Site Name: Oak Creek
Site ID: TV-49 Site

FIRST AMENDMENT TO
LEASE AND TOWER LEASE AGREEMENT

This First Amendment to Lease and Tower Lease Agreement (the "First Amendment") is made as of ___________________, 2015 (the "Effective Date") by and between T10 MELTEL LLC (f/k/a T10 UNISON SITE MANAGEMENT LLC) ("Lessor"), and Milwaukee County ("Lessee"), with reference to the facts set forth in the Recitals below:

RECITALS

A. **WHEREAS**, TV-49, Inc., owner of Television Station WJJA ("TV-49, Inc.") and Lessee entered into that certain Tower Lease Agreement dated November 23, 1999 (the "Tower Lease") for the purpose of installing, maintaining and operating a radio transmitting and receiving station; and

B. **WHEREAS,** Joel Kinlow, successor-in-interest to TV-49, Inc., and Lessee entered into that certain Lease Agreement dated June 13, 2005 (the "Utility Lease") for the purpose of installing, maintaining and operating uninterruptible power supply (UPS) equipment, an engine generator and/or other communications equipment. For the purposes of this First Amendment and any subsequent amendments, the Tower Lease and the Utility Lease shall collectively and hereinafter be referred to as the Lease; and

C. **WHEREAS,** pursuant to the Lease, Lessee was granted the right to lease a portion of the property (the "WJJA Premises") located at 4311 East Oakwood Road, City of Oak Creek, County of Milwaukee, State of Wisconsin (the "Property"), all as more particularly described in the Lease, together with utility cable space, a right of access and a right to install utilities; and

D. **WHEREAS**, Joel Kinlow sold all of his rights, title and interest in and to any and all covenants, restrictions and agreements benefitting the Property to Lessor by that certain Master Bill of Sale, Assignment and Assumption Agreement dated May 30, 2012 and recorded on June 25, 2012, under Document No. 10131195, and by that certain Corrective Warranty Deed dated November 30, 2012 and recorded December 18, 2012, under Document No. 10195333, in the office of the Register of Deeds, Milwaukee County,WI (the "Assignment Agreement"). Lessor is the current lessor under the Lease; and

E. **WHEREAS**, Lessor and Lessee desire to amend the Lease to provide for certain modifications to the WJJA Premises; and

F. **WHEREAS**, Lessor and Lessee desire to amend the Lease to provide for certain modifications to the Term; and

G. **WHEREAS**, Lessor and Lessee have agreed to amend the Lease as detailed herein.

AGREEMENT

NOW, THEREFORE, in consideration of the facts contained in the Recitals above, the mutual covenants and conditions below, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. Modification to WJJA Premises. Lessor consents to the installation and operation of two (2) additional microwave dishes and related equipment in the approximate locations more fully described and

contemplated on Exhibit B, consisting of site plans dated Septeber, 2014, a copy of which is attached hereto and made a part hereof (the "Site Plans"). Upon full execution of this First Amendment, Lessee is permitted to do all work necessary to prepare, maintain and alter the WJJA Premises to modify, add or otherwise replace Lessee's equipment as depicted on Exhibit B.

1. Modification to Rent. In consideration for the modifications contemplated by this First Amendment, retroactively as of December 1, 2014, the total monthly Rent will be increased to One Thousand Eight Hundred and 00/100 Dollars ($1,800.00). Commencing December 1, 2015, and on the first day of each December thereafter, the Rent will escalate by an amount equal to three percent (3%) of the Rent for the previous year.

2. Modification to Term. The Terms of the Utility Lease and the Tower Lease have expired as of June 30, 2014 and December 31, 2014 respectively. The parties agree that the Utility Lease was allowed to remain in effect month-to-month through November 30, 2014. The parties hereby agree that both leases shall have a new Term commencing retroactively as of December 1, 2014 and ending November 30, 2019. Lessee shall have the option to renew the Lease for one (1) additional 5 year term commencing December 1, 2019, which renewal shall be automatic unless Lessee notifies Lessor in writing of its intent not to renew the Lease no later than November 30, 2018.

3. Modification to Tower. Prior to the commencement of installation of Lessee's additional equipment, Lessee is required to make certain structural modifications to the existing 500 ft guyed tower at its sole cost and expense (the "Tower Modification") pursuant to that certain Post Construction Inspection report dated November 17, 2014. Lessor shall make a one-time capital contribution towards Lessee's Tower Modification in an amount equal to Four Thousand and 00/100 Dollars ($4,000.00), only after (i) Lessee has completed the contemplated installation as described on Exhibit B and (ii) Lessee has caused a post-work inspection to be performed by a certified, independent third party contractor confirming that the Tower Modification and Lessee's installation were done in full compliance with the approved Site Plans and specifications attached hereto, and has provided Lessor with a copy of such post-work inspection report. At least forty-eight (48) hours prior to the commencement of any work at the Property, Lessee shall submit a construction schedule to Lessor for approval.

4. Notices. All notices, requests, demands and communications hereunder must be in writing and are effective only when deposited in the U.S. first class certified or registered mail, return receipt requested, or by a nationally recognized overnight courier, postage prepaid. Notices will be addressed to the parties as follows:

If to Lessee: Milwaukee County
____
____
____
____

If to Lessor: T10 MelTel LLC
(f/k/a T10 Unison Site Management LLC)
110 Thomas Johnson Drive, Suite 110
Frederick, Maryland 21702
Attn: Lease/Contract Administration

With a copy to: T10 MelTel LLC
(f/k/a T10 Unison Site Management LLC)
340 Madison Avenue, Suite 12F

New York, NY 10173
Attn: CEO

5. General Terms and Conditions.

(a) In the event of any inconsistencies between the Lease and this First Amendment, the terms of this First Amendment shall control. Except as expressly set forth in this First Amendment, the Lease otherwise is unmodified and remains in full force and effect. Each reference in the Lease to itself shall be deemed also to refer to this First Amendment.

(b) All capitalized terms used but not defined herein shall have the same meanings as defined in the Lease.

(c) This First Amendment may be executed in duplicate counterparts, each of which will be deemed an original.

(d) Each of the parties represent and warrant that they have the right, power, legal capacity and authority to enter into and perform their respective obligations under this First Amendment.

(e) This First Amendment will be binding on and inure to the benefit of the parties herein, their heirs, executors, administrators, successors-in-interest and assigns.

[Signatures to appear on following page]

IN WITNESS WHEREOF, Lessor and Lessee have caused this FIRST AMENDMENT TO LEASE AND TOWER LEASE AGREEMENT to be executed by each party's duly authorized representative effective as of the date first above written.

Lessor:	**Lessee:**
T10 MELTEL LLC **(f/ka/T10 UNISON SITE MANAGEMENT LLC**, by: MelTel Land Funding LLC, Sole Member of T10 MelTel LLC By: Unison Site Management Corp., as Authorized Signatory for MelTel Land Funding LLC	**MILWAUKEE COUNTY**
By: ______________________	By: ______________________
Name: James R. Holmes	Name: ______________________
Title: Vice President/Secretary	Its: ______________________
Date: ______________________	Date: ______________________

<u>EXHIBIT B</u>

THE WJJA PREMISES

(Refer to Site Plans dated September, 2014 attached hereto,

Titled, "Reinforcement Design of a 500ft Guyed Tower"

By Armor Tower Engineering

29 total pages)

ARMOR TOWER ENGINEERING

Reinforcement Design of a 500 ft Guyed Tower

Site Name: Oak Creek
County: Milwaukee
Location: Oak Creek, WI

Checked By:

Patrick Propert

Patrick Propert
Structural Design Engineer II

WISCONSIN DMITRIY V. ALBUL E-40253-006 EAST AMHERST NY PROFESSIONAL ENGINEER

D. Albul

09/11/2014

ISI Installation Services, Inc.

10406 Cherry Valley Rd

Genoa, IL 60135

September 2014

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

ARMOR TOWER ENGINEERING

September 10, 2014

Jim Vogel
Installation Services, Inc
10406 Cherry Valley Rd
Genoa, IL 60135

RE: Milwaukee County – Oak Creek
4311 East Oakwood Road, Oak Creek, WI 53154

Jim:

We have completed the reinforcement design of the subject tower. The tower was analyzed according to the requirements of TIA 222-G-2 standard for Milwaukee County for 90 mph (3-sec. gust) wind speed with no ice and 40 mph wind with ¾" ice per the 2009 IBC as referenced by the Wisconsin Building Code. Topographic Category 1, Exposure D, and Structure Class II were used in this analysis.

The subject tower is a 500' Landmark guyed tower consisting of all-bolted sections with bent plate legs and angle bracing. Tower face dimension is 36" the full height above a 10' tapered base. The tower mast is laterally supported by six levels of guying attached to two sets of three guy anchors. The tower has been previously reinforced. This design accounts for the structure modifications outlined in our July 2011 reinforcement design.

The design is based on the loading used in our June 2014 analysis. The scope of reinforcement includes the following, as detailed in drawing 14033:

- Replace horizontal bracing members with larger members @ 160'-220'.
- Replace diagonal bracing members with larger members @ 260'-280' and 420'-440'.
- Retension the 320'-level guy cables as shown.

With the detailed modifications properly installed, the tower and foundation will have sufficient capacity to support the proposed loading outlined in our analysis dated June 2014. The results of this analysis showed all tower and foundation elements to be loaded within allowable limits with a maximum stress rating of 97.4%. The maximum displacement of the proposed dishes at service wind speed is 1.00° @ 115' and 1.18° @ 165'. We recommend a post-construction inspection be completed by an engineer to document that tower reinforcement has been placed in compliance with the requirements of this analysis. For a detailed listing of the tower's post-reinforcement performance, please see page 13-17 of the calculations.

We appreciate the opportunity to provide our services to Installation Services and Milwaukee County and if you have any questions concerning this analysis, please contact us. Please let us know if we can be of further assistance in providing a price quote to install the reinforcement for this tower.

Sincerely,

ARMOR TOWER, INC.

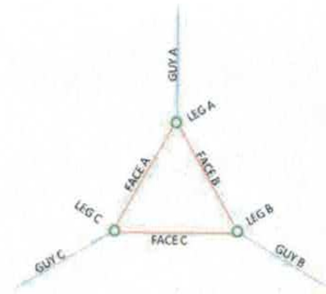
David Harrison
Structural Design Engineer II

WISCONSIN
DMITRIY V.
ALBUL
E-40253-006
EAST AMHERST
NY
PROFESSIONAL ENGINEER

09/11/2014

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

PRIMARY ASSUMPTIONS USED IN THE ANALYSIS



1. Face A is assumed to be oriented North, Leg B is oriented South.
2. Allowable steel stresses are defined by AISC-LRFD 3rd Edition and all welds conform to AWS D1.1 specifications.
3. Armor Tower has been commissioned to analyze the tower according to the requirements of TIA 222-G-2 for Milwaukee County, WI. Per this code, a basic wind speed of 90 mph (3-sec. gust) without ice and 40 mph with ¾" ice is recommended. This site is not within a special wind region according to the ASCE 7 wind map. It is the client's responsibility to check with local authorities or the tower owner if a greater wind or ice loading is required to be considered in the analysis. Note that Section 3108.4 of the International Building Code states that "Towers shall be designed to resist wind loads according to TIA/EIA-222".
4. The acceptability of the analyzed antenna loading is the responsibility of Installation Services and its affiliates to confirm with the respective carriers or the tower owner.
5. Any deviation from the analyzed antenna loading will require a re-analysis of the tower for verification of structural integrity. The proposed feed lines must be located as shown on drawing E-7.
6. This analysis assumes all tower members are galvanized adequately to prevent corrosion of the steel and that all tower members are in "like new" condition with no physical deterioration. This analysis also assumes the tower has been maintained properly per TIA 222-G Annex J recommended inspection and maintenance procedures for tower owners and is in a plumb condition. Armor Tower has not completed a condition assessment of the tower.
7. No accounting for residual stresses due to incorrect tower erection can be made. This analysis assumes all bolts are appropriately tightened providing necessary connection continuity and that the installation of the tower was performed by a qualified tower erector.
8. We have compared current foundation reactions with calculated capacities from our previous analysis of this tower dated July 2011.
9. No conclusions, expressed or implied, shall indicate that Armor Tower has made an evaluation of the original design, materials, fabrication, or potential installation or erection deficiencies. Any information contrary to that assumed for the purpose of preparing this analysis could alter the findings and conclusions stated herein.
10. Tower member sizes and geometry as well as existing antenna loading are based on a tower mapping completed by Installation Services in May 2014. Proposed equipment was outlined in an email dated May 2014.
11. The investigation of the load carrying capacities of the antenna supporting frames/mounts is outside the scope of this analysis. Antenna mount certification can be completed under separate contract.

STAINLESS STEEL TAGS (3 PCS)
TO BE ATTACHED WITH STAINLESS STEEL OR GALVANIZED WIRE. THEY MUST BE ATTACHED TO THE TURNBUCKLE SETS ON THE OUTER ANCHORS OF THE GUY CABLES THAT LEAD TO THE 320' ELEVATION. THIS IS TO PREVENT ADJUSTMENT TO TYPICAL VALUES AFTER A FUTURE ROUTINE TENSION CHECK.

ORDERING AND FABRICATION.

3. CONTRACTOR SHALL VERIFY THAT NO OBSTRUCTIONS (IE: STEP BOLTS, FEED LINES, SAFETY CLIMB CABLE ATTACHMENT) WILL HINDER THE PLACEMENT AND LOCATION OF REINFORCING ELEMENTS. ALL OBSTRUCTIONS AND DISCREPANCIES SHALL BE REPORTED TO ARMOR TOWER PRIOR TO CONSTRUCTION.
4. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING ENGINEER (ARMOR TOWER) OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
5. ALL PARTS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION TO ASTM A123 SPECIFICATIONS.
6. ALL BOLTS NOTED AS A325X REQUIRE THREADS TO BE EXCLUDED FROM THE SHEAR PLANE. THE BOLTS SHALL BE SIZED TO PROVIDE UNTHREADED SHANK IN THE SHEAR PLANE.
7. A325 HARDWARE THAT HAS BEEN REMOVED FROM SERVICE SHALL NOT BE REUSED.
8. ALL BOLTS SHALL BE PROVIDED WITH ANCO NUTS, PAL NUTS OR OTHER MECHANICAL LOCKING DEVIC
9. ALL BOLT HOLES SHALL BE STANDARD (1/16" OVER BOLT DIAMETER) UNLESS NOTED OTHERWISE. NO HOLES SHALL BE TORCH CUT.
10. ANY INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIAL OR CONDITIONS REQUIRING REMEDIAL OR CORRECTIVE ACTION SHALL REQUIRE ENGINEER'S REVIEW.
11. NO UNAUTHORIZED COPES (NOT SHOWN IN DRAWINGS) ARE PERMITTED. PLEASE CONTACT ARMOR TOWE FOR GUIDANCE.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS & METHODS AS WELL AS PROTECTING EXISTING LINES AND FACILITIES FROM CONSTRUCTION DAMAGE.
13. REINFORCEMENT SEQUENCE SHALL COMMENCE FROM GROUND LEVEL UP.
14. STABILITY OF THE TOWER DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR.
15. ANY REQUIRED BRACE REPLACEMENT SHALL BE DONE ONE-AT-A-TIME.
16. IF THE TOWER DOES NOT HAVE DAYTIME STROBE LIGHTING THEN NEW TOWER MEMBERS MUST BE PAINTED PER FAA REQUIREMENTS.
17. ALL REINFORCEMENTS SHALL BE IN PLACE PRIOR TO ANTENNA INSTALLATION.
18. AFTER ALL REINFORCEMENTS ARE INSTALLED, THE ENTIRE TOWER SHALL PLUMBED AND THE GUYS RE-TENSIONED TO THE VALUES INDICATED IN THE TABLE.

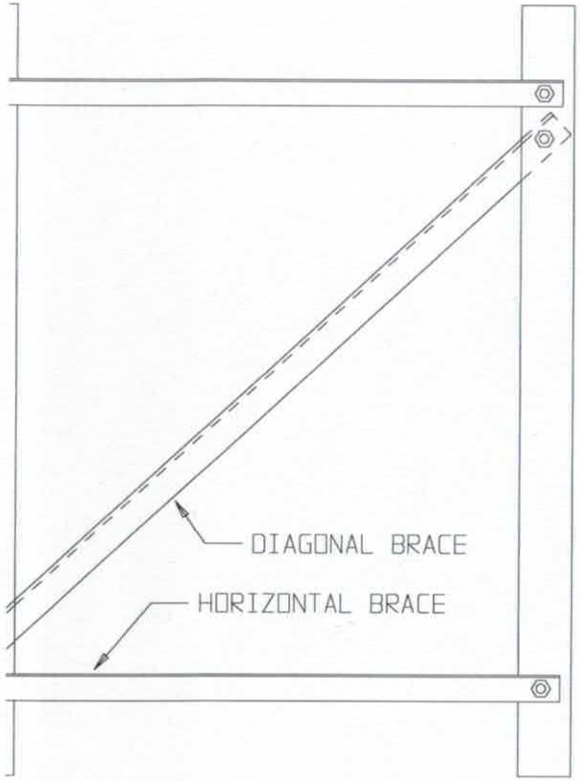
MATERIAL:

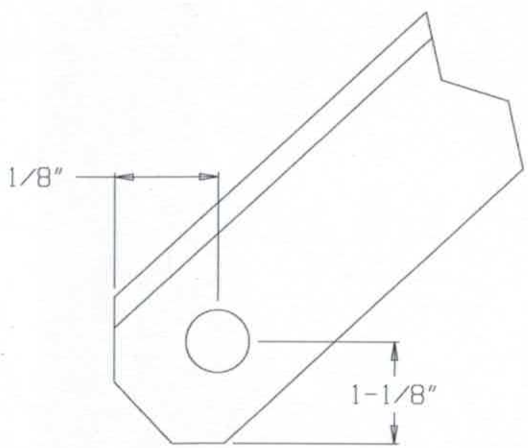
ANGLES	ASTM A36
STRUCTURAL BOLTS	ASTM A325X, HOT-DIP GALVANIZED

ALL THREADED HARDWARE SHALL BE SUPPLIED WITH NUTS AND A MECHANICAL NUT LOCKING DEVICE (EX: ANCO NUTS, PAL NUTS). BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXCLUDE THREADS FROM THE SHEARING PLANE

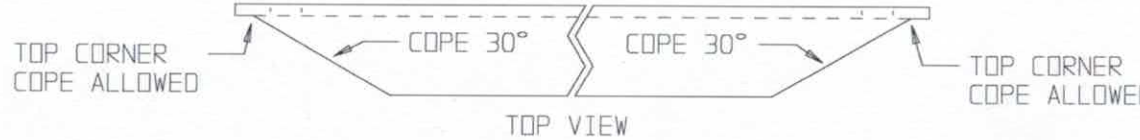
QTY/Type	Length	Ti	Turnbuckle	Preform	Thmbl	Endslve	Shckl
3 @ 5/8x7 EHS	598'	4240#	1"x18" J-J	5/8" BG	3/4"	65268	3/4"
3 @ 3/4x19 EHS	518'	5830#	1.25"x18" J-J	3/4" BG	7/8"	65269	1"
3 @ 3/4x19 EHS	460'	4080#	1.25"x18" J-J	3/4" BG	7/8"	65269	1"
3 @ 5/8x7 EHS	311'	4240#	1"x18" J-J	5/8" BG	3/4"	65268	3/4"
3 @ 3/4x19 EHS	255'	5830#	1.25"x18" J-J	3/4" BG	7/8"	65269	1"
3 @ 9/16x7 EHS	214'	3500#	7/8"x12" J-J	9/16" BG	5/8"	65267	3/4"

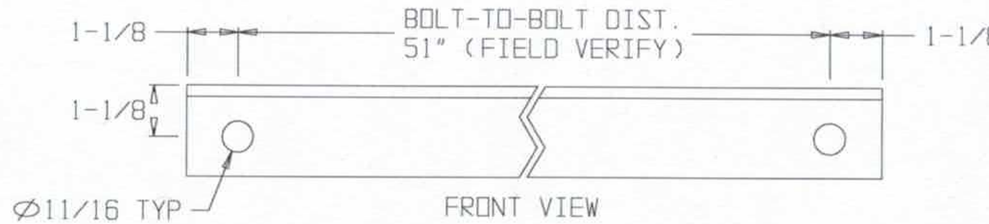
Ti=INITIAL TENSION. NOTE THAT THE GUY WIRE TENSION FOR ELEV 320' IS REDUCED FROM TYPICAL 10%. ATTACH STAINLESS STEEL TAGS STAMPED WITH THE SPECIFIED TENSIONS.





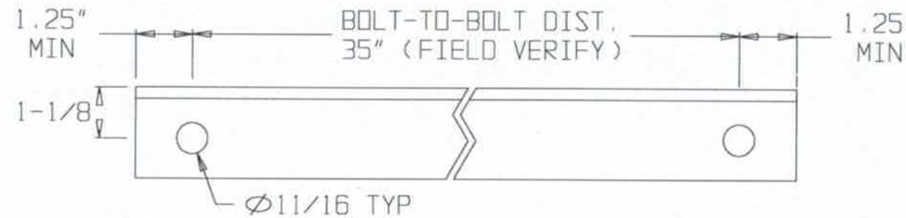
MAX. ALLOWED COPE FOR DIAGONALS.
(NO COPES ON HORIZONTALS ALLOWED)
CUT ENDS MUST BE 1-1/8" FROM CENTER OF BOLT HOLE





REPLACEMENT DIAGONALS

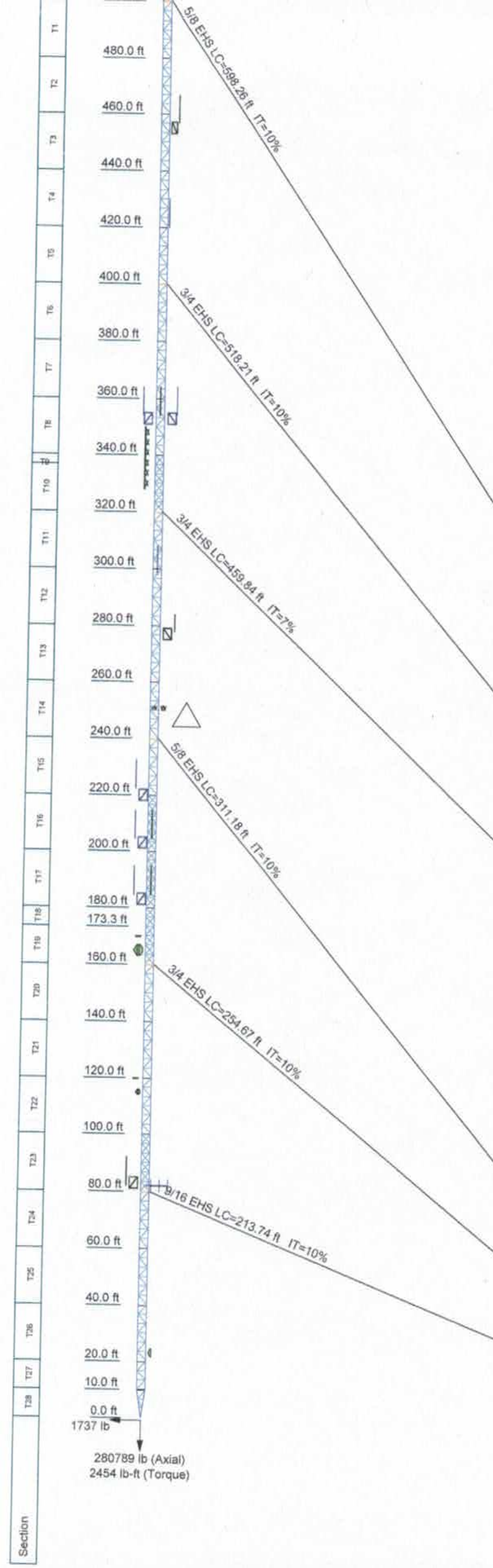
ELEV.	QTY	MEMBER SIZE
420-440	18	L2x2x1/4
260-280	18	L2x2x3/16

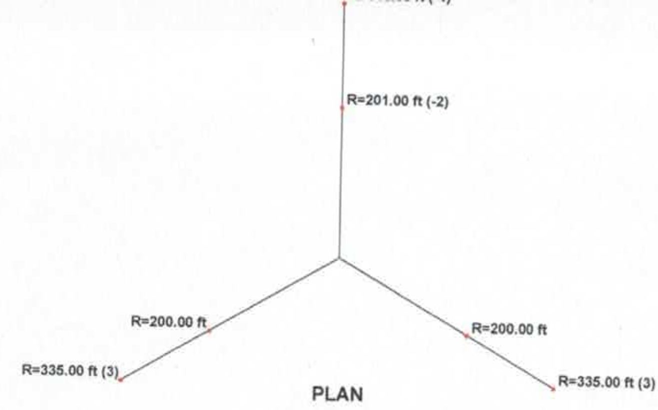


REPLACEMENT HORIZONTALS

ELEV.	QTY	MEMBER SIZE
160-220	54	L2x2x1/4

5/8" x 1-3/4" A325X BOLTS (180 PCS) W/ HARDWARE.
LONGER BOLTS WILL BE REQUIRED WHERE
BRACING SHARES HOLES WITH LEG SPLICE PLATE.
FLAT WASHERS ARE REQUIRED FROM 260'-280'.



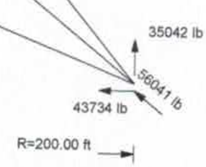


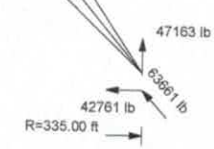
DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
BEACON	501	WHITE FLASHING SIDE STROBE (LEG B)	250
LIGHTING ROD (LEG A)	500	WHITE FLASHING SIDE STROBE (LEG A)	250
Sinclair SD218 VHF (163 lbs. w/mounts)	495 - 455	BMR10 (FACE A)	232 - 223
SMK-125-A7 (SD212 Mount)	495	BOGNER Rx BOX	222
SMK-125-A7 (SD212 Mount)	475.5	PiROD 6' Heavy Bogner Mount (FACE A)	220
SMK-125-A7 (SD212 Mount)	474.5	BMR10 (FACE A)	214 - 205
Sinclair SC381-x (136 lbs. w/mounts)	455	BMR10 (FACE C)	214 - 205
Andrew HS-400 mount (SC381 Mount)	455	PiROD 6' Heavy Bogner Mount (FACE C)	203
SMK-125-A7 (SD212 Mount)	455	PiROD 6' Heavy Bogner Mount (FACE A)	203
ADD090 Direction Finder (638 lbs. w/mounts)	425	BMR10 (FACE A)	194 - 185
9'x3' Side Truss (ADD090 Mount)	425	BMR10 (FACE C)	194 - 185
Sinclair SD214 VHF Base Station (156 lbs. w/mounts)	390 - 370	PiROD 6' Heavy Bogner Mount (FACE A)	183
		PiROD 6' Heavy Bogner Mount (FACE C)	183
SMK-125-A7 (SD214 Mount)	390	ice shield 4 ft dish (P-County-Franklin)	170
Andrew HS-400 mount (SD214 Mount)	370	4" Sch40 x 4ft (P-County)	165
3"x12' OMNI (TO BE REMOVED)	365 - 353	Andrew 4' w/Radome (P-County-Franklin 281°)	165
3"x12' OMNI (TO BE REMOVED)	365 - 353	ice shield 2 ft dish (P-County-Cudahy)	120
3"x12' OMNI (TO BE REMOVED)	365 - 353	2.5" Sch 40 x 4ft (P-County)	115
L3.5"x1/4" X 9' RAILS (TO BE REMOVED)	353	Andrew 2' w/Radome (P-County-Cudahy 358°)	115
L3.5"x1/4" X 9' RAILS (TO BE REMOVED)	353	2" Dia 10' Omni (on 6' Side Mount)	92 - 82
L3.5"x1/4" X 9' RAILS (TO BE REMOVED)	353	6' Side Mount Standoff (1) (LEG C)	83
LP-3C-Radomes (LEG C)	350 - 328	YAGI CONFIGURATION (LEG A)	82
3" Dia 8' Omni (LEG A)	307 - 299	3' DISH (LEG B)	23
6' Light Gate Boom (LEG A)	298		
1" Dia 6' Omni (LEG B, DISCONNECTED)	284 - 278		
6' Light Gate Boom (LEG B)	277		

TOWER DESIGN NOTES

1. Tower is located in Milwaukee County, Wisconsin.
2. Tower designed for Exposure D to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 40 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft.
8. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
9. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
10. Welds are fabricated with ER-70S-6 electrodes.
11. (P) = Proposed for Milwaukee County
12. TOWER RATING: 97.4%

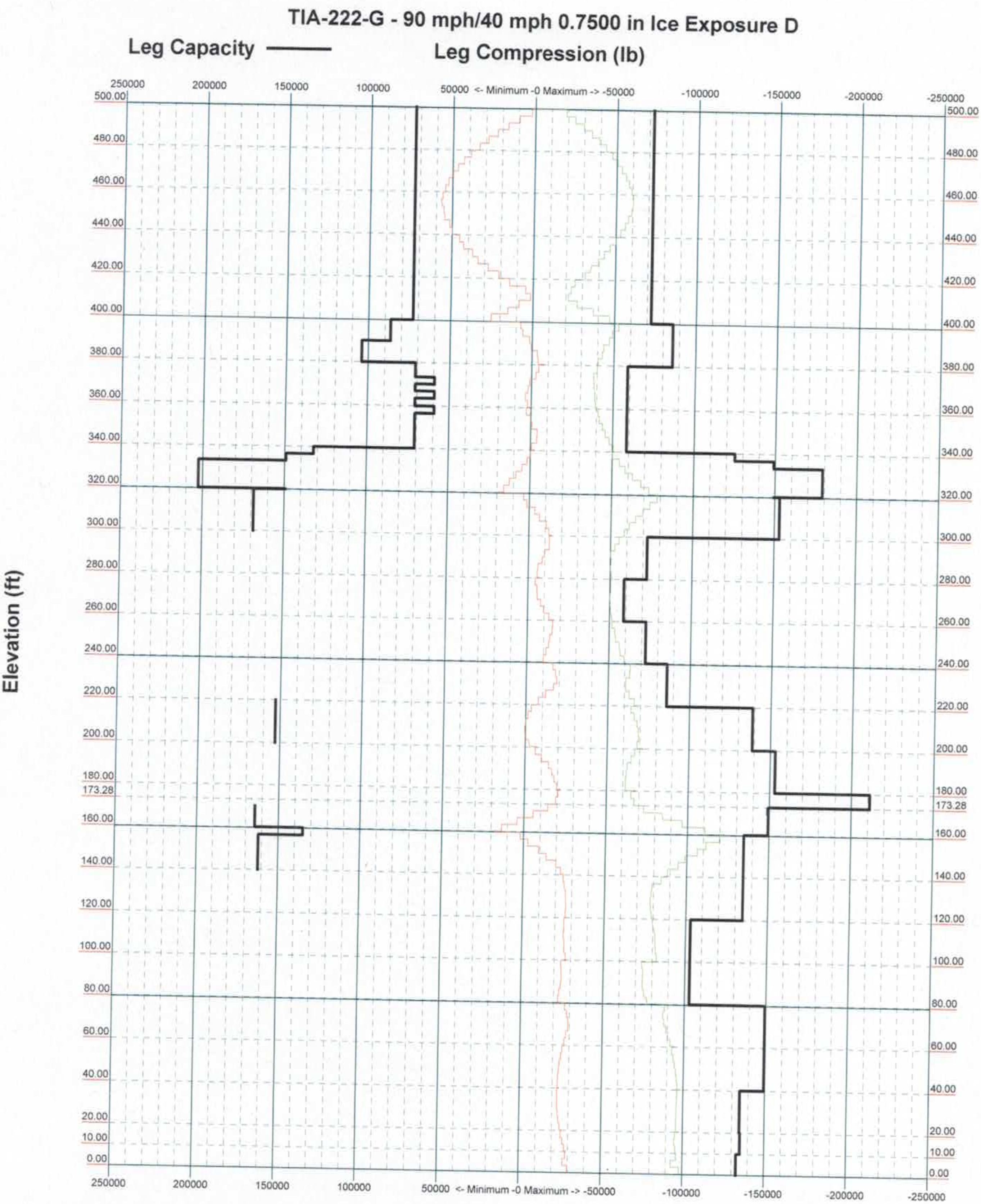




ALL REACTIONS ARE FACTORED

ARMOR TOWER
Armor Tower, Inc.
9 North Main St
Cortland, NY 13045
Phone: (607) 591-5381
FAX: (866) 870-0840

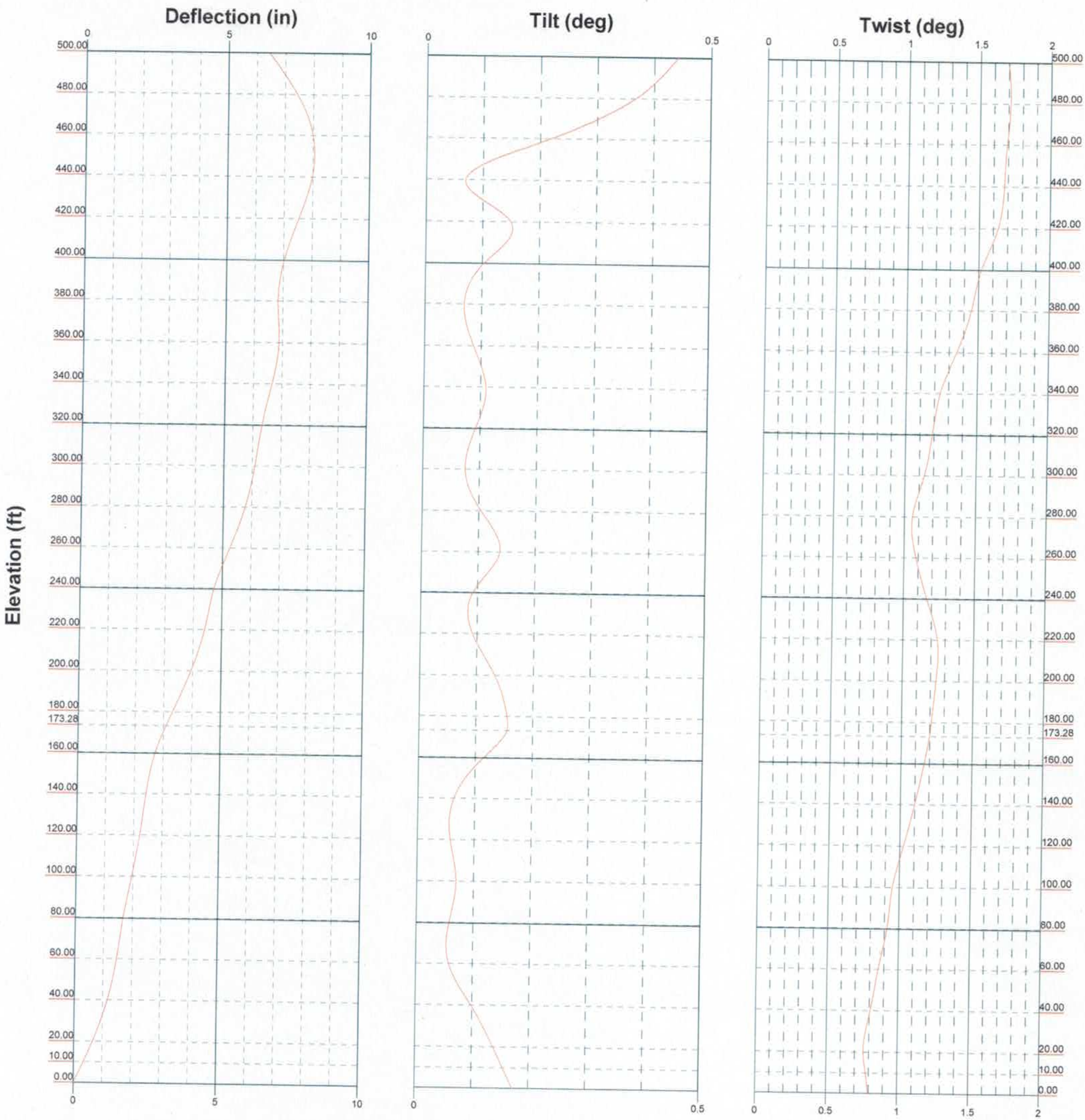
Job: **500 ft Guyed Tower Reinforcement**		
Project: **Oak Creek WI**		
Client: Installation Services, Inc.	Drawn by: DJH	App'd:
Code: TIA-222-G	Date: 09/10/14	Scale: N
Path: Y:\Installation Services\Oak Creek WI\2014-09 reinforcement rev1\tnx\Oak Creek WI.eri		Dwg No.



Armor Tower, Inc. 9 North Main St Cortland, NY 13045 Phone: (607) 591-5381 FAX: (866) 870-0840	Job: 500 ft Guyed Tower Reinforcement		
	Project: Oak Creek WI		
	Client: Installation Services, Inc.	Drawn by: DJH	App'd:
	Code: TIA-222-G	Date: 09/10/14	Scale: N
	Path: Y:\Installation Services\Oak Creek WI\2014-09 reinforcement rev1\tnx\Oak Creek WI.eri		Dwg No.

TIA-222-G - Service - 60 mph

Maximum Values

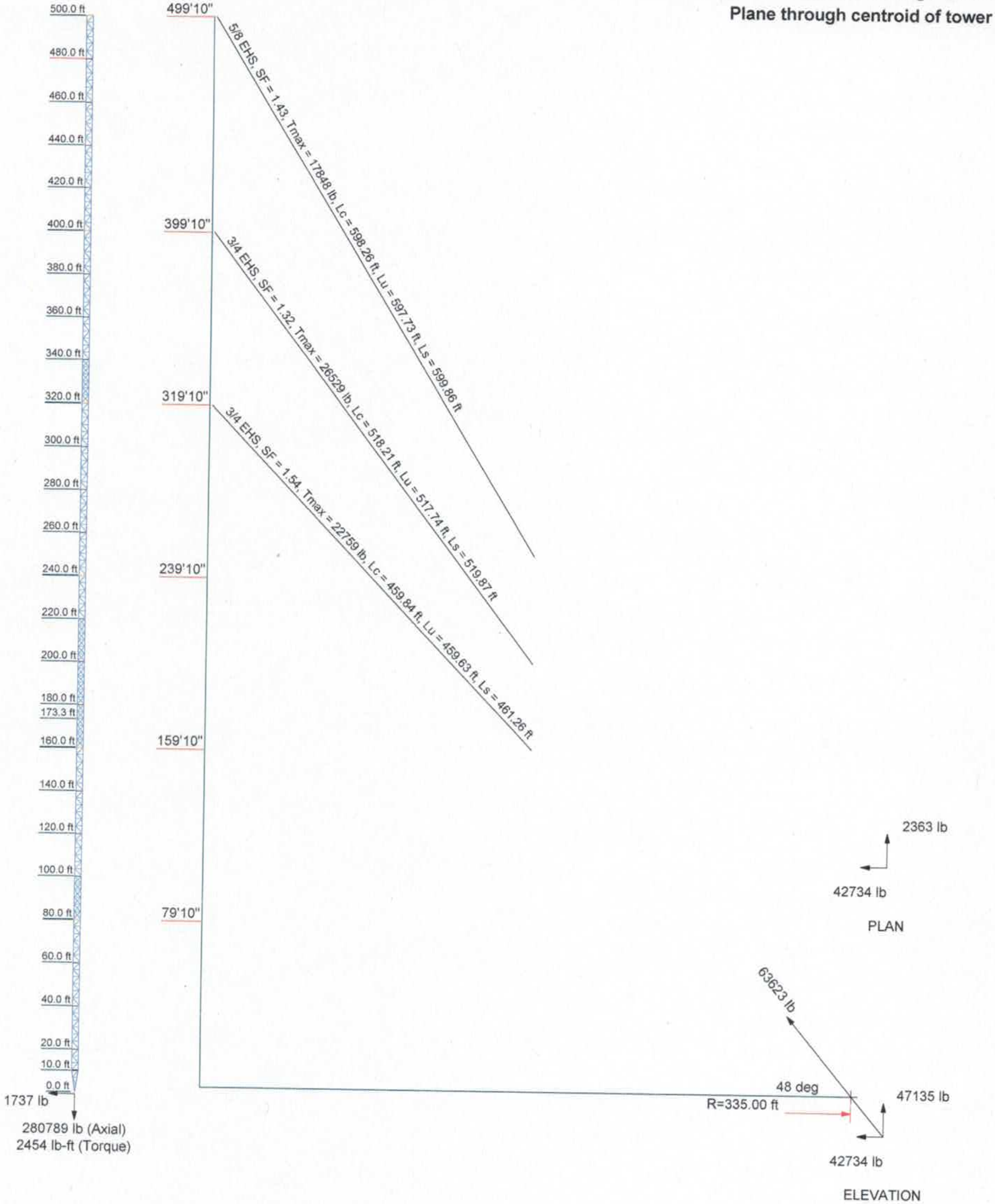


ARMOR TOWER	*Armor Tower, Inc.*	Job: ***500 ft Guyed Tower Reinforcement***
	9 North Main St	Project: ***Oak Creek WI***
	Cortland, NY 13045	Client: Installation Services, Inc. — Drawn by: DJH — App'd:
	Phone: (607) 591-5381	Code: TIA-222-G — Date: 09/10/14 — Scale: N
	FAX: (866) 870-0840	Path: Y:\Installation Services\Oak Creek WI\2014-09 reinforcement rev1\trx\Oak Creek WI.eri — Dwg No.

Guy Tensions and Tower Reactions

TIA-222-G - 90 mph/40 mph 0.7500 in Ice Exposure D

Maximum Values
Anchor 'C'@335 ft Azimuth 240 deg Elev 3 ft
Plane through centroid of tower

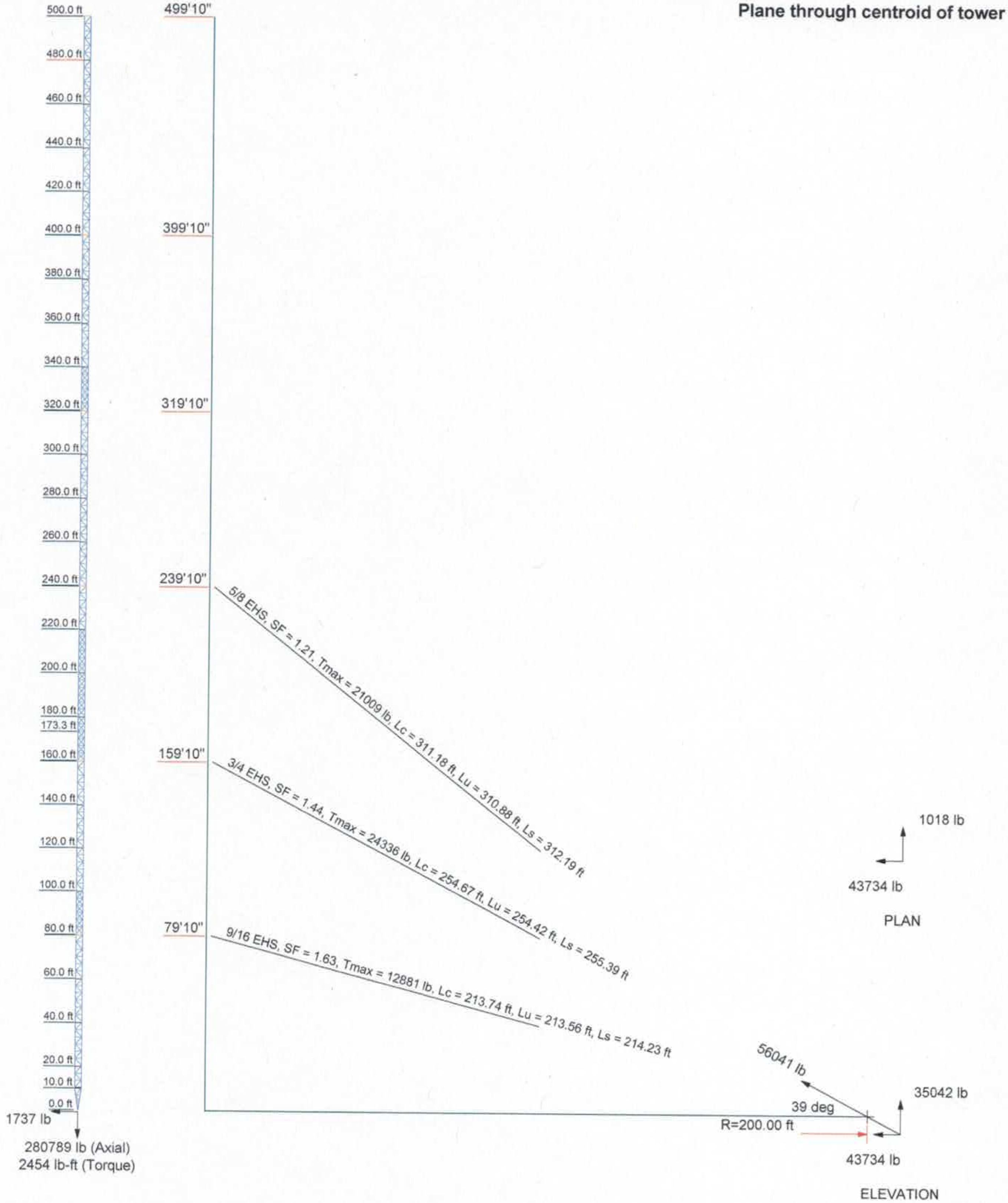


ARMOR TOWER	***Armor Tower, Inc.***	Job: ***500 ft Guyed Tower Reinforcement***		
	9 North Main St	Project: ***Oak Creek WI***		
	Cortland, NY 13045	Client: Installation Services, Inc.	Drawn by: DJH	App'd:
	Phone: (607) 591-5381	Code: TIA-222-G	Date: 09/10/14	Scale: N
	FAX: (866) 870-0840	Path: Y:\Installation Services\Oak Creek WI\2014-09 reinforcement rev1\tnx\Oak Creek WI.eri		Dwg No.

Guy Tensions and Tower Reactions

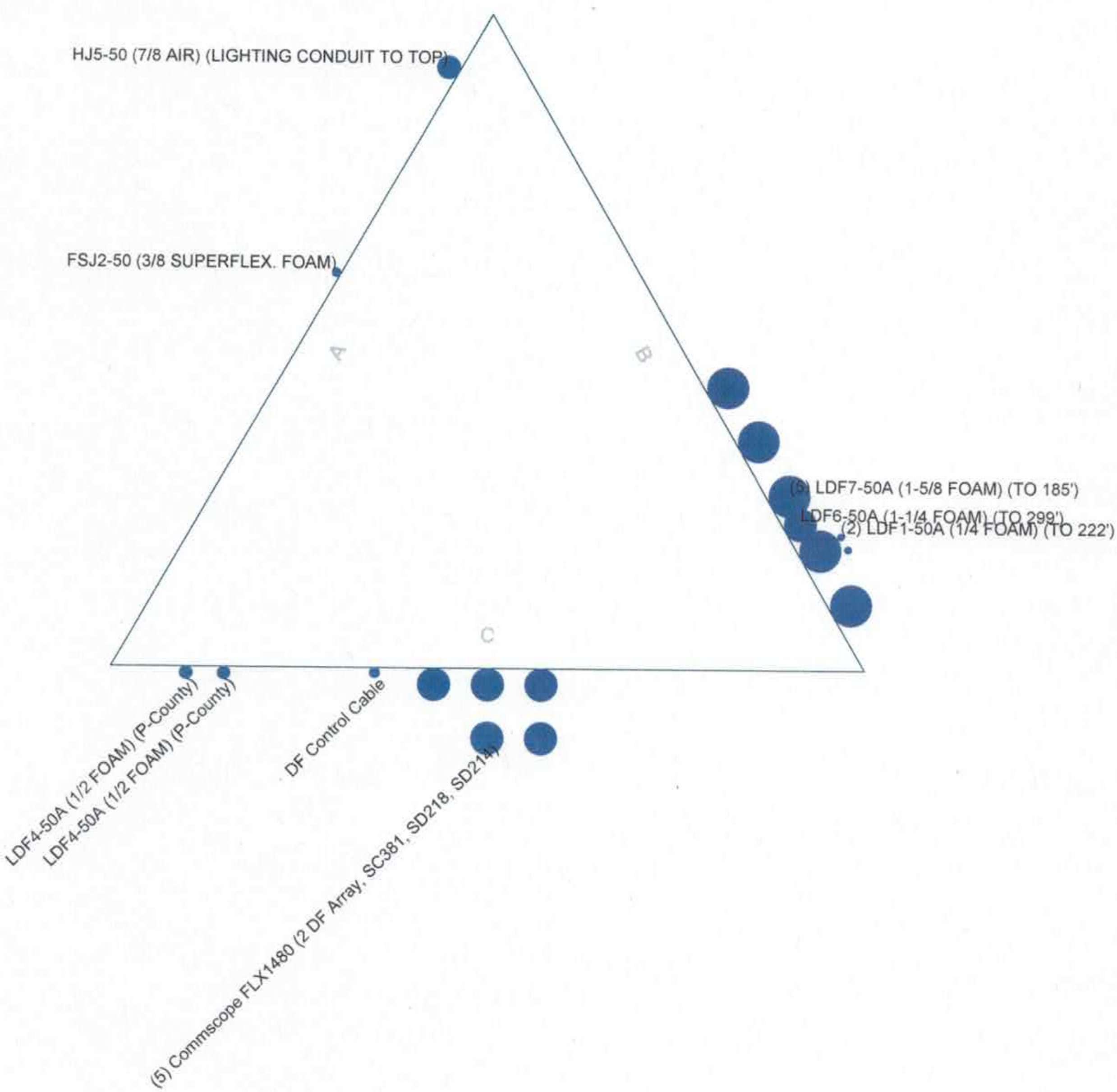
TIA-222-G - 90 mph/40 mph 0.7500 in Ice Exposure D

Maximum Values
Anchor 'C'@200 ft Azimuth 240 deg Elev 0 ft
Plane through centroid of tower



ARMOR TOWER	*Armor Tower, Inc.* 9 North Main St Cortland, NY 13045 Phone: (607) 591-5381 FAX: (866) 870-0840	Job: *500 ft Guyed Tower Reinforcement*
		Project: *Oak Creek WI*
		Client: Installation Services, Inc. / Drawn by: DJH / App'd:
		Code: TIA-222-G / Date: 09/10/14 / Scale: N
		Path: Y:\Installation Services\Oak Creek WI\2014-09 reinforcement rev1\trx\Oak Creek WI.eri / Dwg No.

Round Flat App In Face App Out Face



ARMOR TOWER	***Armor Tower, Inc.*** 9 North Main St Cortland, NY 13045 Phone: (607) 591-5381 FAX: (866) 870-0840	Job: ***500 ft Guyed Tower Reinforcement***	
		Project: ***Oak Creek WI***	
		Client: Installation Services, Inc.	Drawn by: DJH · App'd:
		Code: TIA-222-G	Date: 09/10/14 · Scale: N
		Path: Y:\Installation Services\Oak Creek WI\2014-09 reinforcement rev1\tnx\Oak Creek WI.eri	Dwg No.

Load Combinations

Comb. No.	Description	Comb. No.	Description
1	Dead Only	32	1.2D+1.6W (pattern 1) 300 deg - No Ice+1.0 Guy
2	1.2D+1.6W (pattern 1) 0 deg - No Ice+1.0 Guy	33	1.2D+1.6W (pattern 2) 300 deg - No Ice+1.0 Guy
3	1.2D+1.6W (pattern 2) 0 deg - No Ice+1.0 Guy	34	1.2D+1.6W (pattern 3) 300 deg - No Ice+1.0 Guy
4	1.2D+1.6W (pattern 3) 0 deg - No Ice+1.0 Guy	35	1.2D+1.6W (pattern 1) 330 deg - No Ice+1.0 Guy
5	1.2D+1.6W (pattern 1) 30 deg - No Ice+1.0 Guy	36	1.2D+1.6W (pattern 2) 330 deg - No Ice+1.0 Guy
6	1.2D+1.6W (pattern 2) 30 deg - No Ice+1.0 Guy	37	1.2D+1.6W (pattern 3) 330 deg - No Ice+1.0 Guy
7	1.2D+1.6W (pattern 3) 30 deg - No Ice+1.0 Guy	38	1.2 Dead+1.0 Ice+1.0 Temp+Guy
8	1.2D+1.6W (pattern 1) 60 deg - No Ice+1.0 Guy	39	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
9	1.2D+1.6W (pattern 2) 60 deg - No Ice+1.0 Guy	40	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
10	1.2D+1.6W (pattern 3) 60 deg - No Ice+1.0 Guy	41	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
11	1.2D+1.6W (pattern 1) 90 deg - No Ice+1.0 Guy	42	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
12	1.2D+1.6W (pattern 2) 90 deg - No Ice+1.0 Guy	43	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
13	1.2D+1.6W (pattern 3) 90 deg - No Ice+1.0 Guy	44	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
14	1.2D+1.6W (pattern 1) 120 deg - No Ice+1.0 Guy	45	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
15	1.2D+1.6W (pattern 2) 120 deg - No Ice+1.0 Guy	46	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2D+1.6W (pattern 3) 120 deg - No Ice+1.0 Guy	47	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2D+1.6W (pattern 1) 150 deg - No Ice+1.0 Guy	48	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2D+1.6W (pattern 2) 150 deg - No Ice+1.0 Guy	49	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2D+1.6W (pattern 3) 150 deg - No Ice+1.0 Guy	50	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2D+1.6W (pattern 1) 180 deg - No Ice+1.0 Guy	51	Dead+Wind 0 deg - Service+Guy
21	1.2D+1.6W (pattern 2) 180 deg - No Ice+1.0 Guy	52	Dead+Wind 30 deg - Service+Guy
22	1.2D+1.6W (pattern 3) 180 deg - No Ice+1.0 Guy	53	Dead+Wind 60 deg - Service+Guy
23	1.2D+1.6W (pattern 1) 210 deg - No Ice+1.0 Guy	54	Dead+Wind 90 deg - Service+Guy
24	1.2D+1.6W (pattern 2) 210 deg - No Ice+1.0 Guy	55	Dead+Wind 120 deg - Service+Guy
25	1.2D+1.6W (pattern 3) 210 deg - No Ice+1.0 Guy	56	Dead+Wind 150 deg - Service+Guy
26	1.2D+1.6W (pattern 1) 240 deg - No Ice+1.0 Guy	57	Dead+Wind 180 deg - Service+Guy
27	1.2D+1.6W (pattern 2) 240 deg - No Ice+1.0 Guy	58	Dead+Wind 210 deg - Service+Guy
28	1.2D+1.6W (pattern 3) 240 deg - No Ice+1.0 Guy	59	Dead+Wind 240 deg - Service+Guy
29	1.2D+1.6W (pattern 1) 270 deg - No Ice+1.0 Guy	60	Dead+Wind 270 deg - Service+Guy
30	1.2D+1.6W (pattern 2) 270 deg - No Ice+1.0 Guy	61	Dead+Wind 300 deg - Service+Guy
31	1.2D+1.6W (pattern 3) 270 deg - No Ice+1.0 Guy	62	Dead+Wind 330 deg - Service+Guy

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	500 - 480	6.427	53	0.4435	1.6949
T2	480 - 460	7.426	53	0.3683	1.7122
T3	460 - 440	7.988	53	0.2205	1.6883
T4	440 - 420	7.976	61	0.0711	1.6709
T5	420 - 400	7.516	57	0.1474	1.6309
T6	400 - 380	7.018	57	0.1026	1.5176
T7	380 - 360	6.819	59	0.0666	1.4515
T8	360 - 340	6.874	59	0.0854	1.3527
T9	340 - 336.556	6.644	59	0.1085	1.2370
T10	336.556 - 320	6.586	59	0.1076	1.2246
T11	320 - 300	6.311	59	0.0893	1.1885
T12	300 - 280	6.078	59	0.0722	1.1329
T13	280 - 260	5.761	59	0.1044	1.0531
T14	260 - 240	5.244	59	0.1381	1.0827
T15	240 - 220	4.710	59	0.0907	1.1658
T16	220 - 200	4.401	59	0.0905	1.2416
T17	200 - 180	3.945	59	0.1318	1.2398

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T18	180 - 173.278	3.319	59	0.1564	1.2117
T19	173.278 - 160	3.093	59	0.1535	1.1958
T20	160 - 140	2.716	51	0.1150	1.1648
T21	140 - 120	2.419	51	0.0605	1.0986
T22	120 - 100	2.217	55	0.0554	1.0242
T23	100 - 80	1.958	55	0.0691	0.9486
T24	80 - 60	1.670	55	0.0569	0.9143
T25	60 - 40	1.467	55	0.0581	0.8574
T26	40 - 20	1.163	55	0.0947	0.8067
T27	20 - 10	0.664	55	0.1399	0.7595
T28	10 - 0	0.348	55	0.1549	0.7783

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
165.00	Andrew 4' w/Radome	51	2.842	0.1325	1.1771	14962
115.00	Andrew 2' w/Radome	55	2.159	0.0591	1.0010	61506
23.00	3' DISH	55	0.751	0.1343	0.7602	26818

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load/Allowable	Allowable Ratio	Criteria
T1	500	Leg	A325N	12	7597	12425	0.611 ✔	1	Bolt SS
		Diagonal	A325X	1	5849	7875	0.743 ✔	1	Member Block Shear
		Horizontal	A325X	1	790	7875	0.100 ✔	1	Member Block Shear
		Top Guy Pull-Off@499.833	A325N	2	3124	8224	0.380 ✔	1	Member Block Shear
T2	480	Leg	A325N	12	9989	12425	0.804 ✔	1	Bolt SS
		Diagonal	A325X	1	3302	7875	0.419 ✔	1	Member Block Shear
		Horizontal	A325X	1	1038	7875	0.132 ✔	1	Member Block Shear
		Top Girt	A325X	1	630	7875	0.080 ✔	1	Member Block Shear
T3	460	Leg	A325N	12	8560	12425	0.689 ✔	1	Bolt SS
		Diagonal	A325X	1	3765	7875	0.478 ✔	1	Member Block Shear
		Horizontal	A325X	1	1243	7875	0.158 ✔	1	Member Block Shear
		Top Girt	A325X	1	782	7875	0.099 ✔	1	Member Block Shear
T4	440	Leg	A325N	12	4188	12425	0.337 ✔	1	Bolt SS
		Diagonal	A325X	1	9172	9994	0.918 ✔	1	Member Block Shear
		Horizontal	A325X	1	1679	7875	0.213 ✔	1	Member Block Shear
		Top Girt	A325X	1	747	7875	0.095 ✔	1	Member Block Shear
T5	420	Leg	A325N	12	8564	12425	0.689 ✔	1	Bolt SS

ARMOR TOWER ENGINEERING

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Job	Page
500 ft Guyed Tower Reinforcement	
Project	**Date**
Oak Creek WI	15:27:54 09/10/14
Client	**Designed by**
Installation Services, Inc.	DJH

Section No.	*Elevation ft*	*Component Type*	*Bolt Grade*	*Number Of Bolts*	*Maximum Load per Bolt lb*	*Allowable Load lb*	*Ratio Load / Allowable*	*Allowable Ratio*	*Criteria*
		Diagonal	A325X	1	10516	11513	0.913 ✔	1	Member Block Shear
		Horizontal	A325X	1	1008	4570	0.221 ✔	1	Member Block Shear
		Top Girt	A325X	1	570	4570	0.125 ✔	1	Member Block Shear
T6	400	Leg	A325N	12	6603	24851	0.266 ✔	1	Bolt DS
		Diagonal	A325X	1	5574	7875	0.708 ✔	1	Member Block Shear
		Horizontal	A325X	1	1024	4570	0.224 ✔	1	Member Block Shear
		Top Guy Pull-Off@399.833	A325N	2	5359	8224	0.652 ✔	1	Member Block Shear
T7	380	Leg	A325N	12	6549	16800	0.390 ✔	1	Bearing
		Diagonal	A325X	1	4938	6855	0.720 ✔	1	Member Block Shear
		Horizontal	A325X	1	1493	4570	0.327 ✔	1	Member Block Shear
		Top Girt	A325X	1	814	4570	0.178 ✔	1	Member Block Shear
T8	360	Leg	A325N	12	8576	16800	0.510 ✔	1	Bearing
		Diagonal	A325X	1	6163	7875	0.783 ✔	1	Member Block Shear
		Horizontal	A325X	1	1019	4570	0.223 ✔	1	Member Block Shear
		Top Girt	A325X	1	908	4570	0.199 ✔	1	Member Block Shear
T9	340	Diagonal	A325X	1	6512	13050	0.499 ✔	1	Member Bearing
		Top Girt	A325X	1	3059	4570	0.669 ✔	1	Member Block Shear
T10	336.556	Leg	A325N	12	13103	24851	0.527 ✔	1	Bolt DS
		Diagonal	A325X	1	3630	7875	0.461 ✔	1	Member Block Shear
		Horizontal	A325X	1	2254	4570	0.493 ✔	1	Member Block Shear
T11	320	Leg	A325N	12	9428	24851	0.379 ✔	1	Bolt DS
		Diagonal	A325X	1	6469	10500	0.616 ✔	1	Member Block Shear
		Horizontal	A325X	1	1533	4570	0.335 ✔	1	Member Block Shear
		Top Guy Pull-Off@319.833	A325N	2	3907	8224	0.475 ✔	1	Member Block Shear
T12	300	Leg	A325N	12	8605	21000	0.410 ✔	1	Bearing
		Diagonal	A325X	1	4777	7875	0.607 ✔	1	Member Block Shear
		Horizontal	A325X	1	1325	4570	0.290 ✔	1	Member Block Shear
		Top Girt	A325X	1	1075	4570	0.235 ✔	1	Member Block Shear
T13	280	Leg	A325N	12	8784	16800	0.523 ✔	1	Bearing
		Diagonal	A325X	1	3374	7495	0.450 ✔	1	Member Block Shear
		Horizontal	A325X	1	1394	4570	0.305 ✔	1	Member Block Shear
		Top Girt	A325X	1	1224	4570	0.268 ✔	1	Member Block Shear
T14	260	Leg	A325N	12	10169	21000	0.484 ✔	1	Bearing
		Diagonal	A325X	1	5565	7875	0.707 ✔	1	Member Block Shear
		Horizontal	A325X	1	1415	4570	0.310 ✔	1	Member Block Shear
		Top Girt	A325X	1	1258	4570	0.275 ✔	1	Member Block Shear
T15	240	Leg	A325N	12	11353	24851	0.457 ✔	1	Bolt DS
		Diagonal	A325X	1	7042	7875	0.894 ✔	1	Member Block Shear
		Horizontal	A325X	1	1512	4570	0.331 ✔	1	Member Block Shear
		Top Guy Pull-Off@239.833	A325N	2	4522	8224	0.550 ✔	1	Member Block Shear

ARMOR TOWER ENGINEERING
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Job	Page
500 ft Guyed Tower Reinforcement	4 of 16
Project	**Date**
Oak Creek WI	15:27:54 09/10/14
Client	**Designed by**
Installation Services, Inc.	DJH

Section No.	*Elevation ft*	*Component Type*	*Bolt Grade*	*Number Of Bolts*	*Maximum Load per Bolt lb*	*Allowable Load lb*	*Ratio Load / Allowable*	*Allowable Ratio*	*Criteria*
T16	220	Leg	A325N	12	12010	24851	0.483 ✔	1	Bolt DS
		Diagonal	A325X	1	6627	9719	0.682 ✔	1	Bolt Shear
		Horizontal	A325X	1	6250	10500	0.595 ✔	1	Member Block Shear
		Top Girt	A325X	1	4455	9141	0.487 ✔	1	Member Block Shear
T17	200	Leg	A325N	12	11330	24851	0.456 ✔	1	Bolt DS
		Diagonal	A325X	1	6997	9719	0.720 ✔	1	Bolt Shear
		Horizontal	A325X	1	5439	10500	0.518 ✔	1	Member Block Shear
		Top Girt	A325X	1	5348	9141	0.585 ✔	1	Member Block Shear
T18	180	Diagonal	A325X	1	6948	9719	0.715 ✔	1	Bolt Shear
		Horizontal	A325X	1	3804	10500	0.362 ✔	1	Member Block Shear
		Top Girt	A325X	1	4331	9141	0.474 ✔	1	Member Block Shear
T19	173.278	Leg	A325N	12	20454	24851	0.823 ✔	1	Bolt DS
		Diagonal	A325X	1	9467	9719	0.974 ✔	1	Bolt Shear
		Horizontal	A325X	1	5976	10500	0.569 ✔	1	Member Block Shear
T20	160	Leg	A325N	12	14600	24851	0.588 ✔	1	Bolt DS
		Diagonal	A325X	1	8287	15186	0.546 ✔	1	Bolt Shear
		Horizontal	A325X	1	2126	4570	0.465 ✔	1	Member Block Shear
		Top Guy Pull-Off@159.833	A325N	2	5527	8224	0.672 ✔	1	Member Block Shear
T21	140	Leg	A325N	12	13479	24851	0.542 ✔	1	Bolt DS
		Diagonal	A325X	1	6893	13050	0.528 ✔	1	Member Bearing
		Horizontal	A325X	1	1933	4570	0.423 ✔	1	Member Block Shear
		Top Girt	A325X	1	1776	4570	0.389 ✔	1	Member Block Shear
T22	120	Leg	A325N	12	13970	24851	0.562 ✔	1	Bolt DS
		Diagonal	A325X	1	4816	13050	0.369 ✔	1	Member Bearing
		Horizontal	A325X	1	2201	4570	0.482 ✔	1	Member Block Shear
		Top Girt	A325X	1	1876	4570	0.410 ✔	1	Member Block Shear
T23	100	Leg	A325N	12	14471	24851	0.582 ✔	1	Bolt DS
		Diagonal	A325X	1	7781	9719	0.801 ✔	1	Bolt Shear
		Horizontal	A325X	1	9051	12178	0.743 ✔	1	Member Block Shear
		Top Girt	A325X	1	5507	12178	0.452 ✔	1	Member Block Shear
T24	80	Leg	A325N	12	15681	24851	0.631 ✔	1	Bolt DS
		Diagonal	A325X	1	8029	15186	0.529 ✔	1	Bolt Shear
		Horizontal	A325X	1	1794	4570	0.393 ✔	1	Member Block Shear
		Top Guy Pull-Off@79.8333	A325N	2	4682	8224	0.569 ✔	1	Member Block Shear
T25	60	Leg	A325N	12	16416	24851	0.661 ✔	1	Bolt DS
		Diagonal	A325X	1	6065	15186	0.399 ✔	1	Bolt Shear
		Horizontal	A325X	1	1982	4570	0.434 ✔	1	Member Block Shear
		Top Girt	A325X	1	1674	4570	0.366 ✔	1	Member Block Shear
T26	40	Leg	A325N	12	16356	24851	0.658 ✔	1	Bolt DS
		Diagonal	A325X	1	5163	15186	0.340 ✔	1	Bolt Shear

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Project	**Date**
Oak Creek WI	15:27:54 09/10/14
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Section No.	*Elevation ft*	*Component Type*	*Bolt Grade*	*Number Of Bolts*	*Maximum Load per Bolt lb*	*Allowable Load lb*	*Ratio Load / Allowable*	*Allowable Ratio*	*Criteria*
		Horizontal	A325X	1	2525	6855	0.368 ✔	1	Member Block Shear
		Top Girt	A325X	1	1973	6855	0.288 ✔	1	Member Block Shear
T27	20	Leg	A325N	12	16051	24851	0.646 ✔	1	Bolt DS
		Diagonal	A325X	1	5651	15186	0.372 ✔	1	Bolt Shear
		Horizontal	A325X	1	2216	6855	0.323 ✔	1	Member Block Shear
		Top Girt	A325X	1	2332	6855	0.340 ✔	1	Member Block Shear
		Bottom Girt	A325X	1	5336	5811	0.918 ✔	1	Member Block Shear
T28	10	Leg	A325N	12	16346	24851	0.658 ✔	1	Bolt DS
		Diagonal	A325X	1	8635	13050	0.662 ✔	1	Member Bearing
		Horizontal	A325X	1	2380	6855	0.347 ✔	1	Member Block Shear
		Top Girt	A325X	1	5414	6855	0.790 ✔	1	Member Block Shear

Guy Design Data

Section No.	*Elevation ft*	*Initial Tension lb*	*Breaking Load lb*	*Actual T_u lb*	*Allowable ϕT_n lb*	*Required S.F.*	*Actual S.F.*
T1	499.83 (A) (1077)	4240	42400	17665	25440	1.000	1.440 ✔
	499.83 (B) (1076)	4240	42400	17832	25440	1.000	1.427 ✔
	499.83 (C) (1075)	4240	42400	17848	25440	1.000	1.425 ✔
T6	399.83 (A) (1080)	5830	58300	26547	34980	1.000	1.318 ✔
	399.83 (B) (1079)	5830	58300	26529	34980	1.000	1.319 ✔
	399.83 (C) (1078)	5830	58300	26490	34980	1.000	1.320 ✔
T11	319.83 (A) (1083)	4081	58300	22829	34980	1.000	1.532 ✔
	319.83 (B) (1082)	4081	58300	22759	34980	1.000	1.537 ✔
	319.83 (C) (1081)	4081	58300	22723	34980	1.000	1.539 ✔
T15	239.83 (A) (1086)	4240	42400	21133	25440	1.000	1.204 ✔
	239.83 (B) (1085)	4240	42400	21009	25440	1.000	1.211 ✔
	239.83 (C) (1084)	4240	42400	20942	25440	1.000	1.215 ✔
T20	159.83 (A) (1089)	5830	58300	24237	34980	1.000	1.443 ✔
	159.83 (B) (1088)	5830	58300	24125	34980	1.000	1.450 ✔
	159.83 (C) (1087)	5830	58300	24336	34980	1.000	1.437 ✔
T24	79.83 (A) (1092)	3500	35000	12820	21000	1.000	1.638 ✔
	79.83 (B) (1091)	3500	35000	12796	21000	1.000	1.641 ✔
	79.83 (C) (1090)	3500	35000	12881	21000	1.000	1.630 ✔

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Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	500 - 480	20.00	3.28	48.4 K=1.00	2.0898	-45583	72561	0.628 [1] ✔
T2	480 - 460	20.00	3.28	48.4 K=1.00	2.0898	-59934	72561	0.826 [1] ✔
T3	460 - 440	20.00	3.28	48.4 K=1.00	2.0898	-60446	72561	0.833 [1] ✔
T4	440 - 420	20.00	3.28	48.4 K=1.00	2.0898	-51364	72561	0.708 [1] ✔
T5	420 - 400	20.00	3.28	48.4 K=1.00	2.0898	-51382	72561	0.708 [1] ✔
T6	400 - 380	20.00	3.28	48.9 K=1.00	2.4844	-52659	85966	0.613 [1] ✔
T7	380 - 360	20.00	3.28	47.8 K=1.00	1.6875	-39932	58787	0.679 [1] ✔
T8	360 - 340	20.00	3.28	47.8 K=1.00	1.6875	-51456	58787	0.875 [1] ✔
T9	340 - 336.556	3.44	3.28	29.2 K=1.00	3.2700	-51455	125218	0.411 [1] ✔
T10	336.556 - 320	16.56	3.28	43.3 K=1.00	4.9990	-78620	178986	0.439 [1] ✔
T11	320 - 300	20.00	3.28	38.2 K=1.00	4.1570	-78623	152953	0.514 [1] ✔
T12	300 - 280	20.00	3.28	48.4 K=1.00	2.0898	-56567	72561	0.780 [1] ✔
T13	280 - 260	20.00	3.28	47.8 K=1.00	1.6875	-52704	58787	0.897 [1] ✔
T14	260 - 240	20.00	3.28	48.4 K=1.00	2.0898	-61012	72561	0.841 [1] ✔
T15	240 - 220	20.00	3.28	48.9 K=1.00	2.4844	-68115	85966	0.792 [1] ✔
T16	220 - 200	20.00	3.28	38.1 K=1.00	3.7720	-72058	138815	0.519 [1] ✔
T17	200 - 180	20.00	3.28	38.2 K=1.00	4.1570	-72061	152953	0.471 [1] ✔
T18	180 - 173.278	6.72	3.28	38.9 K=1.00	5.7610	-67984	211185	0.322 [1] ✔
T19	173.278 - 160	13.28	3.28	38.0 K=1.00	4.0560	-122723	149405	0.821 [1] ✔
T20	160 - 140	20.00	3.28	42.9 K=1.00	3.7500	-122726	134566	0.912 [1] ✔
T21	140 - 120	20.00	3.28	42.9 K=1.00	3.7500	-87602	134566	0.651 [1] ✔
T22	120 - 100	20.00	3.28	42.2 K=1.00	2.8594	-83821	102987	0.814 [1] ✔
T23	100 - 80	20.00	3.28	42.2 K=1.00	2.8594	-86828	102987	0.843 [1] ✔
T24	80 - 60	20.00	3.28	38.0 K=1.00	4.0560	-94084	149405	0.630 [1] ✔
T25	60 - 40	20.00	3.28	38.0 K=1.00	4.0560	-98493	149405	0.659 [1] ✔
T26	40 - 20	20.00	3.28	42.9 K=1.00	3.7500	-98497	134566	0.732 [1] ✔
T27	20 - 10	10.00	3.22	42.2	3.7500	-98143	135114	0.726 [1] ✔

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $P_u / \phi P_n$
T28	10 - 0	10.15	3.44	K=1.00 45.0 K=1.00	3.7500	-98074	132931	0.738 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $P_u / \phi P_n$
T1	500 - 480	4.44	4.15	126.4 K=1.00	0.7150	-6028	9984	0.604 [1] ✔
T2	480 - 460	4.44	4.15	126.4 K=1.00	0.7150	-3728	9984	0.373 [1] ✔
T3	460 - 440	4.44	4.15	126.4 K=1.00	0.7150	-4369	9984	0.438 [1] ✔
T4	440 - 420	4.44	4.17	128.1 K=1.00	0.9380	-9558	12818	0.746 [1] ✔
T5	420 - 400	4.44	4.11	126.1 K=1.00	0.9380	-11186	13151	0.851 [1] ✔
T6	400 - 380	4.44	4.15	126.4 K=1.00	0.7150	-6718	9984	0.673 [1] ✔
T7	380 - 360	4.44	4.15	145.1 K=1.00	0.6211	-6272	6668	0.941 [1] ✔
T8	360 - 340	4.44	4.15	126.4 K=1.00	0.7150	-7997	9984	0.801 [1] ✔
T9	340 - 336.556	4.44	2.08	77.4 K=1.22	0.7150	-6512	16897	0.385 [1] ✔
T10	336.556 - 320	4.44	2.08	77.4 K=1.22	0.7150	-5362	16897	0.317 [1] ✔
T11	320 - 300	4.44	4.15	127.4 K=1.00	0.9380	-8323	12929	0.644 [1] ✔
T12	300 - 280	4.44	4.15	126.4 K=1.00	0.7150	-7199	9984	0.721 [1] ✔
T13	280 - 260	4.44	4.17	127.1 K=1.00	0.7150	-5646	9899	0.570 [1] ✔
T14	260 - 240	4.44	4.15	126.4 K=1.00	0.7150	-7612	9984	0.762 [1] ✔
T15	240 - 220	4.44	4.15	126.4 K=1.00	0.7150	-9721	9984	0.974 [1] ✔
T16	220 - 200	4.44	2.08	77.4 K=1.22	0.7150	-6627	16897	0.392 [1] ✔
T17	200 - 180	4.44	2.08	77.4 K=1.22	0.7150	-6997	16897	0.414 [1] ✔
T18	180 - 173.278	4.44	2.08	77.4 K=1.22	0.7150	-6948	16897	0.411 [1] ✔
T19	173.278 - 160	4.44	2.08	77.4 K=1.22	0.7150	-9467	16897	0.560 [1] ✔
T20	160 - 140	4.44	4.15	127.4 K=1.00	0.9380	-8287	12929	0.641 [1] ✔
T21	140 - 120	4.44	4.15	126.4 K=1.00	0.7150	-6893	9984	0.690 [1] ✔
T22	120 - 100	4.44	4.15	126.4 K=1.00	0.7150	-4816	9984	0.482 [1] ✔

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T23	100 - 80	4.44	2.08	77.4 K=1.22	0.7150	-7781	16897	0.461 [1] ✔
T24	80 - 60	4.44	4.15	127.4 K=1.00	0.9380	-8029	12929	0.621 [1] ✔
T25	60 - 40	4.44	4.15	127.4 K=1.00	0.9380	-6065	12929	0.469 [1] ✔
T26	40 - 20	4.44	4.15	127.4 K=1.00	0.9380	-5163	12929	0.399 [1] ✔
T27	20 - 10	4.40	4.11	126.2 K=1.00	0.9380	-5651	13147	0.430 [1] ✔
T28	10 - 0	3.57	3.27	117.2 K=1.02	0.6211	-8635	9766	0.884 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	500 - 480	3.00	2.71	101.2 K=1.23	0.7150	-790	13505	0.058 [1] ✔
T2	480 - 460	3.00	2.71	101.2 K=1.23	0.7150	-1038	13505	0.077 [1] ✔
T3	460 - 440	3.00	2.71	101.2 K=1.23	0.7150	-1047	13505	0.078 [1] ✔
T4	440 - 420	3.00	2.71	101.2 K=1.23	0.7150	-1036	13505	0.077 [1] ✔
T5	420 - 400	3.00	2.71	106.9 K=1.14	0.4219	-890	7493	0.119 [1] ✔
T6	400 - 380	3.00	2.71	106.9 K=1.14	0.4219	-912	7493	0.122 [1] ✔
T7	380 - 360	3.00	2.71	106.9 K=1.14	0.4219	-692	7493	0.092 [1] ✔
T8	360 - 340	3.00	2.71	106.9 K=1.14	0.4219	-891	7493	0.119 [1] ✔
T11	320 - 300	3.00	2.71	106.9 K=1.14	0.4219	-1362	7493	0.182 [1] ✔
T12	300 - 280	3.00	2.71	106.9 K=1.14	0.4219	-980	7493	0.131 [1] ✔
T13	280 - 260	3.00	2.71	106.9 K=1.14	0.4219	-913	7493	0.122 [1] ✔
T14	260 - 240	3.00	2.71	106.9 K=1.14	0.4219	-1057	7493	0.141 [1] ✔
T15	240 - 220	3.00	2.71	106.9 K=1.14	0.4219	-1180	7493	0.157 [1] ✔
T20	160 - 140	3.00	2.71	106.9 K=1.14	0.4219	-2126	7493	0.284 [1] ✔
T21	140 - 120	3.00	2.71	106.9 K=1.14	0.4219	-1517	7493	0.202 [1] ✔
T22	120 - 100	3.00	2.71	106.9 K=1.14	0.4219	-1452	7493	0.194 [1] ✔
T24	80 - 60	3.00	2.71	106.9 K=1.14	0.4219	-1630	7493	0.217 [1] ✔
T25	60 - 40	3.00	2.71	106.9 K=1.14	0.4219	-1706	7493	0.228 [1] ✔

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Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T26	40 - 20	3.00	2.71	107.3 K=1.13	0.6211	-1706	10975	0.155 [1] ✔
T27	20 - 10	3.00	2.71	107.3 K=1.13	0.6211	-1700	10975	0.155 [1] ✔
T28	10 - 0	1.98	1.69	89.6 K=1.52	0.6211	-1718	13193	0.130 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	480 - 460	3.00	2.71	101.2 K=1.23	0.7150	-106	13505	0.008 [1] ✔
T3	460 - 440	3.00	2.71	101.2 K=1.23	0.7150	-350	13505	0.026 [1] ✔
T4	440 - 420	3.00	2.71	101.2 K=1.23	0.7150	-199	13505	0.015 [1] ✔
T9	340 - 336.556	3.00	2.71	106.9 K=1.14	0.4219	-596	7493	0.080 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	500 - 480	20.00	3.28	35.2	1.6211	36491	72949	0.500 [1] ✔
T2	480 - 460	20.00	3.28	35.2	1.6211	55187	72949	0.757 [1] ✔
T3	460 - 440	20.00	3.28	35.2	1.6211	57154	72949	0.783 [1] ✔
T4	440 - 420	20.00	3.28	35.2	1.6211	47059	72949	0.645 [1] ✔
T5	420 - 400	20.00	3.28	35.2	1.6211	26917	72949	0.369 [1] ✔
T6	400 - 380	20.00	3.28	35.3	1.9219	26915	86484	0.311 [1] ✔
T7	380 - 360	20.00	3.28	35.1	1.3125	3798	59063	0.064 [1] ✔
T8	360 - 340	20.00	3.28	35.1	1.3125	2891	59063	0.049 [1] ✔
T9	340 - 336.556	3.44	3.28	29.2	3.2700	115	132435	0.001 [1] ✔
T10	336.556 - 320	16.56	3.28	43.3	4.9990	18843	202460	0.093 [1] ✔
T11	320 - 300	20.00	3.28	38.2	4.1570	18839	168359	0.112 [1] ✔

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Job		Page
	500 ft Guyed Tower Reinforcement	10 of 16
Project	Oak Creek WI	Date 15:27:54 09/10/14
Client	Installation Services, Inc.	Designed by DJH

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T16	220 - 200	20.00	3.28	38.1	3.7720	640	152766	0.004 [1] ✔
T19	173.278 - 160	13.28	3.28	38.0	4.0560	17950	164268	0.109 [1] ✔
T20	160 - 140	20.00	3.28	31.6	3.0000	17946	135000	0.133 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	500 - 480	4.44	4.15	86.4	0.4308	5849	18739	0.312 [1] ✔
T2	480 - 460	4.44	4.15	86.4	0.4308	3302	18739	0.176 [1] ✔
T3	460 - 440	4.44	4.15	86.4	0.4308	3765	18739	0.201 [1] ✔
T4	440 - 420	4.44	4.17	87.6	0.5629	9172	24485	0.375 [1] ✔
T5	420 - 400	4.44	4.11	87.6	0.5629	10516	24485	0.429 [1] ✔
T6	400 - 380	4.44	4.15	86.4	0.4308	5574	18739	0.297 [1] ✔
T7	380 - 360	4.44	4.15	99.3	0.3604	4938	15675	0.315 [1] ✔
T8	360 - 340	4.44	4.15	86.4	0.4308	6163	18739	0.329 [1] ✔
T9	340 - 336.556	4.44	2.08	43.2	0.4308	2639	18739	0.141 [1] ✔
T10	336.556 - 320	4.44	2.08	43.2	0.4308	3630	18739	0.194 [1] ✔
T11	320 - 300	4.44	4.15	87.6	0.5629	6469	24485	0.264 [1] ✔
T12	300 - 280	4.44	4.15	86.4	0.4308	4777	18739	0.255 [1] ✔
T13	280 - 260	4.44	4.17	86.4	0.4308	3374	18739	0.180 [1] ✔
T14	260 - 240	4.44	4.15	86.4	0.4308	5565	18739	0.297 [1] ✔
T15	240 - 220	4.44	4.15	86.4	0.4308	7042	18739	0.376 [1] ✔
T16	220 - 200	4.44	2.08	43.2	0.4484	194	19504	0.010 [1] ✔
T17	200 - 180	4.44	2.08	43.2	0.4484	1858	19504	0.095 [1] ✔
T18	180 - 173.278	4.44	2.08	43.2	0.4484	2955	19504	0.152 [1] ✔
T19	173.278 - 160	4.44	2.08	43.2	0.4484	5035	19504	0.258 [1] ✔
T20	160 - 140	4.44	4.15	87.6	0.5629	4877	24485	0.199 [1] ✔
T21	140 - 120	4.44	4.15	86.4	0.4308	3241	18739	0.173 [1] ✔
T22	120 - 100	4.44	4.15	86.4	0.4308	1579	18739	0.084 [1] ✔
T23	100 - 80	4.44	2.08	43.2	0.4484	228	19504	0.012 [1] ✔
T24	80 - 60	4.44	4.15	87.6	0.5629	5260	24485	0.215 [1] ✔
T25	60 - 40	4.44	4.15	87.6	0.5629	3158	24485	0.129 [1] ✔
T26	40 - 20	4.44	4.15	87.6	0.5629	673	24485	0.027 [1] ✔
T27	20 - 10	4.40	4.11	86.8	0.5629	3297	24485	0.135 [1] ✔
T28	10 - 0	4.07	3.78	90.9	0.3604	728	15675	0.046 [1] ✔

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[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	500 - 480	3.00	2.71	58.3	0.4308	790	18739	0.042 [1] ✔
T2	480 - 460	3.00	2.71	58.3	0.4308	1038	18739	0.055 [1] ✔
T3	460 - 440	3.00	2.71	58.3	0.4308	1243	18739	0.066 [1] ✔
T4	440 - 420	3.00	2.71	58.3	0.4308	1679	18739	0.090 [1] ✔
T5	420 - 400	3.00	2.71	66.0	0.2461	1008	10705	0.094 [1] ✔
T6	400 - 380	3.00	2.71	66.0	0.2461	1024	10705	0.096 [1] ✔
T7	380 - 360	3.00	2.71	66.0	0.2461	1493	10705	0.139 [1] ✔
T8	360 - 340	3.00	2.71	66.0	0.2461	1019	10705	0.095 [1] ✔
T10	336.556 - 320	3.00	2.71	66.0	0.2461	2254	10705	0.211 [1] ✔
T11	320 - 300	3.00	2.71	66.0	0.2461	1533	10705	0.143 [1] ✔
T12	300 - 280	3.00	2.71	66.0	0.2461	1325	10705	0.124 [1] ✔
T13	280 - 260	3.00	2.71	66.0	0.2461	1394	10705	0.130 [1] ✔
T14	260 - 240	3.00	2.71	66.0	0.2461	1415	10705	0.132 [1] ✔
T15	240 - 220	3.00	2.71	66.0	0.2461	1512	10705	0.141 [1] ✔
T16	220 - 200	3.00	2.71	59.1	0.5629	6250	24485	0.255 [1] ✔
T17	200 - 180	3.00	2.71	59.1	0.5629	5439	24485	0.222 [1] ✔
T18	180 - 173.278	3.00	2.71	59.1	0.5629	3804	24485	0.155 [1] ✔
T19	173.278 - 160	3.00	2.71	59.1	0.5629	5976	24485	0.244 [1] ✔
T20	160 - 140	3.00	2.71	66.0	0.2461	2126	10705	0.199 [1] ✔
T21	140 - 120	3.00	2.71	66.0	0.2461	1933	10705	0.181 [1] ✔
T22	120 - 100	3.00	2.71	66.0	0.2461	2201	10705	0.206 [1] ✔
T23	100 - 80	3.00	2.58	68.1	0.4688	9051	20391	0.444 [1] ✔
T24	80 - 60	3.00	2.71	66.0	0.2461	1794	10705	0.168 [1] ✔
T25	60 - 40	3.00	2.71	66.0	0.2461	1982	10705	0.185 [1] ✔
T26	40 - 20	3.00	2.71	67.0	0.3604	2525	15675	0.161 [1] ✔
T27	20 - 10	3.00	2.71	67.0	0.3604	2216	15675	0.141 [1] ✔
T28	10 - 0	1.02	0.72	22.7	0.3604	2380	15675	0.152 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

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

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Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	480 - 460	3.00	2.71	58.3	0.4308	630	18739	0.034 [1] ✔
T3	460 - 440	3.00	2.71	58.3	0.4308	782	18739	0.042 [1] ✔
T4	440 - 420	3.00	2.71	58.3	0.4308	747	18739	0.040 [1] ✔
T5	420 - 400	3.00	2.71	66.0	0.2461	570	10705	0.053 [1] ✔
T7	380 - 360	3.00	2.71	66.0	0.2461	814	10705	0.076 [1] ✔
T8	360 - 340	3.00	2.71	66.0	0.2461	908	10705	0.085 [1] ✔
T9	340 - 336.556	3.00	2.71	66.0	0.2461	3059	10705	0.286 [1] ✔
T12	300 - 280	3.00	2.71	66.0	0.2461	1075	10705	0.100 [1] ✔
T13	280 - 260	3.00	2.71	66.0	0.2461	1224	10705	0.114 [1] ✔
T14	260 - 240	3.00	2.71	66.0	0.2461	1258	10705	0.118 [1] ✔
T16	220 - 200	3.00	2.71	68.1	0.4688	4455	20391	0.218 [1] ✔
T17	200 - 180	3.00	2.71	68.1	0.4688	5348	20391	0.262 [1] ✔
T18	180 - 173.278	3.00	2.71	68.1	0.4688	4331	20391	0.212 [1] ✔
T21	140 - 120	3.00	2.71	66.0	0.2461	1776	10705	0.166 [1] ✔
T22	120 - 100	3.00	2.71	66.0	0.2461	1876	10705	0.175 [1] ✔
T23	100 - 80	3.00	2.58	68.1	0.4688	5507	20391	0.270 [1] ✔
T25	60 - 40	3.00	2.71	66.0	0.2461	1674	10705	0.156 [1] ✔
T26	40 - 20	3.00	2.71	67.0	0.3604	1973	15675	0.126 [1] ✔
T27	20 - 10	3.00	2.71	67.0	0.3604	2332	15675	0.149 [1] ✔
T28	10 - 0	2.95	2.66	65.9	0.3604	5414	15675	0.345 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T27	20 - 10	3.00	2.76	67.0	0.3604	5336	15675	0.340 [1] ✔

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	500 - 480	3.00	3.00	59.1	0.5629	6248	24485	0.255 [1] ✔
T6	400 - 380	3.00	3.00	59.1	0.5629	10719	24485	0.438 [1] ✔

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Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T11	320 - 300	3.00	3.00	59.1	0.5629	7813	24485	0.319 [1] ✓
T15	240 - 220	3.00	3.00	59.1	0.5629	9044	24485	0.369 [1] ✓
T20	160 - 140	3.00	3.00	59.1	0.5629	11054	24485	0.451 [1] ✓
T24	80 - 60	3.00	3.00	59.1	0.5629	9363	24485	0.382 [1] ✓

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	500 - 480	Leg	1	-45583	72561	62.8	Pass
T2	480 - 460	Leg	40	-59934	72561	82.6	Pass
T3	460 - 440	Leg	80	-60446	72561	83.3	Pass
T4	440 - 420	Leg	119	-51364	72561	70.8	Pass
T5	420 - 400	Leg	159	-51382	72561	70.8	Pass
T6	400 - 380	Leg	198	-52659	85966	61.3	Pass
T7	380 - 360	Leg	237	-39932	58787	67.9	Pass
T8	360 - 340	Leg	276	-51456	58787	87.5	Pass
T9	340 - 336.556	Leg	315	-51455	125218	41.1	Pass
T10	336.556 - 320	Leg	325	-78620	178986	43.9 52.7 (b)	Pass
T11	320 - 300	Leg	373	-78623	152953	51.4	Pass
T12	300 - 280	Leg	412	-56567	72561	78.0	Pass
T13	280 - 260	Leg	452	-52704	58787	89.7	Pass
T14	260 - 240	Leg	491	-61012	72561	84.1	Pass
T15	240 - 220	Leg	530	-68115	85966	79.2	Pass
T16	220 - 200	Leg	569	-72058	138815	51.9	Pass
T17	200 - 180	Leg	626	-72061	152953	47.1	Pass
T18	180 - 173.278	Leg	684	-67984	211185	32.2	Pass
T19	173.278 - 160	Leg	703	-122723	149405	82.1 82.3 (b)	Pass
T20	160 - 140	Leg	742	-122726	134566	91.2	Pass
T21	140 - 120	Leg	781	-87602	134566	65.1	Pass
T22	120 - 100	Leg	820	-83821	102987	81.4	Pass
T23	100 - 80	Leg	859	-86828	102987	84.3	Pass
T24	80 - 60	Leg	916	-94084	149405	63.0 63.1 (b)	Pass
T25	60 - 40	Leg	955	-98493	149405	65.9 66.1 (b)	Pass
T26	40 - 20	Leg	994	-98497	134566	73.2	Pass
T27	20 - 10	Leg	1034	-98143	135114	72.6	Pass
T28	10 - 0	Leg	1058	-98074	132931	73.8	Pass
T1	500 - 480	Diagonal	39	-6028	9984	60.4 74.3 (b)	Pass
T2	480 - 460	Diagonal	77	-3728	9984	37.3 41.9 (b)	Pass
T3	460 - 440	Diagonal	86	-4369	9984	43.8 47.8 (b)	Pass
T4	440 - 420	Diagonal	125	-9558	12818	74.6 91.8 (b)	Pass
T5	420 - 400	Diagonal	164	-11186	13151	85.1 91.3 (b)	Pass
T6	400 - 380	Diagonal	228	-6718	9984	67.3	Pass

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Section No.	*Elevation ft*	*Component Type*	*Critical Element*	*P lb*	*ϕP_{allow} lb*	*% Capacity*	*Pass Fail*
						70.8 (b)	
T7	380 - 360	Diagonal	242	-6272	6668	94.1	Pass
T8	360 - 340	Diagonal	287	-7997	9984	80.1	Pass
T9	340 - 336.556	Diagonal	321	-6512	16897	38.5	Pass
						49.9 (b)	
T10	336.556 - 320	Diagonal	342	-5362	16897	31.7	Pass
						46.1 (b)	
T11	320 - 300	Diagonal	397	-8323	12929	64.4	Pass
T12	300 - 280	Diagonal	448	-7199	9984	72.1	Pass
T13	280 - 260	Diagonal	458	-5646	9899	57.0	Pass
T14	260 - 240	Diagonal	497	-7612	9984	76.2	Pass
T15	240 - 220	Diagonal	565	-9721	9984	97.4	Pass
T16	220 - 200	Diagonal	623	-6627	16897	39.2	Pass
						68.2 (b)	
T17	200 - 180	Diagonal	635	-6997	16897	41.4	Pass
						72.0 (b)	
T18	180 - 173.278	Diagonal	692	-6948	16897	41.1	Pass
						71.5 (b)	
T19	173.278 - 160	Diagonal	713	-9467	16897	56.0	Pass
						97.4 (b)	
T20	160 - 140	Diagonal	767	-8287	12929	64.1	Pass
T21	140 - 120	Diagonal	818	-6893	9984	69.0	Pass
T22	120 - 100	Diagonal	857	-4816	9984	48.2	Pass
T23	100 - 80	Diagonal	914	-7781	16897	46.1	Pass
						80.1 (b)	
T24	80 - 60	Diagonal	947	-8029	12929	62.1	Pass
T25	60 - 40	Diagonal	992	-6065	12929	46.9	Pass
T26	40 - 20	Diagonal	1000	-5163	12929	39.9	Pass
T27	20 - 10	Diagonal	1048	-5651	13147	43.0	Pass
T28	10 - 0	Diagonal	1068	-8635	9766	88.4	Pass
T1	500 - 480	Horizontal	10	-790	13505	5.8	Pass
						10.0 (b)	
T2	480 - 460	Horizontal	55	-1038	13505	7.7	Pass
						13.2 (b)	
T3	460 - 440	Horizontal	88	-1047	13505	7.8	Pass
						15.8 (b)	
T4	440 - 420	Horizontal	128	1679	18739	9.0	Pass
						21.3 (b)	
T5	420 - 400	Horizontal	167	-890	7493	11.9	Pass
						22.1 (b)	
T6	400 - 380	Horizontal	206	-912	7493	12.2	Pass
						22.4 (b)	
T7	380 - 360	Horizontal	257	1493	10705	13.9	Pass
						32.7 (b)	
T8	360 - 340	Horizontal	284	-891	7493	11.9	Pass
						22.3 (b)	
T10	336.556 - 320	Horizontal	329	2254	10705	21.1	Pass
						49.3 (b)	
T11	320 - 300	Horizontal	384	-1362	7493	18.2	Pass
						33.5 (b)	
T12	300 - 280	Horizontal	421	-980	7493	13.1	Pass
						29.0 (b)	
T13	280 - 260	Horizontal	473	1394	10705	13.0	Pass
						30.5 (b)	
T14	260 - 240	Horizontal	499	-1057	7493	14.1	Pass
						31.0 (b)	
T15	240 - 220	Horizontal	538	-1180	7493	15.7	Pass
						33.1 (b)	
T16	220 - 200	Horizontal	581	6250	24485	25.5	Pass
						59.5 (b)	
T17	200 - 180	Horizontal	638	5439	24485	22.2	Pass

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Project	Date
Oak Creek WI	15:27:54 09/10/14

Client	Designed by
Installation Services, Inc.	DJH

Section No.	Elevation ft	Component Type	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						51.8 (b)	
T18	180 - 173.278	Horizontal	695	3804	24485	15.5 36.2 (b)	Pass
T19	173.278 - 160	Horizontal	717	5976	24485	24.4 56.9 (b)	Pass
T20	160 - 140	Horizontal	759	-2126	7493	28.4 46.5 (b)	Pass
T21	140 - 120	Horizontal	792	-1517	7493	20.2 42.3 (b)	Pass
T22	120 - 100	Horizontal	847	2201	10705	20.6 48.2 (b)	Pass
T23	100 - 80	Horizontal	907	9051	20391	44.4 74.3 (b)	Pass
T24	80 - 60	Horizontal	931	-1630	7493	21.7 39.3 (b)	Pass
T25	60 - 40	Horizontal	964	-1706	7493	22.8 43.4 (b)	Pass
T26	40 - 20	Horizontal	1017	2525	15675	16.1 36.8 (b)	Pass
T27	20 - 10	Horizontal	1045	-1700	10975	15.5 32.3 (b)	Pass
T28	10 - 0	Horizontal	1063	2380	15675	15.2 34.7 (b)	Pass
T2	480 - 460	Top Girt	45	630	18739	3.4 8.0 (b)	Pass
T3	460 - 440	Top Girt	84	782	18739	4.2 9.9 (b)	Pass
T4	440 - 420	Top Girt	123	747	18739	4.0 9.5 (b)	Pass
T5	420 - 400	Top Girt	161	570	10705	5.3 12.5 (b)	Pass
T7	380 - 360	Top Girt	240	814	10705	7.6 17.8 (b)	Pass
T8	360 - 340	Top Girt	279	908	10705	8.5 19.9 (b)	Pass
T9	340 - 336.556	Top Girt	318	3059	10705	28.6 66.9 (b)	Pass
T12	300 - 280	Top Girt	417	1075	10705	10.0 23.5 (b)	Pass
T13	280 - 260	Top Girt	456	1224	10705	11.4 26.8 (b)	Pass
T14	260 - 240	Top Girt	495	1258	10705	11.8 27.5 (b)	Pass
T16	220 - 200	Top Girt	571	4455	20391	21.8 48.7 (b)	Pass
T17	200 - 180	Top Girt	629	5348	20391	26.2 58.5 (b)	Pass
T18	180 - 173.278	Top Girt	686	4331	20391	21.2 47.4 (b)	Pass
T21	140 - 120	Top Girt	786	1776	10705	16.6 38.9 (b)	Pass
T22	120 - 100	Top Girt	823	1876	10705	17.5 41.0 (b)	Pass
T23	100 - 80	Top Girt	863	5507	20391	27.0 45.2 (b)	Pass
T25	60 - 40	Top Girt	958	1674	10705	15.6 36.6 (b)	Pass
T26	40 - 20	Top Girt	997	1973	15675	12.6 28.8 (b)	Pass
T27	20 - 10	Top Girt	1036	2332	15675	14.9 34.0 (b)	Pass

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Section No.	Elevation ft	Component Type	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T28	10 - 0	Top Girt	1060	5414	15675	34.5 79.0 (b)	Pass
T27	20 - 10	Bottom Girt	1039	5336	15675	34.0 91.8 (b)	Pass
T1	500 - 480	Guy A@499.833	1077	17665	25440	69.4	Pass
T6	400 - 380	Guy A@399.833	1080	26547	34980	75.9	Pass
T11	320 - 300	Guy A@319.833	1083	22829	34980	65.3	Pass
T15	240 - 220	Guy A@239.833	1086	21133	25440	83.1	Pass
T20	160 - 140	Guy A@159.833	1089	24237	34980	69.3	Pass
T24	80 - 60	Guy A@79.8333	1092	12820	21000	61.0	Pass
T1	500 - 480	Guy B@499.833	1076	17832	25440	70.1	Pass
T6	400 - 380	Guy B@399.833	1079	26529	34980	75.8	Pass
T11	320 - 300	Guy B@319.833	1082	22759	34980	65.1	Pass
T15	240 - 220	Guy B@239.833	1085	21009	25440	82.6	Pass
T20	160 - 140	Guy B@159.833	1088	24125	34980	69.0	Pass
T24	80 - 60	Guy B@79.8333	1091	12796	21000	60.9	Pass
T1	500 - 480	Guy C@499.833	1075	17848	25440	70.2	Pass
T6	400 - 380	Guy C@399.833	1078	26490	34980	75.7	Pass
T11	320 - 300	Guy C@319.833	1081	22723	34980	65.0	Pass
T15	240 - 220	Guy C@239.833	1084	20942	25440	82.3	Pass
T20	160 - 140	Guy C@159.833	1087	24336	34980	69.6	Pass
T24	80 - 60	Guy C@79.8333	1090	12881	21000	61.3	Pass
T1	500 - 480	Top Guy Pull-Off@499.833	5	6248	24485	25.5 38.0 (b)	Pass
T6	400 - 380	Top Guy Pull-Off@399.833	200	10719	24485	43.8 65.2 (b)	Pass
T11	320 - 300	Top Guy Pull-Off@319.833	378	7813	24485	31.9 47.5 (b)	Pass
T15	240 - 220	Top Guy Pull-Off@239.833	534	9044	24485	36.9 55.0 (b)	Pass
T20	160 - 140	Top Guy Pull-Off@159.833	745	11054	24485	45.1 67.2 (b)	Pass
T24	80 - 60	Top Guy Pull-Off@79.8333	919	9363	24485	38.2 56.9 (b)	Pass
						Summary	
					Leg (T20)	91.2	Pass
					Diagonal (T19)	97.4	Pass
					Horizontal (T23)	74.3	Pass
					Top Girt (T28)	79.0	Pass
					Bottom Girt (T27)	91.8	Pass
					Guy A (T15)	83.1	Pass
					Guy B (T15)	82.6	Pass
					Guy C (T15)	82.3	Pass
					Top Guy Pull-Off (T20)	67.2	Pass
					Bolt Checks	97.4	Pass
					RATING =	**97.4**	**Pass**

Foundations

	Max Tower Reaction (TIA-222-G)	Design Reaction (TIA-222-F)	Tower Reaction x1.35	% Loaded	Pass/Fail
Outer Anchor Uplift (kips)	47.2	73.4	99.1	47.6%	Pass
Inner Anchor Uplift (kips)	35.0	56.6	76.4	45.8%	Pass
Base Axial (kips)	280.7	270.7	365.4	76.8%	Pass