
220.000-200.0			B	0.417	2.032		0.85	1	30.577			

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
00			C	0.417	2.032		0.85	1	30.577			
T21	2.052	4.328	A	0.439	1.993	0.008	0.85	1	32.801	1.068	0.053	B
200.000-180.0			B	0.439	1.993		0.85	1	32.801			
00			C	0.439	1.993		0.85	1	32.801			
T22	2.030	3.777	A	0.418	2.03	0.008	0.85	1	30.653	1.043	0.052	B
180.000-160.0			B	0.418	2.03		0.85	1	30.653			
00			C	0.418	2.03		0.85	1	30.653			
T23	2.002	3.630	A	0.41	2.045	0.007	0.85	1	29.902	1.014	0.051	B
160.000-140.0			B	0.41	2.045		0.85	1	29.902			
00			C	0.41	2.045		0.85	1	29.902			
T24	2.075	3.601	A	0.406	2.051	0.007	0.85	1	29.624	1.020	0.051	B
140.000-120.0			B	0.406	2.051		0.85	1	29.624			
00			C	0.406	2.051		0.85	1	29.624			
T25	2.038	3.689	A	0.409	2.047	0.007	0.85	1	29.802	0.978	0.049	B
120.000-100.0			B	0.409	2.047		0.85	1	29.802			
00			C	0.409	2.047		0.85	1	29.802			
T26	1.994	4.253	A	0.422	2.022	0.007	0.85	1	31.353	0.931	0.047	B
100.000-80.00			B	0.422	2.022		0.85	1	31.353			
0			C	0.422	2.022		0.85	1	31.353			
T27	1.942	3.775	A	0.399	2.066	0.006	0.85	1	29.016	0.879	0.044	B
80.000-60.000			B	0.399	2.066		0.85	1	29.016			
			C	0.399	2.066		0.85	1	29.016			
T28	1.911	3.715	A	0.392	2.079	0.006	0.85	1	28.429	0.820	0.041	B
60.000-40.000			B	0.392	2.079		0.85	1	28.429			
			C	0.392	2.079		0.85	1	28.429			
T29	1.862	3.630	A	0.383	2.099	0.005	0.85	1	27.585	0.736	0.037	B
40.000-20.000			B	0.383	2.099		0.85	1	27.585			
			C	0.383	2.099		0.85	1	27.585			
T30	1.046	2.155	A	0.379	2.107	0.005	0.85	1	16.419	0.376	0.031	B
20.000-8.000			B	0.379	2.107		0.85	1	16.419			
			C	0.379	2.107		0.85	1	16.419			
T31	0.000	2.027	A	0.746	1.786	0.005	0.85	1	14.897	0.102	0.013	C
8.000-0.000			B	0.746	1.786		0.85	1	14.897			
			C	0.746	1.786		0.85	1	14.897			
Sum Weight:	38.187	109.768								25.577		

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 ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.647	0.014	1	1	29.563	0.366	0.011	C
625.000-592.0			B	1	0.647		1	1	29.563			
00			C	1	0.647		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.014	1	1	9.301	0.336	0.028	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	0.480	0.024	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	0.512	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 ft²	F K	w klf	Ctrl. Face
T4	0.071	1.825	A	0.187	2.639	0.014	1	1	14.331	0.599	0.030	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	0.619	0.031	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	0.614	0.031	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	0.013	1	1	14.781	0.667	0.033	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	0.013	1	1	13.362	0.638	0.032	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	0.624	0.031	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	0.618	0.031	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	0.667	0.033	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	0.722	0.036	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	0.691	0.035	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	0.012	1	1	13.446	0.693	0.035	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	0.012	1	1	13.446	0.685	0.034	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	14.235	0.702	0.035	A
300.000-280.0			B	0.194	2.615		1	1	14.235			
00			C	0.194	2.615		1	1	14.235			
T17	0.312	2.516	A	0.207	2.571	0.012	1	1	15.660	0.931	0.047	C
280.000-260.0			B	0.207	2.571		1	1	15.660			
00			C	0.207	2.571		1	1	15.660			
T18	0.315	2.169	A	0.188	2.635	0.012	1	1	13.885	0.885	0.044	C
260.000-240.0			B	0.188	2.635		1	1	13.885			
00			C	0.188	2.635		1	1	13.885			
T19	0.324	2.169	A	0.188	2.635	0.012	1	1	13.898	0.878	0.044	C
240.000-220.0			B	0.188	2.635		1	1	13.898			
00			C	0.188	2.635		1	1	13.898			
T20	0.340	2.169	A	0.188	2.635	0.011	1	1	13.903	0.869	0.043	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	0.905	0.045	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	0.852	0.043	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	0.824	0.041	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 ft²	F K	w klf	Ctrl. Face
T24	0.377	2.169	A	0.188	2.635	0.010	1	1	13.903	0.824	0.041	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	0.802	0.040	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	0.009	1	1	16.145	0.801	0.040	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	0.733	0.037	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	0.008	1	1	14.362	0.659	0.033	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	0.603	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	0.319	0.027	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	0.106	0.013	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								21.226		

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 ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.647	0.014	1	1	29.563	0.366	0.011	C
625.000-592.0			B	1	0.647		1	1	29.563			
00			C	1	0.647		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.014	0.8	1	8.218	0.302	0.025	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	0.441	0.022	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	0.473	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	0.553	0.028	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	0.581	0.029	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	0.577	0.029	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	0.013	0.8	1	13.310	0.624	0.031	C

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
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	0.013	0.8	1	12.169	0.602	0.030	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	0.588	0.029	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	0.583	0.029	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	0.632	0.032	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	0.683	0.034	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	0.657	0.033	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	0.012	0.8	1	12.258	0.660	0.033	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	0.012	0.8	1	12.258	0.652	0.033	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	13.052	0.670	0.033	B
300.000-280.0			B	0.194	2.615		0.8	1	13.052			
00			C	0.194	2.615		0.8	1	13.052			
T17	0.312	2.516	A	0.207	2.571	0.012	0.8	1	14.202	0.893	0.045	A
280.000-260.0			B	0.207	2.571		0.8	1	14.202			
00			C	0.207	2.571		0.8	1	14.202			
T18	0.315	2.169	A	0.188	2.635	0.012	0.8	1	12.703	0.854	0.043	A
260.000-240.0			B	0.188	2.635		0.8	1	12.703			
00			C	0.188	2.635		0.8	1	12.703			
T19	0.324	2.169	A	0.188	2.635	0.012	0.8	1	12.716	0.848	0.042	A
240.000-220.0			B	0.188	2.635		0.8	1	12.716			
00			C	0.188	2.635		0.8	1	12.716			
T20	0.340	2.169	A	0.188	2.635	0.011	0.8	1	12.720	0.839	0.042	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	0.870	0.044	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	0.823	0.041	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	0.796	0.040	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	0.797	0.040	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	0.776	0.039	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	0.009	0.8	1	14.693	0.771	0.039	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	0.710	0.035	A

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
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	0.008	0.8	1	13.185	0.637	0.032	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	0.583	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	0.308	0.026	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	0.092	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								20.243		

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 ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.647	0.014	1	1	29.563	0.366	0.011	C
625.000-592.0			B	1	0.647		1	1	29.563			
00			C	1	0.647		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.014	0.85	1	8.489	0.310	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	0.450	0.022	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	0.481	0.024	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	0.563	0.028	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	0.589	0.029	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	0.585	0.029	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	0.013	0.85	1	13.677	0.634	0.032	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	0.013	0.85	1	12.467	0.610	0.031	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	0.596	0.030	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	0.591	0.030	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 ft²	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	0.643	0.032	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	0.695	0.035	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	0.668	0.033	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	0.012	0.85	1	12.555	0.670	0.034	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	0.012	0.85	1	12.555	0.662	0.033	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	13.348	0.680	0.034	C
300.000-280.0			B	0.194	2.615		0.85	1	13.348			
00			C	0.194	2.615		0.85	1	13.348			
T17	0.312	2.516	A	0.207	2.571	0.012	0.85	1	14.566	0.904	0.045	B
280.000-260.0			B	0.207	2.571		0.85	1	14.566			
00			C	0.207	2.571		0.85	1	14.566			
T18	0.315	2.169	A	0.188	2.635	0.012	0.85	1	12.999	0.864	0.043	B
260.000-240.0			B	0.188	2.635		0.85	1	12.999			
00			C	0.188	2.635		0.85	1	12.999			
T19	0.324	2.169	A	0.188	2.635	0.012	0.85	1	13.011	0.857	0.043	B
240.000-220.0			B	0.188	2.635		0.85	1	13.011			
00			C	0.188	2.635		0.85	1	13.011			
T20	0.340	2.169	A	0.188	2.635	0.011	0.85	1	13.016	0.848	0.042	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	0.887	0.044	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	0.838	0.042	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	0.811	0.041	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	0.811	0.041	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	0.790	0.040	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	0.009	0.85	1	15.056	0.786	0.039	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	0.723	0.036	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	0.008	0.85	1	13.479	0.649	0.032	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	0.594	0.030	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	0.313	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 ft²	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	0.096	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								20.564		

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	92.391			
Wind 0 deg - No Ice		2.694	-98.904	-8.449
Wind 30 deg - No Ice		50.387	-82.966	-2.852
Wind 60 deg - No Ice		80.013	-45.655	-3.819
Wind 90 deg - No Ice		90.481	-1.591	-12.052
Wind 120 deg - No Ice		83.443	45.007	-5.389
Wind 150 deg - No Ice		47.494	81.893	13.586
Wind 180 deg - No Ice		-1.874	94.777	14.150
Wind 210 deg - No Ice		-49.110	83.327	7.206
Wind 240 deg - No Ice		-83.074	47.905	3.533
Wind 270 deg - No Ice		-90.119	0.835	6.476
Wind 300 deg - No Ice		-79.467	-43.175	-0.026
Wind 330 deg - No Ice		-47.670	-81.749	-12.365
Member Ice	47.062			
Guy Ice	29.058			
Total Weight Ice	208.988			
Wind 0 deg - Ice		0.505	-30.258	-0.770
Wind 30 deg - Ice		15.172	-25.452	0.925
Wind 60 deg - Ice		25.002	-14.322	0.288
Wind 90 deg - Ice		28.516	-0.297	-1.846
Wind 120 deg - Ice		25.539	14.144	-1.434
Wind 150 deg - Ice		14.636	25.268	1.363
Wind 180 deg - Ice		-0.350	29.688	1.842
Wind 210 deg - Ice		-14.929	25.525	-0.114
Wind 240 deg - Ice		-25.402	14.648	-0.347
Wind 270 deg - Ice		-28.450	0.153	0.796
Wind 300 deg - Ice		-24.969	-13.898	0.421
Wind 330 deg - Ice		-14.673	-25.237	-1.123
Total Weight	92.391			
Wind 0 deg - Service		0.685	-25.170	-2.148
Wind 30 deg - Service		12.823	-21.115	-0.725
Wind 60 deg - Service		20.364	-11.620	-0.971
Wind 90 deg - Service		23.029	-0.404	-3.064
Wind 120 deg - Service		21.236	11.455	-1.370
Wind 150 deg - Service		12.087	20.842	3.454
Wind 180 deg - Service		-0.477	24.121	3.597
Wind 210 deg - Service		-12.498	21.207	1.832
Wind 240 deg - Service		-21.142	12.192	0.898

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Wind 270 deg - Service		-22.937	0.212	1.646
Wind 300 deg - Service		-20.225	-10.989	-0.007
Wind 330 deg - Service		-12.132	-20.805	-3.143

Load Combinations

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

Comb. No.	Description
47	1.2D+1.0W (pattern 2) 330 deg - No Ice+1.0 Guy
48	1.2D+1.0W (pattern 3) 330 deg - No Ice+1.0 Guy
49	1.2D+1.0W (pattern 4) 330 deg - No Ice+1.0 Guy
50	1.2 Dead+1.0 Ice+1.0 Temp+Guy
51	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
52	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
53	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
54	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
55	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
56	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
57	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
58	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
59	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
60	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
61	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
62	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
63	Dead+Wind 0 deg - Service+Guy
64	Dead+Wind 30 deg - Service+Guy
65	Dead+Wind 60 deg - Service+Guy
66	Dead+Wind 90 deg - Service+Guy
67	Dead+Wind 120 deg - Service+Guy
68	Dead+Wind 150 deg - Service+Guy
69	Dead+Wind 180 deg - Service+Guy
70	Dead+Wind 210 deg - Service+Guy
71	Dead+Wind 240 deg - Service+Guy
72	Dead+Wind 270 deg - Service+Guy
73	Dead+Wind 300 deg - Service+Guy
74	Dead+Wind 330 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	53	454.763	-0.488	0.153
	Max. H_x	45	383.232	1.543	0.795
	Max. H_z	2	421.934	-0.034	1.072
	Max. M_x	1	0.000	0.018	-0.044
	Max. M_z	1	0.000	0.018	-0.044
	Max. Torsion	48	7.706	1.168	0.851
	Min. Vert	1	267.236	0.018	-0.044
	Min. H_x	13	394.584	-1.591	0.754
	Min. H_z	29	378.358	-0.110	-1.881
	Min. M_x	1	0.000	0.018	-0.044
	Min. M_z	1	0.000	0.018	-0.044
	Min. Torsion	27	-8.635	-0.101	-1.837
Guy C @ 245 ft Elev 51 ft Azimuth 240 deg	Max. Vert	37	-13.669	-4.183	2.415
	Max. H_x	37	-13.669	-4.183	2.415
	Max. H_z	9	-122.208	-64.760	39.936
	Min. Vert	13	-126.232	-68.039	39.305
	Min. H_x	13	-126.232	-68.039	39.305
	Min. H_z	37	-13.669	-4.183	2.415
Guy B @ 279 ft Elev -12 ft Azimuth 120 deg	Max. Vert	21	-15.643	4.991	2.877
	Max. H_x	45	-122.826	65.818	38.082
	Max. H_z	49	-120.031	63.024	39.131

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. Vert	45	-122.826	65.818	38.082
	Min. H_x	21	-15.643	4.991	2.877
	Min. H_z	25	-20.745	8.766	2.827
Guy A @ 300 ft Elev -53 ft Azimuth 0 deg	Max. Vert	5	-17.296	0.003	-6.517
	Max. H_x	41	-68.863	4.847	-40.399
	Max. H_z	5	-17.296	0.003	-6.517
	Min. Vert	29	-120.339	-0.045	-74.328
	Min. H_x	17	-71.108	-4.848	-41.459
	Min. H_z	29	-120.339	-0.045	-74.328
Guy C @ 179 ft Elev 38 ft Azimuth 240 deg	Max. Vert	36	-0.981	-1.268	0.731
	Max. H_x	35	-0.989	-1.256	0.724
	Max. H_z	7	-56.662	-59.449	35.089
	Min. Vert	7	-56.662	-59.449	35.089
	Min. H_x	7	-56.662	-59.449	35.089
	Min. H_z	35	-0.989	-1.256	0.724
Guy B @ 216 ft Elev -9 ft Azimuth 120 deg	Max. Vert	20	-1.546	1.683	0.970
	Max. H_x	47	-60.190	57.964	34.256
	Max. H_z	47	-60.190	57.964	34.256
	Min. Vert	47	-60.190	57.964	34.256
	Min. H_x	19	-1.549	1.664	0.959
	Min. H_z	19	-1.549	1.664	0.959
Guy A @ 242 ft Elev -43 ft Azimuth 0 deg	Max. Vert	4	-1.830	0.000	-2.100
	Max. H_x	40	-31.289	1.512	-33.017
	Max. H_z	3	-1.834	0.000	-2.086
	Min. Vert	32	-63.552	0.779	-67.571
	Min. H_x	15	-30.649	-1.489	-32.821
	Min. H_z	31	-63.552	0.778	-67.773

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	267.236	-0.018	0.044	0.000	0.000	-0.007
1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy	421.934	0.034	-1.072	0.000	0.000	-6.244
1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy	425.066	0.066	-0.947	0.000	0.000	-6.332
1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy	432.314	0.062	-0.982	0.000	0.000	-6.262
1.2D+1.0W (pattern 4) 0 deg - No Ice+1.0 Guy	435.247	0.061	-0.997	0.000	0.000	-6.271
1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy	407.473	1.181	-0.926	0.000	0.000	-3.485
1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy	409.995	1.225	-0.841	0.000	0.000	-3.742
1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy	414.952	1.228	-0.872	0.000	0.000	-3.491
1.2D+1.0W (pattern 4) 30 deg -	416.861	1.225	-0.885	0.000	0.000	-3.528

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
No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy	389.878	1.531	-0.725	0.000	0.000	-2.847
1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy	390.989	1.562	-0.745	0.000	0.000	-3.296
1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy	393.578	1.588	-0.753	0.000	0.000	-2.873
1.2D+1.0W (pattern 4) 60 deg - No Ice+1.0 Guy	394.584	1.591	-0.754	0.000	0.000	-2.933
1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy	398.497	1.200	-0.360	0.000	0.000	-4.917
1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy	400.172	1.136	-0.471	0.000	0.000	-5.249
1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy	405.802	1.176	-0.450	0.000	0.000	-4.937
1.2D+1.0W (pattern 4) 90 deg - No Ice+1.0 Guy	407.733	1.189	-0.438	0.000	0.000	-4.992
1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy	415.340	0.801	0.377	0.000	0.000	-0.497
1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy	418.002	0.682	0.254	0.000	0.000	-0.605
1.2D+1.0W (pattern 3) 120 deg - No Ice+1.0 Guy	426.079	0.716	0.275	0.000	0.000	-0.414
1.2D+1.0W (pattern 4) 120 deg - No Ice+1.0 Guy	429.065	0.732	0.287	0.000	0.000	-0.456
1.2D+1.0W (pattern 1) 150 deg - No Ice+1.0 Guy	401.247	0.156	1.330	0.000	0.000	7.727
1.2D+1.0W (pattern 2) 150 deg - No Ice+1.0 Guy	402.293	0.044	1.261	0.000	0.000	7.854
1.2D+1.0W (pattern 3) 150 deg - No Ice+1.0 Guy	408.349	0.067	1.276	0.000	0.000	7.883
1.2D+1.0W (pattern 4) 150 deg - No Ice+1.0 Guy	410.315	0.079	1.283	0.000	0.000	7.855
1.2D+1.0W (pattern 1) 180 deg - No Ice+1.0 Guy	374.198	0.100	1.838	0.000	0.000	8.232
1.2D+1.0W (pattern 2) 180 deg - No Ice+1.0 Guy	375.006	0.101	1.837	0.000	0.000	8.635
1.2D+1.0W (pattern 3) 180 deg - No Ice+1.0 Guy	377.484	0.109	1.873	0.000	0.000	8.456
1.2D+1.0W (pattern 4) 180 deg - No Ice+1.0 Guy	378.358	0.110	1.881	0.000	0.000	8.456
1.2D+1.0W (pattern 1) 210 deg - No Ice+1.0 Guy	398.616	0.143	1.131	0.000	0.000	4.590
1.2D+1.0W (pattern 2) 210 deg - No Ice+1.0 Guy	403.079	0.311	1.035	0.000	0.000	4.993
1.2D+1.0W (pattern 3) 210 deg - No Ice+1.0 Guy	408.404	0.304	1.045	0.000	0.000	4.710
1.2D+1.0W (pattern 4) 210 deg - No Ice+1.0 Guy	410.314	0.292	1.051	0.000	0.000	4.752
1.2D+1.0W (pattern 1) 240 deg - No Ice+1.0 Guy	414.517	-0.357	0.127	0.000	0.000	2.770
1.2D+1.0W (pattern 2) 240 deg - No Ice+1.0 Guy	419.603	-0.163	-0.001	0.000	0.000	3.022
1.2D+1.0W (pattern 3) 240 deg - No Ice+1.0 Guy	427.290	-0.184	0.006	0.000	0.000	2.734
1.2D+1.0W (pattern 4) 240 deg - No Ice+1.0 Guy	430.322	-0.201	0.016	0.000	0.000	2.784
1.2D+1.0W (pattern 1) 270 deg - No Ice+1.0 Guy	391.948	-0.901	-0.534	0.000	0.000	3.842
1.2D+1.0W (pattern 2) 270 deg - No Ice+1.0 Guy	395.406	-0.766	-0.652	0.000	0.000	3.981

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2D+1.0W (pattern 3) 270 deg - No Ice+1.0 Guy	401.083	-0.798	-0.649	0.000	0.000	3.669
1.2D+1.0W (pattern 4) 270 deg - No Ice+1.0 Guy	402.979	-0.813	-0.638	0.000	0.000	3.731
1.2D+1.0W (pattern 1) 300 deg - No Ice+1.0 Guy	379.386	-1.489	-0.772	0.000	0.000	-0.748
1.2D+1.0W (pattern 2) 300 deg - No Ice+1.0 Guy	379.482	-1.505	-0.772	0.000	0.000	-0.730
1.2D+1.0W (pattern 3) 300 deg - No Ice+1.0 Guy	382.308	-1.538	-0.791	0.000	0.000	-0.945
1.2D+1.0W (pattern 4) 300 deg - No Ice+1.0 Guy	383.232	-1.543	-0.795	0.000	0.000	-0.883
1.2D+1.0W (pattern 1) 330 deg - No Ice+1.0 Guy	405.092	-1.158	-0.911	0.000	0.000	-7.602
1.2D+1.0W (pattern 2) 330 deg - No Ice+1.0 Guy	406.181	-1.161	-0.817	0.000	0.000	-7.662
1.2D+1.0W (pattern 3) 330 deg - No Ice+1.0 Guy	411.786	-1.168	-0.851	0.000	0.000	-7.706
1.2D+1.0W (pattern 4) 330 deg - No Ice+1.0 Guy	413.731	-1.168	-0.864	0.000	0.000	-7.679
1.2 Dead+1.0 Ice+1.0 Temp+Guy	436.039	-0.037	0.127	0.000	0.000	-0.001
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	446.127	-0.021	-0.500	0.000	0.000	-1.438
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	451.215	0.304	-0.400	0.000	0.000	-0.514
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	454.763	0.488	-0.153	0.000	0.000	-0.766
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	451.351	0.547	0.127	0.000	0.000	-1.448
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	445.739	0.489	0.400	0.000	0.000	-0.425
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	446.322	0.273	0.632	0.000	0.000	1.523
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	448.322	-0.056	0.718	0.000	0.000	1.780
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	447.081	-0.382	0.627	0.000	0.000	0.759
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	445.893	-0.569	0.416	0.000	0.000	0.763
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	449.175	-0.613	0.164	0.000	0.000	1.195
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	451.020	-0.543	-0.125	0.000	0.000	0.128
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	448.141	-0.355	-0.387	0.000	0.000	-1.477
Dead+Wind 0 deg - Service+Guy	273.332	-0.030	-0.693	0.000	0.000	-1.744
Dead+Wind 30 deg - Service+Guy	275.105	0.325	-0.558	0.000	0.000	-0.878
Dead+Wind 60 deg - Service+Guy	275.926	0.500	-0.247	0.000	0.000	-0.806
Dead+Wind 90 deg - Service+Guy	274.310	0.553	0.056	0.000	0.000	-1.584
Dead+Wind 120 deg - Service+Guy	271.691	0.549	0.382	0.000	0.000	-0.330
Dead+Wind 150 deg - Service+Guy	270.508	0.352	0.672	0.000	0.000	2.297
Dead+Wind 180 deg - Service+Guy	270.267	-0.002	0.735	0.000	0.000	2.287
Dead+Wind 210 deg -	269.713	-0.365	0.643	0.000	0.000	1.300

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						
Dead+Wind 240 deg - Service+Guy	269.654	-0.572	0.359	0.000	0.000	0.809
Dead+Wind 270 deg - Service+Guy	271.366	-0.589	0.043	0.000	0.000	1.145
Dead+Wind 300 deg - Service+Guy	272.613	-0.544	-0.272	0.000	0.000	-0.159
Dead+Wind 330 deg - Service+Guy	272.767	-0.385	-0.586	0.000	0.000	-2.210

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-92.388	0.000	-0.008	92.388	0.017	0.020%
2	1.831	-107.346	-118.353	-1.837	107.342	118.266	0.055%
3	3.157	-107.346	-119.707	-3.164	107.343	119.619	0.055%
4	2.828	-107.346	-122.478	-2.835	107.343	122.386	0.056%
5	2.828	-107.346	-123.573	-2.835	107.343	123.479	0.058%
6	59.816	-106.562	-100.160	-59.831	106.561	100.092	0.044%
7	61.217	-106.562	-101.400	-61.234	106.561	101.328	0.046%
8	62.545	-106.562	-103.627	-62.563	106.561	103.551	0.048%
9	63.034	-106.562	-104.470	-63.052	106.560	104.392	0.049%
10	97.153	-105.968	-55.445	-97.182	105.970	55.481	0.030%
11	98.614	-105.968	-56.603	-98.660	105.969	56.576	0.034%
12	101.050	-105.968	-57.729	-101.084	105.970	57.759	0.029%
13	101.861	-105.968	-58.196	-101.896	105.970	58.230	0.031%
14	110.324	-106.824	-1.089	-110.275	106.823	1.138	0.045%
15	111.743	-106.824	-1.945	-111.695	106.823	1.995	0.045%
16	114.618	-106.824	-1.725	-114.563	106.823	1.781	0.050%
17	115.594	-106.824	-1.725	-115.540	106.823	1.780	0.049%
18	100.151	-107.801	55.255	-100.081	107.798	-55.203	0.055%
19	101.481	-107.801	55.193	-101.409	107.798	-55.139	0.057%
20	104.103	-107.801	56.709	-104.025	107.798	-56.651	0.061%
21	105.055	-107.801	57.257	-104.974	107.798	-57.197	0.062%
22	57.746	-107.543	99.131	-57.672	107.540	-99.092	0.053%
23	57.745	-107.543	99.954	-57.669	107.541	-99.915	0.054%
24	59.369	-107.543	102.331	-59.290	107.540	-102.289	0.056%
25	59.851	-107.543	103.162	-59.770	107.540	-103.118	0.057%
26	-1.405	-107.216	114.489	1.454	107.216	-114.475	0.032%
27	-2.253	-107.216	115.858	2.263	107.216	-115.838	0.014%
28	-2.009	-107.216	118.526	2.029	107.216	-118.509	0.017%
29	-2.009	-107.216	119.446	2.030	107.216	-119.430	0.017%
30	-58.944	-108.000	100.299	58.869	107.998	-100.271	0.051%
31	-60.007	-108.000	101.722	59.922	107.998	-101.690	0.057%
32	-61.269	-108.000	103.988	61.179	107.998	-103.953	0.059%
33	-61.757	-108.000	104.831	61.668	107.998	-104.795	0.059%
34	-100.112	-108.593	57.347	100.037	108.591	-57.298	0.057%
35	-101.392	-108.593	58.787	101.308	108.591	-58.733	0.062%
36	-103.959	-108.593	59.891	103.868	108.590	-59.833	0.066%
37	-104.922	-108.593	60.446	104.833	108.590	-60.388	0.065%
38	-110.075	-107.738	0.633	110.023	107.736	-0.582	0.047%
39	-111.293	-107.738	1.216	111.234	107.736	-1.159	0.053%
40	-114.255	-107.738	0.970	114.193	107.736	-0.910	0.055%
41	-115.232	-107.738	0.970	115.170	107.736	-0.911	0.054%
42	-96.647	-106.761	-53.531	96.665	106.760	53.481	0.035%
43	-97.654	-106.761	-53.447	97.660	106.760	53.414	0.022%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
44	-100.279	-106.761	-54.965	100.285	106.760	54.933	0.021%
45	-101.078	-106.761	-55.424	101.086	106.760	55.392	0.021%
46	-57.786	-107.019	-99.184	57.793	107.017	99.109	0.048%
47	-57.853	-107.019	-99.748	57.861	107.017	99.670	0.050%
48	-59.545	-107.019	-102.188	59.552	107.017	102.104	0.053%
49	-60.026	-107.019	-103.018	60.033	107.017	102.933	0.053%
50	0.000	-223.872	0.000	0.022	223.871	-0.034	0.018%
51	0.577	-223.943	-46.312	-0.557	223.942	46.286	0.014%
52	23.364	-223.472	-39.428	-23.346	223.472	39.421	0.008%
53	39.156	-223.105	-22.460	-39.142	223.105	22.444	0.009%
54	44.793	-223.612	-0.371	-44.786	223.612	0.355	0.008%
55	39.573	-224.181	22.131	-39.551	224.181	-22.155	0.014%
56	22.670	-224.012	39.118	-22.667	224.012	-39.102	0.007%
57	-0.422	-223.800	45.742	0.430	223.800	-45.724	0.008%
58	-23.121	-224.271	39.501	23.128	224.271	-39.487	0.007%
59	-39.555	-224.638	22.786	39.546	224.637	-22.802	0.008%
60	-44.726	-224.131	0.227	44.720	224.131	-0.243	0.007%
61	-38.993	-223.556	-21.879	38.985	223.556	21.859	0.009%
62	-22.707	-223.731	-39.088	22.695	223.731	39.073	0.008%
63	0.719	-92.404	-31.744	-0.720	92.404	31.732	0.012%
64	16.189	-92.205	-26.843	-16.181	92.205	26.835	0.012%
65	26.180	-92.054	-14.959	-26.170	92.054	14.952	0.013%
66	29.715	-92.272	-0.439	-29.708	92.272	0.435	0.008%
67	26.992	-92.520	14.720	-26.988	92.520	-14.718	0.005%
68	15.380	-92.455	26.511	-15.376	92.455	-26.497	0.014%
69	-0.511	-92.372	30.695	0.514	92.372	-30.682	0.014%
70	-15.864	-92.571	26.935	15.867	92.571	-26.923	0.012%
71	-26.958	-92.722	15.531	26.951	92.722	-15.527	0.008%
72	-29.623	-92.504	0.246	29.617	92.504	-0.254	0.011%
73	-25.981	-92.256	-14.255	25.974	92.256	14.245	0.013%
74	-15.424	-92.321	-26.474	15.416	92.321	26.464	0.014%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	31	0.00020000	0.00001467
2	Yes	92	0.00019912	0.00007006
3	Yes	88	0.00019634	0.00006158
4	Yes	89	0.00019030	0.00006211
5	Yes	90	0.00019055	0.00006447
6	Yes	90	0.00019381	0.00005367
7	Yes	85	0.00019852	0.00004802
8	Yes	86	0.00019607	0.00004886
9	Yes	87	0.00019718	0.00005080
10	Yes	19	0.00018128	0.00012247
11	Yes	20	0.00017959	0.00007200
12	Yes	20	0.00018460	0.00006986
13	Yes	21	0.00018989	0.00006427
14	Yes	97	0.00019773	0.00005173
15	Yes	92	0.00019228	0.00004225
16	Yes	93	0.00019851	0.00004586
17	Yes	95	0.00019200	0.00004620
18	Yes	99	0.00019451	0.00006726
19	Yes	94	0.00019601	0.00005930
20	Yes	95	0.00019439	0.00006219

21	Yes	96	0.00019538	0.00006499
22	Yes	91	0.00019965	0.00006314
23	Yes	86	0.00019822	0.00005446
24	Yes	88	0.00019264	0.00005600
25	Yes	89	0.00019385	0.00005821
26	Yes	55	0.00019429	0.00005519
27	Yes	49	0.00019952	0.00008233
28	Yes	51	0.00019769	0.00007913
29	Yes	52	0.00019101	0.00007674
30	Yes	97	0.00019308	0.00004938
31	Yes	91	0.00019622	0.00004434
32	Yes	93	0.00019561	0.00004763
33	Yes	95	0.00019221	0.00004855
34	Yes	105	0.00019376	0.00006181
35	Yes	99	0.00019936	0.00005675
36	Yes	100	0.00019911	0.00006042
37	Yes	102	0.00019363	0.00006136
38	Yes	101	0.00019423	0.00004670
39	Yes	94	0.00019850	0.00004027
40	Yes	97	0.00019373	0.00004264
41	Yes	99	0.00019123	0.00004396
42	Yes	51	0.00019432	0.00005249
43	Yes	47	0.00019860	0.00007029
44	Yes	47	0.00019027	0.00007133
45	Yes	47	0.00019195	0.00007278
46	Yes	88	0.00019058	0.00006056
47	Yes	83	0.00019476	0.00005484
48	Yes	84	0.00019406	0.00005664
49	Yes	85	0.00019392	0.00005830
50	Yes	24	0.00020000	0.00003273
51	Yes	29	0.00020000	0.00008722
52	Yes	48	0.00019912	0.00001854
53	Yes	50	0.00018340	0.00001817
54	Yes	52	0.00018662	0.00001647
55	Yes	31	0.00020000	0.00006898
56	Yes	52	0.00018495	0.00000989
57	Yes	58	0.00019183	0.00001376
58	Yes	56	0.00019680	0.00001187
59	Yes	28	0.00020000	0.00006330
60	Yes	58	0.00018707	0.00001327
61	Yes	57	0.00019928	0.00001601
62	Yes	51	0.00019058	0.00001171
63	Yes	24	0.00019533	0.00002634
64	Yes	29	0.00019585	0.00001342
65	Yes	31	0.00019464	0.00001329
66	Yes	31	0.00018291	0.00001223
67	Yes	28	0.00019930	0.00001625
68	Yes	30	0.00018799	0.00000869
69	Yes	34	0.00018447	0.00001053
70	Yes	31	0.00018307	0.00000954
71	Yes	23	0.00017186	0.00002676
72	Yes	32	0.00018928	0.00001148
73	Yes	34	0.00018419	0.00001130
74	Yes	30	0.00018749	0.00000910

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	625 - 592	7.127	65	0.3240	0.3797
T1	592 - 580	5.317	65	0.0494	0.3796
T2	580 - 560	5.196	65	0.0494	0.3815
T3	560 - 540	4.985	65	0.0500	0.3840
T4	540 - 520	4.768	65	0.0448	0.3861
T5	520 - 500	4.691	73	0.0396	0.3773
T6	500 - 480	4.603	73	0.0427	0.3387
T7	480 - 460	4.469	69	0.0440	0.3418
T8	460 - 440	4.384	69	0.0365	0.3597
T9	440 - 420	4.338	69	0.0379	0.3855
T10	420 - 400	4.241	69	0.0470	0.4149
T11	400 - 380	4.068	69	0.0568	0.4324
T12	380 - 360	3.835	69	0.0560	0.4345
T13	360 - 340	3.658	69	0.0418	0.4359
T14	340 - 320	3.536	69	0.0390	0.4397
T15	320 - 300	3.387	69	0.0428	0.4382
T16	300 - 280	3.202	69	0.0463	0.4315
T17	280 - 260	3.006	69	0.0436	0.4255
T18	260 - 240	2.861	69	0.0416	0.4156
T19	240 - 220	2.710	69	0.0472	0.4025
T20	220 - 200	2.504	69	0.0533	0.3862
T21	200 - 180	2.253	69	0.0548	0.3873
T22	180 - 160	2.027	69	0.0468	0.3974
T23	160 - 140	1.869	68	0.0450	0.4102
T24	140 - 120	1.694	68	0.0507	0.4180
T25	120 - 100	1.463	68	0.0563	0.3843
T26	100 - 80	1.207	68	0.0547	0.3543
T27	80 - 60	0.996	68	0.0493	0.3239
T28	60 - 40	0.812	68	0.0525	0.2778
T29	40 - 20	0.585	68	0.0602	0.2244
T30	20 - 8	0.307	68	0.0678	0.1641
T31	8 - 0	0.120	68	0.0706	0.1194

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	65	6.261	0.1865	0.3790	10301
591.750	Guy	65	5.312	0.0489	0.3796	4431
545.000	SHP-2AE	65	4.817	0.0462	0.3858	87727
540.000	ERI ALP8L1-HSB-34	65	4.768	0.0448	0.3861	85925
535.000	ERI ALP8L1-HSB-34	73	4.744	0.0432	0.3860	108372
531.950	Guy	73	4.733	0.0422	0.3855	136000
530.000	ERI ALP8L1-HSB-34	73	4.726	0.0416	0.3850	162483
525.000	ERI ALP8L1-HSB-34	73	4.708	0.0403	0.3823	324520
520.000	5' Stand Off	73	4.691	0.0396	0.3773	219955
480.000	5' HP Dish (230lbs 24.77CaAa)	69	4.469	0.0440	0.3418	116446
465.000	Kathrein 754154	69	4.402	0.0381	0.3546	62033
460.250	Guy	69	4.385	0.0365	0.3594	50035
425.000	4' Dish w/o Radome	69	4.272	0.0444	0.4081	55637
400.000	MRC Proscann III	69	4.068	0.0568	0.4324	38603
394.000	Scala PR450	69	4.000	0.0582	0.4341	68902
375.000	PD220	69	3.783	0.0529	0.4345	44500
368.050	Guy	69	3.719	0.0475	0.4349	45728
360.000	4' Omni	69	3.658	0.0418	0.4359	50020
310.000	Beacon (10lbs 0.5CaAa)	69	3.299	0.0451	0.4350	100576

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
299.000	20'*3" Omni (40lbs)	69	3.192	0.0463	0.4312	112356
280.000	Sabre C10857001C-MC	69	3.006	0.0436	0.4255	56992
275.850	Guy	69	2.972	0.0428	0.4239	66167
255.000	20'*3" Omni (40lbs)	69	2.827	0.0424	0.4125	105663
198.000	Scala PR450	69	2.228	0.0544	0.3892	120717
184.150	Guy	69	2.068	0.0485	0.3960	49459
159.000	Beacon (10lbs 0.5CaAa)	68	1.861	0.0451	0.4111	104900
140.000	8' Dish w/ Radome	68	1.694	0.0507	0.4180	78398
91.950	Guy	68	1.116	0.0523	0.3435	63445
50.000	AWS	68	0.705	0.0561	0.2533	88925
28.000	Scala FM10 yagi	68	0.424	0.0650	0.1829	91500

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	625 - 592	59.799	18	1.7736	1.1845
T1	592 - 580	49.500	18	0.7208	1.1842
T2	580 - 560	47.817	18	0.7217	1.1960
T3	560 - 540	44.954	18	0.7251	1.2158
T4	540 - 520	42.034	18	0.7028	1.2313
T5	520 - 500	41.105	21	0.6769	1.2016
T6	500 - 480	40.319	21	0.6731	1.1920
T7	480 - 460	39.831	37	0.6512	1.2524
T8	460 - 440	39.223	37	0.5907	1.3015
T9	440 - 420	38.601	37	0.5376	1.3831
T10	420 - 400	37.577	37	0.4911	1.4704
T11	400 - 380	36.043	37	0.4796	1.5102
T12	380 - 360	33.985	37	0.4872	1.5100
T13	360 - 340	32.097	37	0.4403	1.5054
T14	340 - 320	30.368	37	0.4438	1.5143
T15	320 - 300	28.453	37	0.4773	1.5020
T16	300 - 280	26.335	37	0.5019	1.4691
T17	280 - 260	24.178	36	0.4914	1.4408
T18	260 - 240	22.232	36	0.4784	1.4068
T19	240 - 220	20.275	36	0.4954	1.3665
T20	220 - 200	18.207	35	0.5140	1.3911
T21	200 - 180	16.067	35	0.5098	1.5445
T22	180 - 160	14.155	31	0.4612	1.5813
T23	160 - 140	12.615	31	0.4321	1.6368
T24	140 - 120	11.096	30	0.4288	1.6730
T25	120 - 100	9.361	30	0.4252	1.5404
T26	100 - 80	7.543	30	0.3930	1.4052
T27	80 - 60	6.004	30	0.3488	1.2699
T28	60 - 40	4.687	30	0.3440	1.0616
T29	40 - 20	3.265	30	0.3622	0.8579
T30	20 - 8	1.684	30	0.3850	0.6253
T31	8 - 0	0.667	30	0.3937	0.4496

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	18	55.203	1.2461	1.1804	2687
591.750	Guy	18	49.455	0.7189	1.1844	1155
545.000	SHP-2AE	18	42.748	0.7091	1.2287	13282
540.000	ERI ALP8L1-HSB-34	18	42.034	0.7028	1.2313	12721
535.000	ERI ALP8L1-HSB-34	21	41.541	0.6956	1.2321	13882
531.950	Guy	21	41.457	0.6910	1.2308	15033
530.000	ERI ALP8L1-HSB-34	21	41.403	0.6882	1.2290	15875
525.000	ERI ALP8L1-HSB-34	21	41.259	0.6816	1.2196	18536
520.000	5' Stand Off	21	41.105	0.6769	1.2016	20927
480.000	5' HP Dish (230lbs 24.77CaAa)	37	39.831	0.6512	1.2524	14638
465.000	Kathrein 754154	37	39.378	0.6071	1.2872	10418
460.250	Guy	37	39.231	0.5915	1.3007	8850
425.000	4' Dish w/o Radome	37	37.878	0.5029	1.4516	10058
400.000	MRC Proscann III	37	36.043	0.4796	1.5102	6588
394.000	Scala PR450	37	35.454	0.4892	1.5128	10701
375.000	PD220	37	33.483	0.4771	1.5079	7539
368.050	Guy	37	32.821	0.4590	1.5055	7438
360.000	4' Omni	37	32.097	0.4403	1.5054	7740
310.000	Beacon (10lbs 0.5CaAa)	37	27.416	0.4929	1.4862	17690
299.000	20'*3" Omni (40lbs)	37	26.225	0.5021	1.4675	21616
280.000	Sabre C10857001C-MC	36	24.178	0.4914	1.4408	14366
275.850	Guy	36	23.760	0.4873	1.4345	16854
255.000	20'*3" Omni (40lbs)	36	21.753	0.4803	1.3973	17510
198.000	Scala PR450	35	15.853	0.5064	1.5529	16498
184.150	Guy	31	14.504	0.4717	1.5769	10196
159.000	Beacon (10lbs 0.5CaAa)	31	12.538	0.4314	1.6406	18922
140.000	8' Dish w/ Radome	30	11.096	0.4288	1.6730	17735
91.950	Guy	30	6.883	0.3734	1.3571	11951
50.000	AWS	30	3.997	0.3581	0.9653	22717
28.000	Scala FM10 yagi	30	2.337	0.3503	0.7003	25260

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	3.135	30.101	0.104 ✔	1	Bolt Tension
T2	580	Leg	A325N	0.7500	4	2.037	30.101	0.068 ✔	1	Bolt Tension
T3	560	Leg	A325N	0.7500	4	2.266	30.101	0.075 ✔	1	Bolt Tension
T4	540	Leg	A325N	0.7500	4	3.653	30.101	0.121 ✔	1	Bolt Tension
T5	520	Leg	A325N	0.7500	4	4.697	30.101	0.156 ✔	1	Bolt Tension
T6	500	Leg	A325N	0.7500	4	4.906	30.101	0.163 ✔	1	Bolt Tension
T7	480	Leg	A325N	0.7500	4	5.281	30.101	0.175 ✔	1	Bolt Tension
T8	460	Leg	A325N	0.7500	4	7.915	30.101	0.263 ✔	1	Bolt Tension
T9	440	Leg	A325N	0.7500	4	7.493	30.101	0.249 ✔	1	Bolt Tension
T10	420	Leg	A325N	0.7500	4	7.795	30.101	0.259 ✔	1	Bolt Tension
T11	400	Leg	A325N	0.7500	4	8.373	30.101	0.278 ✔	1	Bolt Tension
T12	380	Leg	A325N	0.7500	4	10.093	30.101	0.335 ✔	1	Bolt Tension
T13	360	Leg	A325N	0.7500	4	10.441	30.101	0.347 ✔	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
T14	340	Leg	A325N	0.7500	4	8.253	30.101	0.274 ✔	1	Bolt Tension
T15	320	Leg	A325N	0.7500	4	8.425	30.101	0.280 ✔	1	Bolt Tension
T16	300	Leg	A325N	0.7500	4	8.335	30.101	0.277 ✔	1	Bolt Tension
T17	280	Leg	A325N	0.7500	4	9.395	30.101	0.312 ✔	1	Bolt Tension
T18	260	Leg	A325N	0.7500	4	10.524	30.101	0.350 ✔	1	Bolt Tension
T19	240	Leg	A325N	0.7500	4	11.281	30.101	0.375 ✔	1	Bolt Tension
T20	220	Leg	A325N	0.7500	4	10.810	30.101	0.359 ✔	1	Bolt Tension
T21	200	Leg	A325N	0.7500	4	11.440	30.101	0.380 ✔	1	Bolt Tension
T22	180	Leg	A325N	0.7500	4	13.561	30.101	0.450 ✔	1	Bolt Tension
T23	160	Leg	A325N	0.7500	4	11.687	30.101	0.388 ✔	1	Bolt Tension
T24	140	Leg	A325N	0.7500	4	11.484	30.101	0.382 ✔	1	Bolt Tension
T25	120	Leg	A325N	0.7500	4	11.915	30.101	0.396 ✔	1	Bolt Tension
T26	100	Leg	A325N	0.7500	4	14.010	30.101	0.465 ✔	1	Bolt Tension
T27	80	Leg	A325N	0.7500	4	13.649	30.101	0.453 ✔	1	Bolt Tension
T28	60	Leg	A325N	0.7500	4	12.547	30.101	0.417 ✔	1	Bolt Tension
T29	40	Leg	A325N	0.7500	4	12.864	30.101	0.427 ✔	1	Bolt Tension
T30	20	Leg	A325N	0.7500	4	12.806	30.101	0.425 ✔	1	Bolt Tension
T31	8	Leg	A325N	0.7500	4	13.080	30.101	0.435 ✔	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	30.470	55.200	1.000	1.812 ✔
	591.750 (B) (1530)	7/8 BS	9.200	92.000	31.252	55.200	1.000	1.766 ✔
	591.750 (C) (1529)	7/8 BS	9.200	92.000	31.889	55.200	1.000	1.731 ✔
T4	531.950 (A) (1534)	1 BS	12.200	122.000	38.094	73.200	1.000	1.922 ✔
	531.950 (B) (1533)	1 BS	12.200	122.000	39.286	73.200	1.000	1.863 ✔
	531.950 (C) (1532)	1 BS	12.200	122.000	39.969	73.200	1.000	1.831 ✔
T7	460.250 (A) (1537)	1 BS	12.200	122.000	39.624	73.200	1.000	1.847 ✔
	460.250 (B) (1536)	1 BS	12.200	122.000	40.485	73.200	1.000	1.808 ✔
	460.250 (C) (1535)	1 BS	12.200	122.000	41.453	73.200	1.000	1.766 ✔
T12	368.050 (A) (1540)	1 BS	12.200	122.000	40.461	73.200	1.000	1.809 ✔
	368.050 (B)	1 BS	12.200	122.000	39.969	73.200	1.000	1.831 ✔

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.
	(1539)							
	368.050 (C)	1 BS	12.200	122.000	41.676	73.200	1.000	1.756 ✔
	(1538)							
T17	275.850 (A)	1 BS	12.200	122.000	41.079	73.200	1.000	1.782 ✔
	(1543)							
	275.850 (B)	1 BS	12.200	122.000	39.914	73.200	1.000	1.834 ✔
	(1542)							
	275.850 (C)	1 BS	12.200	122.000	39.867	73.200	1.000	1.836 ✔
	(1541)							
T21	184.150 (A)	7/8 BS	9.200	92.000	30.773	55.200	1.000	1.794 ✔
	(1546)							
	184.150 (B)	7/8 BS	9.200	92.000	30.007	55.200	1.000	1.840 ✔
	(1545)							
	184.150 (C)	7/8 BS	9.200	92.000	30.563	55.200	1.000	1.806 ✔
	(1544)							
T26	91.950 (A)	7/8 BS	9.200	92.000	24.384	55.200	1.000	2.264 ✔
	(1549)							
	91.950 (B)	7/8 BS	9.200	92.000	23.744	55.200	1.000	2.325 ✔
	(1548)							
	91.950 (C)	7/8 BS	9.200	92.000	23.067	55.200	1.000	2.393 ✔
	(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	-2.156	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	56.405	147.678	0.382	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	2.993	160.762	0.019	0.008	146.781	0.000

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 $\frac{T_u}{\phi T_n}$

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	0.382	0.000	0.019	0.000	0.392 ✔	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	-28.721	109.725	0.262 [1]
T2	580 - 560	2 1/4	20.000	3.900	83.2 K=1.00	3.9761	1.00	-29.754	107.859	0.276 [1]
T3	560 - 540	2 1/4	20.000	3.900	83.2 K=1.00	3.9761	1.00	-45.099	107.859	0.418 [1]
T4	540 - 520	2 1/2	20.000	3.900	74.9 K=1.00	4.9087	1.00	-63.826	146.600	0.435 [1]
T5	520 - 500	2 1/2	20.000	3.900	74.9 K=1.00	4.9087	1.00	-61.987	146.600	0.423 [1]
T6	500 - 480	2 1/2	20.000	3.900	74.9 K=1.00	4.9087	1.00	-65.587	146.600	0.447 [1]
T7	480 - 460	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-94.973	190.468	0.499 [1]
T8	460 - 440	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-98.163	190.468	0.515 [1]
T9	440 - 420	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-96.535	190.468	0.507 [1]
T10	420 - 400	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-101.655	190.468	0.534 [1]
T11	400 - 380	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-121.410	190.468	0.637 [1]
T12	380 - 360	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-141.440	239.277	0.591 [1]
T13	360 - 340	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-125.448	239.277	0.524 [1]
T14	340 - 320	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-103.829	239.277	0.434 [1]
T15	320 - 300	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-104.050	239.277	0.435 [1]
T16	300 - 280	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-112.225	292.897	0.383 [1]
T17	280 - 260	3 1/4	20.000	3.900	57.6	8.2958	1.00	-128.007	292.897	0.437 [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 $\frac{P_u}{\phi P_n}$
T18	260 - 240	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-137.838	292.897	0.471 [1]
T19	240 - 220	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-138.188	292.897	0.472 [1]
T20	220 - 200	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-137.423	292.897	0.469 [1]
T21	200 - 180	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-170.858	292.897	0.583 [1]
T22	180 - 160	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-163.337	292.897	0.558 [1]
T23	160 - 140	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-141.271	292.897	0.482 [1]
T24	140 - 120	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-143.616	292.897	0.490 [1]
T25	120 - 100	3 1/4	20.000	3.900	K=1.00 57.6	8.2958	1.00	-168.304	292.897	0.575 [1]
T26	100 - 80	3 1/2	20.000	3.900	K=1.00 53.5	9.6211	1.00	-184.018	351.235	0.524 [1]
T27	80 - 60	3 1/2	20.000	3.900	K=1.00 53.5	9.6211	1.00	-164.032	351.235	0.467 [1]
T28	60 - 40	3 1/2	20.000	3.900	K=1.00 53.5	9.6211	1.00	-156.768	351.235	0.446 [1]
T29	40 - 20	3 1/2	20.000	3.900	K=1.00 53.5	9.6211	1.00	-157.109	351.235	0.447 [1]
T30	20 - 8	3 1/2	12.000	3.833	K=1.00 52.6	9.6211	1.00	-157.705	353.734	0.446 [1]
T31	8 - 0	3 1/2	8.505	2.185	K=1.00 30.0	9.6211	0.92	-162.206	372.104	0.436 [1]
					K=1.00					

[1] P_u / ϕP_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
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

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 $\frac{M_{uy}}{\phi M_{ny}}$
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	0.262	0.000	0.000	0.262 [1] ✔	1.000	4.8.1 ✔
T2	580 - 560	2 1/4	0.276	0.000	0.000	0.276 [1] ✔	1.000	4.8.1 ✔
T3	560 - 540	2 1/4	0.418	0.000	0.000	0.418 [1] ✔	1.000	4.8.1 ✔
T4	540 - 520	2 1/2	0.435	0.000	0.000	0.435 [1] ✔	1.000	4.8.1 ✔
T5	520 - 500	2 1/2	0.423	0.000	0.000	0.423 [1] ✔	1.000	4.8.1 ✔
T6	500 - 480	2 1/2	0.447	0.000	0.000	0.447 [1] ✔	1.000	4.8.1 ✔
T7	480 - 460	2 3/4	0.499	0.000	0.000	0.499 [1] ✔	1.000	4.8.1 ✔
T8	460 - 440	2 3/4	0.515	0.000	0.000	0.515 [1] ✔	1.000	4.8.1 ✔
T9	440 - 420	2 3/4	0.507	0.000	0.000	0.507 [1] ✔	1.000	4.8.1 ✔
T10	420 - 400	2 3/4	0.534	0.000	0.000	0.534 [1] ✔	1.000	4.8.1 ✔
T11	400 - 380	2 3/4	0.637	0.000	0.000	0.637 [1] ✔	1.000	4.8.1 ✔
T12	380 - 360	3	0.591	0.000	0.000	0.591 [1] ✔	1.000	4.8.1 ✔
T13	360 - 340	3	0.524	0.000	0.000	0.524 [1] ✔	1.000	4.8.1 ✔
T14	340 - 320	3	0.434	0.000	0.000	0.434 [1] ✔	1.000	4.8.1 ✔
T15	320 - 300	3	0.435	0.000	0.000	0.435 [1] ✔	1.000	4.8.1 ✔
T16	300 - 280	3 1/4	0.383	0.000	0.000	0.383 [1] ✔	1.000	4.8.1 ✔
T17	280 - 260	3 1/4	0.437	0.000	0.000	0.437 [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
T18	260 - 240	3 1/4	0.471	0.000	0.000	0.471 [1]	1.000	4.8.1
T19	240 - 220	3 1/4	0.472	0.000	0.000	0.472 [1]	1.000	4.8.1
T20	220 - 200	3 1/4	0.469	0.000	0.000	0.469 [1]	1.000	4.8.1
T21	200 - 180	3 1/4	0.583	0.000	0.000	0.583 [1]	1.000	4.8.1
T22	180 - 160	3 1/4	0.558	0.000	0.000	0.558 [1]	1.000	4.8.1
T23	160 - 140	3 1/4	0.482	0.000	0.000	0.482 [1]	1.000	4.8.1
T24	140 - 120	3 1/4	0.490	0.000	0.000	0.490 [1]	1.000	4.8.1
T25	120 - 100	3 1/4	0.575	0.000	0.000	0.575 [1]	1.000	4.8.1
T26	100 - 80	3 1/2	0.524	0.000	0.000	0.524 [1]	1.000	4.8.1
T27	80 - 60	3 1/2	0.467	0.000	0.000	0.467 [1]	1.000	4.8.1
T28	60 - 40	3 1/2	0.446	0.000	0.000	0.446 [1]	1.000	4.8.1
T29	40 - 20	3 1/2	0.447	0.000	0.000	0.447 [1]	1.000	4.8.1
T30	20 - 8	3 1/2	0.446	0.000	0.000	0.446 [1]	1.000	4.8.1
T31	8 - 0	3 1/2	0.436	0.000	0.000	0.436 [1]	1.000	4.8.1

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T31	8 - 0	L3x3x3/8	2.417	1.570	54.1 K=1.68	2.1100	-25.736	68.978	0.373 [1]

[1] P_u / ϕP_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	-6.876	18.174	0.378 *1 ✔
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-4.786	18.174	0.263 1 ✔
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-4.751	18.174	0.261 1 ✔
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-7.293	18.235	0.400 1 ✔
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-4.456	18.235	0.244 1 ✔
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-4.415	18.235	0.242 1 ✔
T7	480 - 460	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-6.277	18.296	0.343 1 ✔
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-5.426	18.296	0.297 1 ✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-4.362	18.296	0.238 1 ✔
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-4.194	18.296	0.229 1 ✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-6.048	18.296	0.331 1 ✔
T12	380 - 360	L2 1/2x2 1/2x1/4	5.000	4.750	118.0 K=1.02	1.1900	-8.302	24.069	0.345 1 ✔
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-5.292	18.357	0.288 1 ✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-3.950	18.357	0.215 1 ✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-3.927	18.357	0.214 1 ✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-5.269	18.417	0.286 1 ✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-5.787	18.417	0.314 1 ✔
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-4.036	18.417	0.219 1 ✔
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.995	18.417	0.217 1 ✔
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-5.790	18.417	0.314 1 ✔
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	117.8 K=1.02	1.1900	-6.987	24.150	0.289 1 ✔
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-5.035	18.417	0.273 1 ✔
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.638	18.417	0.198 1 ✔
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.653	18.417	0.198 1 ✔
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-6.011	18.417	0.326 1 ✔
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-6.617	18.478	0.358 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	-5.308	18.478	0.287 [1] ✔
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-3.708	18.478	0.201 [1] ✔
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-3.706	18.478	0.201 [1] ✔
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-4.821	18.478	0.261 [1] ✔

[*] DL controls
[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	-2.524	18.174	0.139 [1] ✔
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-2.610	18.174	0.144 [1] ✔
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-3.545	18.235	0.194 [1] ✔
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-2.419	18.235	0.133 [1] ✔
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-2.385	18.235	0.131 [1] ✔
T7	480 - 460	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-3.433	18.296	0.188 [1] ✔
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.721	18.296	0.149 [1] ✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.344	18.296	0.128 [1] ✔
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.275	18.296	0.124 [1] ✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.609	18.296	0.143 [1] ✔
T12	380 - 360	L1 1/2x1 1/2x1/4	5.000	4.750	166.2 K=0.85	0.6875	-3.619	7.120	0.508 [1] ✔
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.764	18.357	0.151 [1] ✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.248	18.357	0.122 [1] ✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.079	18.357	0.113 [1] ✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.892	18.417	0.157 [1] ✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.999	18.417	0.217 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.413	18.417	0.131 [1] ✔
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.068	18.417	0.112 [1] ✔
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.266	18.417	0.123 [1] ✔
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	117.8 K=1.02	1.1900	-3.775	24.150	0.156 [1] ✔
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.079	18.417	0.167 [1] ✔
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-1.992	18.417	0.108 [1] ✔
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-1.988	18.417	0.108 [1] ✔
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.553	18.417	0.139 [1] ✔
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-3.668	18.478	0.199 [1] ✔
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.928	18.478	0.158 [1] ✔
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.011	18.478	0.109 [1] ✔
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-1.929	18.478	0.104 [1] ✔
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.019	18.478	0.109 [1] ✔

[1] P_u / ϕP_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	-3.346	18.174	0.184 [1] ✔
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-2.708	18.174	0.149 [1] ✔
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-3.160	18.174	0.174 [1] ✔
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-3.170	18.235	0.174 [1] ✔
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-2.292	18.235	0.126 [1] ✔
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-2.647	18.235	0.145 [1] ✔
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-3.004	18.296	0.164 [1] ✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.201	18.296	0.120 [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	-2.313	18.296	0.126 [1]
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-3.609	18.296	0.197 [1]
T12	380 - 360	L2 1/2x2 1/2x1/4	5.000	4.750	118.0 K=1.02	1.1900	-3.743	24.069	0.156 [1]
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.342	18.357	0.128 [1]
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.112	18.357	0.115 [1]
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.171	18.357	0.118 [1]
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.417	18.417	0.186 [1]
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.843	18.417	0.154 [1]
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.124	18.417	0.115 [1]
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.093	18.417	0.114 [1]
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.896	18.417	0.157 [1]
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	117.8 K=1.02	1.1900	-3.819	24.150	0.158 [1]
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.551	18.417	0.139 [1]
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-1.922	18.417	0.104 [1]
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.067	18.417	0.112 [1]
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.282	18.417	0.178 [1]
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-3.099	18.478	0.168 [1]
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.130	18.478	0.115 [1]
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-1.976	18.478	0.107 [1]
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-1.877	18.478	0.102 [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 $\frac{P_u}{\phi P_n}$

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	-1.018	33.869	0.030 [1] ✔
		KL/R > 200 (C) - 5							
T4	540 - 520	6*1	5.000	4.792	199.2 K=1.00	6.0000	-4.203	34.164	0.123 [1] ✔
T7	480 - 460	6*1	5.000	4.771	198.3 K=1.00	6.0000	-1.922	34.464	0.056 [1] ✔
T12	380 - 360	6*1	5.000	4.750	197.5 K=1.00	6.0000	-5.010	34.766	0.144 [1] ✔
T17	280 - 260	6*1	5.000	4.729	196.6 K=1.00	6.0000	-4.102	35.073	0.117 [1] ✔
T21	200 - 180	6*1	5.000	4.729	196.6 K=1.00	6.0000	-5.483	35.073	0.156 [1] ✔
T26	100 - 80	6*1	5.000	4.708	195.7 K=1.00	6.0000	-3.316	35.385	0.094 [1] ✔

[1] P_u / ϕP_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	12.538	178.924	0.070 [1]
T3	560 - 540	2 1/4	20.000	3.900	83.2	3.9761	4.536	178.924	0.025 [1]
T4	540 - 520	2 1/2	20.000	3.900	74.9	4.9087	5.671	220.893	0.026 [1]

[1] P_u / ϕP_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 $P_u / \phi P_n$	Ratio $M_{ux} / \phi M_{nx}$	Ratio $M_{uy} / \phi M_{ny}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	592 - 580	2 1/4	0.070	0.000	0.000	0.070 [1] ✔	1.000	4.8.1 ✔
T3	560 - 540	2 1/4	0.025	0.000	0.000	0.025 [1] ✔	1.000	4.8.1 ✔
T4	540 - 520	2 1/2	0.026	0.000	0.000	0.026 [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 $P_u / \phi P_n$
T1	592 - 580	3/4	6.300	6.064	388.1	0.4418	5.456	14.314	0.381 [1] ✔
T2	580 - 560	5/8	6.341	6.103	468.7	0.3068	4.159	9.940	0.418 [1] ✔
T3	560 - 540	5/8	6.341	6.103	468.7	0.3068	5.150	9.940	0.518 [1] ✔
T4	540 - 520	3/4	6.341	6.077	388.9	0.4418	6.653	14.314	0.465 [1] ✔
T5	520 - 500	5/8	6.341	6.077	466.7	0.3068	4.762	9.940	0.479 [1] ✔
T6	500 - 480	5/8	6.341	6.077	466.7	0.3068	4.910	9.940	0.494 [1] ✔
T7	480 - 460	3/4	6.341	6.051	387.2	0.4418	8.080	14.314	0.564 [1] ✔
T8	460 - 440	3/4	6.341	6.051	387.2	0.4418	7.052	14.314	0.493 [1] ✔
T9	440 - 420	5/8	6.341	6.051	464.7	0.3068	4.980	9.940	0.501 [1] ✔
T10	420 - 400	5/8	6.341	6.051	464.7	0.3068	4.674	9.940	0.470 [1] ✔
T11	400 - 380	5/8	6.341	6.051	464.7	0.3068	8.144	9.940	0.819 [1] ✔
T12	380 - 360	7/8	6.341	6.024	330.5	0.6013	9.798	19.483	0.503 [1] ✔
T13	360 - 340	5/8	6.341	6.024	462.6	0.3068	7.159	9.940	0.720 [1] ✔
T14	340 - 320	5/8	6.341	6.024	462.6	0.3068	4.992	9.940	0.502 [1] ✔
T15	320 - 300	5/8	6.341	6.024	462.6	0.3068	4.044	9.940	0.407 [1] ✔
T16	300 - 280	3/4	6.341	5.998	383.9	0.4418	7.003	14.314	0.489 [1] ✔
T17	280 - 260	3/4	6.341	5.998	383.9	0.4418	11.532	14.314	0.806 [1] ✔
T18	260 - 240	5/8	6.341	5.998	460.6	0.3068	5.732	9.940	0.577 [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	5.201	9.940	0.523 [1]
T20	220 - 200	5/8	6.341	5.998	460.6	0.3068	7.811	9.940	0.786 [1]
T21	200 - 180	7/8	6.341	5.998	329.0	0.6013	9.065	19.483	0.465 [1]
T22	180 - 160	3/4	6.341	5.998	383.9	0.4418	7.016	14.314	0.490 [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	5.153	9.940	0.518 [1]
T25	120 - 100	3/4	6.341	5.998	383.9	0.4418	8.337	14.314	0.582 [1]
T26	100 - 80	3/4	6.341	5.971	382.2	0.4418	9.080	14.314	0.634 [1]
T27	80 - 60	5/8	6.341	5.971	458.6	0.3068	7.233	9.940	0.728 [1]
T28	60 - 40	5/8	6.341	5.971	458.6	0.3068	4.985	9.940	0.502 [1]
T29	40 - 20	5/8	6.341	5.971	458.6	0.3068	4.382	9.940	0.441 [1]
T30	20 - 8	5/8	6.300	5.933	455.6	0.3068	6.999	9.940	0.704 [1]
T31	8 - 0	L3x3x3/8	4.323	2.251	29.6	2.1100	0.581	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	0.515	29.225	0.018 [1]
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.781	29.225	0.027 [1]
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.105	29.225	0.038 [1]
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.074	29.225	0.037 [1]
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.136	29.225	0.039 [1]
T7	480 - 460	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.583	29.225	0.054 [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	1.700	29.225	0.058 [1] ✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.672	29.225	0.057 [1] ✔
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.761	29.225	0.060 [1] ✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	2.103	29.225	0.072 [1] ✔
T12	380 - 360	L2 1/2x2 1/2x1/4	5.000	4.750	74.1	1.1900	2.450	38.556	0.064 [1] ✔
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	2.173	29.225	0.074 [1] ✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	1.798	29.225	0.062 [1] ✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	1.802	29.225	0.062 [1] ✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	1.944	29.225	0.067 [1] ✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.217	29.225	0.076 [1] ✔
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.387	29.225	0.082 [1] ✔
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.393	29.225	0.082 [1] ✔
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.380	29.225	0.081 [1] ✔
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	73.8	1.1900	2.959	38.556	0.077 [1] ✔
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.829	29.225	0.097 [1] ✔
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.447	29.225	0.084 [1] ✔
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.487	29.225	0.085 [1] ✔
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.915	29.225	0.100 [1] ✔
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	3.187	29.225	0.109 [1] ✔
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.841	29.225	0.097 [1] ✔
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.715	29.225	0.093 [1] ✔
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.721	29.225	0.093 [1] ✔
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.732	29.225	0.093 [1] ✔
T31	8 - 0	L3x3x3/8	1.858	1.566	20.6	2.1100	13.912	68.364	0.204 [1] ✔

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T31	8 - 0	C3x5	4.427	4.135	121.0	1.4700	10.891	47.628	0.229 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	19.485	29.225	0.667 [1] ✔
T31	8 - 0	12x3/8	0.573	0.281	31.2	4.5000	13.913	145.800	0.095 [1] ✔

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	592 - 580	6*1	5.000	4.813	200.1	4.5000	20.199	219.375	0.092 [1] ✔
T4	540 - 520	6*1	5.000	4.792	199.2	4.5000	2.660	219.375	0.012 [1] ✔
T7	480 - 460	6*1	5.000	4.771	198.3	4.5000	6.991	219.375	0.032 [1] ✔
T12	380 - 360	6*1	5.000	4.750	197.5	4.5000	4.260	219.375	0.019 [1] ✔
T17	280 - 260	6*1	5.000	4.729	196.6	4.5000	6.154	219.375	0.028 [1] ✔
T21	200 - 180	6*1	5.000	4.729	196.6	4.5000	3.629	219.375	0.017 [1] ✔
T26	100 - 80	6*1	5.000	4.708	195.7	4.5000	5.498	219.375	0.025 [1] ✔

[1] P_u / ϕP_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	-2.156	229.160	39.2	Pass
T1	592 - 580	Leg	2 1/4	4	-13.842	109.725	32.9	Pass
T2	580 - 560	Leg	2 1/4	37	-29.754	107.859	27.6	Pass
T3	560 - 540	Leg	2 1/4	88	-45.099	107.859	41.8	Pass
T4	540 - 520	Leg	2 1/2	139	-63.826	146.600	43.5	Pass
T5	520 - 500	Leg	2 1/2	190	-61.987	146.600	42.3	Pass
T6	500 - 480	Leg	2 1/2	241	-65.587	146.600	44.7	Pass
T7	480 - 460	Leg	2 3/4	292	-94.973	190.468	49.9	Pass
T8	460 - 440	Leg	2 3/4	343	-98.163	190.468	51.5	Pass
T9	440 - 420	Leg	2 3/4	394	-96.535	190.468	50.7	Pass
T10	420 - 400	Leg	2 3/4	445	-101.655	190.468	53.4	Pass
T11	400 - 380	Leg	2 3/4	496	-121.410	190.468	63.7	Pass
T12	380 - 360	Leg	3	547	-141.440	239.277	59.1	Pass
T13	360 - 340	Leg	3	598	-125.448	239.277	52.4	Pass
T14	340 - 320	Leg	3	649	-103.829	239.277	43.4	Pass
T15	320 - 300	Leg	3	699	-104.050	239.277	43.5	Pass
T16	300 - 280	Leg	3 1/4	750	-112.225	292.897	38.3	Pass
T17	280 - 260	Leg	3 1/4	801	-128.007	292.897	43.7	Pass
T18	260 - 240	Leg	3 1/4	852	-137.838	292.897	47.1	Pass
T19	240 - 220	Leg	3 1/4	903	-138.188	292.897	47.2	Pass
T20	220 - 200	Leg	3 1/4	954	-137.423	292.897	46.9	Pass
T21	200 - 180	Leg	3 1/4	1005	-170.858	292.897	58.3	Pass
T22	180 - 160	Leg	3 1/4	1056	-163.337	292.897	55.8	Pass
T23	160 - 140	Leg	3 1/4	1107	-141.271	292.897	48.2	Pass
T24	140 - 120	Leg	3 1/4	1157	-143.616	292.897	49.0	Pass
T25	120 - 100	Leg	3 1/4	1208	-168.304	292.897	57.5	Pass
T26	100 - 80	Leg	3 1/2	1261	-184.018	351.235	52.4	Pass
T27	80 - 60	Leg	3 1/2	1310	-164.032	351.235	46.7	Pass
T28	60 - 40	Leg	3 1/2	1363	-156.768	351.235	44.6	Pass
T29	40 - 20	Leg	3 1/2	1414	-157.109	351.235	44.7	Pass
T30	20 - 8	Leg	3 1/2	1463	-157.705	353.734	44.6	Pass
T31	8 - 0	Leg	3 1/2	1496	-162.206	372.104	43.6	Pass
T1	592 - 580	Diagonal	3/4	29	5.456	14.314	38.1	Pass
T2	580 - 560	Diagonal	5/8	44	4.159	9.940	41.8	Pass
T3	560 - 540	Diagonal	5/8	100	5.150	9.940	51.8	Pass
T4	540 - 520	Diagonal	3/4	173	6.653	14.314	46.5	Pass
T5	520 - 500	Diagonal	5/8	238	4.762	9.940	47.9	Pass
T6	500 - 480	Diagonal	5/8	251	4.910	9.940	49.4	Pass
T7	480 - 460	Diagonal	3/4	299	8.080	14.314	56.4	Pass
T8	460 - 440	Diagonal	3/4	391	7.052	14.314	49.3	Pass
T9	440 - 420	Diagonal	5/8	442	4.980	9.940	50.1	Pass
T10	420 - 400	Diagonal	5/8	454	4.674	9.940	47.0	Pass
T11	400 - 380	Diagonal	5/8	504	8.144	9.940	81.9	Pass
T12	380 - 360	Diagonal	7/8	573	9.798	19.483	50.3	Pass
T13	360 - 340	Diagonal	5/8	645	7.159	9.940	72.0	Pass
T14	340 - 320	Diagonal	5/8	696	4.992	9.940	50.2	Pass
T15	320 - 300	Diagonal	5/8	710	4.044	9.940	40.7	Pass
T16	300 - 280	Diagonal	3/4	761	7.003	14.314	48.9	Pass
T17	280 - 260	Diagonal	3/4	848	11.532	14.314	80.6	Pass
T18	260 - 240	Diagonal	5/8	901	5.732	9.940	57.7	Pass
T19	240 - 220	Diagonal	5/8	913	5.201	9.940	52.3	Pass
T20	220 - 200	Diagonal	5/8	964	7.811	9.940	78.6	Pass
T21	200 - 180	Diagonal	7/8	1024	9.065	19.483	46.5	Pass
T22	180 - 160	Diagonal	3/4	1104	7.016	14.314	49.0	Pass
T23	160 - 140	Diagonal	5/8	1152	4.019	9.940	40.4	Pass
T24	140 - 120	Diagonal	5/8	1170	5.153	9.940	51.8	Pass
T25	120 - 100	Diagonal	3/4	1221	8.337	14.314	58.2	Pass
T26	100 - 80	Diagonal	3/4	1308	9.080	14.314	63.4	Pass
T27	80 - 60	Diagonal	5/8	1358	7.233	9.940	72.8	Pass
T28	60 - 40	Diagonal	5/8	1409	4.985	9.940	50.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T29	40 - 20	Diagonal	5/8	1425	4.382	9.940	44.1	Pass
T30	20 - 8	Diagonal	5/8	1476	6.999	9.940	70.4	Pass
T31	8 - 0	Diagonal	L3x3x3/8	1510	-25.736	68.978	37.3	Pass
T1	592 - 580	Horizontal	L2 1/2x2 1/2x3/16	26	-6.876	18.174	37.8	Pass
T2	580 - 560	Horizontal	L2 1/2x2 1/2x3/16	50	-4.786	18.174	26.3	Pass
T3	560 - 540	Horizontal	L2 1/2x2 1/2x3/16	103	-4.751	18.174	26.1	Pass
T4	540 - 520	Horizontal	L2 1/2x2 1/2x3/16	179	-7.293	18.235	40.0	Pass
T5	520 - 500	Horizontal	L2 1/2x2 1/2x3/16	203	-4.456	18.235	24.4	Pass
T6	500 - 480	Horizontal	L2 1/2x2 1/2x3/16	281	-4.415	18.235	24.2	Pass
T7	480 - 460	Horizontal	L2 1/2x2 1/2x3/16	305	-6.277	18.296	34.3	Pass
T8	460 - 440	Horizontal	L2 1/2x2 1/2x3/16	385	-5.426	18.296	29.7	Pass
T9	440 - 420	Horizontal	L2 1/2x2 1/2x3/16	407	-4.362	18.296	23.8	Pass
T10	420 - 400	Horizontal	L2 1/2x2 1/2x3/16	485	-4.194	18.296	22.9	Pass
T11	400 - 380	Horizontal	L2 1/2x2 1/2x3/16	509	-6.048	18.296	33.1	Pass
T12	380 - 360	Horizontal	L2 1/2x2 1/2x1/4	578	-8.302	24.069	34.5	Pass
T13	360 - 340	Horizontal	L2 1/2x2 1/2x3/16	640	-5.292	18.357	28.8	Pass
T14	340 - 320	Horizontal	L2 1/2x2 1/2x3/16	689	-3.950	18.357	21.5	Pass
T15	320 - 300	Horizontal	L2 1/2x2 1/2x3/16	740	-3.927	18.357	21.4	Pass
T16	300 - 280	Horizontal	L2 1/2x2 1/2x3/16	791	-5.269	18.417	28.6	Pass
T17	280 - 260	Horizontal	L2 1/2x2 1/2x3/16	835	-5.787	18.417	31.4	Pass
T18	260 - 240	Horizontal	L2 1/2x2 1/2x3/16	895	-4.036	18.417	21.9	Pass
T19	240 - 220	Horizontal	L2 1/2x2 1/2x3/16	944	-3.995	18.417	21.7	Pass
T20	220 - 200	Horizontal	L2 1/2x2 1/2x3/16	969	-5.790	18.417	31.4	Pass
T21	200 - 180	Horizontal	L2 1/2x2 1/2x1/4	1029	-6.987	24.150	28.9	Pass
T22	180 - 160	Horizontal	L2 1/2x2 1/2x3/16	1099	-5.035	18.417	27.3	Pass
T23	160 - 140	Horizontal	L2 1/2x2 1/2x3/16	1121	-3.638	18.417	19.8	Pass
T24	140 - 120	Horizontal	L2 1/2x2 1/2x3/16	1174	-3.653	18.417	19.8	Pass
T25	120 - 100	Horizontal	L2 1/2x2 1/2x3/16	1225	-6.011	18.417	32.6	Pass
T26	100 - 80	Horizontal	L2 1/2x2 1/2x3/16	1303	-6.617	18.478	35.8	Pass
T27	80 - 60	Horizontal	L2 1/2x2 1/2x3/16	1353	-5.308	18.478	28.7	Pass
T28	60 - 40	Horizontal	L2 1/2x2 1/2x3/16	1376	-3.708	18.478	20.1	Pass
T29	40 - 20	Horizontal	L2 1/2x2 1/2x3/16	1454	-3.706	18.478	20.1	Pass
T30	20 - 8	Horizontal	L2 1/2x2 1/2x3/16	1478	-4.821	18.478	26.1	Pass
T31	8 - 0	Horizontal	L3x3x3/8	1513	13.912	68.364	20.4	Pass
T2	580 - 560	Top Girt	L2 1/2x2 1/2x3/16	39	-2.524	18.174	13.9	Pass
T3	560 - 540	Top Girt	L2 1/2x2 1/2x3/16	90	-2.610	18.174	14.4	Pass
T4	540 - 520	Top Girt	L2 1/2x2 1/2x3/16	142	-3.545	18.235	19.4	Pass
T5	520 - 500	Top Girt	L2 1/2x2 1/2x3/16	192	-2.419	18.235	13.3	Pass
T6	500 - 480	Top Girt	L2 1/2x2 1/2x3/16	244	-2.385	18.235	13.1	Pass
T7	480 - 460	Top Girt	L2 1/2x2 1/2x3/16	295	-3.433	18.296	18.8	Pass
T8	460 - 440	Top Girt	L2 1/2x2 1/2x3/16	345	-2.721	18.296	14.9	Pass
T9	440 - 420	Top Girt	L2 1/2x2 1/2x3/16	396	-2.344	18.296	12.8	Pass
T10	420 - 400	Top Girt	L2 1/2x2 1/2x3/16	446	-2.275	18.296	12.4	Pass
T11	400 - 380	Top Girt	L2 1/2x2 1/2x3/16	498	-2.609	18.296	14.3	Pass
T12	380 - 360	Top Girt	L1 1/2x1 1/2x1/4	548	-3.619	7.120	50.8	Pass
T13	360 - 340	Top Girt	L2 1/2x2 1/2x3/16	599	-2.764	18.357	15.1	Pass
T14	340 - 320	Top Girt	L2 1/2x2 1/2x3/16	650	-2.248	18.357	12.2	Pass
T15	320 - 300	Top Girt	L2 1/2x2 1/2x3/16	701	-2.079	18.357	11.3	Pass
T16	300 - 280	Top Girt	L2 1/2x2 1/2x3/16	752	-2.892	18.417	15.7	Pass
T17	280 - 260	Top Girt	L2 1/2x2 1/2x3/16	804	-3.999	18.417	21.7	Pass
T18	260 - 240	Top Girt	L2 1/2x2 1/2x3/16	856	-2.413	18.417	13.1	Pass
T19	240 - 220	Top Girt	L2 1/2x2 1/2x3/16	905	-2.068	18.417	11.2	Pass
T20	220 - 200	Top Girt	L2 1/2x2 1/2x3/16	956	-2.266	18.417	12.3	Pass
T21	200 - 180	Top Girt	L2 1/2x2 1/2x1/4	1007	-3.775	24.150	15.6	Pass
T22	180 - 160	Top Girt	L2 1/2x2 1/2x3/16	1058	-3.079	18.417	16.7	Pass
T23	160 - 140	Top Girt	L2 1/2x2 1/2x3/16	1111	-1.992	18.417	10.8	Pass
T24	140 - 120	Top Girt	L2 1/2x2 1/2x3/16	1160	-1.988	18.417	10.8	Pass
T25	120 - 100	Top Girt	L2 1/2x2 1/2x3/16	1211	-2.553	18.417	13.9	Pass
T26	100 - 80	Top Girt	L2 1/2x2 1/2x3/16	1264	-3.668	18.478	19.9	Pass
T27	80 - 60	Top Girt	L2 1/2x2 1/2x3/16	1314	-2.928	18.478	15.8	Pass
T28	60 - 40	Top Girt	L2 1/2x2 1/2x3/16	1365	-2.011	18.478	10.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T29	40 - 20	Top Girt	L2 1/2x2 1/2x3/16	1415	-1.929	18.478	10.4	Pass
T30	20 - 8	Top Girt	L2 1/2x2 1/2x3/16	1466	-2.019	18.478	10.9	Pass
T31	8 - 0	Top Girt	C3x5	1501	10.891	47.628	22.9	Pass
T1	592 - 580	Bottom Girt	L2 1/2x2 1/2x3/16	10	-3.346	18.174	18.4	Pass
T2	580 - 560	Bottom Girt	L2 1/2x2 1/2x3/16	41	-2.708	18.174	14.9	Pass
T3	560 - 540	Bottom Girt	L2 1/2x2 1/2x3/16	92	-3.160	18.174	17.4	Pass
T4	540 - 520	Bottom Girt	L2 1/2x2 1/2x3/16	143	-3.170	18.235	17.4	Pass
T5	520 - 500	Bottom Girt	L2 1/2x2 1/2x3/16	194	-2.292	18.235	12.6	Pass
T6	500 - 480	Bottom Girt	L2 1/2x2 1/2x3/16	245	-2.647	18.235	14.5	Pass
T8	460 - 440	Bottom Girt	L2 1/2x2 1/2x3/16	347	-3.004	18.296	16.4	Pass
T9	440 - 420	Bottom Girt	L2 1/2x2 1/2x3/16	400	-2.201	18.296	12.0	Pass
T10	420 - 400	Bottom Girt	L2 1/2x2 1/2x3/16	451	-2.313	18.296	12.6	Pass
T11	400 - 380	Bottom Girt	L2 1/2x2 1/2x3/16	500	-3.609	18.296	19.7	Pass
T12	380 - 360	Bottom Girt	L2 1/2x2 1/2x1/4	551	-3.743	24.069	15.6	Pass
T13	360 - 340	Bottom Girt	L2 1/2x2 1/2x3/16	604	-2.342	18.357	12.8	Pass
T14	340 - 320	Bottom Girt	L2 1/2x2 1/2x3/16	653	-2.112	18.357	11.5	Pass
T15	320 - 300	Bottom Girt	L2 1/2x2 1/2x3/16	705	-2.171	18.357	11.8	Pass
T16	300 - 280	Bottom Girt	L2 1/2x2 1/2x3/16	756	-3.417	18.417	18.6	Pass
T17	280 - 260	Bottom Girt	L2 1/2x2 1/2x3/16	806	-2.843	18.417	15.4	Pass
T18	260 - 240	Bottom Girt	L2 1/2x2 1/2x3/16	857	-2.124	18.417	11.5	Pass
T19	240 - 220	Bottom Girt	L2 1/2x2 1/2x3/16	909	-2.093	18.417	11.4	Pass
T20	220 - 200	Bottom Girt	L2 1/2x2 1/2x3/16	960	-2.896	18.417	15.7	Pass
T21	200 - 180	Bottom Girt	L2 1/2x2 1/2x1/4	1010	-3.819	24.150	15.8	Pass
T22	180 - 160	Bottom Girt	L2 1/2x2 1/2x3/16	1061	-2.551	18.417	13.9	Pass
T23	160 - 140	Bottom Girt	L2 1/2x2 1/2x3/16	1112	-1.922	18.417	10.4	Pass
T24	140 - 120	Bottom Girt	L2 1/2x2 1/2x3/16	1164	-2.067	18.417	11.2	Pass
T25	120 - 100	Bottom Girt	L2 1/2x2 1/2x3/16	1216	-3.282	18.417	17.8	Pass
T26	100 - 80	Bottom Girt	L2 1/2x2 1/2x3/16	1266	-3.099	18.478	16.8	Pass
T27	80 - 60	Bottom Girt	L2 1/2x2 1/2x3/16	1317	-2.130	18.478	11.5	Pass
T28	60 - 40	Bottom Girt	L2 1/2x2 1/2x3/16	1367	-1.976	18.478	10.7	Pass
T29	40 - 20	Bottom Girt	L2 1/2x2 1/2x3/16	1420	-1.877	18.478	10.2	Pass
T30	20 - 8	Bottom Girt	L2 1/2x2 1/2x3/16	1471	19.485	29.225	66.7	Pass
T31	8 - 0	Bottom Girt	12x3/8	1504	13.913	145.800	9.5	Pass
T1	592 - 580	Guy A@591.75	7/8	1531	30.470	55.200	55.2	Pass
T4	540 - 520	Guy A@531.95	1	1534	38.094	73.200	52.0	Pass
T7	480 - 460	Guy A@460.25	1	1537	39.624	73.200	54.1	Pass
T12	380 - 360	Guy A@368.05	1	1540	40.461	73.200	55.3	Pass
T17	280 - 260	Guy A@275.85	1	1543	41.079	73.200	56.1	Pass
T21	200 - 180	Guy A@184.15	7/8	1546	30.773	55.200	55.7	Pass
T26	100 - 80	Guy A@91.95	7/8	1549	24.384	55.200	44.2	Pass
T1	592 - 580	Guy B@591.75	7/8	1530	31.252	55.200	56.6	Pass
T4	540 - 520	Guy B@531.95	1	1533	39.286	73.200	53.7	Pass
T7	480 - 460	Guy B@460.25	1	1536	40.485	73.200	55.3	Pass
T12	380 - 360	Guy B@368.05	1	1539	39.969	73.200	54.6	Pass
T17	280 - 260	Guy B@275.85	1	1542	39.914	73.200	54.5	Pass
T21	200 - 180	Guy B@184.15	7/8	1545	30.007	55.200	54.4	Pass
T26	100 - 80	Guy B@91.95	7/8	1548	23.744	55.200	43.0	Pass
T1	592 - 580	Guy C@591.75	7/8	1529	31.889	55.200	57.8	Pass
T4	540 - 520	Guy C@531.95	1	1532	39.969	73.200	54.6	Pass
T7	480 - 460	Guy C@460.25	1	1535	41.453	73.200	56.6	Pass
T12	380 - 360	Guy C@368.05	1	1538	41.676	73.200	56.9	Pass
T17	280 - 260	Guy C@275.85	1	1541	39.867	73.200	54.5	Pass
T21	200 - 180	Guy C@184.15	7/8	1544	30.563	55.200	55.4	Pass
T26	100 - 80	Guy C@91.95	7/8	1547	23.067	55.200	41.8	Pass
T1	592 - 580	Top Guy Pull-Off@591.75	6*1	6	20.199	219.375	9.2	Pass
T4	540 - 520	Top Guy Pull-Off@531.95	6*1	170	-4.203	34.164	12.3	Pass
T7	480 - 460	Top Guy Pull-Off@460.25	6*1	296	-1.922	34.464	5.6	Pass
T12	380 - 360	Top Guy	6*1	569	-5.010	34.766	14.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T17	280 - 260	Pull-Off@368.05 Top Guy Pull-Off@275.85	6*1	842	-4.102	35.073	11.7	Pass
T21	200 - 180	Top Guy Pull-Off@184.15	6*1	1019	-5.483	35.073	15.6	Pass
T26	100 - 80	Top Guy Pull-Off@91.95	6*1	1292	-3.316	35.385	9.4	Pass
							Summary	
						Pole (L1)	39.2	Pass
						Leg (T11)	63.7	Pass
						Diagonal (T11)	81.9	Pass
						Horizontal (T4)	40.0	Pass
						Top Girt (T12)	50.8	Pass
						Bottom Girt (T30)	66.7	Pass
						Guy A (T17)	56.1	Pass
						Guy B (T1)	56.6	Pass
						Guy C (T1)	57.8	Pass
						Top Guy Pull-Off (T21)	15.6	Pass
						Bolt Checks	46.5	Pass
						RATING =	**81.9**	**Pass**

Guyed Tower Foundation Reaction Comparison

Site#	US-CT-5004	Date	6/10/2020
Carrier	AT&T	Engineer	TK

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

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	68.0	0.0	79.0
Vertical (kip)	609.0	133.0	0.0	118.0	Vertical (kip)	455.0	64.0	0.0	126.0

Foundation Reactions	**Factored Original Design**		**Current Analysis**		**Percentage**		
	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Controlling
	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)
Base	8.5	822.2	2.0	455.0	23.5%	55.3%	85.4%
Inner Anchor	171.5	179.6	68.0	64.0	39.7%	35.6%	
Middle Anchor	0.0	0.0	0.0	0.0	0.0%	0.0%	
Outer Anchor	92.5	159.3	79.0	126.0	85.4%	79.1%	

Notes:

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

CROWN CASTLE

BU:	US-CT-5004	Structure:	A
WO:			
Order:		Rev:	

Location

	Decimal Degrees		Deg	Min	Sec
Lat:	41.433708	+	41	26	1.35
Long:	-72.945189	-	72	56	42.68

Code and Site Parameters

Seismic Design Code:	TIA-222-H	
Site Soil:	D (Default)	Default
Risk Category:	II	

USGS Seismic Reference			
	S_S:	0.2000	g
	S_1:	0.0540	g
	T_L:	6	s

Seismic Design Category Determination

Importance Factor, I_e:	1
Acceleration-based site coefficient, F_a:	1.6000
Velocity-based site coefficient, F_v:	2.4000

Design spectral response acceleration short period, S_{DS}:	0.2133	g
Design spectral response acceleration 1 s period, S_{D1}:	0.0864	g

Seismic Design Category Based on S_{DS}:	B
Seismic Design Category Based on S_{D1}:	B
Seismic Design Category Based on S_1:	N/A

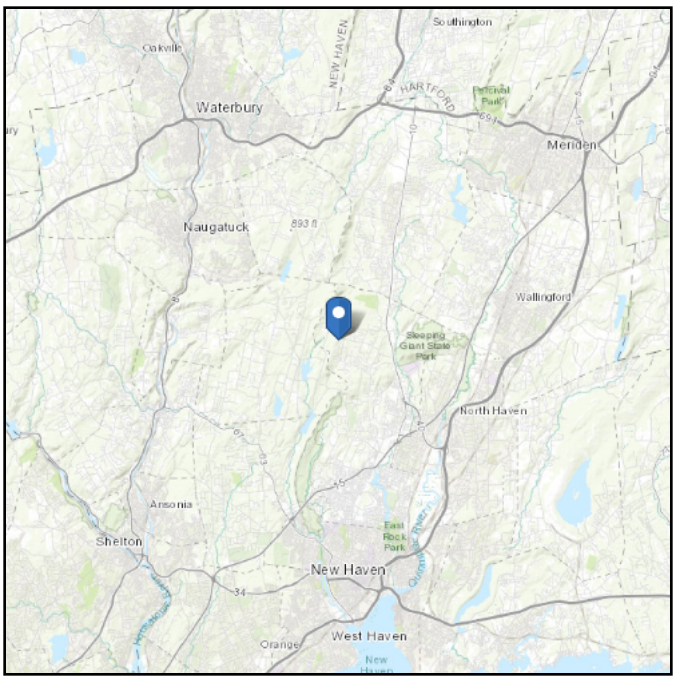
Controlling Seismic Design Category:	B

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 637.93 ft (NAVD 88)
Latitude: 41.433708
Longitude: -72.945189



Wind

Results:

Wind Speed:	119 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph
Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4
Date Accessed:	Wed Jun 10 2020

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

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

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

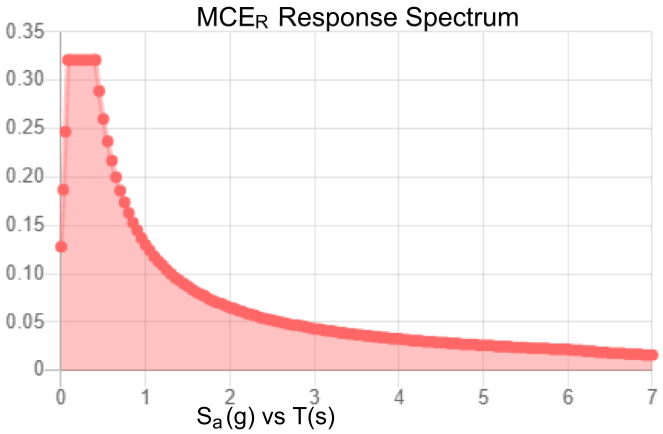
Seismic

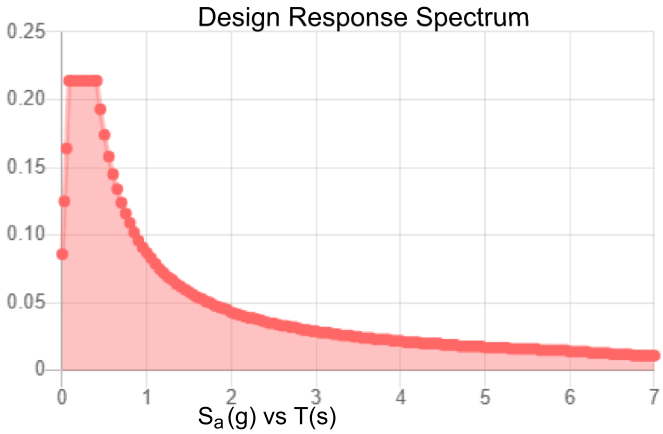
Site Soil Class: D - Default (see Section 11.4.3)

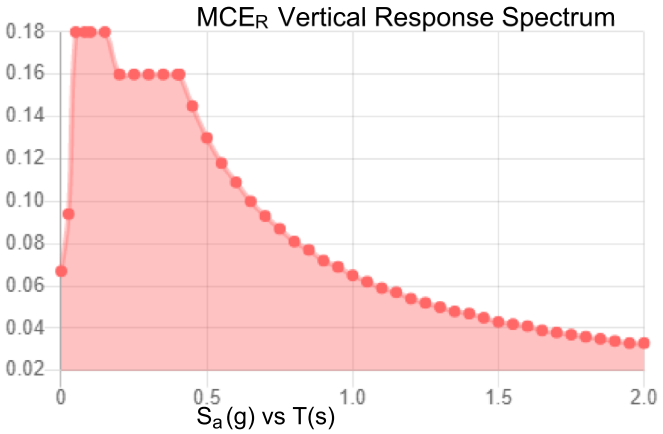
Results:

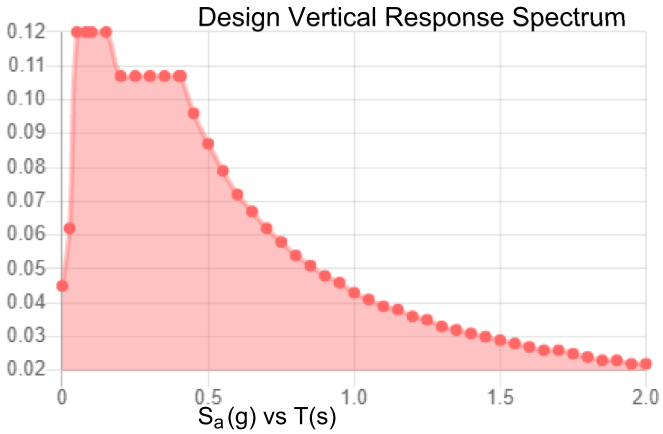
S_S :	0.2	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA_M :	0.176
S_{MS} :	0.321	F_{PGA} :	1.577
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.214	C_v :	0.701

Seismic Design Category B









Data Accessed: Wed Jun 10 2020

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Jun 10 2020

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

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

Attachment 2:
Collocation Application

Vertical Bridge
750 Park of Commerce
Drive
Suite 200
Boca Raton, FL 33487

Broadband Application

C-101876
Application Version 1
AMENDMENT TO EXISTING LEASE

Primary Information

VB Site Number
US-CT-5004

Tenant Legal Name
New Cingular Wireless PCS, LLC

Application Name
AT&T Application RF Mod WCS Fltr

VB Site Name
NHA-003-FM

Applicant and Additional Contact Information

Applicant

Name: Emily Barnes
Email: ebarnes@saigrp.com
Email Alt:
Mobile:
Other:
Fax:

Address:

,

Emergency Contact

Name:
Email: (mailto:)
Phone:

Leasing Contact

Name: Emily Barnes
Email: ebarnes@saigrp.com
(mailto:ebarnes@saigrp.com)
Phone: (603)560-8742

Construction Contact

Name: SHANNA PALMER-CORREIA
Email: shanna.palmer@ericsson.com
(mailto:shanna.palmer@ericsson.com)
Phone: (508)264-1199

RF Contact

Name: Rahimuddin Mohammed
Email: rx855w@att.com
(mailto:rx855w@att.com)
Phone: (202)999-2776

Carrier Contact Information

Invoice Contact

Name: SAP Coordinators
Title: Jhana Arsenault & Kayla Gagnon
Email: SAPORMOD@SAI-Comm.com
(mailto:SAPORMOD@SAI-Comm.com)
Mobile: (603)421-0470

Address
12 Industrial Way
Salem, New Hampshire 03079

Notice

To: Network Real Estate Administration
Attn:

Address:
1025 Lenox Park Blvd NE 3rd Floor
Atlanta, Georgia 30319-5309

Copy Notice

To: AT&T Legal Department – Network Counsel
Attn:

Address:
208 S. Akard Street
Dallas, Texas 75202-4206

Broadband Application

Vertical Bridge
750 Park of Commerce
Drive
Suite 200
Boca Raton, FL 33487

C-101876
Application Version 1
AMENDMENT TO EXISTING LEASE

Carrier Information

Tenant Site Number
CT5663

State Of Registration
Delaware

Carrier NOC#

Tenant Site Name
AWE - HAMDEN - TALMADGE

Type of Entity
LLC

Site Information

Latitude
41.43370833

Site Address
Approximately 6.9 Nm Southwest Of
Meriden-markham Airport (mmk)
Meriden, CT 06450

Structure Type
Guyed Tower

Longitude
-72.94518889

Structure Height
625.33

Frequency and Technology Information

TX Frequency (MHz)
Unlicensed

716-728, 734-746, 880-893, 930-1935, 1945-1950, 1965-1975, 2170-2180, 2345-2360

Type of Technology
Broadband Wireless

RX Frequency (MHz)
Unlicensed

704-716, 835-848, 1850-1855, 1865-1870, 1885-1895, 1770-1780, 2305-2320

General Scope of Work

In Beta sector adding (1) Comoscope Quad WCS filter, model WCS-IMFQ-AMT to the antenna in POS# 3.

Broadband Application

Vertical Bridge
750 Park of Commerce
Drive
Suite 200
Boca Raton, FL 33487

C-101876
Application Version 1
AMENDMENT TO EXISTING LEASE

Ground and Interior Space Requirements

No Changes

Generator Requirements

No Changes

AC Power Requirements

Existing Tenant Meter

Comments

Using Existing Power 50A Service Power Consumption < 800 Watts

Backhaul Requirements

No Changes

Broadband Application

Vertical Bridge
750 Park of Commerce
Drive
Suite 200
Boca Raton, FL 33487

C-101876
Application Version 1
AMENDMENT TO EXISTING LEASE

Structural Analysis Hard Copies

Structural Hard Copies Required

No

Mount Analysis

Will Tenant Provide Mount Analysis?

No

VB To Run Mount Analysis?

No

Do You Want VB to Perform Mount Mapping?

No

Broadband Application

Vertical Bridge
750 Park of Commerce
Drive
Suite 200
Boca Raton, FL 33487

C-101876
Application Version 1
AMENDMENT TO EXISTING LEASE

Existing Equipment

Qty	Equipment Type	RAD	Mount (H')	Mount Type	Manufacturer	Model Number	Dimensions (H" x W" x D")	Weight (Lbs)	Azimuth	Remain	Comments
3	Panel Antenna	280.00	280.00	Sector Frames	Powerwave	7770	55.00 x 11.00 x 5.00	35.00	90/200/300	Yes	
1	Panel Antenna	280.00	280.00	Sector Frames	Andrew	SBNHH-1D65A	55.60 x 11.90 x 7.10	34.00	90	Yes	
1	Panel Antenna	280.00	280.00	Sector Frames	Andrew	SBNHH-1D65A	55.60 x 11.90 x 7.10	34.00	90	Yes	
1	Panel Antenna	280.00	280.00	Sector Frames	Kathrein	800-10964	59.00 x 20.00 x 6.90	84.00	90	Yes	
2	Panel Antenna	280.00	280.00	Sector Frames	CCI	HPA-65R-BUU-H6	72.00 x 14.80 x 9.00	51.00	200/300	Yes	
2	Panel Antenna	280.00	280.00	Sector Frames	CCI	HPA-65R-BU6AA	71.10 x 11.70 x 7.60	42.00	200/300	Yes	
2	Panel Antenna	280.00	280.00	Sector Frames	Kathrein	800-10965	78.70 x 20.00 x 6.90	109.00	200/300	Yes	
3	RRU	280.00	280.00	Sector Frames	ericsson	RRUS-32	27.20 x 12.10 x 7.00	60.00	90/200/300	Yes	
3	RRU	280.00	280.00	Sector Frames	ericsson	8843 B2/B66A	14.90 x 13.20 x 9.40	72.00	90/200/300	Yes	
3	RRU	280.00	280.00	Sector Frames	ericsson	4449 B5/B12	17.90 x 13.20 x 9.40	71.00	90/200/300	Yes	
6	TMA	280.00	280.00	Sector Frames	Powerwave	LGP21401	14.40 x 9.00 x 2.70	19.00	90/200/300	Yes	
3	Surge	280.00	280.00	Sector Frames	Raycap	DC6-48-60-18-8C	23.50 x 9.70 x 9.70	20.00	90/200/300	Yes	

New Equipment

Qty	Equipment Type	RAD	Mount (H')	Mount Type	Manufacturer	Model Number	Dimensions (H" x W" x D")	Weight (Lbs)	Azimuth	Comments
1	Filter	280.00	280.00	Sector Frames	CommScope	WCS-IMFQ-AMT	11.20 x 10.60 x 6.90	34.50	200	one quad filter added to the BETA sector

Existing Line

Qty	Line Type	Line Size (Inches)	Line Location	Comments	Remain
6	Coax	1 5/8"	Exterior		Yes
2	Fiber	3/8"	Exterior		Yes
6	DC Power	3/4"	Exterior		Yes

New Line

Qty	Line Type	Line Size (Inches)	Line Location	Comments

Equipment Cabinet

Qty	Dimensions (H" x W" x D")	Cabinet Manufacturer	Comments

Vertical Bridge
750 Park of Commerce
Drive
Suite 200
Boca Raton, FL 33487

Broadband Application

C-101876
Application Version 1
AMENDMENT TO EXISTING LEASE

FINAL LEASED RIGHTS CONFIGURATION TOTALS
Any remaining existing equipment PLUS your new equipment

Final Equipments

Qty	Equipment Type
12	Panel Antenna
9	RRU
6	TMA
3	Surge
1	Filter

Final Lines

Qty	Equipment Type
6	Coax
2	Fiber
6	DC Power

WCS-IMFT-AMT & WCS-IMFQ-AMT

Twin WCS IMF for Aeronautical Mobile Telemetry Band Co-Location

Quad WCS IMF for Aeronautical Mobile Telemetry Band Co-Location

Electrical

WCS PATH (BTS0 - ANT0 & BTS1 - ANT1)

Passband frequency range, MHz	2305 – 2359.14
Insertion Loss for 2305.0 – 2315.0 MHz, dB	0.3 max, 0.2 typ.
Insertion Loss for 2350.0 - 2357.0 MHz, dB	0.9 max, 0.5 typ.
Insertion Loss for 2357.0 – 2358.6 MHz, dB	1.6 max, 1.0 typ.
Insertion Loss for 2358.6 – 2358.96 MHz, dB	2.2 max, 1.5 typ.
Insertion Loss for 2358.96 - 2359.14 MHz, dB	2.0 typical
Group Delay for 2305.0 – 2315.0 MHz	10 ns max
Group Delay for 2350.0 - 2358.6 MHz	250 ns max
Group Delay for 2358.6 - 2359.0 MHz	400 ns max
Return loss, dB	18 min, 20dB typ.
Rejection 2360–2395 MHz	30dB min, 35 typ.
IMD (two +43 dBm carriers)	–110 dBm max
Input power rating per port – RMS	100 W
Input power rating per port– PEP	1000 W

DC/AISG TRANSPARENCY

AISG Frequency	2.176 MHz
Insertion Loss (@2.176 MHz)	0.2dB max
DC Bypass Path 1 (twin & quad)	BTS1 to ANT1
DC Bypass Path 2 (twin & quad)	BTS2 to ANT2
DC Bypass Path 3 (quad)	BTS3 to ANT3
DC Bypass Path 4 (quad)	BTS4 to ANT4
DC Voltage Bypass	7 – 30 V
DC Current Single Path	3 A max

Mechanical (Twin Version)

Dimensions, mm	285x175x125 mm
Dimensions, in	11.2 x 6.9 x 4.9 in
Weight, (without mounting brackets) Kg (lb)	6.7kg (14.7 lbs)
Weight, (with mounting brackets) Kg (lb)	7.4kg (16.2 lbs)
Finish	Gray paint
Connectors, RF	7-16 DIN female
Ground terminal diameter, mm (in)	5 (0.20)

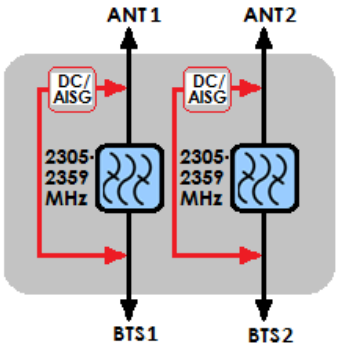
Mechanical (Quad Version)

Dimensions, mm	285x269x175 mm
Dimensions, in	11.2x 10.6 x 6.9 in
Weight, (without mounting brackets) Kg (lb)	13.4kg (29.5 lbs)
Weight, (with mounting brackets) Kg (lb)	15.7kg (34.5 lbs)
Finish	Gray paint
Connectors, RF	7-16 DIN female
Ground terminal diameter, mm (in)	5 (0.20)

Environmental

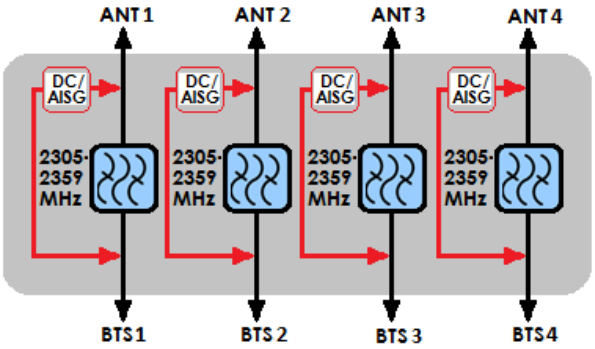
Operating temperature range, °C	–40 to +65
Ingress protection	IP67
Lightning protection	10 kA, 8/20 µs

Block Diagram (Twin Version)



Twin WCS IMF for AMT Band Co-Location

Block Diagram (Quad Version)



Quad WCS IMF for AMT Band Co-Location

Ordering Information: SPECIFY MODEL FILTER AS SHOWN

Model Number	Part Number	Description
WCS-IMFT-AMT	E15V87P60	Twin WCS IMF for 2360-2395 MHz AMT band co-location
WCS-IMFQ-AMT	E15V87P71	Quad WCS IMF for 2360-2395 MHz AMT band co-location

COMMSCOPE®

www.commscope.com

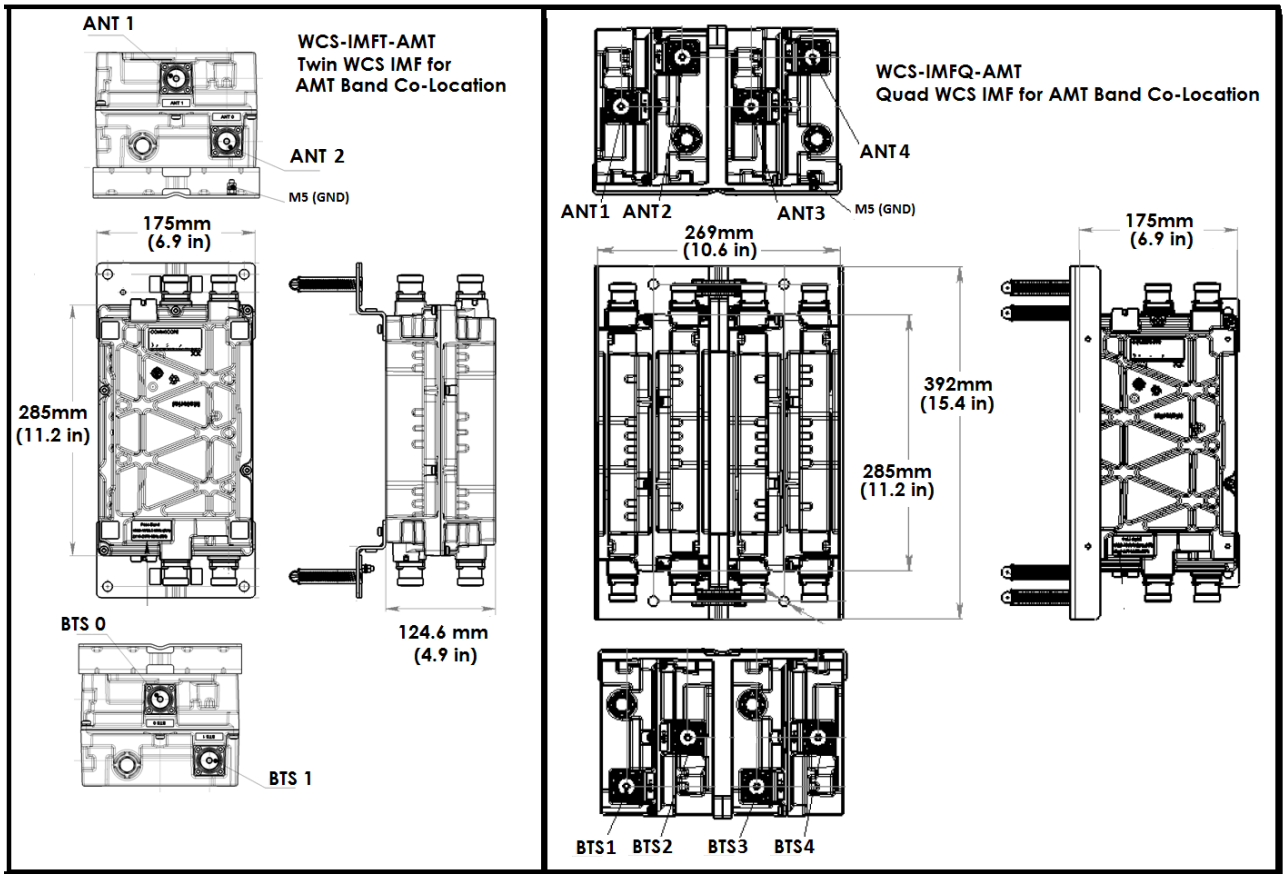
WCS-IMFT-AMT & WCS-IMFQ-AMT revision v1 (10/06/2015). Visit our Web site or contact your local CommScope representative for more information

WCS-IMFT-AMT & WCS-IMFQ-AMT

***Twin* WCS IMF for Aeronautical Mobile Telemetry Band Co-Location**

***Quad* WCS IMF for Aeronautical Mobile Telemetry Band Co-Location**

Outline Drawings



www.commscope.com

WCS-IMFT-AMT & WCS-IMFQ-AMT revision v1 (10/06/2015). Visit our Web site or contact your local CommScope representative for more information

Town of Hamden, CT

Property Listing Report

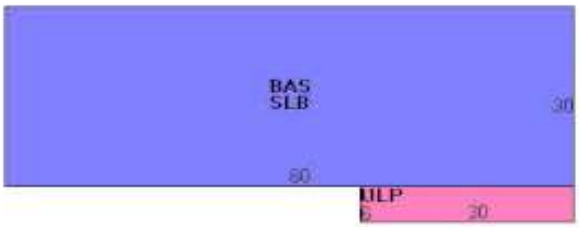
Map Block Lot **3224-025-01-0000** Account

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 6/1/2020

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

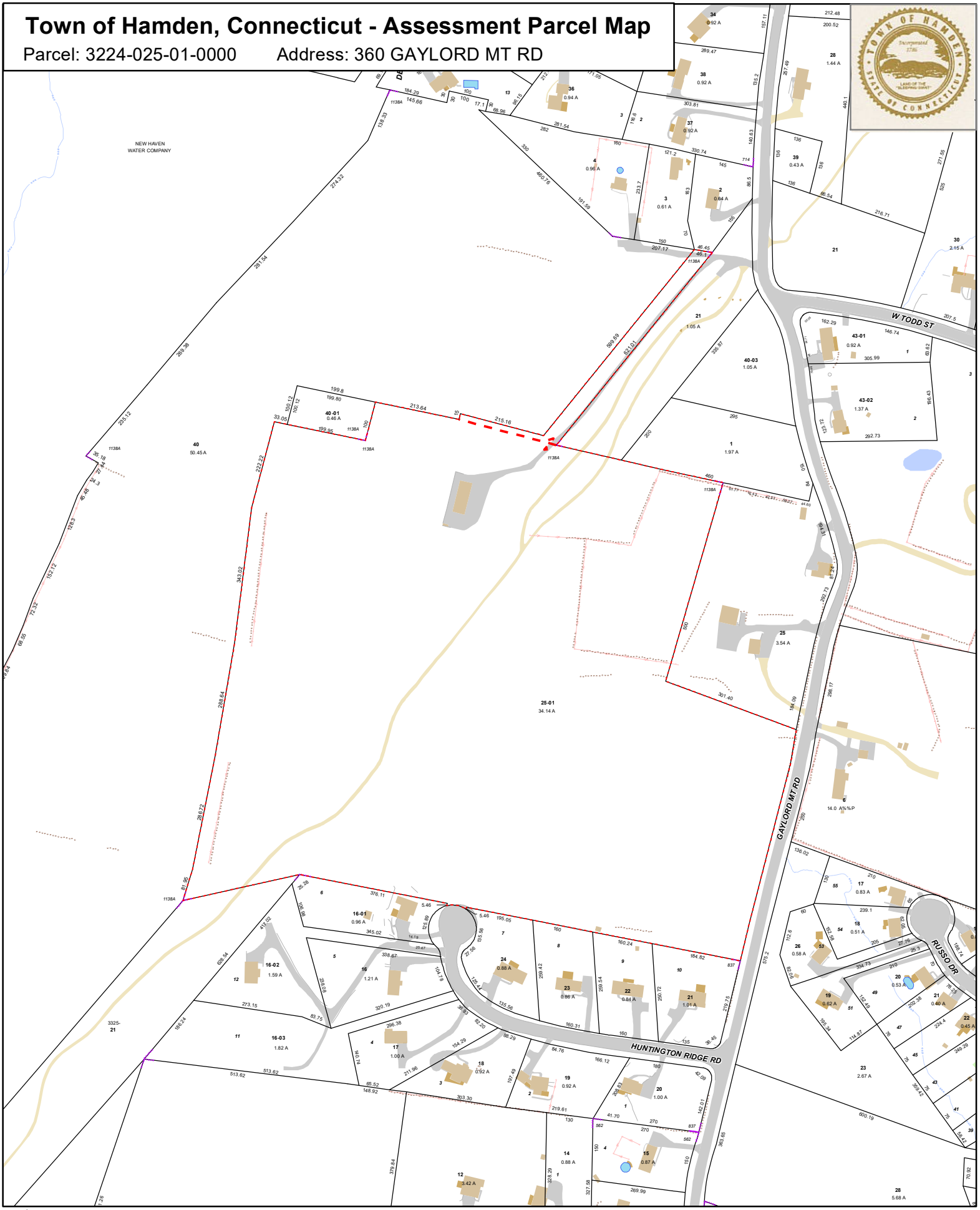
Sales History

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 6/1/2020

Town of Hamden, Connecticut - Assessment Parcel Map

Parcel: 3224-025-01-0000 Address: 360 GAYLORD MT RD



N

Approximate Scale: **1 inch = 300 feet**

0 150 300 450 600 Feet

Map Produced: April 2019

Disclaimer: This map is for informational purposes only. 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.

LETTER OF AUTHORIZATION

This Letter of Authorization provides written authorization for New Cingular Wireless PCS, LLC and its affiliates ("AT&T"), its agents or representatives, to apply for any necessary zoning applications or petitions, permits or any other approvals, including, but not limited to, the filing of applications for building permits, which are necessary for AT&T's placement and operation of a wireless telecommunications facility on and within a portion of the real property with an address of **360 Gaylord Mountain Road; Hamden, CT 06518.**

OWNER:

BY: 
(Signature)

NAME: Floyd D Jenkins
(Printed)

DATED: June 3, 2020

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Flat Rate Env

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PRIORITY MAIL 1-DAY™

HOLLIS REDDING
39 WESTVIEW DR
MERIDEN CT 06450-4723

Expected Delivery Date: 06/13/20

0005

Carrier -- Leave if No Response

C052

SHIP TO: CURT LENG
CITY OF HAMDEN MAYOR'S OFFICE
2750 DIXWELL AVE
HAMDEN CT 06518-3320

USPS TRACKING #

9405 5036 9930 0414 9931 95

Electronic Rate Approved #038555749

Cut on dotted line.

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usps.com
$7.75
US POSTAGE
Flat Rate Env

9405 5036 9930 0414 9932 01 0077 5000 0010 6518

06/12/2020 Mailed from 06450 062S0000000101

PRIORITY MAIL 1-DAY™

HOLLIS REDDING
39 WESTVIEW DR
MERIDEN CT 06450-4723

Expected Delivery Date: 06/13/20

0005

Carrier -- Leave if No Response

C052

SHIP TO: DANIEL KOPS
CITY OF HAMDEN TOWN PLANNER'S OFFICE
2750 DIXWELL AVE
HAMDEN CT 06518-3320

USPS TRACKING #

9405 5036 9930 0414 9932 01

Electronic Rate Approved #038555749

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

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usps.com
$7.75
US POSTAGE
Flat Rate Env

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06/12/2020 Mailed from 06450 062S0000000309

PRIORITY MAIL 1-DAY™

HOLLIS REDDING
39 WESTVIEW DR
MERIDEN CT 06450-4723

Expected Delivery Date: 06/13/20
Ref#: Hamden T
0005

Carrier -- Leave if No Response

C006

SHIP TO: MELANIE BACHMAN
CT SITING COUNCIL
10 FRANKLIN SQ
NEW BRITAIN CT 06051-2655

USPS TRACKING #

9405 5036 9930 0414 9932 18

Electronic Rate Approved #038555749

Cut on dotted line.

Hollis Redding

To: fjenkins@verticalbridge.com
Subject: Vertical Bridge 360 Gaylord Mountain Road, Hamden, CT 06518

Hello Floyd-

Attached please find the exempt mod filing which will be filed with the CSC today, June 12, 2020. Thank you. Hollis

Hollis M. Redding

SAI Communications LLC
Mobile: 860-834-6964
hredding@saigrp.com