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February 20, 2026

AT&T DESIGNATION:	USID #:	TAG0057
	Site FA #:	10091919
	Dual USID #:	45057
	IWM #:	WSTFL0058194
	Site Name:	Mikesville

ANALYSIS CRITERIA: Codes: TIA-222-H & 2023 Florida Building Code
121 MPH (3-Second Gust) w/ 0" ice

SITE DATA: 3050 Southeast County Road 18, Lake City, FL 32025, Columbia County
Latitude 29° 56' 54.00" N, Longitude 82° 33' 28.00" W
262.5' Modified Wireline

To whom it may concern,

GPD is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

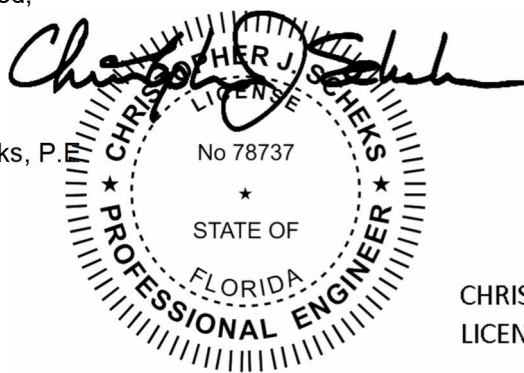
Analysis Results

Tower Stress Level with Proposed Equipment:	100.5%	Pass
Foundation Ratio with Proposed Equipment:	93.7%	Pass

We at GPD appreciate the opportunity of providing our continuing professional services to you and MasTec. If you have any questions or need further assistance on this or any other projects, please do not hesitate to call.

Respectfully submitted,

Christopher J. Scheks, P.
Florida #: 78737



2/20/2026

CHRISTOPHER J. SCHEKS
LICENSE No. 78737

SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by AT&T and commissioned by MasTec.

This analysis utilizes an ultimate 3-second gust wind speed of 121 mph as required by the 2023 Florida Building Code, 8th Edition. Applicable Standard references and design criteria are listed in Appendices A & B.

The proposed feedlines shall be installed as shown in Appendices A & B for the analysis results to be valid.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Legs	46.4%	Pass
Legs Bolts	92.3%	Pass
Diagonals	59.0%	Pass
Horizontals	67.6%	Pass
Redundants	70.4%	Pass
Inner Bracing	60.9%	Pass
Member Bolts	100.5%	Pass*
Anchor Rods	28.0%	Pass
Tower Support Columns	93.7%	Pass

*Capacities up to 105% are within customary engineering tolerances and are considered acceptable.

RECOMMENDATIONS

The tower and its foundations have sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

ANALYSIS METHOD

Commercially available software programs were used to create a three-dimensional model of the tower and calculate primary member forces for various load combinations. Selected output from the analysis is included the report appendices. The following table details the information provided to complete this structural analysis. This analysis is based solely on this information.

DOCUMENTS PROVIDED

Document	Remarks	Source
Construction Drawings	Gen3 Designation: 10091919_MIKESVILLE Rev 1, dated 1/23/2026	MasTec
Mount Analysis	Gen3 Designation: 10091919_MIKESVILLE, dated 7/11/2025	MasTec
Tower Mapping	B+T Site #: 2620334463, dated 10/16/2012	AT&T
Bunker Mapping	GPD Project #: 2019703.15, dated 4/18/2019	GPD
Previous Tower Analysis	B+T Project #: 163146.001.01, dated 5/23/2022	GPD
Modification Drawings	GPD Project #: 2013723.45057.01 Rev B, dated 9/20/2013	GPD
Modification Drawings	GPD Project #: 2016723.01.TAG0057.06, dated 10/14/2016	GPD
PMI Report	GPD Project #: 2017506.05, dated 4/6/2017	GPD

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower member sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The appurtenance configuration is as supplied, determined from available photos, and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
4. The soil parameters are as per data supplied or as assumed and stated in the calculations.
5. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
8. All prior structural modifications, if applicable, are assumed to be as per data supplied/available and to have been properly installed.
9. Loading interpreted from photos is accurate to $\pm 5'$ AGL, antenna size accurate to ± 3.3 sf, and coax equal to the number of existing antennas without reserve.
10. All existing and proposed loading has been taken from the available site photos as well as documents supplied to GPD at the time of generating this report. All such documents are listed in the Documents Provided Table and are assumed to be accurate. GPD is not responsible for loading scenarios outside those conveyed in the supplied documentation.
11. Detailed reinforcement information of the existing below grade bunker columns was not available or provided for this report. As a result, the average ACI minimum reinforcement has been assumed.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

GPD has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

This analysis is limited to the designated maximum wind and seismic conditions per the governing tower standards and code. Wind forces resulting in tower vibrations near the structure's resonant frequencies were not considered in this analysis and are outside the scope of this analysis. Lateral loading from any dynamic response was not evaluated under a time-domain based fatigue analysis.

GPD does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the capability of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the code specified amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

Towers are designed to carry gravity, wind, and ice loads. All members, legs, diagonals, struts, and redundant members provide structural stability to the tower with little redundancy. Absence or removal of a member can trigger catastrophic failure unless a substitute is provided before any removal. Legs carry axial loads and derive their strength from shorter unbraced lengths by the presence of redundant members and their connection to the diagonals with bolts or welds. If the bolts or welds are removed without providing any substitute to the frame, the leg is subjected to a higher unbraced length that immediately reduces its load carrying capacity. If a diagonal is also removed in addition to the connection, the unbraced length of the leg is greatly increased, jeopardizing its load carrying capacity. Failure of one leg can result in a tower collapse because there is no redundancy. Redundant members and diagonals are critical to the stability of the tower.

GPD makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD 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 GPD pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Tower Analysis Summary Form

Tower Analysis Summary Form

General Info

Site Name	Mikesville
Site Number	TAG0057
FA Number	10091919
Date of Analysis	2/20/2026
Company Performing Analysis	GPD

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	SST	
Tower Height (top of steel AGL)	262.5'	
Tower Design	N/A	
Foundation Design	N/A	
Geotech Report	N/A	
Construction Drawings	Gen3 Designation: 10091919_MIKESVILLE Rev 1	1/23/2026
Mount Analysis	Gen3 Designation: 10091919_MIKESVILLE	7/11/2025
Tower Mapping	B + T Site #: 2620334463	10/16/2012
Previous Structural Analysis	B + T Project #: 163146.001.01	5/23/2022
Modification Drawings	GPD Project #: 2013723.45057.01 Rev. B	9/20/2013
Modification Drawings	GPD Project #: 2016723.01.TAG0057.06	10/14/2016
Bunker Mapping	GPD Project #: 2019703.15	4/18/2019

Design Parameters

Design Code Used	TIA-222-H & 2023 Florida Building Code
Location of Tower (County, State)	Columbia, FL
Wind Speed (mph)	121
Ice Thickness (in)	0
Risk Category (I, II, III)	II
Exposure Category (B, C, D)	C
Topographic Category (1 to 5)	1

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower (%)	100.5%
Anchor Rods (%)	28.0%
Foundation (%)	93.7%
Foundation Adequate?	Yes

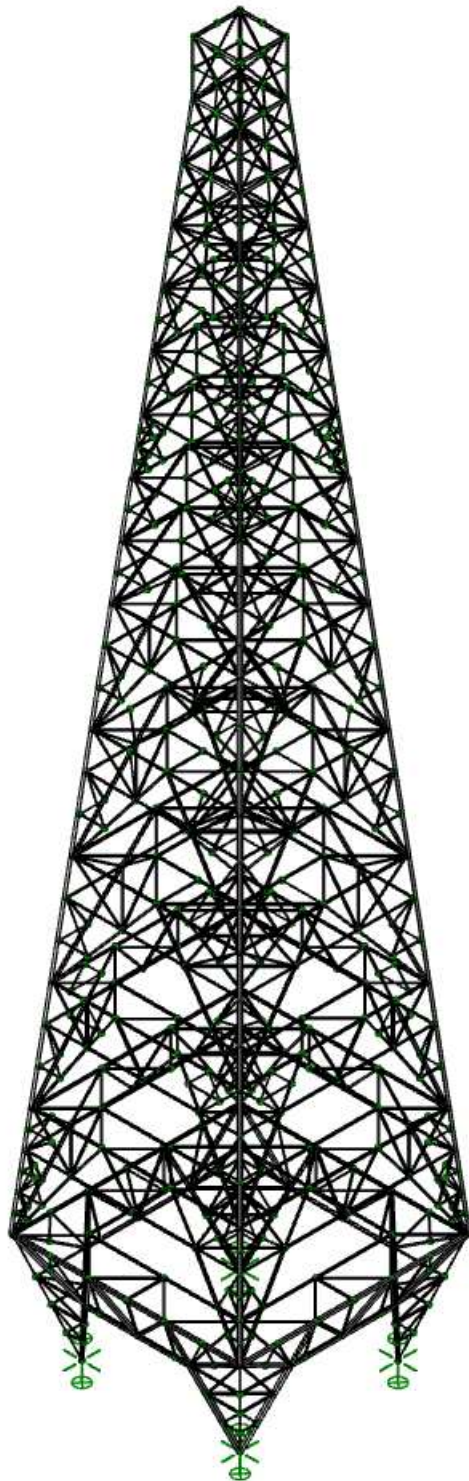
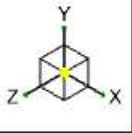
Existing / Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Face/Leg
Unknown	273.0	285.0	2	Bogner	Atlantic Microw	26' Bogner		2	Unknown	Mount Pipes	4	Unknown	1-5/8"	Leg AD
Unknown	271.0	277.5	1	Light	Unknown	Flash Beacon		1	Unknown	Pipe Mount	1	Conduit	1.5"	Leg AD
Unknown	271.00	280.00	1	Lightning P	Unknown	5' Lightning Rod				on the same mount				
Unknown	264.5	282.0	1	Omni	Unknown	25' Omni		1	Unknown	29' Platform w/ Rails	3	Unknown	1-5/8"	Face D
Unknown	264.5	274.5	3	Omni	Unknown	20' Omni				on the same mount	1	Unknown	7/8"	Face D
Unknown	264.5	274.5	1	Dipole	Unknown	20' Dipole				on the same mount	1	Unknown	7/8"	Leg AD
								1	Unknown	1/2"	1	Unknown	1/2"	Face D
Unknown	252.0							1	Unknown	31' Platform w/ Rails				
AT&T Mobility	241.0	241.0	4	Panel	Ericsson	AIR6472 B77G B77M	0/90/180/270	4	Sabre	C10857001C Sector Mount	12	Coax	1-5/8"	Face C
AT&T Mobility	241.0	241.0	8	Panel	Commscope	NNH4-85B-R6	0/90/180/270			on the same mounts	6	DC	0.957"	Face C
AT&T Mobility	241.0	241.0	4	RRH	Ericsson	4478 B14				on the same mounts	4	DC	1.13"	Face C
AT&T Mobility	241.0	241.0	4	RRH	Ericsson	4449 B5/B12				on the same mounts	4	Fiber	3/8"	Face C
AT&T Mobility	241.0	241.0	3	RRH	Ericsson	8843 B2/B66A				on the same mounts	4	RET	3/8"	Face C
AT&T Mobility	241.0	241.0	3	RRH	Ericsson	RRUS-32 B30				on the same mounts				
AT&T Mobility	241.0	241.0	1	RRH	Ericsson	4415 B30				on the same mounts				
AT&T Mobility	241.0	241.0	1	RRH	Ericsson	4890 B25/B66				on the same mounts				
AT&T Mobility	241.0	241.0	4	Surge	Raycap	DC9-48-60-24-8C-EV				on the same mounts				
Unknown	239.5							4	Unknown	Catwalks				
Unknown	239.5							4	Unknown	Corner Platforms				
Unknown	214.5							2	Unknown	Catwalks				
Unknown	212.5	212.5	1	Dish	RFS	8' Dish	75	1	Unknown	Mount Pipe	1	Elliptical	EW63	Face D
Unknown	175.0	175.0	2	Dish	RFS	8' Dish	170 / 285	3	Unknown	Mount Pipes	3	Elliptical	EW63	Face D
Unknown	175.0	175.0	1	Dish	RFS	6' Dish	75			on the same mounts				
Unknown	143.0	143.0	2	Dish	RFS	8' Dish	170 / 285	2	Unknown	Mount Pipes	2	Elliptical	EW63	Face D
Unknown	127.0							2	Unknown	Catwalks				
Unknown	16.0	16.0	1	Camera	Unknown	Secuirty Camera				Mounted to Leg	1	Unknown	3/8"	Inside Conduit
											1	Conduit	2"	Face D
Unknown	15.0	15.0	1	Camera	Unknown	Secuirty Camera				Mounted to Leg	1	Unknown	3/8"	Inside Conduit
Unknown	15.0	15.0	1	Yagi	Unknown	18" Yagi		1	Unknown	Mount Pipe	1	Unknown	1/2"	Face C
Unknown	11.0							1	Unknown	Wave Guide Support				

*Bolded loading represents the final loading configuration at the specified elevation.

APPENDIX B

Tower Analysis Output File



Envelope Only Solution



GPD
CKuhn
2026723.12.TAG0057.08

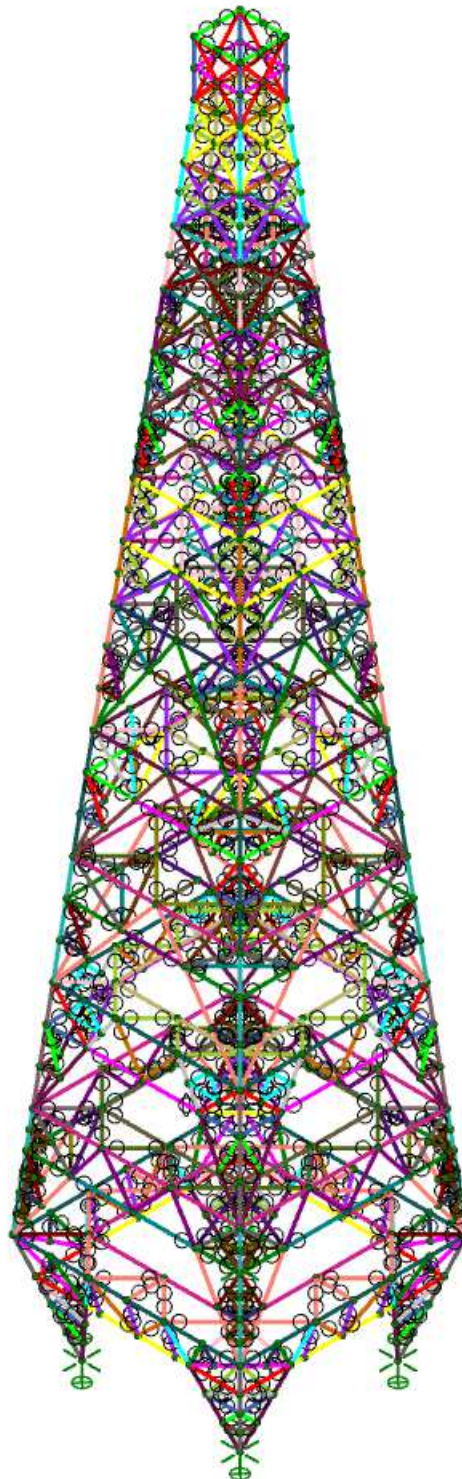
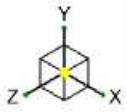
TAG0057, MIKESVILLE

Rendered Tower

SK-1

Feb 20, 2026 at 08:08 AM

TAG0057 (45057) Final.rt3



Section Sets

- TWR_LEG_T1
- TWR_HORZ_TOP_GIRT_T1
- TWR_DIAG_T1
- TWR_RED_VERT_T1
- TWR_HORZ_STEP_T1
- TWR_LEG_T2
- TWR_HORZ_T2
- TWR_DIAG_T2
- TWR_DIAG_MOD_T2
- TWR_RED_VERT_T2
- TWR_HORZ_STEP_T2
- TWR_LEG_T3
- TWR_HORZ_T3
- TWR_RED_VERT_T3
- TWR_INNER_SUPP_T3
- TWR_INNER_SQ_T3
- TWR_INNER_CORNER_T3
- TWR_DIAG_T3
- TWR_HORZ_STEP_T3
- TWR_LEG_T4
- TWR_HORZ_T4
- TWR_DIAG_T4
- TWR_RED_HORZ_T4
- TWR_RED_DIAG_T4
- TWR_INNER_SUPP_T4
- TWR_INNER_SQ_T4
- TWR_INNER_CORNER_T4
- TWR_LEG_T5
- TWR_HORZ_T5
- TWR_DIAG_T5
- TWR_RED_HORZ_T5
- TWR_RED_DIAG_T5
- TWR_RED_KICKER_T5
- TWR_INNER_SUPP_T5
- TWR_INNER_SQ_T5
- TWR_INNER_CORNER_T5
- TWR_LEG_T6
- TWR_HORZ_T6
- TWR_DIAG_T6
- TWR_RED_HORZ_T6
- TWR_RED_DIAG_T6
- TWR_INNER_SUPP_T6
- TWR_INNER_SQ_T6
- TWR_INNER_CORNER_T6
- TWR_LEG_T7
- TWR_HORZ_T7
- TWR_DIAG_T7
- TWR_RED_HORZ_T7
- TWR_RED_HORZ_2_T7
- TWR_RED_DIAG_T7
- TWR_RED_DIAG_2_T7
- TWR_RED_SUBHOR_T7
- TWR_RED_HIP_2_T7
- TWR_RED_HIPDIA_T7
- TWR_INNER_SUPP_T7
- TWR_INNER_SQ_T7
- TWR_INNER_CORNER_T7
- TWR_LEG_T8
- TWR_HORZ_T8
- TWR_DIAG_T8

Envelope Only Solution



GPD

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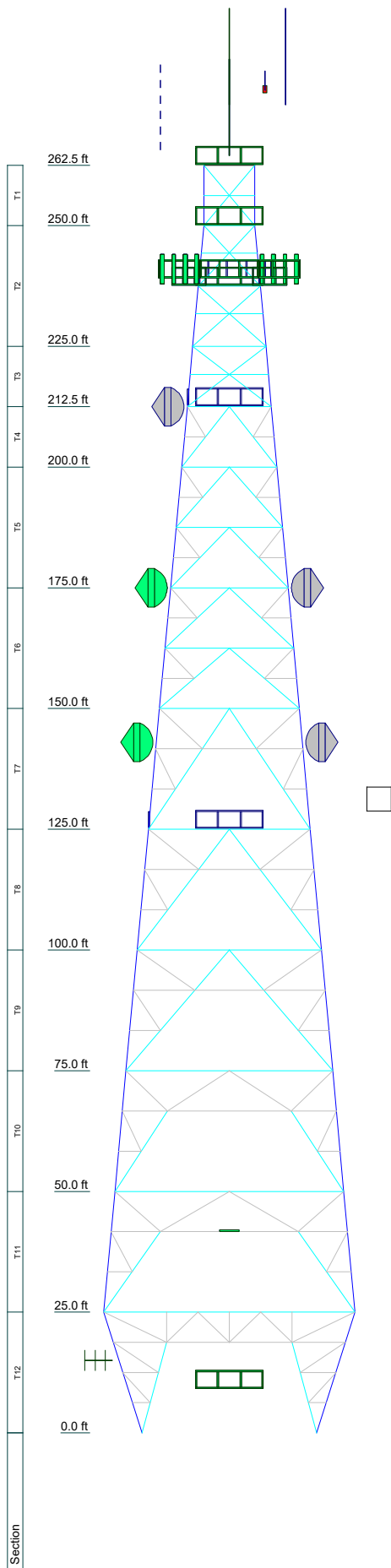
TAG0057, MIKESVILLE

Members

SK-2

Feb 20, 2026 at 08:09 AM

TAG0057 (45057) Final.rt3



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
14' x 6.5" Pipe	273	4415 B30	241
14' x 6.5" Pipe	273	4890 B25/B66	241
26' Bogner	273	DC9-48-60-18-8C-EV	241
26' Bogner	273	DC9-48-60-18-8C-EV	241
Pipe Mount 13'x2.375"	271	DC9-48-60-18-8C-EV	241
Flash Beacon	271	DC9-48-60-18-8C-EV	241
5' Lightning Rod	271	5' x 5' Corner Service Platform	239.5
29' Platform	264.5	5' x 5' Corner Service Platform	239.5
25' Omni	264.5	5' x 5' Corner Service Platform	239.5
20' Omni	264.5	5' x 5' Corner Service Platform	239.5
20' Omni	264.5	Catwalk	239.5
20' Omni	264.5	Catwalk	239.5
20' Dipole	264.5	Catwalk	239.5
31' Platform	252	Catwalk	239.5
Sabre C10-857-001C Sector Frame (1)	241	Catwalk	214.5
Sabre C10-857-001C Sector Frame (1)	241	Catwalk	214.5
Sabre C10-857-001C Sector Frame (1)	241	Pipe Mount 12.5'x4.5"	212.5
Sabre C10-857-001C Sector Frame (1)	241	8' Dish	212.5
(4) Pipe Mount 8'x2.375"	241	Pipe Mount 12.5'x4.5"	175
(4) Pipe Mount 8'x2.375"	241	Pipe Mount 12.5'x4.5"	175
(4) Pipe Mount 8'x2.375"	241	Pipe Mount 10.5'x4.5"	175
(4) Pipe Mount 8'x2.375"	241	6' Dish w/ Radome	175
AIR 6472 B77G B77M	241	8' Dish	175
AIR 6472 B77G B77M	241	8' Dish	175
AIR 6472 B77G B77M	241	Pipe Mount 10.5'x4.5"	143
AIR 6472 B77G B77M	241	Pipe Mount 10.5'x4.5"	143
(2) NNH4-85B-R6	241	8' Dish	143
(2) NNH4-85B-R6	241	8' Dish	143
(2) NNH4-85B-R6	241	Catwalk	127
(2) NNH4-85B-R6	241	Catwalk	127
4478 B14	241	4' x 6' Ice Shield	42
4478 B14	241	(2) 4' x 6' Ice Shield	42
4478 B14	241	4' x 6' Ice Shield	42
4478 B14	241	4' x 6' Ice Shield	42
4449 B5/B12	241	4' x 6' Ice Shield	42
4449 B5/B12	241	4' x 6' Ice Shield	42
4449 B5/B12	241	4' x 6' Ice Shield	42
4449 B5/B12	241	4' x 6' Ice Shield	42
8843 B2/B66A	241	Camera	16
8843 B2/B66A	241	Camera	15
8843 B2/B66A	241	Pipe Mount 2'x2.375"	15
RRUS 32 B30	241	18" Yagi	15
RRUS 32 B30	241	Waveguide Mount	11
RRUS 32 B30	241	(3) Waveguide Mount	11

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in Columbia County, Florida.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 121 mph basic wind in accordance with the TIA-222-H Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft



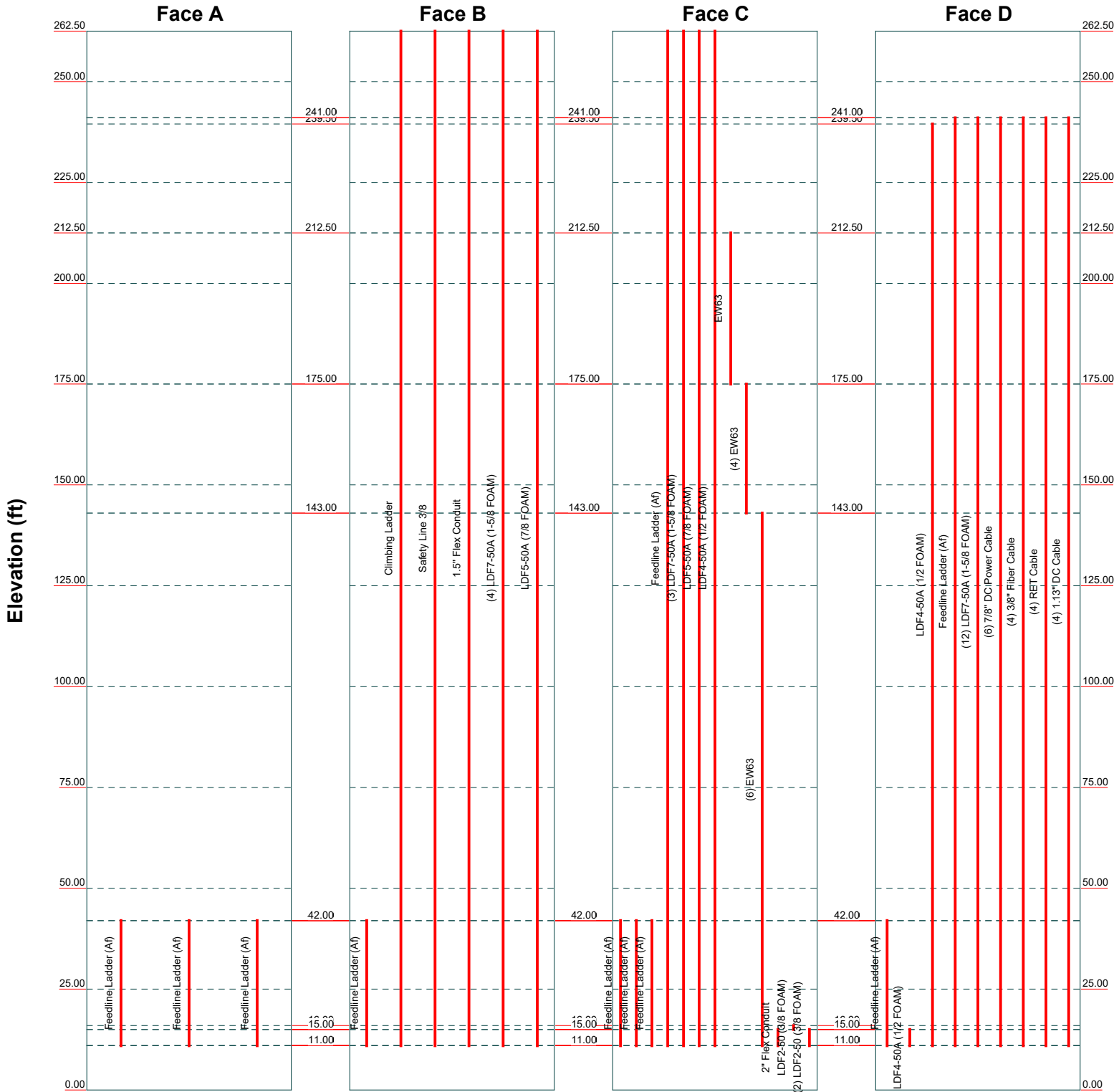
GPD
520 South Main Street Suite 2531
Akron, OH 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job: TAG0057, MIKESVILLE		
Project: 2026723.12.TAG0057.08		
Client: MasTec	Drawn by: CKuhn	App'd:
Code: TIA-222-H	Date: 02/20/26	Scale: NTS
Path:		Dwg No. E-1

Feed Line Distribution Chart

0' - 262'6"

Round Flat App In Face App Out Face Truss Leg



GPD
520 South Main Street Suite 2531
Akron, OH 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job: **TAG0057, MIKESVILLE**

Project: **2026723.12.TAG0057.08**

Client: **MasTec**

Drawn by: **CKuhn**

App'd:

Code: **TIA-222-H**

Date: **02/20/26**

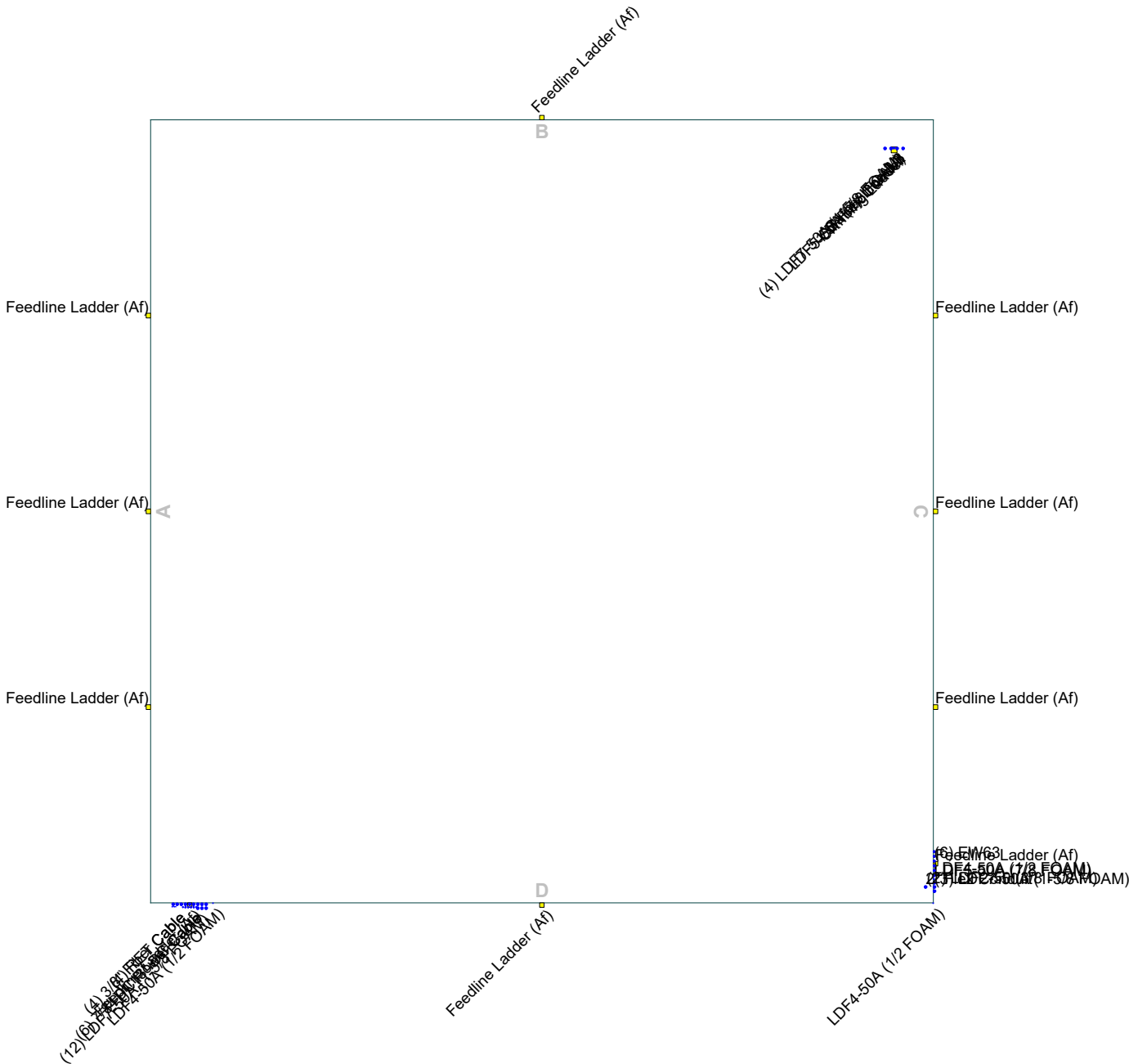
Scale: **NTS**

Path:

Dwg No. **E-7**

Feed Line Plan

Round Flat App In Face App Out Face



<i>tnxTower</i> GPD 520 South Main Street Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job TAG0057, MIKESVILLE	Page 1 of 9
	Project 2026723.12.TAG0057.08	Date 08:00:54 02/20/26
	Client MasTec	Designed by CKuhn

Tower Input Data

The main tower is a 4x free standing tower with an overall height of 262.50 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 10.50 ft at the top and 36.17 ft at the base.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in Columbia County, Florida.

Tower base elevation above sea level: 0.00 ft.

Basic wind speed of 121 mph.

Risk Category II.

Exposure Category C.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Deflections calculated using a wind speed of 60 mph.

Pressures are calculated at each section.

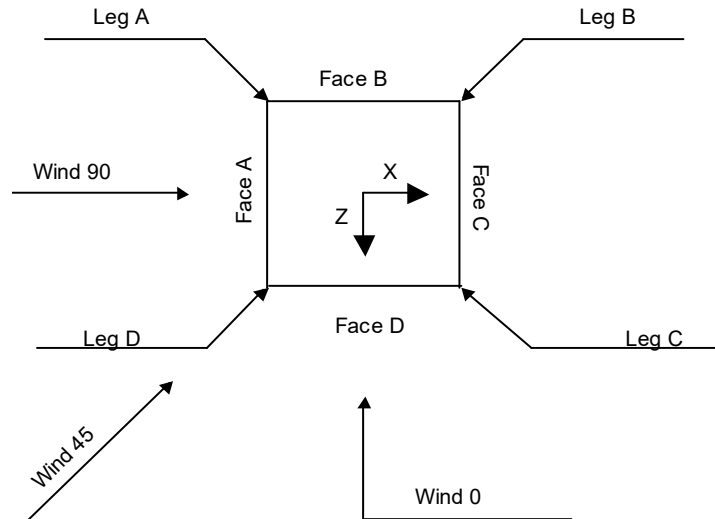
Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

tnxTower GPD 520 South Main Street Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job	TAG0057, MIKESVILLE	Page	2 of 9
	Project	2026723.12.TAG0057.08	Date	08:00:54 02/20/26
	Client	MasTec	Designed by	CKuhn



Square Tower

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 plf
Feedline Ladder (Af)	A	No	No	Af (CaAa)	42.00 - 11.00	0.0000	-0.25	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	A	No	No	Af (CaAa)	42.00 - 11.00	0.0000	0	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	A	No	No	Af (CaAa)	42.00 - 11.00	0.0000	0.25	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	B	No	No	Af (CaAa)	42.00 - 11.00	0.0000	0	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	No	Af (CaAa)	42.00 - 11.00	0.0000	-0.25	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	No	Af (CaAa)	42.00 - 11.00	0.0000	0	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	No	Af (CaAa)	42.00 - 11.00	0.0000	0.25	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	D	No	No	Af (CaAa)	42.00 - 11.00	0.0000	0	1	1	3.0000	3.0000		8.40

Climbing Ladder	B	No	No	Af (CaAa)	262.50 - 11.00	-18.0000	0.45	1	1	3.8400	3.8400		4.81
Safety Line 3/8	B	No	No	Ar (CaAa)	262.50 - 11.00	-18.0000	0.45	1	1	0.3750	0.3750		0.22
1.5" Flex Conduit	B	No	No	Ar (CaAa)	262.50 - 11.00	-18.0000	0.45	1	1	1.5000	1.5000		0.32

LDF7-50A (1-5/8 FOAM)	B	No	No	Ar (CaAa)	262.50 - 11.00	-18.0000	0.45	4	4	2.0000	1.9800		0.82
LDF5-50A (7/8 FOAM)	B	No	No	Ar (CaAa)	262.50 - 11.00	-18.0000	0.45	1	1	1.0900	1.0900		0.33

Feedline	C	No	No	Af (CaAa)	262.50 -	0.0000	0.45	1	1	3.0000	3.0000		8.40

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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 plf
Ladder (Af)					11.00								
LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	262.50 - 11.00	0.0000	0.48	3	3	0.7500	1.9800		0.82
LDF5-50A (7/8 FOAM)	C	No	No	Ar (CaAa)	262.50 - 11.00	0.0000	0.47	1	1	0.7500	1.0900		0.33
LDF4-50A (1/2 FOAM)	C	No	No	Ar (CaAa)	262.50 - 11.00	0.0000	0.467	1	1	0.6300	0.6300		0.15

EW63	C	No	No	Ar (CaAa)	212.50 - 175.00	0.0000	0.45	1	1	1.5742	1.5742		0.51
EW63	C	No	No	Ar (CaAa)	175.00 - 143.00	0.0000	0.45	4	4	1.5742	1.5742		0.51
EW63	C	No	No	Ar (CaAa)	143.00 - 11.00	0.0000	0.45	6	6	1.5742	1.5742		0.51

2" Flex Conduit	C	No	No	Ar (CaAa)	15.00 - 11.00	-4.0000	0.48	1	1	2.0000	2.0000		0.32
LDF2-50 (3/8 FOAM)	C	No	No	Ar (CaAa)	16.00 - 15.00	-4.0000	0.48	1	1	0.4400	0.4400		0.08
LDF2-50 (3/8 FOAM)	C	No	No	Ar (CaAa)	15.00 - 11.00	-4.0000	0.48	2	2	0.4400	0.4400		0.08

LDF4-50A (1/2 FOAM)	D	No	No	Ar (CaAa)	15.00 - 11.00	0.0000	0.42	1	1	0.6300	0.6300		0.15

LDF4-50A (1/2 FOAM)	D	No	No	Ar (CaAa)	239.50 - 11.00	0.0000	-0.5	1	1	0.6300	0.6300		0.15

Feedline	D	No	No	Af (CaAa)	241.00 - 11.00	0.0000	0.45	1	1	3.0000	3.0000		8.40
Ladder (Af)													
LDF7-50A (1-5/8 FOAM)	D	No	No	Ar (CaAa)	241.00 - 11.00	0.0000	0.45	12	9	0.7500	1.9800		0.82
7/8" DC Power Cable	D	No	No	Ar (CaAa)	241.00 - 11.00	2.5000	0.45	6	6	0.8750	0.8750		0.60
3/8" Fiber Cable	D	No	No	Ar (CaAa)	241.00 - 11.00	2.5000	0.47	4	4	0.3750	0.3750		0.10
RET Cable	D	No	No	Ar (CaAa)	241.00 - 11.00	2.5000	0.47	4	4	0.4400	0.4400		0.08
1.13" DC Cable	D	No	No	Ar (CaAa)	241.00 - 11.00	2.5000	0.45	4	4	0.7500	1.1300		0.82

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Discrete Tower Loads

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight lb</i>
29' Platform ***	D	None		0.0000	264.50	No Ice	65.25	65.25	10500.00
14' x 6.5" Pipe	B	From Leg	9.00 0.00 0.00	0.0000	273.00	No Ice	9.10	9.10	400.00
14' x 6.5" Pipe	D	From Face	9.00 0.00 0.00	0.0000	273.00	No Ice	9.10	9.10	400.00
26' Bogner	B	From Leg	9.00 0.00 12.00	0.0000	273.00	No Ice	8.04	8.04	325.00
26' Bogner	D	From Face	9.00 0.00 12.00	0.0000	273.00	No Ice	8.04	8.04	325.00
*** Pipe Mount 13'x2.375"	B	From Leg	3.00 0.00 0.00	0.0000	271.00	No Ice	3.09	3.09	49.40
Flash Beacon	B	From Leg	3.00 0.00 6.50	0.0000	271.00	No Ice	3.00	3.00	100.00
5' Lightning Rod	B	From Leg	3.00 0.00 9.00	0.0000	271.00	No Ice	0.16	0.16	65.00
*** 25' Omni	C	From Face	9.00 0.00 17.50	0.0000	264.50	No Ice	7.76	7.76	90.00
20' Omni	A	From Face	9.00 0.00 10.00	0.0000	264.50	No Ice	4.00	4.00	40.00
20' Omni	B	From Face	9.00 0.00 10.00	0.0000	264.50	No Ice	4.00	4.00	40.00
20' Omni	D	From Face	9.00 0.00 10.00	0.0000	264.50	No Ice	4.00	4.00	40.00
20' Dipole	A	From Face	9.00 0.00 10.00	0.0000	264.50	No Ice	4.00	4.00	40.00
*** 31' Platform ***	C	None		0.0000	252.00	No Ice	69.75	69.75	12000.00
Catwalk	A	From Face	0.00 0.00 0.00	0.0000	239.50	No Ice	24.91	5.61	700.00
Catwalk	B	From Face	0.00 0.00 0.00	0.0000	239.50	No Ice	24.91	5.61	700.00
Catwalk	C	From Face	0.00 0.00 0.00	0.0000	239.50	No Ice	24.91	5.61	700.00
Catwalk	D	From Face	0.00 0.00 0.00	0.0000	239.50	No Ice	24.91	5.61	700.00

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight lb</i>
***			0.00						
5' x 5' Corner Service Platform	A	From Leg	3.00 0.00 0.00	0.0000	239.50	No Ice	4.00	8.75	250.00
5' x 5' Corner Service Platform	B	From Leg	3.00 0.00 0.00	0.0000	239.50	No Ice	4.00	8.75	250.00
5' x 5' Corner Service Platform	C	From Leg	3.00 0.00 0.00	0.0000	239.50	No Ice	4.00	8.75	250.00
5' x 5' Corner Service Platform	D	From Leg	3.00 0.00 0.00	0.0000	239.50	No Ice	4.00	8.75	250.00

Sabre C10-857-001C Sector Frame (1)	A	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	9.12	5.23	462.00
Sabre C10-857-001C Sector Frame (1)	B	From Face	2.60 1.50 0.00	30.0000	241.00	No Ice	9.12	5.23	462.00
Sabre C10-857-001C Sector Frame (1)	C	From Face	2.60 -1.50 0.00	-30.0000	241.00	No Ice	9.12	5.23	462.00
Sabre C10-857-001C Sector Frame (1)	D	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	9.12	5.23	462.00
(4) Pipe Mount 8'x2.375"	A	From Leg	1.50 0.00 0.00	30.0000	241.00	No Ice	1.90	1.90	33.70
(4) Pipe Mount 8'x2.375"	B	From Leg	1.50 0.00 0.00	-30.0000	241.00	No Ice	1.90	1.90	33.70
(4) Pipe Mount 8'x2.375"	C	From Leg	1.50 0.00 0.00	0.0000	241.00	No Ice	1.90	1.90	33.70
(4) Pipe Mount 8'x2.375"	D	From Leg	1.50 0.00 0.00	0.0000	241.00	No Ice	1.90	1.90	33.70
AIR 6472 B77G B77M	A	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	4.94	1.62	77.20
AIR 6472 B77G B77M	B	From Face	2.60 1.50 0.00	30.0000	241.00	No Ice	4.94	1.62	77.20
AIR 6472 B77G B77M	C	From Face	2.60 -1.50 0.00	-30.0000	241.00	No Ice	4.94	1.62	77.20
AIR 6472 B77G B77M	D	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	4.94	1.62	77.20
(2) NNH4-85B-R6	A	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	8.99	5.57	95.93
(2) NNH4-85B-R6	B	From Face	2.60 1.50 0.00	30.0000	241.00	No Ice	8.99	5.57	95.93

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight lb</i>
(2) NNH4-85B-R6	C	From Face	2.60 -1.50 0.00	-30.0000	241.00	No Ice	8.99	5.57	95.93
(2) NNH4-85B-R6	D	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	8.99	5.57	95.93
4478 B14	A	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	1.96	1.25	59.40
4478 B14	B	From Face	2.60 1.50 0.00	30.0000	241.00	No Ice	1.96	1.25	59.40
4478 B14	C	From Face	2.60 -1.50 0.00	-30.0000	241.00	No Ice	1.96	1.25	59.40
4478 B14	D	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	1.96	1.25	59.40
4449 B5/B12	A	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	1.97	1.41	71.00
4449 B5/B12	B	From Face	2.60 1.50 0.00	30.0000	241.00	No Ice	1.97	1.41	71.00
4449 B5/B12	C	From Face	2.60 -1.50 0.00	-30.0000	241.00	No Ice	1.97	1.41	71.00
4449 B5/B12	D	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	1.97	1.41	71.00
8843 B2/B66A	A	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	1.98	1.70	75.00
8843 B2/B66A	B	From Face	2.60 1.50 0.00	30.0000	241.00	No Ice	1.98	1.70	75.00
8843 B2/B66A	C	From Face	2.60 -1.50 0.00	-30.0000	241.00	No Ice	1.98	1.70	75.00
RRUS 32 B30	A	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	2.69	1.57	60.00
RRUS 32 B30	B	From Face	2.60 1.50 0.00	30.0000	241.00	No Ice	2.69	1.57	60.00
RRUS 32 B30	C	From Face	2.60 -1.50 0.00	-30.0000	241.00	No Ice	2.69	1.57	60.00
4415 B30	B	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	1.84	0.82	46.00
4890 B25/B66	D	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	2.70	1.22	67.20
DC9-48-60-18-8C-EV	A	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	4.79	2.73	26.20

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight lb</i>
DC9-48-60-18-8C-EV	A	From Face	2.60 1.50 0.00	30.0000	241.00	No Ice	4.79	2.73	26.20
DC9-48-60-18-8C-EV	A	From Face	0.00 -1.50 0.00	-30.0000	241.00	No Ice	4.79	2.73	26.20
DC9-48-60-18-8C-EV	C	From Face	3.00 0.00 0.00	0.0000	241.00	No Ice	4.79	2.73	26.20

Catwalk	B	From Face	0.00 0.00 0.00	0.0000	214.50	No Ice	18.71	5.61	550.00
Catwalk	A	From Face	0.00 0.00 0.00	0.0000	214.50	No Ice	47.82	5.61	1150.00

Pipe Mount 12.5'x4.5"	A	From Leg	0.50 0.00 0.00	0.0000	212.50	No Ice	3.97	3.97	140.30

Pipe Mount 10.5'x4.5"	A	From Leg	0.50 0.00 0.00	0.0000	175.00	No Ice	3.40	3.40	117.80
Pipe Mount 12.5'x4.5"	B	From Leg	0.50 0.00 0.00	0.0000	175.00	No Ice	4.05	4.05	140.30
Pipe Mount 12.5'x4.5"	D	From Leg	0.50 0.00 0.00	0.0000	175.00	No Ice	4.05	4.05	140.30

Pipe Mount 10.5'x4.5"	B	From Leg	0.50 0.00 0.00	0.0000	143.00	No Ice	3.48	3.48	117.80
Pipe Mount 10.5'x4.5"	D	From Leg	0.50 0.00 0.00	0.0000	143.00	No Ice	3.48	3.48	117.80

Catwalk	A	From Face	0.00 0.00 0.00	0.0000	127.00	No Ice	56.65	5.61	1250.00
Catwalk	B	From Face	0.00 0.00 0.00	0.0000	127.00	No Ice	56.65	5.61	1250.00

4' x 6' Ice Shield	A	From Face	2.00 12.00 0.00	0.0000	42.00	No Ice	1.20	1.80	200.00
4' x 6' Ice Shield	A	From Face	2.00 0.00 0.00	0.0000	42.00	No Ice	1.20	1.80	200.00
4' x 6' Ice Shield	A	From Face	2.00 -12.00 0.00	0.0000	42.00	No Ice	1.20	1.80	200.00
4' x 6' Ice Shield	B	From Face	2.00 0.00	0.0000	42.00	No Ice	1.20	1.80	200.00

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight lb</i>
4' x 6' Ice Shield	C	From Face	0.00 2.00 12.00 0.00	0.0000	42.00	No Ice	1.20	1.80	200.00
4' x 6' Ice Shield	C	From Face	2.00 0.00 0.00	0.0000	42.00	No Ice	1.20	1.80	200.00
4' x 6' Ice Shield	C	From Face	2.00 -12.00 0.00	0.0000	42.00	No Ice	1.20	1.80	200.00
(2) 4' x 6' Ice Shield	D	From Face	2.00 0.00 0.00	0.0000	42.00	No Ice	1.20	1.80	200.00
*** Camera	C	From Leg	0.00 0.00 0.00	0.0000	16.00	No Ice	0.11	0.05	2.00
*** Camera	C	From Leg	0.00 0.00 0.00	0.0000	15.00	No Ice	0.11	0.05	2.00
*** Pipe Mount 2'x2.375"	D	From Leg	0.50 0.00 0.00	0.0000	15.00	No Ice	0.34	0.34	7.60
18" Yagi	D	From Leg	2.00 0.00 0.00	0.0000	15.00	No Ice	0.07	0.07	5.00
*** Waveguide Mount	B	None		0.0000	11.00	No Ice	112.50	5.61	2500.00
(3) Waveguide Mount ***	C	None		0.0000	11.00	No Ice	62.88	5.61	1400.00

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Dishes

<i>Description</i>	<i>Face or Leg</i>	<i>Dish Type</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft</i>	<i>Azimuth Adjustment °</i>	<i>3 dB Beam Width °</i>	<i>Elevation ft</i>	<i>Outside Diameter ft</i>	<i>Aperture Area ft²</i>	<i>Weight lb</i>
8' Dish	A	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	30.0000		212.50	8.00	No Ice	50.27 300.00

6' Dish w/ Radome	A	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	30.0000		175.00	6.00	No Ice	28.27 120.00
8' Dish	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	35.0000		175.00	8.00	No Ice	50.27 300.00
8' Dish	D	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	-30.0000		175.00	8.00	No Ice	50.27 300.00

8' Dish	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	35.0000		143.00	8.00	No Ice	50.27 300.00
8' Dish	D	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	-30.0000		143.00	8.00	No Ice	50.27 300.00

Model Settings

Number of Reported Sections	5
Number of Internal Sections	100
Member Area Load Mesh Size (in ²)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes
Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	No
Maximum Number of Iterations	3
Single	No
Multiple (Optimum)	Yes
Maximum	No

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes
Default Global Plane for z-axis	XZ
Plate Local Axis Orientation	Nodal

Hot Rolled Steel	AISC 16th (360-22): LRFD
Stiffness Adjustment	No
Notional Annex	None
Connections	None
Cold Formed Steel	None
Stiffness Adjustment	Yes (Iterative)
Wood	None
Temperature	< 100F
Concrete	None
Masonry	None
Aluminum	None
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	None
Stiffness Adjustment	Yes (Iterative)

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	Yes
List forces which were ignored for design in the Detail Report	Yes

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No
Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Code	None
Base Elevation (ft)	
Include the weight of the structure in base shear calcs	Yes

Model Settings (Continued)

T Z (sec)	
T X (sec)	
C _i Z	0.02
C _i X	0.02
R Z	3
R X	3

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	Y Rot [k-ft/rad]
1	N317	Reaction	Reaction	Reaction	Reaction
2	N318	Reaction	Reaction	Reaction	Reaction
3	N319	Reaction	Reaction	Reaction	Reaction
4	N320	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁵ F ⁻¹]	Density [k/ft ³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36	29000	11200	0.295	0.65	0.49	36	1.5	58	1.2

General Materials Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁵ F ⁻¹]	Density [k/ft ³]	Plate Methodology
1	A36_Gen	29000	11153.846	0.3	0.65	0.49	Isotropic

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	TWR_LEG_T1	L5X5X7/16	None	None	A36	Typical	4.184	10.021	10.021	0.267
2	TWR_HORZ_TOP_GIRT_T1	C8X11.5	None	None	A36	Typical	3.37	1.31	32.5	0.13
3	TWR_DIAG_T1	L31/2X31/2X1/4	None	None	A36	Typical	1.69	2.01	2.01	0.039
4	TWR_RED_VERT_T1	L2.5X2.5X3	None	None	A36	Typical	0.901	0.535	0.535	0.011
5	TWR_HORZ_STEP_T1	L21/2X21/2X3/16	None	None	A36	Typical	0.902	0.547	0.547	0.01
6	TWR_LEG_T2	L6X6X5/8	None	None	A36	Typical	7.109	24.158	24.158	0.926
7	TWR_HORZ_T2	C8X11.5	None	None	A36	Typical	3.37	1.31	32.5	0.13
8	TWR_DIAG_T2	L31/2X31/2X5/16	None	None	A36	Typical	2.09	2.45	2.45	0.073
9	TWR_DIAG_MOD_T2	LL3.5X3.5X5X6	None	None	A36	Typical	4.2	12.6	4.88	0.146
10	TWR_RED_VERT_T2	L2.5X2.5X3	None	None	A36	Typical	0.901	0.535	0.535	0.011
11	TWR_HORZ_STEP_T2	L3X21/2X1/4	None	None	A36	Typical	1.31	0.74	1.17	0.03
12	TWR_LEG_T3	L6X6X7/8	None	None	A36	Typical	9.734	31.917	31.917	2.484
13	TWR_HORZ_T3	2L3X21/2X1/4X3/8	None	None	A36	Typical	2.63	3.373	2.35	0.055
14	TWR_RED_VERT_T3	L2.5X2.5X3	None	None	A36	Typical	0.901	0.535	0.535	0.011
15	TWR_INNER_SUPP_T3	2L21/2X21/2X3/16X3/8	None	None	A36	Typical	1.8	2.499	1.09	0.021
16	TWR_INNER_SQ_T3	L2X2.5X3	None	None	A36	Typical	0.809	0.509	0.291	0.009
17	TWR_INNER_CORNER_T3	L2.5X2.5X3	None	None	A36	Typical	0.901	0.535	0.535	0.011
18	TWR_DIAG_T3	2L3x2x1/4x3/8	None	None	A36	Typical	2.38	1.884	2.17	0.049
19	TWR_HORZ_STEP_T3	L3X21/2X1/4	None	None	A36	Typical	1.31	0.74	1.17	0.03
20	TWR_LEG_T4	L6X6X7/8	None	None	A36	Typical	9.734	31.917	31.917	2.484
21	TWR_HORZ_T4	2L3X21/2X1/4X3/8	None	None	A36	Typical	2.63	3.373	2.35	0.055
22	TWR_DIAG_T4	2L2 1/2x3x1/4x3/8	None	None	A36	Typical	2.63	5.508	1.49	0.055
23	TWR_RED_HORZ_T4	L21/2X21/2X1/4	None	None	A36	Typical	1.19	0.692	0.692	0.026
24	TWR_RED_DIAG_T4	L21/2X2X3/16	None	None	A36	Typical	0.809	0.291	0.509	0.01
25	TWR_INNER_SUPP_T4	2L21/2X21/2X3/16X3/8	None	None	A36	Typical	1.8	2.499	1.09	0.021
26	TWR_INNER_SQ_T4	LL2X2.5X3X3	None	None	A36	Typical	1.64	2.48	0.583	0.021
27	TWR_INNER_CORNER_T4	L2.5X2.5X3	None	None	A36	Typical	0.901	0.535	0.535	0.011
28	TWR_LEG_T5	L6X6X7/8	None	None	A36	Typical	9.734	31.917	31.917	2.484
29	TWR_HORZ_T5	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
30	TWR_DIAG_T5	2L2 1/2x3x1/4x3/8	None	None	A36	Typical	2.63	5.508	1.49	0.055
31	TWR_RED_HORZ_T5	L21/2X2X3/16	None	None	A36	Typical	0.809	0.291	0.509	0.01
32	TWR_RED_DIAG_T5	L21/2X2X3/16	None	None	A36	Typical	0.809	0.291	0.509	0.01
33	TWR_RED_KICKER_T5	L2.5X2.5X4	None	None	A36	Typical	1.19	0.692	0.692	0.026
34	TWR_INNER_SUPP_T5	2L21/2X21/2X3/16X3/8	None	None	A36	Typical	1.8	2.499	1.09	0.021
35	TWR_INNER_SQ_T5	LL2X2.5X3X3	None	None	A36	Typical	1.64	2.48	0.583	0.021
36	TWR_INNER_CORNER_T5	L2.5X2.5X3	None	None	A36	Typical	0.901	0.535	0.535	0.011

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
37	TWR LEG T6	L8X8X3/4	None	None	A36	Typical	11.438	69.738	69.738	2.145
38	TWR HORZ T6	2L3X21/2X1/4X3/8	None	None	A36	Typical	2.63	3.373	2.35	0.055
39	TWR DIAG T6	2L2 1/2x3 1/2x1/4x3/8	None	None	A36	Typical	2.88	8.466	1.55	0.06
40	TWR RED HORZ T6	L21/2X21/2X3/16	None	None	A36	Typical	0.902	0.547	0.547	0.01
41	TWR RED DIAG T6	L21/2X21/2X3/16	None	None	A36	Typical	0.902	0.547	0.547	0.01
42	TWR INNER SUPP T6	2L21/2X21/2X3/16X3/8	None	None	A36	Typical	1.8	2.499	1.09	0.021
43	TWR INNER SQ T6	LL2X2.5X3X3	None	None	A36	Typical	1.64	2.48	0.583	0.021
44	TWR INNER CORNER T6	L2.5X2.5X3	None	None	A36	Typical	0.901	0.535	0.535	0.011
45	TWR LEG T7	L8X8X7/8	None	None	A36	Typical	13.234	79.581	79.581	3.378
46	TWR HORZ T7	2L3 1/2x2 1/2x1/4x3/8	None	None	A36	Typical	2.88	3.4	3.6	0.06
47	TWR DIAG T7	2L3 1/2x4x1/4x3/8	None	None	A36	Typical	3.63	12.398	4.19	0.076
48	TWR RED HORZ T7	L2.5X2X3	None	None	A36	Typical	0.818	0.292	0.511	0.01
49	TWR RED HORZ 2 T7	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
50	TWR RED DIAG T7	L3X3X3	None	None	A36	Typical	1.09	0.948	0.948	0.014
51	TWR RED DIAG 2 T7	2L21/2X2X3/16X3/8	None	None	A36	Typical	1.617	1.379	1.017	0.019
52	TWR RED SUBHOR T7	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
53	TWR RED HIP 2 T7	L3.5X3.5X6	None	None	A36	Typical	2.5	2.86	2.86	0.123
54	TWR RED HIPDIA T7	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
55	TWR INNER SUPP T7	2L21/2X21/2X3/16X3/8	None	None	A36	Typical	1.8	2.499	1.09	0.021
56	TWR INNER SQ T7	2L21/2X2X3/16X3/8	None	None	A36	Typical	1.617	1.379	1.017	0.019
57	TWR INNER CORNER T7	L21/2X21/2X3/16	None	None	A36	Typical	0.902	0.547	0.547	0.01
58	TWR LEG T8	L8X8X11/8	None	None	A36	Typical	16.7	98	98	7.13
59	TWR HORZ T8	2L3 1/2x2 1/2x1/4x3/8	None	None	A36	Typical	2.88	3.4	3.6	0.06
60	TWR DIAG T8	2L3 1/2x4x1/4x3/8	None	None	A36	Typical	3.63	12.398	4.19	0.076
61	TWR RED HORZ T8	L2.5X2X3	None	None	A36	Typical	0.818	0.292	0.511	0.01
62	TWR RED HORZ 2 T8	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
63	TWR RED DIAG T8	L3X3X3	None	None	A36	Typical	1.09	0.948	0.948	0.014
64	TWR RED DIAG 2 T8	2L21/2X2X3/16X3/8	None	None	A36	Typical	1.617	1.379	1.017	0.019
65	TWR RED SUBHOR T8	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
66	TWR RED VERT T8	L2.5X2X3	None	None	A36	Typical	0.818	0.292	0.511	0.01
67	TWR RED HIP 2 T8	L4X4X6	None	None	A36	Typical	2.86	4.32	4.32	0.141
68	TWR RED HIPDIA T8	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
69	TWR INNER SUPP T8	L3X3X1/4	None	None	A36	Typical	1.44	1.24	1.24	0.032
70	TWR INNER SQ T8	LL2X2.5X3X3	None	None	A36	Typical	1.64	2.48	0.583	0.021
71	TWR INNER GIRT T8	L3X3X1/4	None	None	A36	Typical	1.44	1.24	1.24	0.032
72	TWR INNER CORNER T8	L3X3X1/4	None	None	A36	Typical	1.44	1.24	1.24	0.032
73	TWR LEG T9	L8X8X11/8	None	None	A36	Typical	16.7	98	98	7.13
74	TWR HORZ T9	LL3.5X3.5X4X6	None	None	A36	Typical	3.4	10.1	4	0.077
75	TWR DIAG T9	2L3 1/2x4x1/4x3/8	None	None	A36	Typical	3.63	12.398	4.19	0.076
76	TWR RED HORZ T9	L2.5X2.5X3	None	None	A36	Typical	0.901	0.535	0.535	0.011
77	TWR RED HORZ 2 T9	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
78	TWR RED DIAG T9	L3X3X3	None	None	A36	Typical	1.09	0.948	0.948	0.014
79	TWR RED DIAG 2 T9	2L3x2x3/16x3/8	None	None	A36	Typical	1.8	1.395	1.68	0.021
80	TWR RED SUBHOR T9	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
81	TWR RED HIP 2 T9	L4X4X6	None	None	A36	Typical	2.86	4.32	4.32	0.141
82	TWR RED HIPDIA T9	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
83	TWR INNER SUPP T9	2L3X3X1/4X3/8	None	None	A36	Typical	2.88	5.535	2.49	0.06
84	TWR INNER SQ T9	LL3X3X4X6	None	None	A36	Typical	2.88	6.65	2.46	0.063
85	TWR INNER BRACE T9	L3X3X3	None	None	A36	Typical	1.09	0.948	0.948	0.014
86	TWR INNER CORNER T9	LL3X3X4X6	None	None	A36	Typical	2.88	6.65	2.46	0.063
87	TWR LEG T10	L8X8X11/8	None	None	A36	Typical	16.7	98	98	7.13
88	TWR HORZ T10	2L4X3X1/4X3/8	None	None	A36	Typical	3.38	5.587	5.54	0.07
89	TWR DIAG T10	2L3 1/2x4x5/16x3/8	None	None	A36	Typical	4.49	15.551	5.1	0.146
90	TWR RED HORZ T10	L2.5X2X3	None	None	A36	Typical	0.818	0.292	0.511	0.01
91	TWR RED HORZ 2 T10	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
92	TWR RED DIAG T10	L3X3X3	None	None	A36	Typical	1.09	0.948	0.948	0.014
93	TWR RED DIAG 2 T10	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
94	TWR RED SUBDIA T10	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
95	TWR RED SUBHOR T10	LL3X3X8X6	None	None	A36	Typical	5.52	13.8	4.4	0.46
96	TWR RED KICKER T10	L2X2X4	None	None	A36	Typical	0.944	0.346	0.346	0.021
97	TWR RED SUBDIA 2 T10	2L3 1/2x3 1/2x1/4x3/8	None	None	A36	Typical	3.38	8.518	4.02	0.07
98	TWR RED HIP 2 T10	LL2.5X3X4X6	None	None	A36	Typical	2.64	6.59	1.47	0.059
99	TWR RED HIPDIA T10	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
100	TWR INNER SUPP T10	2L4X3X1/4X3/8	None	None	A36	Typical	3.38	5.587	5.54	0.07
101	TWR INNER GIRT T10	L3X3X3/16	None	None	A36	Typical	1.09	0.96	0.96	0.014
102	TWR INNER CORNER T10	L3X3X3/16	None	None	A36	Typical	1.09	0.96	0.96	0.014
103	TWR LEG T11	L8X8X11/8	None	None	A36	Typical	16.7	98	98	7.13
104	TWR HORZ T11	2L4x4x1/4x3/8	None	None	A36	Typical	3.88	12.424	6.08	0.081
105	TWR DIAG T11	2L3 1/2x4x5/16x3/8	None	None	A36	Typical	4.49	15.551	5.1	0.146
106	TWR RED HORZ T11	L2.5X2X3	None	None	A36	Typical	0.818	0.292	0.511	0.01
107	TWR RED HORZ 2 T11	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
108	TWR RED DIAG T11	L3X3X3	None	None	A36	Typical	1.09	0.948	0.948	0.014
109	TWR RED DIAG 2 T11	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
110	TWR RED SUBDIA T11	2L3 1/2x2 1/2x1/4x3/8	None	None	A36	Typical	2.88	3.4	3.6	0.06
111	TWR RED SUBHOR T11	2L31/2X31/2X1/2X3/8	None	None	A36	Typical	6.5	17.348	7.27	0.489
112	TWR RED KICKER T11	L2.5X2.5X4	None	None	A36	Typical	1.19	0.692	0.692	0.026
113	TWR RED HIP 2 T11	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
114	TWR RED HIPDIA T11	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
115	TWR INNER SUPP T11	2L4X3X1/4X3/8	None	None	A36	Typical	3.38	5.587	5.54	0.07
116	TWR INNER GIRT T11	L3 1/2x3x1/4	None	None	A36	Typical	1.56	1.3	1.91	0.036
117	TWR INNER CORNER T11	L3 1/2x3x1/4	None	None	A36	Typical	1.56	1.3	1.91	0.036
118	TWR HORZ T12	2L5x5x5/8x1/2	None	None	A36	Typical	11.719	62.195	27.156	1.398
119	TWR DIAG T12	2L4x6x3/4x3/8	None	None	A36	Typical	13.9	120.106	17.4	2.602
120	TWR RED HORZ T12	L2.5X2X3	None	None	A36	Typical	0.818	0.292	0.511	0.01
121	TWR RED HORZ 2 T12	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
122	TWR RED DIAG T12	L2.5X2.5X4	None	None	A36	Typical	1.19	0.692	0.692	0.026
123	TWR RED HORZ 3 T12	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
124	TWR RED DIAG 2 T12	L3X3X3	None	None	A36	Typical	1.09	0.948	0.948	0.014
125	TWR RED DIAG 3 T12	2L4x6x3/8x3/8	None	None	A36	Typical	7.22	59.63	9.81	0.338
126	TWR RED SUBDIA T12	LL6X4X8X6	None	None	A36	Typical	9.5	29.8	34.6	0.814
127	TWR RED SUBDIA 2 T12	2L5x5x3/4x3/8	None	None	A36	Typical	13.9	72.054	31.5	2.602
128	TWR RED SUBHOR T12	LL5X5X12X6	None	None	A36	Typical	14	81.3	31.4	2.66
129	TWR RED VERT T12	2L21/2X21/2X1/4X3/8	None	None	A36	Typical	2.38	3.347	1.41	0.049
130	TWR RED HIP 2 T12	L31/2X31/2X1/4	None	None	A36	Typical	1.69	2.01	2.01	0.039
131	TWR RED HIPDIA T12	L3X3X3/16	None	None	A36	Typical	1.09	0.96	0.96	0.014
132	TWR RED HIPDIA 2 T12	LL2.5X2.5X5X6	None	None	A36	Typical	2.92	5.24	1.67	0.099
133	TWR RED HIP 3 T12	L3X3X1/4	None	None	A36	Typical	1.44	1.24	1.24	0.032
134	TWR INNER SUPP T12	2L4X3X1/4X3/8	None	None	A36	Typical	3.38	5.587	5.54	0.07
135	TWR INNER GIRT T12	L3.5X3.5X4	None	None	A36	Typical	1.7	2	2	0.039
136	TWR RED KICKER T12	L2.5X2.5X3	None	None	A36	Typical	0.901	0.535	0.535	0.011
137	TWR RED KICKER 2 T12	L3X3X3	None	None	A36	Typical	1.09	0.948	0.948	0.014
138	TWR INNER CORNER T12	L31/2X31/2X1/4	None	None	A36	Typical	1.69	2.01	2.01	0.039

General Section Sets

	Label	Shape	Type	Material	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	TWR_LEG_T12	L8x8x1 w/ L4x4x1/2	None	A36_Gen	15	89	89	10

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
1	M29	TWR DIAG MOD T2	18.773	9.32	9.32	9.32	9.32	9.32	1.05	1	N/A	N/A	Lateral
2	M30	TWR DIAG MOD T2	18.773	9.32	9.32	9.32	9.32	9.32	1.05	1	N/A	N/A	Lateral
3	M31	TWR DIAG MOD T2	18.773	9.32	9.32	9.32	9.32	9.32	1.05	1	N/A	N/A	Lateral
4	M32	TWR DIAG MOD T2	18.773	9.32	9.32	9.32	9.32	9.32	1.05	1	N/A	N/A	Lateral
5	M33	TWR DIAG MOD T2	18.773	9.32	9.32	9.32	9.32	9.32	1.05	1	N/A	N/A	Lateral
6	M34	TWR DIAG MOD T2	18.773	9.32	9.32	9.32	9.32	9.32	1.05	1	N/A	N/A	Lateral
7	M35	TWR DIAG MOD T2	18.773	9.32	9.32	9.32	9.32	9.32	1.05	1	N/A	N/A	Lateral
8	M36	TWR DIAG MOD T2	18.773	9.32	9.32	9.32	9.32	9.32	1.05	1	N/A	N/A	Lateral
9	M9	TWR DIAG T1	16.325	7.33	7.33	7.33	7.33	8.162	0.990	0.99	N/A	N/A	Lateral
10	M10	TWR DIAG T1	16.325	7.33	7.33	7.33	7.33	8.162	0.990	0.99	N/A	N/A	Lateral
11	M11	TWR DIAG T1	16.325	7.33	7.33	7.33	7.33	8.162	0.990	0.99	N/A	N/A	Lateral
12	M12	TWR DIAG T1	16.325	7.33	7.33	7.33	7.33	8.162	0.990	0.99	N/A	N/A	Lateral
13	M13	TWR DIAG T1	16.325	7.33	7.33	7.33	7.33	8.162	0.990	0.99	N/A	N/A	Lateral
14	M14	TWR DIAG T1	16.325	7.33	7.33	7.33	7.33	8.162	0.990	0.99	N/A	N/A	Lateral
15	M15	TWR DIAG T1	16.325	7.33	7.33	7.33	7.33	8.162	0.990	0.99	N/A	N/A	Lateral
16	M16	TWR DIAG T1	16.325	7.33	7.33	7.33	7.33	8.162	0.990	0.99	N/A	N/A	Lateral
17	M45	TWR DIAG T2	17.128	9.411	9.411	9.411	9.411	9.411	0.940	0.94	N/A	N/A	Lateral
18	M46	TWR DIAG T2	17.128	9.411	9.411	9.411	9.411	9.411	0.940	0.94	N/A	N/A	Lateral
19	M47	TWR DIAG T2	17.128	9.411	9.411	9.411	9.411	9.411	0.940	0.94	N/A	N/A	Lateral
20	M48	TWR DIAG T2	17.128	9.411	9.411	9.411	9.411	9.411	0.940	0.94	N/A	N/A	Lateral
21	M49	TWR DIAG T2	17.128	9.411	9.411	9.411	9.411	9.411	0.940	0.94	N/A	N/A	Lateral
22	M50	TWR DIAG T2	17.128	9.411	9.411	9.411	9.411	9.411	0.940	0.94	N/A	N/A	Lateral
23	M51	TWR DIAG T2	17.128	9.411	9.411	9.411	9.411	9.411	0.940	0.94	N/A	N/A	Lateral
24	M52	TWR DIAG T2	17.128	9.411	9.411	9.411	9.411	9.411	0.940	0.94	N/A	N/A	Lateral
25	M70	TWR DIAG T3	20.545	10.36	10.36	10.36	10.36	11.001	1.08	1	N/A	N/A	Lateral
26	M71	TWR DIAG T3	20.545	10.36	10.36	10.36	10.36	11.001	1.08	1	N/A	N/A	Lateral
27	M72	TWR DIAG T3	20.545	10.36	10.36	10.36	10.36	11.001	1.08	1	N/A	N/A	Lateral
28	M73	TWR DIAG T3	20.545	10.36	10.36	10.36	10.36	11.001	1.08	1	N/A	N/A	Lateral
29	M74	TWR DIAG T3	20.545	10.36	10.36	10.36	10.36	11.001	1.08	1	N/A	N/A	Lateral
30	M75	TWR DIAG T3	20.545	10.36	10.36	10.36	10.36	11.001	1.08	1	N/A	N/A	Lateral
31	M76	TWR DIAG T3	20.545	10.36	10.36	10.36	10.36	11.001	1.08	1	N/A	N/A	Lateral
32	M77	TWR DIAG T3	20.545	10.36	10.36	10.36	10.36	11.001	1.08	1	N/A	N/A	Lateral
33	M87	TWR DIAG T4	15.963	14.92	7.46	7.46	7.46	7.982	1.07	1	N/A	N/A	Lateral
34	M90	TWR DIAG T4	15.963	14.92	7.46	7.46	7.46	7.982	1.07	1	N/A	N/A	Lateral
35	M94	TWR DIAG T4	15.963	14.92	7.46	7.46	7.46	7.982	1.07	1	N/A	N/A	Lateral
36	M97	TWR DIAG T4	15.963	14.92	7.46	7.46	7.46	7.982	1.07	1	N/A	N/A	Lateral
37	M101	TWR DIAG T4	15.963	14.92	7.46	7.46	7.46	7.982	1.07	1	N/A	N/A	Lateral
38	M104	TWR DIAG T4	15.963	14.92	7.46	7.46	7.46	7.982	1.07	1	N/A	N/A	Lateral
39	M108	TWR DIAG T4	15.963	14.92	7.46	7.46	7.46	7.982	1.07	1	N/A	N/A	Lateral
40	M111	TWR DIAG T4	15.963	14.92	7.46	7.46	7.46	7.982	1.07	1	N/A	N/A	Lateral
41	M124	TWR DIAG T5	17.482	16.482	8.241	8.241	8.241	8.741	1.05	1	N/A	N/A	Lateral
42	M127	TWR DIAG T5	17.482	16.482	8.241	8.241	8.241	8.741	1.05	1	N/A	N/A	Lateral
43	M131	TWR DIAG T5	17.482	16.482	8.241	8.241	8.241	8.741	1.05	1	N/A	N/A	Lateral
44	M134	TWR DIAG T5	17.482	16.482	8.241	8.241	8.241	8.741	1.05	1	N/A	N/A	Lateral
45	M138	TWR DIAG T5	17.482	16.482	8.241	8.241	8.241	8.741	1.05	1	N/A	N/A	Lateral
46	M141	TWR DIAG T5	17.482	16.482	8.241	8.241	8.241	8.741	1.05	1	N/A	N/A	Lateral
47	M145	TWR DIAG T5	17.482	16.482	8.241	8.241	8.241	8.741	1.05	1	N/A	N/A	Lateral
48	M148	TWR DIAG T5	17.482	16.482	8.241	8.241	8.241	8.741	1.05	1	N/A	N/A	Lateral
49	M157	TWR DIAG T5	16.7	15.7	7.85	7.85	7.85	8.35	1.06	1	N/A	N/A	Lateral
50	M160	TWR DIAG T5	16.7	15.7	7.85	7.85	7.85	8.35	1.06	1	N/A	N/A	Lateral
51	M164	TWR DIAG T5	16.7	15.7	7.85	7.85	7.85	8.35	1.06	1	N/A	N/A	Lateral
52	M167	TWR DIAG T5	16.7	15.7	7.85	7.85	7.85	8.35	1.06	1	N/A	N/A	Lateral
53	M171	TWR DIAG T5	16.7	15.7	7.85	7.85	7.85	8.35	1.06	1	N/A	N/A	Lateral
54	M174	TWR DIAG T5	16.7	15.7	7.85	7.85	7.85	8.35	1.06	1	N/A	N/A	Lateral
55	M178	TWR DIAG T5	16.7	15.7	7.85	7.85	7.85	8.35	1.06	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
56	M181	TWR DIAG T5	16.7	15.7	7.85	7.85	7.85	8.35	1.06	1	N/A	N/A	Lateral
57	M194	TWR DIAG T6	19.158	18.52	9.26	9.26	9.26	9.579	1.06	1	N/A	N/A	Lateral
58	M197	TWR DIAG T6	19.158	18.52	9.26	9.26	9.26	9.579	1.06	1	N/A	N/A	Lateral
59	M201	TWR DIAG T6	19.158	18.52	9.26	9.26	9.26	9.579	1.06	1	N/A	N/A	Lateral
60	M204	TWR DIAG T6	19.158	18.52	9.26	9.26	9.26	9.579	1.06	1	N/A	N/A	Lateral
61	M208	TWR DIAG T6	19.158	18.52	9.26	9.26	9.26	9.579	1.06	1	N/A	N/A	Lateral
62	M211	TWR DIAG T6	19.158	18.52	9.26	9.26	9.26	9.579	1.06	1	N/A	N/A	Lateral
63	M215	TWR DIAG T6	19.158	18.52	9.26	9.26	9.26	9.579	1.06	1	N/A	N/A	Lateral
64	M218	TWR DIAG T6	19.158	18.52	9.26	9.26	9.26	9.579	1.06	1	N/A	N/A	Lateral
65	M227	TWR DIAG T6	18.303	17.663	8.832	8.832	8.832	9.151	1.06	1	N/A	N/A	Lateral
66	M230	TWR DIAG T6	18.303	17.663	8.832	8.832	8.832	9.151	1.06	1	N/A	N/A	Lateral
67	M234	TWR DIAG T6	18.303	17.663	8.832	8.832	8.832	9.151	1.06	1	N/A	N/A	Lateral
68	M237	TWR DIAG T6	18.303	17.663	8.832	8.832	8.832	9.151	1.06	1	N/A	N/A	Lateral
69	M241	TWR DIAG T6	18.303	17.663	8.832	8.832	8.832	9.151	1.06	1	N/A	N/A	Lateral
70	M244	TWR DIAG T6	18.303	17.663	8.832	8.832	8.832	9.151	1.06	1	N/A	N/A	Lateral
71	M248	TWR DIAG T6	18.303	17.663	8.832	8.832	8.832	9.151	1.06	1	N/A	N/A	Lateral
72	M251	TWR DIAG T6	18.303	17.663	8.832	8.832	8.832	9.151	1.06	1	N/A	N/A	Lateral
73	M264	TWR DIAG T7	30.196	20.13	10.065	10.065	10.065	10.065	1.03	1	N/A	N/A	Lateral
74	M269	TWR DIAG T7	30.196	20.13	10.065	10.065	10.065	10.065	1.03	1	N/A	N/A	Lateral
75	M276	TWR DIAG T7	30.196	20.13	10.065	10.065	10.065	10.065	1.03	1	N/A	N/A	Lateral
76	M281	TWR DIAG T7	30.196	20.13	10.065	10.065	10.065	10.065	1.03	1	N/A	N/A	Lateral
77	M292	TWR DIAG T7	30.196	20.13	10.065	10.065	10.065	10.065	1.03	1	N/A	N/A	Lateral
78	M297	TWR DIAG T7	30.196	20.13	10.065	10.065	10.065	10.065	1.03	1	N/A	N/A	Lateral
79	M308	TWR DIAG T7	30.196	20.13	10.065	10.065	10.065	10.065	1.03	1	N/A	N/A	Lateral
80	M313	TWR DIAG T7	30.196	20.13	10.065	10.065	10.065	10.065	1.03	1	N/A	N/A	Lateral
81	M337	TWR DIAG T8	31.536	21.024	10.512	10.512	10.512	10.512	1.03	1	N/A	N/A	Lateral
82	M342	TWR DIAG T8	31.536	21.024	10.512	10.512	10.512	10.512	1.03	1	N/A	N/A	Lateral
83	M349	TWR DIAG T8	31.536	21.024	10.512	10.512	10.512	10.512	1.03	1	N/A	N/A	Lateral
84	M354	TWR DIAG T8	31.536	21.024	10.512	10.512	10.512	10.512	1.03	1	N/A	N/A	Lateral
85	M365	TWR DIAG T8	31.536	21.024	10.512	10.512	10.512	10.512	1.03	1	N/A	N/A	Lateral
86	M370	TWR DIAG T8	31.536	21.024	10.512	10.512	10.512	10.512	1.03	1	N/A	N/A	Lateral
87	M381	TWR DIAG T8	31.536	21.024	10.512	10.512	10.512	10.512	1.03	1	N/A	N/A	Lateral
88	M386	TWR DIAG T8	31.536	21.024	10.512	10.512	10.512	10.512	1.03	1	N/A	N/A	Lateral
89	M410	TWR DIAG T9	32.982	21.988	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
90	M415	TWR DIAG T9	32.982	21.988	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
91	M422	TWR DIAG T9	32.982	21.988	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
92	M427	TWR DIAG T9	32.982	21.988	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
93	M438	TWR DIAG T9	32.982	21.988	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
94	M443	TWR DIAG T9	32.982	21.988	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
95	M454	TWR DIAG T9	32.982	21.988	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
96	M459	TWR DIAG T9	32.982	21.988	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
97	M483	TWR DIAG T10	19.953	19.12	9.56	9.56	9.56	9.976	1.02	1	N/A	N/A	Lateral
98	M488	TWR DIAG T10	19.953	19.12	9.56	9.56	9.56	9.976	1.02	1	N/A	N/A	Lateral
99	M497	TWR DIAG T10	19.953	19.12	9.56	9.56	9.56	9.976	1.02	1	N/A	N/A	Lateral
100	M502	TWR DIAG T10	19.953	19.12	9.56	9.56	9.56	9.976	1.02	1	N/A	N/A	Lateral
101	M514	TWR DIAG T10	19.953	19.12	9.56	9.56	9.56	9.976	1.02	1	N/A	N/A	Lateral
102	M519	TWR DIAG T10	19.953	19.12	9.56	9.56	9.56	9.976	1.02	1	N/A	N/A	Lateral
103	M531	TWR DIAG T10	19.953	19.12	9.56	9.56	9.56	9.976	1.02	1	N/A	N/A	Lateral
104	M536	TWR DIAG T10	19.953	19.12	9.56	9.56	9.56	9.976	1.02	1	N/A	N/A	Lateral
105	M560	TWR DIAG T11	20.469	19.44	9.72	9.72	9.72	10.235	1.03	1	N/A	N/A	Lateral
106	M565	TWR DIAG T11	20.469	19.44	9.72	9.72	9.72	10.235	1.03	1	N/A	N/A	Lateral
107	M574	TWR DIAG T11	20.469	19.44	9.72	9.72	9.72	10.235	1.03	1	N/A	N/A	Lateral
108	M579	TWR DIAG T11	20.469	19.44	9.72	9.72	9.72	10.235	1.03	1	N/A	N/A	Lateral
109	M591	TWR DIAG T11	20.469	19.44	9.72	9.72	9.72	10.235	1.03	1	N/A	N/A	Lateral
110	M596	TWR DIAG T11	20.469	19.44	9.72	9.72	9.72	10.235	1.03	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
111	M608	TWR DIAG T11	20.469	19.44	9.72	9.72	9.72	10.235	1.03	1	N/A	N/A Lateral
112	M613	TWR DIAG T11	20.469	19.44	9.72	9.72	9.72	10.235	1.03	1	N/A	N/A Lateral
113	M637	TWR DIAG T12	18.575	12.382	6.191	6.191	6.191	6.191	1.12	1	N/A	N/A Lateral
114	M644	TWR DIAG T12	18.575	12.382	6.191	6.191	6.191	6.191	1.12	1	N/A	N/A Lateral
115	M660	TWR DIAG T12	18.575	12.382	6.191	6.191	6.191	6.191	1.12	1	N/A	N/A Lateral
116	M667	TWR DIAG T12	18.575	12.382	6.191	6.191	6.191	6.191	1.12	1	N/A	N/A Lateral
117	M688	TWR DIAG T12	18.575	12.382	6.191	6.191	6.191	6.191	1.12	1	N/A	N/A Lateral
118	M695	TWR DIAG T12	18.575	12.382	6.191	6.191	6.191	6.191	1.12	1	N/A	N/A Lateral
119	M716	TWR DIAG T12	18.575	12.382	6.191	6.191	6.191	6.191	1.12	1	N/A	N/A Lateral
120	M723	TWR DIAG T12	18.575	12.382	6.191	6.191	6.191	6.191	1.12	1	N/A	N/A Lateral
121	M17	TWR HORZ STEP T1	10.5	4.815	4.815	4.815	4.815	4.815	1	1	N/A	N/A Lateral
122	M18	TWR HORZ STEP T1	10.5	4.815	4.815	4.815	4.815	4.815	1	1	N/A	N/A Lateral
123	M19	TWR HORZ STEP T1	10.5	4.815	4.815	4.815	4.815	4.815	1	1	N/A	N/A Lateral
124	M20	TWR HORZ STEP T1	10.5	4.815	4.815	4.815	4.815	4.815	1	1	N/A	N/A Lateral
125	M41	TWR HORZ STEP T2	13.863	6.45	6.45	6.45	6.45	6.45	1	1	N/A	N/A Lateral
126	M42	TWR HORZ STEP T2	13.863	6.45	6.45	6.45	6.45	6.45	1	1	N/A	N/A Lateral
127	M43	TWR HORZ STEP T2	13.863	6.45	6.45	6.45	6.45	6.45	1	1	N/A	N/A Lateral
128	M44	TWR HORZ STEP T2	13.863	6.45	6.45	6.45	6.45	6.45	1	1	N/A	N/A Lateral
129	M53	TWR HORZ STEP T2	11.539	5.288	5.288	5.288	5.288	5.288	1	1	N/A	N/A Lateral
130	M54	TWR HORZ STEP T2	11.539	5.288	5.288	5.288	5.288	5.288	1	1	N/A	N/A Lateral
131	M55	TWR HORZ STEP T2	11.539	5.288	5.288	5.288	5.288	5.288	1	1	N/A	N/A Lateral
132	M56	TWR HORZ STEP T2	11.539	5.288	5.288	5.288	5.288	5.288	1	1	N/A	N/A Lateral
133	M78	TWR HORZ STEP T3	16.182	7.61	7.61	7.61	7.61	7.61	1	1	N/A	N/A Lateral
134	M79	TWR HORZ STEP T3	16.182	7.61	7.61	7.61	7.61	7.61	1	1	N/A	N/A Lateral
135	M80	TWR HORZ STEP T3	16.182	7.61	7.61	7.61	7.61	7.61	1	1	N/A	N/A Lateral
136	M81	TWR HORZ STEP T3	16.182	7.61	7.61	7.61	7.61	7.61	1	1	N/A	N/A Lateral
137	M25	TWR HORZ T2	10.5	10.08	5.04	5.04	5.04	5.04	1	1	N/A	N/A Lateral
138	M26	TWR HORZ T2	10.5	10.08	5.04	5.04	5.04	5.04	1	1	N/A	N/A Lateral
139	M27	TWR HORZ T2	10.5	10.08	5.04	5.04	5.04	5.04	1	1	N/A	N/A Lateral
140	M28	TWR HORZ T2	10.5	10.08	5.04	5.04	5.04	5.04	1	1	N/A	N/A Lateral
141	M37	TWR HORZ T2	12.806	12.39	6.195	6.195	6.195	6.195	1	1	N/A	N/A Lateral
142	M38	TWR HORZ T2	12.806	12.39	6.195	6.195	6.195	6.195	1	1	N/A	N/A Lateral
143	M39	TWR HORZ T2	12.806	12.39	6.195	6.195	6.195	6.195	1	1	N/A	N/A Lateral
144	M40	TWR HORZ T2	12.806	12.39	6.195	6.195	6.195	6.195	1	1	N/A	N/A Lateral
145	M61	TWR HORZ T3	15.111	6.98	6.98	6.98	6.98	6.98	1.17	1	N/A	N/A Lateral
146	M62	TWR HORZ T3	15.111	6.98	6.98	6.98	6.98	6.98	1.17	1	N/A	N/A Lateral
147	M63	TWR HORZ T3	15.111	6.98	6.98	6.98	6.98	6.98	1.17	1	N/A	N/A Lateral
148	M64	TWR HORZ T3	15.111	6.98	6.98	6.98	6.98	6.98	1.17	1	N/A	N/A Lateral
149	M86	TWR HORZ T4	17.417	16.28	8.14	8.14	8.14	8.14	1.03	1	N/A	N/A Lateral
150	M93	TWR HORZ T4	17.417	16.28	8.14	8.14	8.14	8.14	1.03	1	N/A	N/A Lateral
151	M100	TWR HORZ T4	17.417	16.28	8.14	8.14	8.14	8.14	1.03	1	N/A	N/A Lateral
152	M107	TWR HORZ T4	17.417	16.28	8.14	8.14	8.14	8.14	1.03	1	N/A	N/A Lateral
153	M123	TWR HORZ T5	22.028	10.53	10.53	10.53	10.53	10.53	1.04	1	N/A	N/A Lateral
154	M130	TWR HORZ T5	22.028	10.53	10.53	10.53	10.53	10.53	1.04	1	N/A	N/A Lateral
155	M137	TWR HORZ T5	22.028	10.53	10.53	10.53	10.53	10.53	1.04	1	N/A	N/A Lateral
156	M144	TWR HORZ T5	22.028	10.53	10.53	10.53	10.53	10.53	1.04	1	N/A	N/A Lateral
157	M156	TWR HORZ T5	19.722	9.376	9.376	9.376	9.376	9.376	1.05	1	N/A	N/A Lateral
158	M163	TWR HORZ T5	19.722	9.376	9.376	9.376	9.376	9.376	1.05	1	N/A	N/A Lateral
159	M170	TWR HORZ T5	19.722	9.376	9.376	9.376	9.376	9.376	1.05	1	N/A	N/A Lateral
160	M177	TWR HORZ T5	19.722	9.376	9.376	9.376	9.376	9.376	1.05	1	N/A	N/A Lateral
161	M193	TWR HORZ T6	26.639	12.76	12.76	12.76	12.76	12.76	1.06	1	N/A	N/A Lateral
162	M200	TWR HORZ T6	26.639	12.76	12.76	12.76	12.76	12.76	1.06	1	N/A	N/A Lateral
163	M207	TWR HORZ T6	26.639	12.76	12.76	12.76	12.76	12.76	1.06	1	N/A	N/A Lateral
164	M214	TWR HORZ T6	26.639	12.76	12.76	12.76	12.76	12.76	1.06	1	N/A	N/A Lateral
165	M226	TWR HORZ T6	24.333	11.607	11.607	11.607	11.607	11.607	1.07	1	N/A	N/A Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
166	M233	TWR HORZ T6	24.333	11.607	11.607	11.607	11.607	11.607	1.07	1	N/A	N/A Lateral
167	M240	TWR HORZ T6	24.333	11.607	11.607	11.607	11.607	11.607	1.07	1	N/A	N/A Lateral
168	M247	TWR HORZ T6	24.333	11.607	11.607	11.607	11.607	11.607	1.07	1	N/A	N/A Lateral
169	M263	TWR HORZ T7	28.944	13.82	13.82	13.82	13.82	13.82	1.04	1	N/A	N/A Lateral
170	M275	TWR HORZ T7	28.944	13.82	13.82	13.82	13.82	13.82	1.04	1	N/A	N/A Lateral
171	M291	TWR HORZ T7	28.944	13.82	13.82	13.82	13.82	13.82	1.04	1	N/A	N/A Lateral
172	M307	TWR HORZ T7	28.944	13.82	13.82	13.82	13.82	13.82	1.04	1	N/A	N/A Lateral
173	M336	TWR HORZ T8	33.556	16.12	8.389	8.389	8.389	8.389	1.03	1	N/A	N/A Lateral
174	M348	TWR HORZ T8	33.556	16.12	8.389	8.389	8.389	8.389	1.03	1	N/A	N/A Lateral
175	M364	TWR HORZ T8	33.556	16.12	8.389	8.389	8.389	8.389	1.03	1	N/A	N/A Lateral
176	M380	TWR HORZ T8	33.556	16.12	8.389	8.389	8.389	8.389	1.03	1	N/A	N/A Lateral
177	M409	TWR HORZ T9	38.167	18.75	18.75	18.75	18.75	18.75	1.01	1	N/A	N/A Lateral
178	M421	TWR HORZ T9	38.167	18.75	18.75	18.75	18.75	18.75	1.01	1	N/A	N/A Lateral
179	M437	TWR HORZ T9	38.167	18.75	18.75	18.75	18.75	18.75	1.01	1	N/A	N/A Lateral
180	M453	TWR HORZ T9	38.167	18.75	18.75	18.75	18.75	18.75	1.01	1	N/A	N/A Lateral
181	M482	TWR HORZ T10	42.778	14.259	14.259	14.259	14.259	14.259	1.03	1	N/A	N/A Lateral
182	M496	TWR HORZ T10	42.778	14.259	14.259	14.259	14.259	14.259	1.03	1	N/A	N/A Lateral
183	M513	TWR HORZ T10	42.778	14.259	14.259	14.259	14.259	14.259	1.03	1	N/A	N/A Lateral
184	M530	TWR HORZ T10	42.778	14.259	14.259	14.259	14.259	14.259	1.03	1	N/A	N/A Lateral
185	M559	TWR HORZ T11	47.389	15.796	15.796	15.796	15.796	15.796	1.01	1	N/A	N/A Lateral
186	M573	TWR HORZ T11	47.389	15.796	15.796	15.796	15.796	15.796	1.01	1	N/A	N/A Lateral
187	M590	TWR HORZ T11	47.389	15.796	15.796	15.796	15.796	15.796	1.01	1	N/A	N/A Lateral
188	M607	TWR HORZ T11	47.389	15.796	15.796	15.796	15.796	15.796	1.01	1	N/A	N/A Lateral
189	M636	TWR HORZ T12	52	17.333	Segment	Segment	Segment	Segment	1.01	1	N/A	N/A Lateral
190	M659	TWR HORZ T12	52	17.333	Segment	Segment	Segment	Segment	1.01	1	N/A	N/A Lateral
191	M687	TWR HORZ T12	52	17.333	Segment	Segment	Segment	Segment	1.01	1	N/A	N/A Lateral
192	M715	TWR HORZ T12	52	17.333	Segment	Segment	Segment	Segment	1.01	1	N/A	N/A Lateral
193	M5	TWR HORZ TOP GIRT T1	10.5	10.08	5.04	5.04	5.04	10.5	1	1	N/A	N/A Lateral
194	M6	TWR HORZ TOP GIRT T1	5.25	10.08	5.04	5.04	5.04	10.5	1	1	N/A	N/A Lateral
195	M7	TWR HORZ TOP GIRT T1	10.5	10.08	5.04	5.04	5.04	10.5	1	1	N/A	N/A Lateral
196	M8	TWR HORZ TOP GIRT T1	10.5	10.08	5.04	5.04	5.04	10.5	1	1	N/A	N/A Lateral
197	M881A	TWR INNER BRACE T9	9.542	9.542	9.542	9.542	9.542	9.542	1	1	N/A	N/A Lateral
198	M882A	TWR INNER BRACE T9	9.542	9.542	9.542	9.542	9.542	9.542	1	1	N/A	N/A Lateral
199	M883A	TWR INNER BRACE T9	9.542	9.542	9.542	9.542	9.542	9.542	1	1	N/A	N/A Lateral
200	M884A	TWR INNER BRACE T9	9.542	9.542	9.542	9.542	9.542	9.542	1	1	N/A	N/A Lateral
201	M1076	TWR INNER CORNER T3	5.343			Lbyy			1	1	N/A	N/A Lateral
202	M1077	TWR INNER CORNER T3	5.343			Lbyy			1	1	N/A	N/A Lateral
203	M1078	TWR INNER CORNER T3	5.343			Lbyy			1	1	N/A	N/A Lateral
204	M1079	TWR INNER CORNER T3	5.343			Lbyy			1	1	N/A	N/A Lateral
205	M1072	TWR INNER CORNER T4	8.073			Lbyy			1	1	N/A	N/A Lateral
206	M1073	TWR INNER CORNER T4	8.073			Lbyy			1	1	N/A	N/A Lateral
207	M1074	TWR INNER CORNER T4	4.243			Lbyy			1	1	N/A	N/A Lateral
208	M1075	TWR INNER CORNER T4	4.243			Lbyy			1	1	N/A	N/A Lateral
209	M1064	TWR INNER CORNER T5	7.788			Lbyy			1	1	N/A	N/A Lateral
210	M1065	TWR INNER CORNER T5	7.788			Lbyy			1	1	N/A	N/A Lateral
211	M1066	TWR INNER CORNER T5	7.788			Lbyy			1	1	N/A	N/A Lateral
212	M1067	TWR INNER CORNER T5	7.788			Lbyy			1	1	N/A	N/A Lateral
213	M1068	TWR INNER CORNER T5	6.973			Lbyy			1	1	N/A	N/A Lateral
214	M1069	TWR INNER CORNER T5	6.973			Lbyy			1	1	N/A	N/A Lateral
215	M1070	TWR INNER CORNER T5	6.973			Lbyy			1	1	N/A	N/A Lateral
216	M1071	TWR INNER CORNER T5	6.973			Lbyy			1	1	N/A	N/A Lateral
217	M922	TWR INNER CORNER T6	9.418			Lbyy			1	1	N/A	N/A Lateral
218	M1057	TWR INNER CORNER T6	9.418			Lbyy			1	1	N/A	N/A Lateral
219	M1058	TWR INNER CORNER T6	9.418			Lbyy			1	1	N/A	N/A Lateral
220	M1059	TWR INNER CORNER T6	9.418			Lbyy			1	1	N/A	N/A Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
221	M1060	TWR INNER CORNER T6	8.603			Lbyy		1	1	N/A	N/A	Lateral
222	M1061	TWR INNER CORNER T6	8.603			Lbyy		1	1	N/A	N/A	Lateral
223	M1062	TWR INNER CORNER T6	8.603			Lbyy		1	1	N/A	N/A	Lateral
224	M1063	TWR INNER CORNER T6	8.603			Lbyy		1	1	N/A	N/A	Lateral
225	M1053	TWR INNER CORNER T7	10.233			Lbyy		1	1	N/A	N/A	Lateral
226	M1054	TWR INNER CORNER T7	10.233			Lbyy		1	1	N/A	N/A	Lateral
227	M1055	TWR INNER CORNER T7	10.233			Lbyy		1	1	N/A	N/A	Lateral
228	M1056	TWR INNER CORNER T7	10.233			Lbyy		1	1	N/A	N/A	Lateral
229	M1049	TWR INNER CORNER T8	11.864			Lbyy		1	1	N/A	N/A	Lateral
230	M1050	TWR INNER CORNER T8	11.864			Lbyy		1	1	N/A	N/A	Lateral
231	M1051	TWR INNER CORNER T8	11.864			Lbyy		1	1	N/A	N/A	Lateral
232	M1052	TWR INNER CORNER T8	11.864			Lbyy		1	1	N/A	N/A	Lateral
233	M1045	TWR INNER CORNER T9	13.494			Lbyy		1.02	1	N/A	N/A	Lateral
234	M1046	TWR INNER CORNER T9	13.494			Lbyy		1.02	1	N/A	N/A	Lateral
235	M1047	TWR INNER CORNER T9	13.494			Lbyy		1.02	1	N/A	N/A	Lateral
236	M1048	TWR INNER CORNER T9	13.494			Lbyy		1.02	1	N/A	N/A	Lateral
237	M1041	TWR INNER CORNER T10	10.083			Lbyy		1	1	N/A	N/A	Lateral
238	M1042	TWR INNER CORNER T10	10.083			Lbyy		1	1	N/A	N/A	Lateral
239	M1043	TWR INNER CORNER T10	10.083			Lbyy		1	1	N/A	N/A	Lateral
240	M1044	TWR INNER CORNER T10	10.083			Lbyy		1	1	N/A	N/A	Lateral
241	M1037	TWR INNER CORNER T11	11.17			Lbyy		1	1	N/A	N/A	Lateral
242	M1038	TWR INNER CORNER T11	11.17			Lbyy		1	1	N/A	N/A	Lateral
243	M1039	TWR INNER CORNER T11	11.17			Lbyy		1	1	N/A	N/A	Lateral
244	M1040	TWR INNER CORNER T11	11.17			Lbyy		1	1	N/A	N/A	Lateral
245	M1033	TWR INNER CORNER T12	12.257			Lbyy		1	1	N/A	N/A	Lateral
246	M1034	TWR INNER CORNER T12	12.257			Lbyy		1	1	N/A	N/A	Lateral
247	M1035	TWR INNER CORNER T12	12.257			Lbyy		1	1	N/A	N/A	Lateral
248	M1036	TWR INNER CORNER T12	12.257			Lbyy		1	1	N/A	N/A	Lateral
249	M897	TWR INNER GIRT T8	8.389	8.389	8.389	8.389	8.389	8.389	1	1	N/A	N/A Lateral
250	M898	TWR INNER GIRT T8	8.389	8.389	8.389	8.389	8.389	8.389	1	1	N/A	N/A Lateral
251	M899	TWR INNER GIRT T8	8.389	8.389	8.389	8.389	8.389	8.389	1	1	N/A	N/A Lateral
252	M900	TWR INNER GIRT T8	8.389	8.389	8.389	8.389	8.389	8.389	1	1	N/A	N/A Lateral
253	M866A	TWR INNER GIRT T10	20.166	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
254	M867A	TWR INNER GIRT T10	20.166	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
255	M868A	TWR INNER GIRT T10	20.166	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
256	M869A	TWR INNER GIRT T10	20.166	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
257	M874	TWR INNER GIRT T10	10.083	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
258	M875	TWR INNER GIRT T10	10.083	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
259	M876	TWR INNER GIRT T10	10.083	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
260	M877	TWR INNER GIRT T10	10.083	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
261	M878	TWR INNER GIRT T10	10.083	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
262	M879	TWR INNER GIRT T10	10.083	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
263	M880	TWR INNER GIRT T10	10.083	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
264	M881	TWR INNER GIRT T10	10.083	10.083	10.083	10.083	10.083	10.083	1	1	N/A	N/A Lateral
265	M843	TWR INNER GIRT T11	22.339	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral
266	M844	TWR INNER GIRT T11	22.339	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral
267	M845	TWR INNER GIRT T11	22.339	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral
268	M846	TWR INNER GIRT T11	22.339	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral
269	M851	TWR INNER GIRT T11	11.17	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral
270	M852	TWR INNER GIRT T11	11.17	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral
271	M853	TWR INNER GIRT T11	11.17	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral
272	M854	TWR INNER GIRT T11	11.17	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral
273	M855	TWR INNER GIRT T11	11.17	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral
274	M856	TWR INNER GIRT T11	11.17	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral
275	M857	TWR INNER GIRT T11	11.17	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
276	M858	TWR INNER GIRT T11	11.17	11.17	11.17	11.17	11.17	11.17	1	1	N/A	N/A	Lateral
277	M768	TWR INNER GIRT T12	24.513	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
278	M769	TWR INNER GIRT T12	24.513	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
279	M770	TWR INNER GIRT T12	24.513	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
280	M771	TWR INNER GIRT T12	24.513	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
281	M772	TWR INNER GIRT T12	12.257	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
282	M773	TWR INNER GIRT T12	12.257	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
283	M774	TWR INNER GIRT T12	8.667	8.667	8.667	8.667	8.667	8.667	1	1	N/A	N/A	Lateral
284	M775	TWR INNER GIRT T12	12.257	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
285	M776	TWR INNER GIRT T12	12.257	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
286	M777	TWR INNER GIRT T12	8.667	8.667	8.667	8.667	8.667	8.667	1	1	N/A	N/A	Lateral
287	M778	TWR INNER GIRT T12	12.257	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
288	M779	TWR INNER GIRT T12	12.257	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
289	M780	TWR INNER GIRT T12	8.667	8.667	8.667	8.667	8.667	8.667	1	1	N/A	N/A	Lateral
290	M781	TWR INNER GIRT T12	12.257	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
291	M782	TWR INNER GIRT T12	12.257	12.257	12.257	12.257	12.257	12.257	1	1	N/A	N/A	Lateral
292	M783	TWR INNER GIRT T12	8.667	8.667	8.667	8.667	8.667	8.667	1	1	N/A	N/A	Lateral
293	M985	TWR INNER SQ T3	7.556	7.556	7.556	7.556	7.556	7.556	1	1	N/A	N/A	Lateral
294	M986	TWR INNER SQ T3	7.556	7.556	7.556	7.556	7.556	7.556	1	1	N/A	N/A	Lateral
295	M987	TWR INNER SQ T3	7.556	7.556	7.556	7.556	7.556	7.556	1	1	N/A	N/A	Lateral
296	M988	TWR INNER SQ T3	7.556	7.556	7.556	7.556	7.556	7.556	1	1	N/A	N/A	Lateral
297	M977	TWR INNER SQ T4	9.12	9.12	9.12	9.12	9.12	9.12	1.18	1	N/A	N/A	Lateral
298	M978	TWR INNER SQ T4	9.12	9.12	9.12	9.12	9.12	9.12	1.18	1	N/A	N/A	Lateral
299	M979	TWR INNER SQ T4	9.12	9.12	9.12	9.12	9.12	9.12	1.18	1	N/A	N/A	Lateral
300	M980	TWR INNER SQ T4	9.12	9.12	9.12	9.12	9.12	9.12	1.18	1	N/A	N/A	Lateral
301	M961	TWR INNER SQ T5	11.014	11.014	11.014	11.014	11.014	11.014	1.13	1	N/A	N/A	Lateral
302	M962	TWR INNER SQ T5	11.014	11.014	11.014	11.014	11.014	11.014	1.13	1	N/A	N/A	Lateral
303	M963	TWR INNER SQ T5	11.014	11.014	11.014	11.014	11.014	11.014	1.13	1	N/A	N/A	Lateral
304	M964	TWR INNER SQ T5	11.014	11.014	11.014	11.014	11.014	11.014	1.13	1	N/A	N/A	Lateral
305	M965	TWR INNER SQ T5	9.861	9.861	9.861	9.861	9.861	9.861	1.16	1	N/A	N/A	Lateral
306	M966	TWR INNER SQ T5	9.861	9.861	9.861	9.861	9.861	9.861	1.16	1	N/A	N/A	Lateral
307	M967	TWR INNER SQ T5	9.861	9.861	9.861	9.861	9.861	9.861	1.16	1	N/A	N/A	Lateral
308	M968	TWR INNER SQ T5	9.861	9.861	9.861	9.861	9.861	9.861	1.16	1	N/A	N/A	Lateral
309	M913	TWR INNER SQ T6	13.319	13.319	13.319	13.319	13.319	13.319	1.09	1	N/A	N/A	Lateral
310	M914	TWR INNER SQ T6	13.319	13.319	13.319	13.319	13.319	13.319	1.09	1	N/A	N/A	Lateral
311	M915	TWR INNER SQ T6	13.319	13.319	13.319	13.319	13.319	13.319	1.09	1	N/A	N/A	Lateral
312	M916	TWR INNER SQ T6	13.319	13.319	13.319	13.319	13.319	13.319	1.09	1	N/A	N/A	Lateral
313	M917	TWR INNER SQ T6	12.167	12.167	12.167	12.167	12.167	12.167	1.11	1	N/A	N/A	Lateral
314	M918	TWR INNER SQ T6	12.167	12.167	12.167	12.167	12.167	12.167	1.11	1	N/A	N/A	Lateral
315	M919	TWR INNER SQ T6	12.167	12.167	12.167	12.167	12.167	12.167	1.11	1	N/A	N/A	Lateral
316	M920	TWR INNER SQ T6	12.167	12.167	12.167	12.167	12.167	12.167	1.11	1	N/A	N/A	Lateral
317	M901A	TWR INNER SQ T7	14.472	14.472	14.472	14.472	14.472	14.472	1.04	1	N/A	N/A	Lateral
318	M902A	TWR INNER SQ T7	14.472	14.472	14.472	14.472	14.472	14.472	1.04	1	N/A	N/A	Lateral
319	M903A	TWR INNER SQ T7	14.472	14.472	14.472	14.472	14.472	14.472	1.04	1	N/A	N/A	Lateral
320	M904A	TWR INNER SQ T7	14.472	14.472	14.472	14.472	14.472	14.472	1.04	1	N/A	N/A	Lateral
321	M893A	TWR INNER SQ T8	16.778	16.778	8.389	8.389	8.389	8.389	1.06	1	N/A	N/A	Lateral
322	M894	TWR INNER SQ T8	16.778	16.778	8.389	8.389	8.389	8.389	1.06	1	N/A	N/A	Lateral
323	M895	TWR INNER SQ T8	16.778	16.778	8.389	8.389	8.389	8.389	1.06	1	N/A	N/A	Lateral
324	M896	TWR INNER SQ T8	16.778	16.778	8.389	8.389	8.389	8.389	1.06	1	N/A	N/A	Lateral
325	M877A	TWR INNER SQ T9	19.083	19.083	9.541	9.541	9.541	9.541	1.01	1	N/A	N/A	Lateral
326	M878A	TWR INNER SQ T9	19.083	19.083	9.541	9.541	9.541	9.541	1.01	1	N/A	N/A	Lateral
327	M879A	TWR INNER SQ T9	19.083	19.083	9.541	9.541	9.541	9.541	1.01	1	N/A	N/A	Lateral
328	M880A	TWR INNER SQ T9	19.083	19.083	9.541	9.541	9.541	9.541	1.01	1	N/A	N/A	Lateral
329	M65	TWR INNER SUPP T3	10.685	10.685	5.343	5.343	5.343	5.343	1.04	1	N/A	N/A	Lateral
330	M66	TWR INNER SUPP T3	10.685	10.685	5.343	5.343	5.343	5.343	1.04	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
331	M67	TWR INNER SUPP T3	10.685	10.685	5.343	5.343	5.343	1.04	1	N/A	N/A	Lateral
332	M68	TWR INNER SUPP T3	10.685	10.685	5.343	5.343	5.343	1.04	1	N/A	N/A	Lateral
333	M114	TWR INNER SUPP T4	8.485	8.485	4.242	4.242	4.242	1.06	1	N/A	N/A	Lateral
334	M115	TWR INNER SUPP T4	16.146	16.146	8.073	8.073	8.073	1.02	1	N/A	N/A	Lateral
335	M116	TWR INNER SUPP T4	8.485	8.485	4.242	4.242	4.242	1.06	1	N/A	N/A	Lateral
336	M117	TWR INNER SUPP T4	16.146	16.146	8.073	8.073	8.073	1.02	1	N/A	N/A	Lateral
337	M151	TWR INNER SUPP T5	15.576	15.576	7.788	7.788	7.788	1.02	1	N/A	N/A	Lateral
338	M152	TWR INNER SUPP T5	15.576	15.576	7.788	7.788	7.788	1.02	1	N/A	N/A	Lateral
339	M153	TWR INNER SUPP T5	15.576	15.576	7.788	7.788	7.788	1.02	1	N/A	N/A	Lateral
340	M154	TWR INNER SUPP T5	15.576	15.576	7.788	7.788	7.788	1.02	1	N/A	N/A	Lateral
341	M184	TWR INNER SUPP T5	13.946	13.946	6.973	6.973	6.973	1.02	1	N/A	N/A	Lateral
342	M185	TWR INNER SUPP T5	13.946	13.946	6.973	6.973	6.973	1.02	1	N/A	N/A	Lateral
343	M186	TWR INNER SUPP T5	13.946	13.946	6.973	6.973	6.973	1.02	1	N/A	N/A	Lateral
344	M187	TWR INNER SUPP T5	13.946	13.946	6.973	6.973	6.973	1.02	1	N/A	N/A	Lateral
345	M221	TWR INNER SUPP T6	18.837	18.837	9.418	9.418	9.418	1.01	1	N/A	N/A	Lateral
346	M222	TWR INNER SUPP T6	18.837	18.837	9.418	9.418	9.418	1.01	1	N/A	N/A	Lateral
347	M223	TWR INNER SUPP T6	18.837	18.837	9.418	9.418	9.418	1.01	1	N/A	N/A	Lateral
348	M224	TWR INNER SUPP T6	18.837	18.837	9.418	9.418	9.418	1.01	1	N/A	N/A	Lateral
349	M254	TWR INNER SUPP T6	17.206	17.206	8.603	8.603	8.603	1.02	1	N/A	N/A	Lateral
350	M255	TWR INNER SUPP T6	17.206	17.206	8.603	8.603	8.603	1.02	1	N/A	N/A	Lateral
351	M256	TWR INNER SUPP T6	17.206	17.206	8.603	8.603	8.603	1.02	1	N/A	N/A	Lateral
352	M257	TWR INNER SUPP T6	17.206	17.206	8.603	8.603	8.603	1.02	1	N/A	N/A	Lateral
353	M327	TWR INNER SUPP T7	20.467	10.233	10.233	10.233	10.233	1.04	1	N/A	N/A	Lateral
354	M328	TWR INNER SUPP T7	20.467	10.233	10.233	10.233	10.233	1.04	1	N/A	N/A	Lateral
355	M329	TWR INNER SUPP T7	20.467	10.233	10.233	10.233	10.233	1.04	1	N/A	N/A	Lateral
356	M330	TWR INNER SUPP T7	20.467	10.233	10.233	10.233	10.233	1.04	1	N/A	N/A	Lateral
357	M400	TWR INNER SUPP T8	23.727	11.864	11.864	11.864	11.864	1	1	N/A	N/A	Lateral
358	M401	TWR INNER SUPP T8	23.727	11.864	11.864	11.864	11.864	1	1	N/A	N/A	Lateral
359	M402	TWR INNER SUPP T8	23.727	11.864	11.864	11.864	11.864	1	1	N/A	N/A	Lateral
360	M403	TWR INNER SUPP T8	23.727	11.864	11.864	11.864	11.864	1	1	N/A	N/A	Lateral
361	M473	TWR INNER SUPP T9	26.988	26.988	26.988	26.988	26.988	1.01	1	N/A	N/A	Lateral
362	M474	TWR INNER SUPP T9	26.988	26.988	26.988	26.988	26.988	1.01	1	N/A	N/A	Lateral
363	M475	TWR INNER SUPP T9	26.988	26.988	26.988	26.988	26.988	1.01	1	N/A	N/A	Lateral
364	M476	TWR INNER SUPP T9	26.988	26.988	26.988	26.988	26.988	1.01	1	N/A	N/A	Lateral
365	M870A	TWR INNER SUPP T10	28.519	14.259	14.259	14.259	14.259	1.01	1	N/A	N/A	Lateral
366	M871	TWR INNER SUPP T10	28.519	14.259	14.259	14.259	14.259	1.01	1	N/A	N/A	Lateral
367	M872	TWR INNER SUPP T10	28.519	14.259	14.259	14.259	14.259	1.01	1	N/A	N/A	Lateral
368	M873	TWR INNER SUPP T10	28.519	14.259	14.259	14.259	14.259	1.01	1	N/A	N/A	Lateral
369	M847	TWR INNER SUPP T11	31.593	15.797	15.797	15.797	15.797	1.01	1	N/A	N/A	Lateral
370	M848	TWR INNER SUPP T11	31.593	15.797	15.797	15.797	15.797	1.01	1	N/A	N/A	Lateral
371	M849	TWR INNER SUPP T11	31.593	15.797	15.797	15.797	15.797	1.01	1	N/A	N/A	Lateral
372	M850	TWR INNER SUPP T11	31.593	15.797	15.797	15.797	15.797	1.01	1	N/A	N/A	Lateral
373	M768A	TWR INNER SUPP T12	34.667	17.333	17.333	17.333	17.333	1.01	1	N/A	N/A	Lateral
374	M769A	TWR INNER SUPP T12	34.667	17.333	17.333	17.333	17.333	1.01	1	N/A	N/A	Lateral
375	M770A	TWR INNER SUPP T12	34.667	17.333	17.333	17.333	17.333	1.01	1	N/A	N/A	Lateral
376	M771A	TWR INNER SUPP T12	34.667	17.333	17.333	17.333	17.333	1.01	1	N/A	N/A	Lateral
377	M1	TWR LEG T1	12.5	6.25	6.25	6.25	6.25	1	1	N/A	N/A	Lateral
378	M2	TWR LEG T1	12.5	6.25	6.25	6.25	6.25	1	1	N/A	N/A	Lateral
379	M3	TWR LEG T1	12.5	6.25	6.25	6.25	6.25	1	1	N/A	N/A	Lateral
380	M4	TWR LEG T1	12.5	6.25	6.25	6.25	6.25	1	1	N/A	N/A	Lateral
381	M21	TWR LEG T2	25.212	6.926	6.926	6.926	6.926	1	1	N/A	N/A	Lateral
382	M22	TWR LEG T2	25.212	6.926	6.926	6.926	6.926	1	1	N/A	N/A	Lateral
383	M23	TWR LEG T2	25.212	6.926	6.926	6.926	6.926	1	1	N/A	N/A	Lateral
384	M24	TWR LEG T2	25.212	6.926	6.926	6.926	6.926	1	1	N/A	N/A	Lateral
385	M57	TWR LEG T3	12.606	6.75	6.75	6.75	6.75	1	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
386	M58	TWR LEG T3	12.606	6.75	6.75	6.75	6.75	6.75	1	1	N/A	N/A Lateral
387	M59	TWR LEG T3	12.606	6.75	6.75	6.75	6.75	6.75	1	1	N/A	N/A Lateral
388	M60	TWR LEG T3	12.606	6.75	6.75	6.75	6.75	6.75	1	1	N/A	N/A Lateral
389	M82	TWR LEG T4	12.606	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
390	M83	TWR LEG T4	12.606	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
391	M84	TWR LEG T4	12.606	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
392	M85	TWR LEG T4	12.606	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
393	M119	TWR LEG T5	25.212	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
394	M120	TWR LEG T5	25.212	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
395	M121	TWR LEG T5	25.212	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
396	M122	TWR LEG T5	25.212	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
397	M189	TWR LEG T6	25.212	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
398	M190	TWR LEG T6	25.212	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
399	M191	TWR LEG T6	25.212	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
400	M192	TWR LEG T6	25.212	6.303	6.303	6.303	6.303	6.303	1	1	N/A	N/A Lateral
401	M259	TWR LEG T7	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
402	M260	TWR LEG T7	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
403	M261	TWR LEG T7	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
404	M262	TWR LEG T7	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
405	M332	TWR LEG T8	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
406	M333	TWR LEG T8	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
407	M334	TWR LEG T8	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
408	M335	TWR LEG T8	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
409	M405	TWR LEG T9	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
410	M406	TWR LEG T9	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
411	M407	TWR LEG T9	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
412	M408	TWR LEG T9	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
413	M478	TWR LEG T10	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
414	M479	TWR LEG T10	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
415	M480	TWR LEG T10	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
416	M481	TWR LEG T10	25.212	8.404	8.404	8.404	8.404	8.404	1	1	N/A	N/A Lateral
417	M555	TWR LEG T11	25.212	4.202	4.202	4.202	4.202	4.202	1	1	N/A	N/A Lateral
418	M556	TWR LEG T11	25.212	4.202	4.202	4.202	4.202	4.202	1	1	N/A	N/A Lateral
419	M557	TWR LEG T11	25.212	4.202	4.202	4.202	4.202	4.202	1	1	N/A	N/A Lateral
420	M558	TWR LEG T11	25.212	4.202	4.202	4.202	4.202	4.202	1	1	N/A	N/A Lateral
421	M268	TWR RED DIAG 2 T7	12.202	11.75	11.75	11.75	11.75	11.75	1.07	1	N/A	N/A Lateral
422	M273	TWR RED DIAG 2 T7	12.202	11.75	11.75	11.75	11.75	11.75	1.07	1	N/A	N/A Lateral
423	M280	TWR RED DIAG 2 T7	12.202	11.75	11.75	11.75	11.75	11.75	1.07	1	N/A	N/A Lateral
424	M285	TWR RED DIAG 2 T7	12.202	11.75	11.75	11.75	11.75	11.75	1.07	1	N/A	N/A Lateral
425	M296	TWR RED DIAG 2 T7	12.202	11.75	11.75	11.75	11.75	11.75	1.07	1	N/A	N/A Lateral
426	M301	TWR RED DIAG 2 T7	12.202	11.75	11.75	11.75	11.75	11.75	1.07	1	N/A	N/A Lateral
427	M312	TWR RED DIAG 2 T7	12.202	11.75	11.75	11.75	11.75	11.75	1.07	1	N/A	N/A Lateral
428	M317	TWR RED DIAG 2 T7	12.202	11.75	11.75	11.75	11.75	11.75	1.07	1	N/A	N/A Lateral
429	M341	TWR RED DIAG 2 T8	13.362	12.94	12.94	12.94	12.94	12.94	1.05	1	N/A	N/A Lateral
430	M346	TWR RED DIAG 2 T8	13.362	12.94	12.94	12.94	12.94	12.94	1.05	1	N/A	N/A Lateral
431	M353	TWR RED DIAG 2 T8	13.362	12.94	12.94	12.94	12.94	12.94	1.05	1	N/A	N/A Lateral
432	M358	TWR RED DIAG 2 T8	13.362	12.94	12.94	12.94	12.94	12.94	1.05	1	N/A	N/A Lateral
433	M369	TWR RED DIAG 2 T8	13.362	12.94	12.94	12.94	12.94	12.94	1.05	1	N/A	N/A Lateral
434	M374	TWR RED DIAG 2 T8	13.362	12.94	12.94	12.94	12.94	12.94	1.05	1	N/A	N/A Lateral
435	M385	TWR RED DIAG 2 T8	13.362	12.94	12.94	12.94	12.94	12.94	1.05	1	N/A	N/A Lateral
436	M390	TWR RED DIAG 2 T8	13.362	12.94	12.94	12.94	12.94	12.94	1.05	1	N/A	N/A Lateral
437	M414	TWR RED DIAG 2 T9	14.592	14.19	14.19	14.19	14.19	14.19	1.04	1	N/A	N/A Lateral
438	M419	TWR RED DIAG 2 T9	14.592	14.19	14.19	14.19	14.19	14.19	1.04	1	N/A	N/A Lateral
439	M426	TWR RED DIAG 2 T9	14.592	14.19	14.19	14.19	14.19	14.19	1.04	1	N/A	N/A Lateral
440	M431	TWR RED DIAG 2 T9	14.592	14.19	14.19	14.19	14.19	14.19	1.04	1	N/A	N/A Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
441	M442	TWR RED DIAG 2 T9	14.592	14.19	14.19	14.19	14.19	1.04	1	N/A	N/A	Lateral
442	M447	TWR RED DIAG 2 T9	14.592	14.19	14.19	14.19	14.19	1.04	1	N/A	N/A	Lateral
443	M458	TWR RED DIAG 2 T9	14.592	14.19	14.19	14.19	14.19	1.04	1	N/A	N/A	Lateral
444	M463	TWR RED DIAG 2 T9	14.592	14.19	14.19	14.19	14.19	1.04	1	N/A	N/A	Lateral
445	M487	TWR RED DIAG 2 T10	11.968	11.5	5.75	5.75	5.75	1.03	1	N/A	N/A	Lateral
446	M492	TWR RED DIAG 2 T10	11.968	11.5	5.75	5.75	5.75	1.03	1	N/A	N/A	Lateral
447	M501	TWR RED DIAG 2 T10	11.968	11.5	5.75	5.75	5.75	1.03	1	N/A	N/A	Lateral
448	M506	TWR RED DIAG 2 T10	11.968	11.5	5.75	5.75	5.75	1.03	1	N/A	N/A	Lateral
449	M518	TWR RED DIAG 2 T10	11.968	11.5	5.75	5.75	5.75	1.03	1	N/A	N/A	Lateral
450	M523	TWR RED DIAG 2 T10	11.968	11.5	5.75	5.75	5.75	1.03	1	N/A	N/A	Lateral
451	M535	TWR RED DIAG 2 T10	11.968	11.5	5.75	5.75	5.75	1.03	1	N/A	N/A	Lateral
452	M540	TWR RED DIAG 2 T10	11.968	11.5	5.75	5.75	5.75	1.03	1	N/A	N/A	Lateral
453	M564	TWR RED DIAG 2 T11	12.644	6.1	6.1	6.1	6.1	1.07	1	N/A	N/A	Lateral
454	M569	TWR RED DIAG 2 T11	12.644	6.1	6.1	6.1	6.1	1.07	1	N/A	N/A	Lateral
455	M578	TWR RED DIAG 2 T11	12.644	6.1	6.1	6.1	6.1	1.07	1	N/A	N/A	Lateral
456	M583	TWR RED DIAG 2 T11	12.644	6.1	6.1	6.1	6.1	1.07	1	N/A	N/A	Lateral
457	M595	TWR RED DIAG 2 T11	12.644	6.1	6.1	6.1	6.1	1.07	1	N/A	N/A	Lateral
458	M600	TWR RED DIAG 2 T11	12.644	6.1	6.1	6.1	6.1	1.07	1	N/A	N/A	Lateral
459	M612	TWR RED DIAG 2 T11	12.644	6.1	6.1	6.1	6.1	1.07	1	N/A	N/A	Lateral
460	M617	TWR RED DIAG 2 T11	12.644	6.1	6.1	6.1	6.1	1.07	1	N/A	N/A	Lateral
461	M642	TWR RED DIAG 2 T12	11.113	10.8	10.8	10.8	10.8	1	1	N/A	N/A	Lateral
462	M649	TWR RED DIAG 2 T12	11.113	10.8	10.8	10.8	10.8	1	1	N/A	N/A	Lateral
463	M665	TWR RED DIAG 2 T12	11.113	10.8	10.8	10.8	10.8	1	1	N/A	N/A	Lateral
464	M672	TWR RED DIAG 2 T12	11.113	10.8	10.8	10.8	10.8	1	1	N/A	N/A	Lateral
465	M693	TWR RED DIAG 2 T12	11.113	10.8	10.8	10.8	10.8	1	1	N/A	N/A	Lateral
466	M700	TWR RED DIAG 2 T12	11.113	10.8	10.8	10.8	10.8	1	1	N/A	N/A	Lateral
467	M721	TWR RED DIAG 2 T12	11.113	10.8	10.8	10.8	10.8	1	1	N/A	N/A	Lateral
468	M728	TWR RED DIAG 2 T12	11.113	10.8	10.8	10.8	10.8	1	1	N/A	N/A	Lateral
469	M643	TWR RED DIAG 3 T12	16.67	16.267	8.133	8.133	8.133	1.06	1	N/A	N/A	Lateral
470	M650	TWR RED DIAG 3 T12	16.67	16.267	8.133	8.133	8.133	1.06	1	N/A	N/A	Lateral
471	M666	TWR RED DIAG 3 T12	16.67	16.267	8.133	8.133	8.133	1.06	1	N/A	N/A	Lateral
472	M673	TWR RED DIAG 3 T12	16.67	16.267	8.133	8.133	8.133	1.06	1	N/A	N/A	Lateral
473	M694	TWR RED DIAG 3 T12	16.67	16.267	8.133	8.133	8.133	1.06	1	N/A	N/A	Lateral
474	M701	TWR RED DIAG 3 T12	16.67	16.267	8.133	8.133	8.133	1.06	1	N/A	N/A	Lateral
475	M722	TWR RED DIAG 3 T12	16.67	16.267	8.133	8.133	8.133	1.06	1	N/A	N/A	Lateral
476	M729	TWR RED DIAG 3 T12	16.67	16.267	8.133	8.133	8.133	1.06	1	N/A	N/A	Lateral
477	M89	TWR RED DIAG T4	7.326	6.85	6.85	6.85	6.85	1	1	N/A	N/A	Lateral
478	M92	TWR RED DIAG T4	7.326	6.85	6.85	6.85	6.85	1	1	N/A	N/A	Lateral
479	M96	TWR RED DIAG T4	7.326	6.85	6.85	6.85	6.85	1	1	N/A	N/A	Lateral
480	M99	TWR RED DIAG T4	7.326	6.85	6.85	6.85	6.85	1	1	N/A	N/A	Lateral
481	M103	TWR RED DIAG T4	7.326	6.85	6.85	6.85	6.85	1	1	N/A	N/A	Lateral
482	M106	TWR RED DIAG T4	7.326	6.85	6.85	6.85	6.85	1	1	N/A	N/A	Lateral
483	M110	TWR RED DIAG T4	7.326	6.85	6.85	6.85	6.85	1	1	N/A	N/A	Lateral
484	M113	TWR RED DIAG T4	7.326	6.85	6.85	6.85	6.85	1	1	N/A	N/A	Lateral
485	M126	TWR RED DIAG T5	7.982	3.79	3.79	3.79	3.79	1	1	N/A	N/A	Lateral
486	M129	TWR RED DIAG T5	7.982	3.79	3.79	3.79	3.79	1	1	N/A	N/A	Lateral
487	M133	TWR RED DIAG T5	7.982	3.79	3.79	3.79	3.79	1	1	N/A	N/A	Lateral
488	M136	TWR RED DIAG T5	7.982	3.79	3.79	3.79	3.79	1	1	N/A	N/A	Lateral
489	M140	TWR RED DIAG T5	7.982	3.79	3.79	3.79	3.79	1	1	N/A	N/A	Lateral
490	M143	TWR RED DIAG T5	7.982	3.79	3.79	3.79	3.79	1	1	N/A	N/A	Lateral
491	M147	TWR RED DIAG T5	7.982	3.79	3.79	3.79	3.79	1	1	N/A	N/A	Lateral
492	M150	TWR RED DIAG T5	7.982	3.79	3.79	3.79	3.79	1	1	N/A	N/A	Lateral
493	M159	TWR RED DIAG T5	7.639	7.239	7.239	7.239	7.239	1	1	N/A	N/A	Lateral
494	M162	TWR RED DIAG T5	7.639	7.239	7.239	7.239	7.239	1	1	N/A	N/A	Lateral
495	M166	TWR RED DIAG T5	7.639	7.239	7.239	7.239	7.239	1	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
496	M169	TWR RED DIAG T5	7.639	7.239	7.239	7.239	7.239	7.239	1	1	N/A	N/A Lateral
497	M173	TWR RED DIAG T5	7.639	7.239	7.239	7.239	7.239	7.239	1	1	N/A	N/A Lateral
498	M176	TWR RED DIAG T5	7.639	7.239	7.239	7.239	7.239	7.239	1	1	N/A	N/A Lateral
499	M180	TWR RED DIAG T5	7.639	7.239	7.239	7.239	7.239	7.239	1	1	N/A	N/A Lateral
500	M183	TWR RED DIAG T5	7.639	7.239	7.239	7.239	7.239	7.239	1	1	N/A	N/A Lateral
501	M196	TWR RED DIAG T6	8.741	8.26	8.26	8.26	8.26	8.26	1	1	N/A	N/A Lateral
502	M199	TWR RED DIAG T6	8.741	8.26	8.26	8.26	8.26	8.26	1	1	N/A	N/A Lateral
503	M203	TWR RED DIAG T6	8.741	8.26	8.26	8.26	8.26	8.26	1	1	N/A	N/A Lateral
504	M206	TWR RED DIAG T6	8.741	8.26	8.26	8.26	8.26	8.26	1	1	N/A	N/A Lateral
505	M210	TWR RED DIAG T6	8.741	8.26	8.26	8.26	8.26	8.26	1	1	N/A	N/A Lateral
506	M213	TWR RED DIAG T6	8.741	8.26	8.26	8.26	8.26	8.26	1	1	N/A	N/A Lateral
507	M217	TWR RED DIAG T6	8.741	8.26	8.26	8.26	8.26	8.26	1	1	N/A	N/A Lateral
508	M220	TWR RED DIAG T6	8.741	8.26	8.26	8.26	8.26	8.26	1	1	N/A	N/A Lateral
509	M229	TWR RED DIAG T6	8.35	7.869	7.869	7.869	7.869	7.869	1	1	N/A	N/A Lateral
510	M232	TWR RED DIAG T6	8.35	7.869	7.869	7.869	7.869	7.869	1	1	N/A	N/A Lateral
511	M236	TWR RED DIAG T6	8.35	7.869	7.869	7.869	7.869	7.869	1	1	N/A	N/A Lateral
512	M239	TWR RED DIAG T6	8.35	7.869	7.869	7.869	7.869	7.869	1	1	N/A	N/A Lateral
513	M243	TWR RED DIAG T6	8.35	7.869	7.869	7.869	7.869	7.869	1	1	N/A	N/A Lateral
514	M246	TWR RED DIAG T6	8.35	7.869	7.869	7.869	7.869	7.869	1	1	N/A	N/A Lateral
515	M250	TWR RED DIAG T6	8.35	7.869	7.869	7.869	7.869	7.869	1	1	N/A	N/A Lateral
516	M253	TWR RED DIAG T6	8.35	7.869	7.869	7.869	7.869	7.869	1	1	N/A	N/A Lateral
517	M267	TWR RED DIAG T7	9.3	8.55	8.55	8.55	8.55	8.55	1	1	N/A	N/A Lateral
518	M272	TWR RED DIAG T7	9.3	8.55	8.55	8.55	8.55	8.55	1	1	N/A	N/A Lateral
519	M279	TWR RED DIAG T7	9.3	8.55	8.55	8.55	8.55	8.55	1	1	N/A	N/A Lateral
520	M284	TWR RED DIAG T7	9.3	8.55	8.55	8.55	8.55	8.55	1	1	N/A	N/A Lateral
521	M295	TWR RED DIAG T7	9.3	8.55	8.55	8.55	8.55	8.55	1	1	N/A	N/A Lateral
522	M300	TWR RED DIAG T7	9.3	8.55	8.55	8.55	8.55	8.55	1	1	N/A	N/A Lateral
523	M311	TWR RED DIAG T7	9.3	8.55	8.55	8.55	8.55	8.55	1	1	N/A	N/A Lateral
524	M316	TWR RED DIAG T7	9.3	8.55	8.55	8.55	8.55	8.55	1	1	N/A	N/A Lateral
525	M340	TWR RED DIAG T8	9.66	9	9	9	9	9	1	1	N/A	N/A Lateral
526	M345	TWR RED DIAG T8	9.66	9	9	9	9	9	1	1	N/A	N/A Lateral
527	M352	TWR RED DIAG T8	9.66	9	9	9	9	9	1	1	N/A	N/A Lateral
528	M357	TWR RED DIAG T8	9.66	9	9	9	9	9	1	1	N/A	N/A Lateral
529	M368	TWR RED DIAG T8	9.66	9	9	9	9	9	1	1	N/A	N/A Lateral
530	M373	TWR RED DIAG T8	9.66	9	9	9	9	9	1	1	N/A	N/A Lateral
531	M384	TWR RED DIAG T8	9.66	9	9	9	9	9	1	1	N/A	N/A Lateral
532	M389	TWR RED DIAG T8	9.66	9	9	9	9	9	1	1	N/A	N/A Lateral
533	M413	TWR RED DIAG T9	10.065	9.47	9.47	9.47	9.47	9.47	1	1	N/A	N/A Lateral
534	M418	TWR RED DIAG T9	10.065	9.47	9.47	9.47	9.47	9.47	1	1	N/A	N/A Lateral
535	M425	TWR RED DIAG T9	10.065	9.47	9.47	9.47	9.47	9.47	1	1	N/A	N/A Lateral
536	M430	TWR RED DIAG T9	10.065	9.47	9.47	9.47	9.47	9.47	1	1	N/A	N/A Lateral
537	M441	TWR RED DIAG T9	10.065	9.47	9.47	9.47	9.47	9.47	1	1	N/A	N/A Lateral
538	M446	TWR RED DIAG T9	10.065	9.47	9.47	9.47	9.47	9.47	1	1	N/A	N/A Lateral
539	M457	TWR RED DIAG T9	10.065	9.47	9.47	9.47	9.47	9.47	1	1	N/A	N/A Lateral
540	M462	TWR RED DIAG T9	10.065	9.47	9.47	9.47	9.47	9.47	1	1	N/A	N/A Lateral
541	M486	TWR RED DIAG T10	9.23	8.45	8.45	8.45	8.45	8.45	1	1	N/A	N/A Lateral
542	M491	TWR RED DIAG T10	9.23	8.45	8.45	8.45	8.45	8.45	1	1	N/A	N/A Lateral
543	M500	TWR RED DIAG T10	9.23	8.45	8.45	8.45	8.45	8.45	1	1	N/A	N/A Lateral
544	M505	TWR RED DIAG T10	9.23	8.45	8.45	8.45	8.45	8.45	1	1	N/A	N/A Lateral
545	M517	TWR RED DIAG T10	9.23	8.45	8.45	8.45	8.45	8.45	1	1	N/A	N/A Lateral
546	M522	TWR RED DIAG T10	9.23	8.45	8.45	8.45	8.45	8.45	1	1	N/A	N/A Lateral
547	M534	TWR RED DIAG T10	9.23	8.45	8.45	8.45	8.45	8.45	1	1	N/A	N/A Lateral
548	M539	TWR RED DIAG T10	9.23	8.45	8.45	8.45	8.45	8.45	1	1	N/A	N/A Lateral
549	M563	TWR RED DIAG T11	9.434	8.72	4.36	4.36	4.36	4.36	1	1	N/A	N/A Lateral
550	M568	TWR RED DIAG T11	9.434	8.72	4.36	4.36	4.36	4.36	1	1	N/A	N/A Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
551	M577	TWR RED DIAG T11	9.434	8.72	4.36	4.36	4.36	4.36	1	1	N/A	N/A Lateral
552	M582	TWR RED DIAG T11	9.434	8.72	4.36	4.36	4.36	4.36	1	1	N/A	N/A Lateral
553	M594	TWR RED DIAG T11	9.434	8.72	4.36	4.36	4.36	4.36	1	1	N/A	N/A Lateral
554	M599	TWR RED DIAG T11	9.434	8.72	4.36	4.36	4.36	4.36	1	1	N/A	N/A Lateral
555	M611	TWR RED DIAG T11	9.434	8.72	4.36	4.36	4.36	4.36	1	1	N/A	N/A Lateral
556	M616	TWR RED DIAG T11	9.434	8.72	4.36	4.36	4.36	4.36	1	1	N/A	N/A Lateral
557	M640	TWR RED DIAG T12	8.09	7.69	7.69	7.69	7.69	7.69	1	1	N/A	N/A Lateral
558	M647	TWR RED DIAG T12	8.09	7.69	7.69	7.69	7.69	7.69	1	1	N/A	N/A Lateral
559	M663	TWR RED DIAG T12	8.09	7.69	7.69	7.69	7.69	7.69	1	1	N/A	N/A Lateral
560	M670	TWR RED DIAG T12	8.09	7.69	7.69	7.69	7.69	7.69	1	1	N/A	N/A Lateral
561	M691	TWR RED DIAG T12	8.09	7.69	7.69	7.69	7.69	7.69	1	1	N/A	N/A Lateral
562	M698	TWR RED DIAG T12	8.09	7.69	7.69	7.69	7.69	7.69	1	1	N/A	N/A Lateral
563	M719	TWR RED DIAG T12	8.09	7.69	7.69	7.69	7.69	7.69	1	1	N/A	N/A Lateral
564	M726	TWR RED DIAG T12	8.09	7.69	7.69	7.69	7.69	7.69	1	1	N/A	N/A Lateral
565	M792	TWR RED HIPDIA 2 T12	11.676	11.276	11.276	11.276	11.276	11.276	1.04	1	N/A	N/A Lateral
566	M793	TWR RED HIPDIA 2 T12	11.676	11.276	11.276	11.276	11.276	11.276	1.04	1	N/A	N/A Lateral
567	M794	TWR RED HIPDIA 2 T12	11.676	11.276	11.276	11.276	11.276	11.276	1.04	1	N/A	N/A Lateral
568	M795	TWR RED HIPDIA 2 T12	11.676	11.276	11.276	11.276	11.276	11.276	1.04	1	N/A	N/A Lateral
569	M796	TWR RED HIPDIA 2 T12	11.676	11.276	11.276	11.276	11.276	11.276	1.04	1	N/A	N/A Lateral
570	M797	TWR RED HIPDIA 2 T12	11.676	11.276	11.276	11.276	11.276	11.276	1.04	1	N/A	N/A Lateral
571	M798	TWR RED HIPDIA 2 T12	11.676	11.276	11.276	11.276	11.276	11.276	1.04	1	N/A	N/A Lateral
572	M799	TWR RED HIPDIA 2 T12	11.676	11.276	11.276	11.276	11.276	11.276	1.04	1	N/A	N/A Lateral
573	M290	TWR RED HIPDIA T7	11.671	11.671	11.671	11.671	11.671	11.671	1.03	1	N/A	N/A Lateral
574	M306	TWR RED HIPDIA T7	11.671	11.671	11.671	11.671	11.671	11.671	1.03	1	N/A	N/A Lateral
575	M322	TWR RED HIPDIA T7	11.671	11.671	11.671	11.671	11.671	11.671	1.03	1	N/A	N/A Lateral
576	M326	TWR RED HIPDIA T7	11.671	11.671	11.671	11.671	11.671	11.671	1.03	1	N/A	N/A Lateral
577	M909	TWR RED HIPDIA T7	11.671	11.671	11.671	11.671	11.671	11.671	1.03	1	N/A	N/A Lateral
578	M910	TWR RED HIPDIA T7	11.671	11.671	11.671	11.671	11.671	11.671	1.03	1	N/A	N/A Lateral
579	M911	TWR RED HIPDIA T7	11.671	11.671	11.671	11.671	11.671	11.671	1.03	1	N/A	N/A Lateral
580	M912	TWR RED HIPDIA T7	11.671	11.671	11.671	11.671	11.671	11.671	1.03	1	N/A	N/A Lateral
581	M363	TWR RED HIPDIA T8	12.546	12.546	12.546	12.546	12.546	12.546	1.03	1	N/A	N/A Lateral
582	M379	TWR RED HIPDIA T8	12.546	12.546	12.546	12.546	12.546	12.546	1.03	1	N/A	N/A Lateral
583	M395	TWR RED HIPDIA T8	12.546	12.546	12.546	12.546	12.546	12.546	1.03	1	N/A	N/A Lateral
584	M399	TWR RED HIPDIA T8	12.546	12.546	12.546	12.546	12.546	12.546	1.03	1	N/A	N/A Lateral
585	M905	TWR RED HIPDIA T8	12.546	12.546	12.546	12.546	12.546	12.546	1.03	1	N/A	N/A Lateral
586	M906	TWR RED HIPDIA T8	12.546	12.546	12.546	12.546	12.546	12.546	1.03	1	N/A	N/A Lateral
587	M907	TWR RED HIPDIA T8	12.546	12.546	12.546	12.546	12.546	12.546	1.03	1	N/A	N/A Lateral
588	M908	TWR RED HIPDIA T8	12.546	12.546	12.546	12.546	12.546	12.546	1.03	1	N/A	N/A Lateral
589	M436	TWR RED HIPDIA T9	13.475	13.475	13.475	13.475	13.475	13.475	1.03	1	N/A	N/A Lateral
590	M452	TWR RED HIPDIA T9	13.475	13.475	13.475	13.475	13.475	13.475	1.03	1	N/A	N/A Lateral
591	M468	TWR RED HIPDIA T9	13.475	13.475	13.475	13.475	13.475	13.475	1.03	1	N/A	N/A Lateral
592	M472	TWR RED HIPDIA T9	13.475	13.475	13.475	13.475	13.475	13.475	1.03	1	N/A	N/A Lateral
593	M889A	TWR RED HIPDIA T9	13.475	13.475	13.475	13.475	13.475	13.475	1.03	1	N/A	N/A Lateral
594	M890A	TWR RED HIPDIA T9	13.475	13.475	13.475	13.475	13.475	13.475	1.03	1	N/A	N/A Lateral
595	M891A	TWR RED HIPDIA T9	13.475	13.475	13.475	13.475	13.475	13.475	1.03	1	N/A	N/A Lateral
596	M892A	TWR RED HIPDIA T9	13.475	13.475	13.475	13.475	13.475	13.475	1.03	1	N/A	N/A Lateral
597	M886	TWR RED HIPDIA T10	11.57	11.57	11.57	11.57	11.57	11.57	1.03	1	N/A	N/A Lateral
598	M887	TWR RED HIPDIA T10	11.57	11.57	11.57	11.57	11.57	11.57	1.03	1	N/A	N/A Lateral
599	M888	TWR RED HIPDIA T10	11.57	11.57	11.57	11.57	11.57	11.57	1.03	1	N/A	N/A Lateral
600	M889	TWR RED HIPDIA T10	11.57	11.57	11.57	11.57	11.57	11.57	1.03	1	N/A	N/A Lateral
601	M890	TWR RED HIPDIA T10	11.57	11.57	11.57	11.57	11.57	11.57	1.03	1	N/A	N/A Lateral
602	M891	TWR RED HIPDIA T10	11.57	11.57	11.57	11.57	11.57	11.57	1.03	1	N/A	N/A Lateral
603	M892	TWR RED HIPDIA T10	11.57	11.57	11.57	11.57	11.57	11.57	1.03	1	N/A	N/A Lateral
604	M893	TWR RED HIPDIA T10	11.57	11.57	11.57	11.57	11.57	11.57	1.03	1	N/A	N/A Lateral
605	M863	TWR RED HIPDIA T11	12.126	12.126	12.126	12.126	12.126	12.126	1.03	1	N/A	N/A Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
606	M864 TWR RED HIPDIA T11	12.126	12.126	12.126	12.126	12.126	12.126	1.03	1	N/A	N/A	Lateral
607	M865 TWR RED HIPDIA T11	12.126	12.126	12.126	12.126	12.126	12.126	1.03	1	N/A	N/A	Lateral
608	M866 TWR RED HIPDIA T11	12.126	12.126	12.126	12.126	12.126	12.126	1.03	1	N/A	N/A	Lateral
609	M867 TWR RED HIPDIA T11	12.126	12.126	12.126	12.126	12.126	12.126	1.03	1	N/A	N/A	Lateral
610	M868 TWR RED HIPDIA T11	12.126	12.126	12.126	12.126	12.126	12.126	1.03	1	N/A	N/A	Lateral
611	M869 TWR RED HIPDIA T11	12.126	12.126	12.126	12.126	12.126	12.126	1.03	1	N/A	N/A	Lateral
612	M870 TWR RED HIPDIA T11	12.126	12.126	12.126	12.126	12.126	12.126	1.03	1	N/A	N/A	Lateral
613	M679 TWR RED HIPDIA T12	7.784	7.384	7.384	7.384	7.384	7.384	1	1	N/A	N/A	Lateral
614	M707 TWR RED HIPDIA T12	7.784	7.384	7.384	7.384	7.384	7.384	1	1	N/A	N/A	Lateral
615	M735 TWR RED HIPDIA T12	7.784	7.384	7.384	7.384	7.384	7.384	1	1	N/A	N/A	Lateral
616	M740 TWR RED HIPDIA T12	7.784	7.384	7.384	7.384	7.384	7.384	1	1	N/A	N/A	Lateral
617	M788 TWR RED HIPDIA T12	7.784	7.384	7.384	7.384	7.384	7.384	1	1	N/A	N/A	Lateral
618	M789 TWR RED HIPDIA T12	7.784	7.384	7.384	7.384	7.384	7.384	1	1	N/A	N/A	Lateral
619	M790 TWR RED HIPDIA T12	7.784	7.384	7.384	7.384	7.384	7.384	1	1	N/A	N/A	Lateral
620	M791 TWR RED HIPDIA T12	7.784	7.384	7.384	7.384	7.384	7.384	1	1	N/A	N/A	Lateral
621	M288 TWR RED HIP 2 T7	13.645	13.645	13.645	13.645	13.645	13.645	1.02	1	N/A	N/A	Lateral
622	M304 TWR RED HIP 2 T7	13.645	13.645	13.645	13.645	13.645	13.645	1.02	1	N/A	N/A	Lateral
623	M320 TWR RED HIP 2 T7	13.645	13.645	13.645	13.645	13.645	13.645	1.02	1	N/A	N/A	Lateral
624	M324 TWR RED HIP 2 T7	13.645	13.645	13.645	13.645	13.645	13.645	1.02	1	N/A	N/A	Lateral
625	M361 TWR RED HIP 2 T8	15.818	15.818	15.818	15.818	15.818	15.818	1	1	N/A	N/A	Lateral
626	M377 TWR RED HIP 2 T8	15.818	15.818	15.818	15.818	15.818	15.818	1	1	N/A	N/A	Lateral
627	M393 TWR RED HIP 2 T8	15.818	15.818	15.818	15.818	15.818	15.818	1	1	N/A	N/A	Lateral
628	M397 TWR RED HIP 2 T8	15.818	15.818	15.818	15.818	15.818	15.818	1	1	N/A	N/A	Lateral
629	M434 TWR RED HIP 2 T9	17.992	17.992	17.992	17.992	17.992	17.992	1.01	1	N/A	N/A	Lateral
630	M450 TWR RED HIP 2 T9	17.992	17.992	17.992	17.992	17.992	17.992	1.01	1	N/A	N/A	Lateral
631	M466 TWR RED HIP 2 T9	17.992	17.992	17.992	17.992	17.992	17.992	1.01	1	N/A	N/A	Lateral
632	M470 TWR RED HIP 2 T9	17.992	17.992	17.992	17.992	17.992	17.992	1.01	1	N/A	N/A	Lateral
633	M509 TWR RED HIP 2 T10	13.186	13.186	13.186	13.186	13.186	13.186	1.08	1	N/A	N/A	Lateral
634	M526 TWR RED HIP 2 T10	13.186	13.186	13.186	13.186	13.186	13.186	1.08	1	N/A	N/A	Lateral
635	M543 TWR RED HIP 2 T10	13.186	13.186	13.186	13.186	13.186	13.186	1.08	1	N/A	N/A	Lateral
636	M546 TWR RED HIP 2 T10	13.186	13.186	13.186	13.186	13.186	13.186	1.08	1	N/A	N/A	Lateral
637	M586 TWR RED HIP 2 T11	14.49	14.49	14.49	14.49	14.49	14.49	1.02	1	N/A	N/A	Lateral
638	M603 TWR RED HIP 2 T11	14.49	14.49	14.49	14.49	14.49	14.49	1.02	1	N/A	N/A	Lateral
639	M620 TWR RED HIP 2 T11	14.49	14.49	14.49	14.49	14.49	14.49	1.02	1	N/A	N/A	Lateral
640	M623 TWR RED HIP 2 T11	14.49	14.49	14.49	14.49	14.49	14.49	1.02	1	N/A	N/A	Lateral
641	M676 TWR RED HIP 2 T12	10.895	10.391	10.391	10.391	10.391	10.391	1	1	N/A	N/A	Lateral
642	M704 TWR RED HIP 2 T12	10.895	10.391	10.391	10.391	10.391	10.391	1	1	N/A	N/A	Lateral
643	M732 TWR RED HIP 2 T12	10.895	10.391	10.391	10.391	10.391	10.391	1	1	N/A	N/A	Lateral
644	M737 TWR RED HIP 2 T12	10.895	10.391	10.391	10.391	10.391	10.391	1	1	N/A	N/A	Lateral
645	M678 TWR RED HIP 3 T12	16.342	15.986	7.993	7.993	7.993	7.993	1	1	N/A	N/A	Lateral
646	M706 TWR RED HIP 3 T12	16.342	15.986	7.993	7.993	7.993	7.993	1	1	N/A	N/A	Lateral
647	M734 TWR RED HIP 3 T12	16.342	15.986	7.993	7.993	7.993	7.993	1	1	N/A	N/A	Lateral
648	M739 TWR RED HIP 3 T12	16.342	15.986	7.993	7.993	7.993	7.993	1	1	N/A	N/A	Lateral
649	M266 TWR RED HORZ 2 T7	9.648	9.31	9.31	9.31	9.31	9.31	1.05	1	N/A	N/A	Lateral
650	M271 TWR RED HORZ 2 T7	9.648	9.31	9.31	9.31	9.31	9.31	1.05	1	N/A	N/A	Lateral
651	M278 TWR RED HORZ 2 T7	9.648	9.31	9.31	9.31	9.31	9.31	1.05	1	N/A	N/A	Lateral
652	M283 TWR RED HORZ 2 T7	9.648	9.31	9.31	9.31	9.31	9.31	1.05	1	N/A	N/A	Lateral
653	M294 TWR RED HORZ 2 T7	9.648	9.31	9.31	9.31	9.31	9.31	1.05	1	N/A	N/A	Lateral
654	M299 TWR RED HORZ 2 T7	9.648	9.31	9.31	9.31	9.31	9.31	1.05	1	N/A	N/A	Lateral
655	M310 TWR RED HORZ 2 T7	9.648	9.31	9.31	9.31	9.31	9.31	1.05	1	N/A	N/A	Lateral
656	M315 TWR RED HORZ 2 T7	9.648	9.31	9.31	9.31	9.31	9.31	1.05	1	N/A	N/A	Lateral
657	M339 TWR RED HORZ 2 T8	11.185	10.85	10.85	10.85	10.85	10.85	1.04	1	N/A	N/A	Lateral
658	M344 TWR RED HORZ 2 T8	11.185	10.85	10.85	10.85	10.85	10.85	1.04	1	N/A	N/A	Lateral
659	M351 TWR RED HORZ 2 T8	11.185	10.85	10.85	10.85	10.85	10.85	1.04	1	N/A	N/A	Lateral
660	M356 TWR RED HORZ 2 T8	11.185	10.85	10.85	10.85	10.85	10.85	1.04	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
661	M367 TWR RED HORZ 2 T8	11.185	10.85	10.85	10.85	10.85	10.85	1.04	1	N/A	N/A	Lateral
662	M372 TWR RED HORZ 2 T8	11.185	10.85	10.85	10.85	10.85	10.85	1.04	1	N/A	N/A	Lateral
663	M383 TWR RED HORZ 2 T8	11.185	10.85	10.85	10.85	10.85	10.85	1.04	1	N/A	N/A	Lateral
664	M388 TWR RED HORZ 2 T8	11.185	10.85	10.85	10.85	10.85	10.85	1.04	1	N/A	N/A	Lateral
665	M412 TWR RED HORZ 2 T9	12.722	12.39	12.39	12.39	12.39	12.39	1.03	1	N/A	N/A	Lateral
666	M417 TWR RED HORZ 2 T9	12.722	12.39	12.39	12.39	12.39	12.39	1.03	1	N/A	N/A	Lateral
667	M424 TWR RED HORZ 2 T9	12.722	12.39	12.39	12.39	12.39	12.39	1.03	1	N/A	N/A	Lateral
668	M429 TWR RED HORZ 2 T9	12.722	12.39	12.39	12.39	12.39	12.39	1.03	1	N/A	N/A	Lateral
669	M440 TWR RED HORZ 2 T9	12.722	12.39	12.39	12.39	12.39	12.39	1.03	1	N/A	N/A	Lateral
670	M445 TWR RED HORZ 2 T9	12.722	12.39	12.39	12.39	12.39	12.39	1.03	1	N/A	N/A	Lateral
671	M456 TWR RED HORZ 2 T9	12.722	12.39	12.39	12.39	12.39	12.39	1.03	1	N/A	N/A	Lateral
672	M461 TWR RED HORZ 2 T9	12.722	12.39	12.39	12.39	12.39	12.39	1.03	1	N/A	N/A	Lateral
673	M485 TWR RED HORZ 2 T10	9.324	8.99	8.99	8.99	8.99	8.99	1.05	1	N/A	N/A	Lateral
674	M490 TWR RED HORZ 2 T10	9.324	8.99	8.99	8.99	8.99	8.99	1.05	1	N/A	N/A	Lateral
675	M499 TWR RED HORZ 2 T10	9.324	8.99	8.99	8.99	8.99	8.99	1.05	1	N/A	N/A	Lateral
676	M504 TWR RED HORZ 2 T10	9.324	8.99	8.99	8.99	8.99	8.99	1.05	1	N/A	N/A	Lateral
677	M516 TWR RED HORZ 2 T10	9.324	8.99	8.99	8.99	8.99	8.99	1.05	1	N/A	N/A	Lateral
678	M521 TWR RED HORZ 2 T10	9.324	8.99	8.99	8.99	8.99	8.99	1.05	1	N/A	N/A	Lateral
679	M533 TWR RED HORZ 2 T10	9.324	8.99	8.99	8.99	8.99	8.99	1.05	1	N/A	N/A	Lateral
680	M538 TWR RED HORZ 2 T10	9.324	8.99	8.99	8.99	8.99	8.99	1.05	1	N/A	N/A	Lateral
681	M562 TWR RED HORZ 2 T11	10.246	9.91	9.91	9.91	9.91	9.91	1.04	1	N/A	N/A	Lateral
682	M567 TWR RED HORZ 2 T11	10.246	9.91	9.91	9.91	9.91	9.91	1.04	1	N/A	N/A	Lateral
683	M576 TWR RED HORZ 2 T11	10.246	9.91	9.91	9.91	9.91	9.91	1.04	1	N/A	N/A	Lateral
684	M581 TWR RED HORZ 2 T11	10.246	9.91	9.91	9.91	9.91	9.91	1.04	1	N/A	N/A	Lateral
685	M593 TWR RED HORZ 2 T11	10.246	9.91	9.91	9.91	9.91	9.91	1.04	1	N/A	N/A	Lateral
686	M598 TWR RED HORZ 2 T11	10.246	9.91	9.91	9.91	9.91	9.91	1.04	1	N/A	N/A	Lateral
687	M610 TWR RED HORZ 2 T11	10.246	9.91	9.91	9.91	9.91	9.91	1.04	1	N/A	N/A	Lateral
688	M615 TWR RED HORZ 2 T11	10.246	9.91	9.91	9.91	9.91	9.91	1.04	1	N/A	N/A	Lateral
689	M639 TWR RED HORZ 2 T12	7.704	7.404	7.404	7.404	7.404	7.404	1.08	1	N/A	N/A	Lateral
690	M646 TWR RED HORZ 2 T12	7.704	7.404	7.404	7.404	7.404	7.404	1.08	1	N/A	N/A	Lateral
691	M662 TWR RED HORZ 2 T12	7.704	7.404	7.404	7.404	7.404	7.404	1.08	1	N/A	N/A	Lateral
692	M669 TWR RED HORZ 2 T12	7.704	7.404	7.404	7.404	7.404	7.404	1.08	1	N/A	N/A	Lateral
693	M690 TWR RED HORZ 2 T12	7.704	7.404	7.404	7.404	7.404	7.404	1.08	1	N/A	N/A	Lateral
694	M697 TWR RED HORZ 2 T12	7.704	7.404	7.404	7.404	7.404	7.404	1.08	1	N/A	N/A	Lateral
695	M718 TWR RED HORZ 2 T12	7.704	7.404	7.404	7.404	7.404	7.404	1.08	1	N/A	N/A	Lateral
696	M725 TWR RED HORZ 2 T12	7.704	7.404	7.404	7.404	7.404	7.404	1.08	1	N/A	N/A	Lateral
697	M641 TWR RED HORZ 3 T12	11.556	11.156	11.156	11.156	11.156	11.156	1.03	1	N/A	N/A	Lateral
698	M648 TWR RED HORZ 3 T12	11.556	11.156	11.156	11.156	11.156	11.156	1.03	1	N/A	N/A	Lateral
699	M664 TWR RED HORZ 3 T12	11.556	11.156	11.156	11.156	11.156	11.156	1.03	1	N/A	N/A	Lateral
700	M671 TWR RED HORZ 3 T12	11.556	11.156	11.156	11.156	11.156	11.156	1.03	1	N/A	N/A	Lateral
701	M692 TWR RED HORZ 3 T12	11.556	11.156	11.156	11.156	11.156	11.156	1.03	1	N/A	N/A	Lateral
702	M699 TWR RED HORZ 3 T12	11.556	11.156	11.156	11.156	11.156	11.156	1.03	1	N/A	N/A	Lateral
703	M720 TWR RED HORZ 3 T12	11.556	11.156	11.156	11.156	11.156	11.156	1.03	1	N/A	N/A	Lateral
704	M727 TWR RED HORZ 3 T12	11.556	11.156	11.156	11.156	11.156	11.156	1.03	1	N/A	N/A	Lateral
705	M88 TWR RED HORZ T4	4.354	4.1	4.1	4.1	4.1	4.1	1	1	N/A	N/A	Lateral
706	M91 TWR RED HORZ T4	4.354	4.1	4.1	4.1	4.1	4.1	1	1	N/A	N/A	Lateral
707	M95 TWR RED HORZ T4	4.354	4.1	4.1	4.1	4.1	4.1	1	1	N/A	N/A	Lateral
708	M98 TWR RED HORZ T4	4.354	4.1	4.1	4.1	4.1	4.1	1	1	N/A	N/A	Lateral
709	M102 TWR RED HORZ T4	4.354	4.1	4.1	4.1	4.1	4.1	1	1	N/A	N/A	Lateral
710	M105 TWR RED HORZ T4	4.354	4.1	4.1	4.1	4.1	4.1	1	1	N/A	N/A	Lateral
711	M109 TWR RED HORZ T4	4.354	4.1	4.1	4.1	4.1	4.1	1	1	N/A	N/A	Lateral
712	M112 TWR RED HORZ T4	4.354	4.1	4.1	4.1	4.1	4.1	1	1	N/A	N/A	Lateral
713	M125 TWR RED HORZ T5	5.507	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
714	M128 TWR RED HORZ T5	5.507	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
715	M132 TWR RED HORZ T5	5.507	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
716	M135 TWR RED HORZ T5	5.507	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
717	M139 TWR RED HORZ T5	5.507	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
718	M142 TWR RED HORZ T5	5.507	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
719	M146 TWR RED HORZ T5	5.507	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
720	M149 TWR RED HORZ T5	5.507	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
721	M158 TWR RED HORZ T5	4.931	4.684	4.684	4.684	4.684	4.684	1	1	N/A	N/A	Lateral
722	M161 TWR RED HORZ T5	4.931	4.684	4.684	4.684	4.684	4.684	1	1	N/A	N/A	Lateral
723	M165 TWR RED HORZ T5	4.931	4.684	4.684	4.684	4.684	4.684	1	1	N/A	N/A	Lateral
724	M168 TWR RED HORZ T5	4.931	4.684	4.684	4.684	4.684	4.684	1	1	N/A	N/A	Lateral
725	M172 TWR RED HORZ T5	4.931	4.684	4.684	4.684	4.684	4.684	1	1	N/A	N/A	Lateral
726	M175 TWR RED HORZ T5	4.931	4.684	4.684	4.684	4.684	4.684	1	1	N/A	N/A	Lateral
727	M179 TWR RED HORZ T5	4.931	4.684	4.684	4.684	4.684	4.684	1	1	N/A	N/A	Lateral
728	M182 TWR RED HORZ T5	4.931	4.684	4.684	4.684	4.684	4.684	1	1	N/A	N/A	Lateral
729	M195 TWR RED HORZ T6	6.66	6.33	6.33	6.33	6.33	6.33	1	1	N/A	N/A	Lateral
730	M198 TWR RED HORZ T6	6.66	6.33	6.33	6.33	6.33	6.33	1	1	N/A	N/A	Lateral
731	M202 TWR RED HORZ T6	6.66	6.33	6.33	6.33	6.33	6.33	1	1	N/A	N/A	Lateral
732	M205 TWR RED HORZ T6	6.66	6.33	6.33	6.33	6.33	6.33	1	1	N/A	N/A	Lateral
733	M209 TWR RED HORZ T6	6.66	6.33	6.33	6.33	6.33	6.33	1	1	N/A	N/A	Lateral
734	M212 TWR RED HORZ T6	6.66	6.33	6.33	6.33	6.33	6.33	1	1	N/A	N/A	Lateral
735	M216 TWR RED HORZ T6	6.66	6.33	6.33	6.33	6.33	6.33	1	1	N/A	N/A	Lateral
736	M219 TWR RED HORZ T6	6.66	6.33	6.33	6.33	6.33	6.33	1	1	N/A	N/A	Lateral
737	M228 TWR RED HORZ T6	6.083	5.753	5.753	5.753	5.753	5.753	1	1	N/A	N/A	Lateral
738	M231 TWR RED HORZ T6	6.083	5.753	5.753	5.753	5.753	5.753	1	1	N/A	N/A	Lateral
739	M235 TWR RED HORZ T6	6.083	5.753	5.753	5.753	5.753	5.753	1	1	N/A	N/A	Lateral
740	M238 TWR RED HORZ T6	6.083	5.753	5.753	5.753	5.753	5.753	1	1	N/A	N/A	Lateral
741	M242 TWR RED HORZ T6	6.083	5.753	5.753	5.753	5.753	5.753	1	1	N/A	N/A	Lateral
742	M245 TWR RED HORZ T6	6.083	5.753	5.753	5.753	5.753	5.753	1	1	N/A	N/A	Lateral
743	M249 TWR RED HORZ T6	6.083	5.753	5.753	5.753	5.753	5.753	1	1	N/A	N/A	Lateral
744	M252 TWR RED HORZ T6	6.083	5.753	5.753	5.753	5.753	5.753	1	1	N/A	N/A	Lateral
745	M265 TWR RED HORZ T7	4.824	4.49	4.49	4.49	4.49	4.49	1	1	N/A	N/A	Lateral
746	M270 TWR RED HORZ T7	4.824	4.49	4.49	4.49	4.49	4.49	1	1	N/A	N/A	Lateral
747	M277 TWR RED HORZ T7	4.824	4.49	4.49	4.49	4.49	4.49	1	1	N/A	N/A	Lateral
748	M282 TWR RED HORZ T7	4.824	4.49	4.49	4.49	4.49	4.49	1	1	N/A	N/A	Lateral
749	M293 TWR RED HORZ T7	4.824	4.49	4.49	4.49	4.49	4.49	1	1	N/A	N/A	Lateral
750	M298 TWR RED HORZ T7	4.824	4.49	4.49	4.49	4.49	4.49	1	1	N/A	N/A	Lateral
751	M309 TWR RED HORZ T7	4.824	4.49	4.49	4.49	4.49	4.49	1	1	N/A	N/A	Lateral
752	M314 TWR RED HORZ T7	4.824	4.49	4.49	4.49	4.49	4.49	1	1	N/A	N/A	Lateral
753	M338 TWR RED HORZ T8	5.593	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
754	M343 TWR RED HORZ T8	5.593	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
755	M350 TWR RED HORZ T8	5.593	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
756	M355 TWR RED HORZ T8	5.593	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
757	M366 TWR RED HORZ T8	5.593	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
758	M371 TWR RED HORZ T8	5.593	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
759	M382 TWR RED HORZ T8	5.593	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
760	M387 TWR RED HORZ T8	5.593	5.26	5.26	5.26	5.26	5.26	1	1	N/A	N/A	Lateral
761	M411 TWR RED HORZ T9	6.361	6.03	6.03	6.03	6.03	6.03	1	1	N/A	N/A	Lateral
762	M416 TWR RED HORZ T9	6.361	6.03	6.03	6.03	6.03	6.03	1	1	N/A	N/A	Lateral
763	M423 TWR RED HORZ T9	6.361	6.03	6.03	6.03	6.03	6.03	1	1	N/A	N/A	Lateral
764	M428 TWR RED HORZ T9	6.361	6.03	6.03	6.03	6.03	6.03	1	1	N/A	N/A	Lateral
765	M439 TWR RED HORZ T9	6.361	6.03	6.03	6.03	6.03	6.03	1	1	N/A	N/A	Lateral
766	M444 TWR RED HORZ T9	6.361	6.03	6.03	6.03	6.03	6.03	1	1	N/A	N/A	Lateral
767	M455 TWR RED HORZ T9	6.361	6.03	6.03	6.03	6.03	6.03	1	1	N/A	N/A	Lateral
768	M460 TWR RED HORZ T9	6.361	6.03	6.03	6.03	6.03	6.03	1	1	N/A	N/A	Lateral
769	M484 TWR RED HORZ T10	4.662	4.33	4.33	4.33	4.33	4.33	1	1	N/A	N/A	Lateral
770	M489 TWR RED HORZ T10	4.662	4.33	4.33	4.33	4.33	4.33	1	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
771	M498	TWR RED HORZ T10	4.662	4.33	4.33	4.33	4.33	4.33	1	1	N/A	N/A Lateral
772	M503	TWR RED HORZ T10	4.662	4.33	4.33	4.33	4.33	4.33	1	1	N/A	N/A Lateral
773	M515	TWR RED HORZ T10	4.662	4.33	4.33	4.33	4.33	4.33	1	1	N/A	N/A Lateral
774	M520	TWR RED HORZ T10	4.662	4.33	4.33	4.33	4.33	4.33	1	1	N/A	N/A Lateral
775	M532	TWR RED HORZ T10	4.662	4.33	4.33	4.33	4.33	4.33	1	1	N/A	N/A Lateral
776	M537	TWR RED HORZ T10	4.662	4.33	4.33	4.33	4.33	4.33	1	1	N/A	N/A Lateral
777	M561	TWR RED HORZ T11	5.123	4.79	4.79	4.79	4.79	4.79	1	1	N/A	N/A Lateral
778	M566	TWR RED HORZ T11	5.123	4.79	4.79	4.79	4.79	4.79	1	1	N/A	N/A Lateral
779	M575	TWR RED HORZ T11	5.123	4.79	4.79	4.79	4.79	4.79	1	1	N/A	N/A Lateral
780	M580	TWR RED HORZ T11	5.123	4.79	4.79	4.79	4.79	4.79	1	1	N/A	N/A Lateral
781	M592	TWR RED HORZ T11	5.123	4.79	4.79	4.79	4.79	4.79	1	1	N/A	N/A Lateral
782	M597	TWR RED HORZ T11	5.123	4.79	4.79	4.79	4.79	4.79	1	1	N/A	N/A Lateral
783	M609	TWR RED HORZ T11	5.123	4.79	4.79	4.79	4.79	4.79	1	1	N/A	N/A Lateral
784	M614	TWR RED HORZ T11	5.123	4.79	4.79	4.79	4.79	4.79	1	1	N/A	N/A Lateral
785	M638	TWR RED HORZ T12	3.852	3.452	3.452	3.452	3.452	3.452	1	1	N/A	N/A Lateral
786	M645	TWR RED HORZ T12	3.852	3.452	3.452	3.452	3.452	3.452	1	1	N/A	N/A Lateral
787	M661	TWR RED HORZ T12	3.852	3.452	3.452	3.452	3.452	3.452	1	1	N/A	N/A Lateral
788	M668	TWR RED HORZ T12	3.852	3.452	3.452	3.452	3.452	3.452	1	1	N/A	N/A Lateral
789	M689	TWR RED HORZ T12	3.852	3.452	3.452	3.452	3.452	3.452	1	1	N/A	N/A Lateral
790	M696	TWR RED HORZ T12	3.852	3.452	3.452	3.452	3.452	3.452	1	1	N/A	N/A Lateral
791	M717	TWR RED HORZ T12	3.852	3.452	3.452	3.452	3.452	3.452	1	1	N/A	N/A Lateral
792	M724	TWR RED HORZ T12	3.852	3.452	3.452	3.452	3.452	3.452	1	1	N/A	N/A Lateral
793	M753	TWR RED KICKER 2 T12	10.342	9.942	9.942	9.942	9.942	9.942	1	1	N/A	N/A Lateral
794	M754	TWR RED KICKER 2 T12	10.342	9.942	9.942	9.942	9.942	9.942	1	1	N/A	N/A Lateral
795	M754A	TWR RED KICKER 2 T12	10.342	9.942	9.942	9.942	9.942	9.942	1	1	N/A	N/A Lateral
796	M755	TWR RED KICKER 2 T12	10.342	9.942	9.942	9.942	9.942	9.942	1	1	N/A	N/A Lateral
797	M756	TWR RED KICKER 2 T12	10.342	9.942	9.942	9.942	9.942	9.942	1	1	N/A	N/A Lateral
798	M757	TWR RED KICKER 2 T12	10.342	9.942	9.942	9.942	9.942	9.942	1	1	N/A	N/A Lateral
799	M758	TWR RED KICKER 2 T12	10.342	9.942	9.942	9.942	9.942	9.942	1	1	N/A	N/A Lateral
800	M759	TWR RED KICKER 2 T12	10.342	9.942	9.942	9.942	9.942	9.942	1	1	N/A	N/A Lateral
801	M930	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
802	M931	TWR RED KICKER T5	4.37	4.37	4.37	4.37	4.37	4.37	1	1	N/A	N/A Lateral
803	M932	TWR RED KICKER T5	3.991	3.991	3.991	3.991	3.991	3.991	1	1	N/A	N/A Lateral
804	M933	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
805	M934	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
806	M935	TWR RED KICKER T5	3.991	3.991	3.991	3.991	3.991	3.991	1	1	N/A	N/A Lateral
807	M935A	TWR RED KICKER T5	4.37	4.37	4.37	4.37	4.37	4.37	1	1	N/A	N/A Lateral
808	M936	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
809	M937	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
810	M938	TWR RED KICKER T5	4.37	4.37	4.37	4.37	4.37	4.37	1	1	N/A	N/A Lateral
811	M939	TWR RED KICKER T5	3.991	3.991	3.991	3.991	3.991	3.991	1	1	N/A	N/A Lateral
812	M940	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
813	M941	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
814	M942	TWR RED KICKER T5	3.991	3.991	3.991	3.991	3.991	3.991	1	1	N/A	N/A Lateral
815	M943	TWR RED KICKER T5	4.37	4.37	4.37	4.37	4.37	4.37	1	1	N/A	N/A Lateral
816	M944	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
817	M945	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
818	M946	TWR RED KICKER T5	4.37	4.37	4.37	4.37	4.37	4.37	1	1	N/A	N/A Lateral
819	M947	TWR RED KICKER T5	3.991	3.991	3.991	3.991	3.991	3.991	1	1	N/A	N/A Lateral
820	M948	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
821	M949	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
822	M950	TWR RED KICKER T5	3.991	3.991	3.991	3.991	3.991	3.991	1	1	N/A	N/A Lateral
823	M951	TWR RED KICKER T5	4.37	4.37	4.37	4.37	4.37	4.37	1	1	N/A	N/A Lateral
824	M952	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral
825	M953	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
826	M954	TWR RED KICKER T5	4.37	4.37	4.37	4.37	4.37	1	1	N/A	N/A	Lateral
827	M955	TWR RED KICKER T5	3.991	3.991	3.991	3.991	3.991	1	1	N/A	N/A	Lateral
828	M956	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A	Lateral
829	M957	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A	Lateral
830	M958	TWR RED KICKER T5	3.991	3.991	3.991	3.991	3.991	1	1	N/A	N/A	Lateral
831	M959	TWR RED KICKER T5	4.37	4.37	4.37	4.37	4.37	1	1	N/A	N/A	Lateral
832	M960	TWR RED KICKER T5	2.753	2.753	2.753	2.753	2.753	1	1	N/A	N/A	Lateral
833	M1003A	TWR RED KICKER T10	5.984	5.984	5.984	5.984	5.984	1	1	N/A	N/A	Lateral
834	M1004A	TWR RED KICKER T10	7.13	7.13	7.13	7.13	7.13	1	1	N/A	N/A	Lateral
835	M1005A	TWR RED KICKER T10	5.064	5.064	5.064	5.064	5.064	1	1	N/A	N/A	Lateral
836	M1007A	TWR RED KICKER T10	5.064	5.064	5.064	5.064	5.064	1	1	N/A	N/A	Lateral
837	M1008A	TWR RED KICKER T10	7.13	7.13	7.13	7.13	7.13	1	1	N/A	N/A	Lateral
838	M1009	TWR RED KICKER T10	5.984	5.984	5.984	5.984	5.984	1	1	N/A	N/A	Lateral
839	M1007B	TWR RED KICKER T10	5.984	5.984	5.984	5.984	5.984	1	1	N/A	N/A	Lateral
840	M1008B	TWR RED KICKER T10	7.13	7.13	7.13	7.13	7.13	1	1	N/A	N/A	Lateral
841	M1009A	TWR RED KICKER T10	5.064	5.064	5.064	5.064	5.064	1	1	N/A	N/A	Lateral
842	M1010	TWR RED KICKER T10	5.064	5.064	5.064	5.064	5.064	1	1	N/A	N/A	Lateral
843	M1011	TWR RED KICKER T10	7.13	7.13	7.13	7.13	7.13	1	1	N/A	N/A	Lateral
844	M1012	TWR RED KICKER T10	5.984	5.984	5.984	5.984	5.984	1	1	N/A	N/A	Lateral
845	M1013	TWR RED KICKER T10	5.984	5.984	5.984	5.984	5.984	1	1	N/A	N/A	Lateral
846	M1014	TWR RED KICKER T10	7.13	7.13	7.13	7.13	7.13	1	1	N/A	N/A	Lateral
847	M1015	TWR RED KICKER T10	5.064	5.064	5.064	5.064	5.064	1	1	N/A	N/A	Lateral
848	M1016	TWR RED KICKER T10	5.064	5.064	5.064	5.064	5.064	1	1	N/A	N/A	Lateral
849	M1017	TWR RED KICKER T10	7.13	7.13	7.13	7.13	7.13	1	1	N/A	N/A	Lateral
850	M1018	TWR RED KICKER T10	5.984	5.984	5.984	5.984	5.984	1	1	N/A	N/A	Lateral
851	M1019	TWR RED KICKER T10	5.984	5.984	5.984	5.984	5.984	1	1	N/A	N/A	Lateral
852	M1020	TWR RED KICKER T10	7.13	7.13	7.13	7.13	7.13	1	1	N/A	N/A	Lateral
853	M1021	TWR RED KICKER T10	5.064	5.064	5.064	5.064	5.064	1	1	N/A	N/A	Lateral
854	M1022	TWR RED KICKER T10	5.064	5.064	5.064	5.064	5.064	1	1	N/A	N/A	Lateral
855	M1023	TWR RED KICKER T10	7.13	7.13	7.13	7.13	7.13	1	1	N/A	N/A	Lateral
856	M1024	TWR RED KICKER T10	5.984	5.984	5.984	5.984	5.984	1	1	N/A	N/A	Lateral
857	M796A	TWR RED KICKER T11	5.123	5.123	5.123	5.123	5.123	1	1	N/A	N/A	Lateral
858	M797A	TWR RED KICKER T11	6.917	6.917	6.917	6.917	6.917	1	1	N/A	N/A	Lateral
859	M798A	TWR RED KICKER T11	6.917	6.917	6.917	6.917	6.917	1	1	N/A	N/A	Lateral
860	M799A	TWR RED KICKER T11	5.117	5.117	5.117	5.117	5.117	1	1	N/A	N/A	Lateral
861	M800	TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
862	M801	TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
863	M802	TWR RED KICKER T11	5.117	5.117	5.117	5.117	5.117	1	1	N/A	N/A	Lateral
864	M803	TWR RED KICKER T11	5.123	5.123	5.123	5.123	5.123	1	1	N/A	N/A	Lateral
865	M804	TWR RED KICKER T11	4.717	4.717	4.717	4.717	4.717	1	1	N/A	N/A	Lateral
866	M806	TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
867	M807	TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
868	M808	TWR RED KICKER T11	4.717	4.717	4.717	4.717	4.717	1	1	N/A	N/A	Lateral
869	M807A	TWR RED KICKER T11	5.123	5.123	5.123	5.123	5.123	1	1	N/A	N/A	Lateral
870	M808A	TWR RED KICKER T11	6.917	6.917	6.917	6.917	6.917	1	1	N/A	N/A	Lateral
871	M809	TWR RED KICKER T11	6.917	6.917	6.917	6.917	6.917	1	1	N/A	N/A	Lateral
872	M810	TWR RED KICKER T11	5.117	5.117	5.117	5.117	5.117	1	1	N/A	N/A	Lateral
873	M811	TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
874	M812	TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
875	M813	TWR RED KICKER T11	5.117	5.117	5.117	5.117	5.117	1	1	N/A	N/A	Lateral
876	M814	TWR RED KICKER T11	5.123	5.123	5.123	5.123	5.123	1	1	N/A	N/A	Lateral
877	M815	TWR RED KICKER T11	4.717	4.717	4.717	4.717	4.717	1	1	N/A	N/A	Lateral
878	M816	TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
879	M817	TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
880	M818	TWR RED KICKER T11	4.717	4.717	4.717	4.717	4.717	1	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
881	M819 TWR RED KICKER T11	5.123	5.123	5.123	5.123	5.123	5.123	1	1	N/A	N/A	Lateral
882	M820 TWR RED KICKER T11	6.917	6.917	6.917	6.917	6.917	6.917	1	1	N/A	N/A	Lateral
883	M821 TWR RED KICKER T11	6.917	6.917	6.917	6.917	6.917	6.917	1	1	N/A	N/A	Lateral
884	M822 TWR RED KICKER T11	5.117	5.117	5.117	5.117	5.117	5.117	1	1	N/A	N/A	Lateral
885	M823 TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
886	M824 TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
887	M825 TWR RED KICKER T11	5.117	5.117	5.117	5.117	5.117	5.117	1	1	N/A	N/A	Lateral
888	M826 TWR RED KICKER T11	5.123	5.123	5.123	5.123	5.123	5.123	1	1	N/A	N/A	Lateral
889	M827 TWR RED KICKER T11	4.717	4.717	4.717	4.717	4.717	4.717	1	1	N/A	N/A	Lateral
890	M828 TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
891	M829 TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
892	M830 TWR RED KICKER T11	4.717	4.717	4.717	4.717	4.717	4.717	1	1	N/A	N/A	Lateral
893	M831 TWR RED KICKER T11	5.123	5.123	5.123	5.123	5.123	5.123	1	1	N/A	N/A	Lateral
894	M832 TWR RED KICKER T11	6.917	6.917	6.917	6.917	6.917	6.917	1	1	N/A	N/A	Lateral
895	M833 TWR RED KICKER T11	6.917	6.917	6.917	6.917	6.917	6.917	1	1	N/A	N/A	Lateral
896	M834 TWR RED KICKER T11	5.117	5.117	5.117	5.117	5.117	5.117	1	1	N/A	N/A	Lateral
897	M835 TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
898	M836 TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
899	M837 TWR RED KICKER T11	5.117	5.117	5.117	5.117	5.117	5.117	1	1	N/A	N/A	Lateral
900	M838 TWR RED KICKER T11	5.123	5.123	5.123	5.123	5.123	5.123	1	1	N/A	N/A	Lateral
901	M839 TWR RED KICKER T11	4.717	4.717	4.717	4.717	4.717	4.717	1	1	N/A	N/A	Lateral
902	M840 TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
903	M841 TWR RED KICKER T11	2.562	2.562	2.562	2.562	2.562	2.562	1	1	N/A	N/A	Lateral
904	M842 TWR RED KICKER T11	4.717	4.717	4.717	4.717	4.717	4.717	1	1	N/A	N/A	Lateral
905	M760 TWR RED KICKER T12	4.644	4.644	4.644	4.644	4.644	4.644	1	1	N/A	N/A	Lateral
906	M761 TWR RED KICKER T12	4.644	4.644	4.644	4.644	4.644	4.644	1	1	N/A	N/A	Lateral
907	M762 TWR RED KICKER T12	4.644	4.644	4.644	4.644	4.644	4.644	1	1	N/A	N/A	Lateral
908	M763 TWR RED KICKER T12	4.644	4.644	4.644	4.644	4.644	4.644	1	1	N/A	N/A	Lateral
909	M764 TWR RED KICKER T12	4.644	4.644	4.644	4.644	4.644	4.644	1	1	N/A	N/A	Lateral
910	M765 TWR RED KICKER T12	4.644	4.644	4.644	4.644	4.644	4.644	1	1	N/A	N/A	Lateral
911	M766 TWR RED KICKER T12	4.644	4.644	4.644	4.644	4.644	4.644	1	1	N/A	N/A	Lateral
912	M767 TWR RED KICKER T12	4.644	4.644	4.644	4.644	4.644	4.644	1	1	N/A	N/A	Lateral
913	M858A TWR RED SUBDIA 2 T10	10.994	10.994	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
914	M859A TWR RED SUBDIA 2 T10	10.994	10.994	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
915	M860A TWR RED SUBDIA 2 T10	10.994	10.994	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
916	M861A TWR RED SUBDIA 2 T10	10.994	10.994	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
917	M862A TWR RED SUBDIA 2 T10	10.994	10.994	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
918	M863A TWR RED SUBDIA 2 T10	10.994	10.994	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
919	M864A TWR RED SUBDIA 2 T10	10.994	10.994	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
920	M865A TWR RED SUBDIA 2 T10	10.994	10.994	10.994	10.994	10.994	10.994	1.02	1	N/A	N/A	Lateral
921	M653 TWR RED SUBDIA 2 T12	12.309	11.909	11.909	11.909	11.909	11.909	1.03	1	N/A	N/A	Lateral
922	M655 TWR RED SUBDIA 2 T12	12.309	11.909	11.909	11.909	11.909	11.909	1.03	1	N/A	N/A	Lateral
923	M681 TWR RED SUBDIA 2 T12	12.309	11.909	11.909	11.909	11.909	11.909	1.03	1	N/A	N/A	Lateral
924	M683 TWR RED SUBDIA 2 T12	12.309	11.909	11.909	11.909	11.909	11.909	1.03	1	N/A	N/A	Lateral
925	M709 TWR RED SUBDIA 2 T12	12.309	11.909	11.909	11.909	11.909	11.909	1.03	1	N/A	N/A	Lateral
926	M711 TWR RED SUBDIA 2 T12	12.309	11.909	11.909	11.909	11.909	11.909	1.03	1	N/A	N/A	Lateral
927	M742 TWR RED SUBDIA 2 T12	12.309	11.909	11.909	11.909	11.909	11.909	1.03	1	N/A	N/A	Lateral
928	M744 TWR RED SUBDIA 2 T12	12.309	11.909	11.909	11.909	11.909	11.909	1.03	1	N/A	N/A	Lateral
929	M494 TWR RED SUBDIA T10	10.128	10.128	5.064	5.064	5.064	10.128	1.04	1	N/A	N/A	Lateral
930	M495 TWR RED SUBDIA T10	10.128	10.128	5.064	5.064	5.064	10.128	1.04	1	N/A	N/A	Lateral
931	M511 TWR RED SUBDIA T10	10.128	10.128	5.064	5.064	5.064	10.128	1.04	1	N/A	N/A	Lateral
932	M512 TWR RED SUBDIA T10	10.128	10.128	5.064	5.064	5.064	10.128	1.04	1	N/A	N/A	Lateral
933	M528 TWR RED SUBDIA T10	10.128	10.128	5.064	5.064	5.064	10.128	1.04	1	N/A	N/A	Lateral
934	M529 TWR RED SUBDIA T10	10.128	10.128	5.064	5.064	5.064	10.128	1.04	1	N/A	N/A	Lateral
935	M548 TWR RED SUBDIA T10	10.128	10.128	5.064	5.064	5.064	10.128	1.04	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
936	M549 TWR RED SUBDIA T10	10.128	10.128	5.064	5.064	5.064	10.128	1.04	1	N/A	N/A	Lateral
937	M571 TWR RED SUBDIA T11	10.486	10.486	10.486	10.486	10.486	10.486	1.06	1	N/A	N/A	Lateral
938	M572 TWR RED SUBDIA T11	10.486	10.486	10.486	10.486	10.486	10.486	1.06	1	N/A	N/A	Lateral
939	M588 TWR RED SUBDIA T11	10.486	10.486	10.486	10.486	10.486	10.486	1.06	1	N/A	N/A	Lateral
940	M589 TWR RED SUBDIA T11	10.486	10.486	10.486	10.486	10.486	10.486	1.06	1	N/A	N/A	Lateral
941	M605 TWR RED SUBDIA T11	10.486	10.486	10.486	10.486	10.486	10.486	1.06	1	N/A	N/A	Lateral
942	M606 TWR RED SUBDIA T11	10.486	10.486	10.486	10.486	10.486	10.486	1.06	1	N/A	N/A	Lateral
943	M625 TWR RED SUBDIA T11	10.486	10.486	10.486	10.486	10.486	10.486	1.06	1	N/A	N/A	Lateral
944	M626 TWR RED SUBDIA T11	10.486	10.486	10.486	10.486	10.486	10.486	1.06	1	N/A	N/A	Lateral
945	M787A TWR RED SUBDIA T11	11.507	11.507	11.507	11.507	11.507	11.507	1.05	1	N/A	N/A	Lateral
946	M788A TWR RED SUBDIA T11	11.507	11.507	11.507	11.507	11.507	11.507	1.05	1	N/A	N/A	Lateral
947	M789A TWR RED SUBDIA T11	11.507	11.507	11.507	11.507	11.507	11.507	1.05	1	N/A	N/A	Lateral
948	M790A TWR RED SUBDIA T11	11.507	11.507	11.507	11.507	11.507	11.507	1.05	1	N/A	N/A	Lateral
949	M791A TWR RED SUBDIA T11	11.507	11.507	11.507	11.507	11.507	11.507	1.05	1	N/A	N/A	Lateral
950	M792A TWR RED SUBDIA T11	11.507	11.507	11.507	11.507	11.507	11.507	1.05	1	N/A	N/A	Lateral
951	M793A TWR RED SUBDIA T11	11.507	11.507	11.507	11.507	11.507	11.507	1.05	1	N/A	N/A	Lateral
952	M794A TWR RED SUBDIA T11	11.507	11.507	11.507	11.507	11.507	11.507	1.05	1	N/A	N/A	Lateral
953	M652 TWR RED SUBDIA T12	9.288	8.888	8.888	8.888	8.888	8.888	1.07	1	N/A	N/A	Lateral
954	M654 TWR RED SUBDIA T12	9.288	8.888	8.888	8.888	8.888	8.888	1.07	1	N/A	N/A	Lateral
955	M680 TWR RED SUBDIA T12	9.288	8.888	8.888	8.888	8.888	8.888	1.07	1	N/A	N/A	Lateral
956	M682 TWR RED SUBDIA T12	9.288	8.888	8.888	8.888	8.888	8.888	1.07	1	N/A	N/A	Lateral
957	M708 TWR RED SUBDIA T12	9.288	8.888	8.888	8.888	8.888	8.888	1.07	1	N/A	N/A	Lateral
958	M710 TWR RED SUBDIA T12	9.288	8.888	8.888	8.888	8.888	8.888	1.07	1	N/A	N/A	Lateral
959	M741 TWR RED SUBDIA T12	9.288	8.888	8.888	8.888	8.888	8.888	1.07	1	N/A	N/A	Lateral
960	M743 TWR RED SUBDIA T12	9.288	8.888	8.888	8.888	8.888	8.888	1.07	1	N/A	N/A	Lateral
961	M274 TWR RED SUBHOR T7	11.185	11.185	11.185	11.185	11.185	11.185	1.04	1	N/A	N/A	Lateral
962	M286 TWR RED SUBHOR T7	11.185	11.185	11.185	11.185	11.185	11.185	1.04	1	N/A	N/A	Lateral
963	M302 TWR RED SUBHOR T7	11.185	11.185	11.185	11.185	11.185	11.185	1.04	1	N/A	N/A	Lateral
964	M318 TWR RED SUBHOR T7	11.185	11.185	11.185	11.185	11.185	11.185	1.04	1	N/A	N/A	Lateral
965	M347 TWR RED SUBHOR T8	12.722	12.722	12.722	12.722	12.722	12.722	1.03	1	N/A	N/A	Lateral
966	M359 TWR RED SUBHOR T8	12.722	12.722	12.722	12.722	12.722	12.722	1.03	1	N/A	N/A	Lateral
967	M375 TWR RED SUBHOR T8	12.722	12.722	12.722	12.722	12.722	12.722	1.03	1	N/A	N/A	Lateral
968	M391 TWR RED SUBHOR T8	12.722	12.722	12.722	12.722	12.722	12.722	1.03	1	N/A	N/A	Lateral
969	M420 TWR RED SUBHOR T9	14.259	14.259	14.259	14.259	14.259	14.259	1.02	1	N/A	N/A	Lateral
970	M432 TWR RED SUBHOR T9	14.259	14.259	14.259	14.259	14.259	14.259	1.02	1	N/A	N/A	Lateral
971	M448 TWR RED SUBHOR T9	14.259	14.259	14.259	14.259	14.259	14.259	1.02	1	N/A	N/A	Lateral
972	M464 TWR RED SUBHOR T9	14.259	14.259	14.259	14.259	14.259	14.259	1.02	1	N/A	N/A	Lateral
973	M493 TWR RED SUBHOR T10	25.667	25.667	12.834	12.834	12.834	12.834	1.01	1	N/A	N/A	Lateral
974	M507 TWR RED SUBHOR T10	25.667	25.667	12.834	12.834	12.834	12.834	1.01	1	N/A	N/A	Lateral
975	M524 TWR RED SUBHOR T10	25.667	25.667	12.834	12.834	12.834	12.834	1.01	1	N/A	N/A	Lateral
976	M541 TWR RED SUBHOR T10	25.667	25.667	12.834	12.834	12.834	12.834	1.01	1	N/A	N/A	Lateral
977	M570 TWR RED SUBHOR T11	28.433	28.433	14.216	14.216	14.216	14.216	1.01	1	N/A	N/A	Lateral
978	M584 TWR RED SUBHOR T11	28.433	28.433	14.216	14.216	14.216	14.216	1.01	1	N/A	N/A	Lateral
979	M601 TWR RED SUBHOR T11	28.433	28.433	14.216	14.216	14.216	14.216	1.01	1	N/A	N/A	Lateral
980	M618 TWR RED SUBHOR T11	28.433	28.433	14.216	14.216	14.216	14.216	1.01	1	N/A	N/A	Lateral
981	M651 TWR RED SUBHOR T12	23.611	23.211	Segment	Segment	Segment	Segment	1.01	1	N/A	N/A	Lateral
982	M674 TWR RED SUBHOR T12	23.611	23.211	Segment	Segment	Segment	Segment	1.01	1	N/A	N/A	Lateral
983	M702 TWR RED SUBHOR T12	23.611	23.211	Segment	Segment	Segment	Segment	1.01	1	N/A	N/A	Lateral
984	M730 TWR RED SUBHOR T12	23.611	23.211	Segment	Segment	Segment	Segment	1.01	1	N/A	N/A	Lateral
985	M997 TWR RED VERT T2	5.758	5.758	5.758	5.758	5.758	5.758	1	1	N/A	N/A	Lateral
986	M998 TWR RED VERT T2	5.758	5.758	5.758	5.758	5.758	5.758	1	1	N/A	N/A	Lateral
987	M999 TWR RED VERT T2	5.758	5.758	5.758	5.758	5.758	5.758	1	1	N/A	N/A	Lateral
988	M1000 TWR RED VERT T2	5.758	5.758	5.758	5.758	5.758	5.758	1	1	N/A	N/A	Lateral
989	M1001 TWR RED VERT T2	5.656	5.656	5.656	5.656	5.656	5.656	1	1	N/A	N/A	Lateral
990	M1002 TWR RED VERT T2	5.656	5.656	5.656	5.656	5.656	5.656	1	1	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
991 M1003	TWR RED VERT T2	5.656	5.656	5.656	5.656	5.656	5.656	1	1	N/A	N/A	Lateral
992 M1004	TWR RED VERT T2	5.656	5.656	5.656	5.656	5.656	5.656	1	1	N/A	N/A	Lateral
993 M993	TWR RED VERT T3	5.832	5.832	5.832	5.832	5.832	5.832	1	1	N/A	N/A	Lateral
994 M994	TWR RED VERT T3	5.832	5.832	5.832	5.832	5.832	5.832	1	1	N/A	N/A	Lateral
995 M995	TWR RED VERT T3	5.832	5.832	5.832	5.832	5.832	5.832	1	1	N/A	N/A	Lateral
996 M996	TWR RED VERT T3	5.832	5.832	5.832	5.832	5.832	5.832	1	1	N/A	N/A	Lateral
997 M885B	TWR RED VERT T8	8.611	8.611	8.611	8.611	8.611	8.611	1	1	N/A	N/A	Lateral
998 M886B	TWR RED VERT T8	8.611	8.611	8.611	8.611	8.611	8.611	1	1	N/A	N/A	Lateral
999 M887B	TWR RED VERT T8	8.611	8.611	8.611	8.611	8.611	8.611	1	1	N/A	N/A	Lateral
1000 M888B	TWR RED VERT T8	8.611	8.611	8.611	8.611	8.611	8.611	1	1	N/A	N/A	Lateral
1001 M889B	TWR RED VERT T8	8.611	8.611	8.611	8.611	8.611	8.611	1	1	N/A	N/A	Lateral
1002 M890B	TWR RED VERT T8	8.611	8.611	8.611	8.611	8.611	8.611	1	1	N/A	N/A	Lateral
1003 M891B	TWR RED VERT T8	8.611	8.611	8.611	8.611	8.611	8.611	1	1	N/A	N/A	Lateral
1004 M892B	TWR RED VERT T8	8.611	8.611	8.611	8.611	8.611	8.611	1	1	N/A	N/A	Lateral
1005 M658	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1006 M686	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1007 M714	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1008 M747	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1009 M744A	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1010 M745A	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1011 M746A	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1012 M747A	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1013 M748A	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1014 M749A	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1015 M750A	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1016 M751A	TWR RED VERT T12	8.741	8.441	8.441	8.441	8.441	8.441	1.06	1	N/A	N/A	Lateral
1017 M1005	TWR RED VERT T1	6.25	6.25	6.25	6.25	6.25	6.25	1	1	N/A	N/A	Lateral
1018 M1006	TWR RED VERT T1	6.25	6.25	6.25	6.25	6.25	6.25	1	1	N/A	N/A	Lateral
1019 M1007	TWR RED VERT T1	6.25	6.25	6.25	6.25	6.25	6.25	1	1	N/A	N/A	Lateral
1020 M1008	TWR RED VERT T1	6.25	6.25	6.25	6.25	6.25	6.25	1	1	N/A	N/A	Lateral
1021 M1025	TWR HORZ_TOP_GIRT_T1	5.25	10.08	5.04	5.04	5.04	10.5	1	1	N/A	N/A	Lateral

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	None	-1	72	352	48
2	No Ice Wind 0 deg	None		72	680	120
3	No Ice Wind 45 deg	None		144	738	192
4	No Ice Wind 90 deg	None		72	684	144
5	No Ice Wind 135 deg	None		144	738	192
6	No Ice Wind 180 deg	None		72	680	120
7	No Ice Wind 225 deg	None		144	738	192
8	No Ice Wind 270 deg	None		72	684	144
9	No Ice Wind 315 deg	None		144	738	192
10	Service Wind 0 deg	None		72	662	72
11	Service Wind 45 deg	None		144	726	192
12	Service Wind 90 deg	None		72	666	136
13	Service Wind 135 deg	None		144	738	192
14	Service Wind 180 deg	None		72	662	72
15	Service Wind 225 deg	None		144	726	192
16	Service Wind 270 deg	None		72	666	136
17	Service Wind 315 deg	None		144	738	192
18	Superimposed Dead Load	None				749

Load Combinations

	Description	Solve	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead Only	Yes	1	1.4	18	1.4		
2	1.2 Dead+1 Wind 0 deg - No Ice	Yes	1	1.2	2	1	18	1.2
3	0.9 Dead+1 Wind 0 deg - No Ice	Yes	1	0.9	2	1	18	0.9
4	1.2 Dead+1 Wind 45 deg - No Ice	Yes	1	1.2	3	1	18	1.2
5	0.9 Dead+1 Wind 45 deg - No Ice	Yes	1	0.9	3	1	18	0.9
6	1.2 Dead+1 Wind 90 deg - No Ice	Yes	1	1.2	4	1	18	1.2
7	0.9 Dead+1 Wind 90 deg - No Ice	Yes	1	0.9	4	1	18	0.9
8	1.2 Dead+1 Wind 135 deg - No Ice	Yes	1	1.2	5	1	18	1.2
9	0.9 Dead+1 Wind 135 deg - No Ice	Yes	1	0.9	5	1	18	0.9
10	1.2 Dead+1 Wind 180 deg - No Ice	Yes	1	1.2	6	1	18	1.2
11	0.9 Dead+1 Wind 180 deg - No Ice	Yes	1	0.9	6	1	18	0.9
12	1.2 Dead+1 Wind 225 deg - No Ice	Yes	1	1.2	7	1	18	1.2
13	0.9 Dead+1 Wind 225 deg - No Ice	Yes	1	0.9	7	1	18	0.9
14	1.2 Dead+1 Wind 270 deg - No Ice	Yes	1	1.2	8	1	18	1.2
15	0.9 Dead+1 Wind 270 deg - No Ice	Yes	1	0.9	8	1	18	0.9
16	1.2 Dead+1 Wind 315 deg - No Ice	Yes	1	1.2	9	1	18	1.2
17	0.9 Dead+1 Wind 315 deg - No Ice	Yes	1	0.9	9	1	18	0.9
18	Dead+Wind 0 deg - Service	Yes	1	1	10	1	18	1
19	Dead+Wind 45 deg - Service	Yes	1	1	11	1	18	1
20	Dead+Wind 90 deg - Service	Yes	1	1	12	1	18	1
21	Dead+Wind 135 deg - Service	Yes	1	1	13	1	18	1
22	Dead+Wind 180 deg - Service	Yes	1	1	14	1	18	1
23	Dead+Wind 225 deg - Service	Yes	1	1	15	1	18	1
24	Dead+Wind 270 deg - Service	Yes	1	1	16	1	18	1
25	Dead+Wind 315 deg - Service	Yes	1	1	17	1	18	1

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N317	max	92.424	17	549.044	12	122.846	16	0	25	6.576	17	0	25
2		min	-122.52	8	-416.233	5	-91.964	9	0	1	-6.538	9	0	1
3	N318	max	125.414	12	538.172	8	124.105	4	0	25	6.769	13	0	25
4		min	-93.798	5	-413.476	17	-94.767	13	0	1	-6.717	5	0	1
5	N319	max	121.656	16	541.734	4	92.121	17	0	25	6.453	9	0	25
6		min	-91.67	9	-422.734	13	-121.168	8	0	1	-6.487	17	0	1
7	N320	max	93.166	13	538.979	16	91.914	5	0	25	6.396	5	0	25
8		min	-121.452	4	-411.888	9	-122.745	12	0	1	-6.476	13	0	1
9	Totals:	max	159.298	15	333.717	1	171.844	3						
10		min	-159.442	6	214.533	3	-172.044	10						

Built-Up Leg Members

USSB-R-4457 / T102037 - Milwaukee
GFD Project #: 2026723.12 TAG0037.08

Steel Specification	AISC 360M Triple Beams
Grade	50W234X14
Number of Sections	26
Area Capacity	205%

Original Tower Leg								Side Angle Modification				Back Angle Modification				Built-Up Member														Member Analysis						
Section	Member	Member Type	Area (in ²)	L (in ²)	r _x (in)	r _y (in)	Ka/r _x	Mod Type	Area (in ²)	L (in ²)	r _x (in)	r _y (in)	Ka/r _x	Mod Type	Area (in ²)	L (in ²)	r _x (in)	r _y (in)	Ka/r _x	Connection Type	g	K _c	L (in)	a (in)	b (in)	Area (in ²)	L (in ²)	r _x (in)	r _y (in)	Ka/r _x	Stiffness Only	0.75Ro/L _{cr}	PhiF _t (ksi)	Design (ksi)	Ro/L _{cr}	4 Multiplier
T12	Leg	18x42x2	33.00	89.983	2.436	1.585	7.87		14x42x2	3.75	3.75	3.75	0.761	15.94	Isolated	1	0.00	109.57	17.00	3.75	18.750	114.635	2.473	0.761	3.75	2.06	26.80	4.06	3.75	Yes	83.24	15.24	Yes	26.80	1.00	

Original Tower Leg							Side Angle Modification				Back Angle Modification				Built-Up Member														Member Analysis							
Section	Member	Member Type	Area [in ²]	L [in ²]	r _x [in]	r _y [in]	Ka/r _x	Mod Type	Area [in ²]	L [in ²]	r _x [in]	r _y [in]	Ka/r _x	Mod Type	Area [in ²]	L [in ²]	r _x [in]	r _y [in]	Ka/r _x	Connection Type	K	K _c	L [in]	a [in]	b [in]	Area [in ²]	L [in ²]	r _x [in]	r _y [in]	Ka/r _x	Stiffness Only	0.75Ro/L _{cr}	PhiF _t (ksi)	Design (ksi)	Ro/L _{cr}	4 Multiplier
T12	Leg	14x42x2	15.000	89.983	2.436	1.565	7.87		14x42x2	3.75	3.75	3.75	0.761	15.94	Isolated	1	0.00	109.57	17.00	3.75	18.750	114.635	2.473	0.761	3.75	2.06	26.80	4.06	3.75	Yes	83.24	15.24	Yes	26.80	1.00	

Member Summary				Compression Analysis				Tension Analysis					
Section	Member	Original Member	Modification	k	P _n (k)	φ _p (k)	Rating	P _n (k)	A _n (in ²)	U	A _e (in ²)	φ _p (k)	Rating
T12	Leg	L4x4x2/2	L4x4x2/2	1.06	240.30	541.09	44.4%	150.70	14.69	1.00	14.69	607.50	24.8%



TIA-222-H Code Angle Bracing Member Checks

USID #: 45057/TAG0057 - Mikesville

GPD Project # 2026723.12.TAG0057.08

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_DIAG_MOD_T2	M29	10.87	100.02	7.70	119.18	10.9%	Pass
TWR_DIAG_MOD_T2	M30	9.92	100.02	7.14	119.18	9.9%	Pass
TWR_DIAG_MOD_T2	M31	10.72	100.02	7.78	119.18	10.7%	Pass
TWR_DIAG_MOD_T2	M32	10.77	100.02	7.75	119.18	10.8%	Pass
TWR_DIAG_MOD_T2	M33	9.81	100.02	7.18	119.18	9.8%	Pass
TWR_DIAG_MOD_T2	M34	10.20	100.02	7.18	119.18	10.2%	Pass
TWR_DIAG_MOD_T2	M35	9.64	100.02	6.92	119.18	9.6%	Pass
TWR_DIAG_MOD_T2	M36	9.72	100.02	7.02	119.18	9.7%	Pass
TWR_DIAG_T1	M9	4.30	30.19	2.87	48.00	14.2%	Pass
TWR_DIAG_T1	M10	4.25	30.19	2.83	48.00	14.1%	Pass
TWR_DIAG_T1	M11	4.93	30.19	3.31	48.00	16.3%	Pass
TWR_DIAG_T1	M12	4.93	30.19	3.32	48.00	16.3%	Pass
TWR_DIAG_T1	M13	4.26	30.19	2.85	48.00	14.1%	Pass
TWR_DIAG_T1	M14	4.33	30.19	2.92	48.00	14.3%	Pass
TWR_DIAG_T1	M15	3.65	30.19	2.43	48.00	12.1%	Pass
TWR_DIAG_T1	M16	3.65	30.19	2.43	48.00	12.1%	Pass
TWR_DIAG_T2	M45	7.04	24.91	4.95	59.27	28.2%	Pass
TWR_DIAG_T2	M46	6.86	24.91	5.08	59.27	27.5%	Pass
TWR_DIAG_T2	M47	7.71	24.91	5.69	59.27	30.9%	Pass
TWR_DIAG_T2	M48	7.72	24.91	5.68	59.27	31.0%	Pass
TWR_DIAG_T2	M49	6.90	24.91	5.14	59.27	27.7%	Pass
TWR_DIAG_T2	M50	7.06	24.91	5.02	59.27	28.4%	Pass
TWR_DIAG_T2	M51	6.49	24.91	4.69	59.27	26.1%	Pass
TWR_DIAG_T2	M52	6.48	24.91	4.70	59.27	26.0%	Pass
TWR_DIAG_T3	M70	9.18	29.91	7.38	63.37	30.7%	Pass
TWR_DIAG_T3	M71	9.16	29.91	7.39	63.37	30.6%	Pass
TWR_DIAG_T3	M72	9.93	29.91	8.12	63.37	33.2%	Pass
TWR_DIAG_T3	M73	9.93	29.91	8.13	63.37	33.2%	Pass
TWR_DIAG_T3	M74	9.06	29.91	7.43	63.37	30.3%	Pass
TWR_DIAG_T3	M75	9.20	29.91	7.31	63.37	30.8%	Pass
TWR_DIAG_T3	M76	9.20	29.91	7.32	63.37	30.7%	Pass
TWR_DIAG_T3	M77	9.08	29.91	7.42	63.37	30.4%	Pass
TWR_DIAG_T4	M87	12.03	42.96	11.67	71.53	28.0%	Pass
TWR_DIAG_T4	M90	12.12	42.96	11.55	71.53	28.2%	Pass
TWR_DIAG_T4	M94	12.89	42.96	12.42	71.53	30.0%	Pass
TWR_DIAG_T4	M97	12.90	42.96	12.45	71.53	30.0%	Pass
TWR_DIAG_T4	M101	12.53	42.96	11.96	71.53	29.2%	Pass
TWR_DIAG_T4	M104	12.38	42.96	12.10	71.53	28.8%	Pass
TWR_DIAG_T4	M108	12.59	42.96	12.40	71.53	29.3%	Pass
TWR_DIAG_T4	M111	12.88	42.96	12.12	71.53	30.0%	Pass
TWR_DIAG_T5	M124	12.17	36.55	11.63	71.53	33.3%	Pass
TWR_DIAG_T5	M127	12.30	36.55	11.49	71.53	33.7%	Pass
TWR_DIAG_T5	M131	13.27	36.55	12.65	71.53	36.3%	Pass
TWR_DIAG_T5	M134	13.25	36.55	12.69	71.53	36.3%	Pass
TWR_DIAG_T5	M138	12.32	36.55	11.64	71.53	33.7%	Pass
TWR_DIAG_T5	M141	12.28	36.55	11.68	71.53	33.6%	Pass
TWR_DIAG_T5	M145	13.13	36.55	12.61	71.53	35.9%	Pass
TWR_DIAG_T5	M148	13.21	36.55	12.50	71.53	36.1%	Pass
TWR_DIAG_T5	M157	12.11	39.53	11.64	71.53	30.6%	Pass
TWR_DIAG_T5	M160	12.25	39.53	11.49	71.53	31.0%	Pass
TWR_DIAG_T5	M164	13.16	39.53	12.53	71.53	33.3%	Pass
TWR_DIAG_T5	M167	13.13	39.53	12.59	71.53	33.2%	Pass
TWR_DIAG_T5	M171	12.42	39.53	11.78	71.53	31.4%	Pass
TWR_DIAG_T5	M174	12.35	39.53	11.83	71.53	31.3%	Pass
TWR_DIAG_T5	M178	12.94	39.53	12.50	71.53	32.7%	Pass
TWR_DIAG_T5	M181	13.08	39.53	12.34	71.53	33.1%	Pass
TWR_DIAG_T6	M194	13.86	35.93	13.24	79.69	38.6%	Pass
TWR_DIAG_T6	M197	14.00	35.93	13.10	79.69	39.0%	Pass



TIA-222-H Code Angle Bracing Member Checks

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GPD Project # 2026723.12.TAG0057.08

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_DIAG_T6	M201	15.20	35.93	14.50	79.69	42.3%	Pass
TWR_DIAG_T6	M204	15.27	35.93	14.45	79.69	42.5%	Pass
TWR_DIAG_T6	M208	14.14	35.93	13.34	79.69	39.4%	Pass
TWR_DIAG_T6	M211	14.10	35.93	13.38	79.69	39.2%	Pass
TWR_DIAG_T6	M215	15.54	35.93	14.86	79.69	43.3%	Pass
TWR_DIAG_T6	M218	15.61	35.93	14.77	79.69	43.5%	Pass
TWR_DIAG_T6	M227	13.45	39.50	12.84	79.69	34.1%	Pass
TWR_DIAG_T6	M230	13.61	39.50	12.69	79.69	34.4%	Pass
TWR_DIAG_T6	M234	14.73	39.50	14.06	79.69	37.3%	Pass
TWR_DIAG_T6	M237	14.78	39.50	14.03	79.69	37.4%	Pass
TWR_DIAG_T6	M241	13.87	39.50	13.11	79.69	35.1%	Pass
TWR_DIAG_T6	M244	13.83	39.50	13.15	79.69	35.0%	Pass
TWR_DIAG_T6	M248	15.08	39.50	14.49	79.69	38.2%	Pass
TWR_DIAG_T6	M251	15.18	39.50	14.36	79.69	38.4%	Pass
TWR_DIAG_T7	M264	24.81	57.32	20.92	104.16	43.3%	Pass
TWR_DIAG_T7	M269	24.25	57.32	20.79	104.16	42.3%	Pass
TWR_DIAG_T7	M276	25.75	57.32	22.79	104.16	44.9%	Pass
TWR_DIAG_T7	M281	26.01	57.32	22.60	104.16	45.4%	Pass
TWR_DIAG_T7	M292	24.23	57.32	21.02	104.16	42.3%	Pass
TWR_DIAG_T7	M297	24.21	57.32	21.03	104.16	42.2%	Pass
TWR_DIAG_T7	M308	26.55	57.32	23.30	104.16	46.3%	Pass
TWR_DIAG_T7	M313	26.51	57.32	23.28	104.16	46.2%	Pass
TWR_DIAG_T8	M337	25.28	52.55	22.95	104.16	48.1%	Pass
TWR_DIAG_T8	M342	25.47	52.55	22.78	104.16	48.5%	Pass
TWR_DIAG_T8	M349	27.02	52.55	24.78	104.16	51.4%	Pass
TWR_DIAG_T8	M354	27.21	52.55	24.63	104.16	51.8%	Pass
TWR_DIAG_T8	M365	25.26	52.55	22.77	104.16	48.1%	Pass
TWR_DIAG_T8	M370	25.16	52.55	22.85	104.16	47.9%	Pass
TWR_DIAG_T8	M381	27.74	52.55	25.32	104.16	52.8%	Pass
TWR_DIAG_T8	M386	27.72	52.55	25.30	104.16	52.8%	Pass
TWR_DIAG_T9	M410	26.55	48.99	23.64	104.16	54.2%	Pass
TWR_DIAG_T9	M415	26.72	48.99	23.50	104.16	54.5%	Pass
TWR_DIAG_T9	M422	28.29	48.99	25.51	104.16	57.7%	Pass
TWR_DIAG_T9	M427	28.52	48.99	25.33	104.16	58.2%	Pass
TWR_DIAG_T9	M438	26.21	48.99	23.18	104.16	53.5%	Pass
TWR_DIAG_T9	M443	26.13	48.99	23.25	104.16	53.3%	Pass
TWR_DIAG_T9	M454	28.92	48.99	25.87	104.16	59.0%	Pass
TWR_DIAG_T9	M459	28.84	48.99	25.90	104.16	58.9%	Pass
TWR_DIAG_T10	M483	38.03	81.27	30.89	128.64	46.8%	Pass
TWR_DIAG_T10	M488	37.28	81.27	29.91	128.64	45.9%	Pass
TWR_DIAG_T10	M497	39.33	81.27	32.24	128.64	48.4%	Pass
TWR_DIAG_T10	M502	39.65	81.27	31.99	128.64	48.8%	Pass
TWR_DIAG_T10	M514	36.32	81.27	28.94	128.64	44.7%	Pass
TWR_DIAG_T10	M519	36.25	81.27	29.02	128.64	44.6%	Pass
TWR_DIAG_T10	M531	40.11	81.27	32.48	128.64	49.4%	Pass
TWR_DIAG_T10	M536	39.95	81.27	32.59	128.64	49.2%	Pass
TWR_DIAG_T11	M560	40.04	77.10	31.40	128.64	51.9%	Pass
TWR_DIAG_T11	M565	39.00	77.10	31.04	128.64	50.6%	Pass
TWR_DIAG_T11	M574	41.13	77.10	33.59	128.64	53.4%	Pass
TWR_DIAG_T11	M579	41.43	77.10	33.29	128.64	53.7%	Pass
TWR_DIAG_T11	M591	37.91	77.10	30.08	128.64	49.2%	Pass
TWR_DIAG_T11	M596	38.18	77.10	30.14	128.64	49.5%	Pass
TWR_DIAG_T11	M608	41.77	77.10	33.72	128.64	54.2%	Pass
TWR_DIAG_T11	M613	41.61	77.10	33.89	128.64	54.0%	Pass
TWR_DIAG_T12	M637	219.56	431.02	202.17	410.67	50.9%	Pass
TWR_DIAG_T12	M644	219.48	431.02	202.14	410.67	50.9%	Pass
TWR_DIAG_T12	M660	236.11	431.02	216.96	410.67	54.8%	Pass
TWR_DIAG_T12	M667	234.09	431.02	218.55	410.67	54.3%	Pass
TWR_DIAG_T12	M688	217.77	431.02	200.69	410.67	50.5%	Pass
TWR_DIAG_T12	M695	217.94	431.02	200.64	410.67	50.6%	Pass



TIA-222-H Code Angle Bracing Member Checks

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GPD Project # 2026723.12.TAG0057.08

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_DIAG_T12	M716	234.49	431.02	219.09	410.67	54.4%	Pass
TWR_DIAG_T12	M723	236.69	431.02	217.34	410.67	54.9%	Pass
TWR_HORZ_STEP_T1	M17	0.41	17.80	0.41	24.08	2.3%	Pass
TWR_HORZ_STEP_T1	M18	0.48	17.80	0.48	24.08	2.7%	Pass
TWR_HORZ_STEP_T1	M19	0.42	17.80	0.42	24.08	2.3%	Pass
TWR_HORZ_STEP_T1	M20	0.35	17.80	0.35	24.08	1.9%	Pass
TWR_HORZ_STEP_T2	M41	0.10	16.92	0.11	35.60	0.6%	Pass
TWR_HORZ_STEP_T2	M42	0.08	16.92	0.13	35.60	0.5%	Pass
TWR_HORZ_STEP_T2	M43	0.13	16.92	0.17	35.60	0.8%	Pass
TWR_HORZ_STEP_T2	M44	0.13	16.92	0.17	35.60	0.8%	Pass
TWR_HORZ_STEP_T2	M53	1.37	25.08	1.14	35.60	5.5%	Pass
TWR_HORZ_STEP_T2	M54	1.39	25.08	1.17	35.60	5.6%	Pass
TWR_HORZ_STEP_T2	M55	1.41	25.08	1.19	35.60	5.6%	Pass
TWR_HORZ_STEP_T2	M56	1.34	25.08	1.13	35.60	5.4%	Pass
TWR_HORZ_STEP_T3	M78	0.37	12.16	0.41	35.60	3.1%	Pass
TWR_HORZ_STEP_T3	M79	0.33	12.16	0.36	35.60	2.7%	Pass
TWR_HORZ_STEP_T3	M80	0.38	12.16	0.39	35.60	3.1%	Pass
TWR_HORZ_STEP_T3	M81	0.40	12.16	0.38	35.60	3.2%	Pass
TWR_HORZ_T3	M62	1.86	71.30	4.24	71.53	5.9%	Pass
TWR_HORZ_T3	M63	1.99	71.30	4.25	71.53	5.9%	Pass
TWR_HORZ_T3	M64	1.95	71.30	4.11	71.53	5.8%	Pass
TWR_HORZ_T4	M86	7.34	23.84	7.81	71.53	30.8%	Pass
TWR_HORZ_T4	M93	7.87	23.84	8.32	71.53	33.0%	Pass
TWR_HORZ_T4	M100	7.71	23.84	7.95	71.53	32.3%	Pass
TWR_HORZ_T4	M107	7.93	23.84	8.02	71.53	33.3%	Pass
TWR_HORZ_T5	M123	8.22	25.28	7.32	63.37	32.5%	Pass
TWR_HORZ_T5	M130	8.94	25.28	7.98	63.37	35.4%	Pass
TWR_HORZ_T5	M137	8.24	25.28	7.38	63.37	32.6%	Pass
TWR_HORZ_T5	M144	8.90	25.28	7.93	63.37	35.2%	Pass
TWR_HORZ_T5	M156	7.76	31.88	6.89	63.37	24.4%	Pass
TWR_HORZ_T5	M163	8.38	31.88	7.49	63.37	26.3%	Pass
TWR_HORZ_T5	M170	7.91	31.88	7.09	63.37	24.8%	Pass
TWR_HORZ_T5	M177	8.36	31.88	7.45	63.37	26.2%	Pass
TWR_HORZ_T6	M193	10.14	28.69	9.22	71.53	35.4%	Pass
TWR_HORZ_T6	M200	11.08	28.69	10.08	71.53	38.6%	Pass
TWR_HORZ_T6	M207	10.23	28.69	9.35	71.53	35.7%	Pass
TWR_HORZ_T6	M214	11.36	28.69	10.34	71.53	39.6%	Pass
TWR_HORZ_T6	M226	9.51	34.67	8.55	71.53	27.4%	Pass
TWR_HORZ_T6	M233	10.39	34.67	9.36	71.53	30.0%	Pass
TWR_HORZ_T6	M240	9.72	34.67	8.78	71.53	28.0%	Pass
TWR_HORZ_T6	M247	10.71	34.67	9.65	71.53	30.9%	Pass
TWR_HORZ_T7	M263	11.85	32.71	12.30	79.69	36.2%	Pass
TWR_HORZ_T7	M275	11.88	32.71	12.31	79.69	36.3%	Pass
TWR_HORZ_T7	M291	11.41	32.71	11.76	79.69	34.9%	Pass
TWR_HORZ_T7	M307	11.87	32.71	12.53	79.69	36.3%	Pass
TWR_HORZ_T8	M336	14.04	24.51	14.27	79.69	57.3%	Pass
TWR_HORZ_T8	M348	14.07	24.51	14.28	79.69	57.4%	Pass
TWR_HORZ_T8	M364	13.66	24.51	13.72	79.69	55.7%	Pass
TWR_HORZ_T8	M380	13.92	24.51	14.46	79.69	56.8%	Pass
TWR_HORZ_T9	M409	15.18	22.61	14.01	96.65	67.1%	Pass
TWR_HORZ_T9	M421	15.19	22.61	14.49	96.65	67.2%	Pass



TIA-222-H Code Angle Bracing Member Checks

USID #: 45057/TAG0057 - Mikesville

GPD Project # 2026723.12.TAG0057.08

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_HORZ_T9	M437	14.40	22.61	13.29	96.65	63.7%	Pass
TWR_HORZ_T9	M453	15.30	22.61	14.81	96.65	67.6%	Pass
TWR_HORZ_T10	M482	27.02	51.48	26.50	96.00	52.5%	Pass
TWR_HORZ_T10	M496	27.21	51.48	28.24	96.00	52.9%	Pass
TWR_HORZ_T10	M513	25.35	51.48	25.72	96.00	49.2%	Pass
TWR_HORZ_T10	M530	27.52	51.48	28.67	96.00	53.4%	Pass
TWR_HORZ_T11	M559	28.33	48.43	28.71	112.31	58.5%	Pass
TWR_HORZ_T11	M573	30.56	48.43	30.61	112.31	63.1%	Pass
TWR_HORZ_T11	M590	27.46	48.43	27.68	112.31	56.7%	Pass
TWR_HORZ_T11	M607	30.84	48.43	30.99	112.31	63.7%	Pass
TWR_HORZ_T12	M636	177.56	311.57	210.30	346.65	60.7%	Pass
TWR_HORZ_T12	M659	180.03	311.57	207.97	346.65	60.0%	Pass
TWR_HORZ_T12	M687	176.88	311.57	205.35	346.65	59.2%	Pass
TWR_HORZ_T12	M715	174.69	311.57	208.08	346.65	60.0%	Pass
TWR_INNER_BRACE_T9	M881A	0.00	8.17	0.00	30.21	0.0%	Pass
TWR_INNER_BRACE_T9	M882A	0.00	8.17	0.00	30.21	0.0%	Pass
TWR_INNER_BRACE_T9	M883A	0.00	8.17	0.00	30.21	0.0%	Pass
TWR_INNER_BRACE_T9	M884A	0.00	8.17	0.00	30.21	0.0%	Pass
TWR_INNER_CORNER_T3	M1076	0.00	14.57	0.95	24.04	4.0%	Pass
TWR_INNER_CORNER_T3	M1077	0.00	14.57	0.96	24.04	4.0%	Pass
TWR_INNER_CORNER_T3	M1078	0.00	14.57	0.94	24.04	3.9%	Pass
TWR_INNER_CORNER_T3	M1079	0.00	14.57	0.96	24.04	4.0%	Pass
TWR_INNER_CORNER_T4	M1072	0.00	6.38	0.76	24.04	3.2%	Pass
TWR_INNER_CORNER_T4	M1073	0.00	6.38	0.75	24.04	3.1%	Pass
TWR_INNER_CORNER_T4	M1074	0.00	21.05	1.77	24.04	7.3%	Pass
TWR_INNER_CORNER_T4	M1075	0.00	21.05	1.73	24.04	7.2%	Pass
TWR_INNER_CORNER_T5	M1064	0.00	6.86	1.55	24.04	6.4%	Pass
TWR_INNER_CORNER_T5	M1065	0.00	6.86	1.54	24.04	6.4%	Pass
TWR_INNER_CORNER_T5	M1066	0.00	6.86	1.54	24.04	6.4%	Pass
TWR_INNER_CORNER_T5	M1067	0.00	6.86	1.53	24.04	6.4%	Pass
TWR_INNER_CORNER_T5	M1068	0.00	8.56	1.45	24.04	6.0%	Pass
TWR_INNER_CORNER_T5	M1069	0.00	8.56	1.44	24.04	6.0%	Pass
TWR_INNER_CORNER_T5	M1070	0.00	8.56	1.44	24.04	6.0%	Pass
TWR_INNER_CORNER_T5	M1071	0.00	8.56	1.42	24.04	5.9%	Pass
TWR_INNER_CORNER_T6	M922	0.00	4.69	1.84	24.04	7.7%	Pass
TWR_INNER_CORNER_T6	M1057	0.00	4.69	1.83	24.04	7.6%	Pass
TWR_INNER_CORNER_T6	M1058	0.00	4.69	1.80	24.04	7.5%	Pass
TWR_INNER_CORNER_T6	M1059	0.00	4.69	1.82	24.04	7.6%	Pass
TWR_INNER_CORNER_T6	M1060	0.00	5.62	1.64	24.04	6.8%	Pass
TWR_INNER_CORNER_T6	M1061	0.00	5.62	1.67	24.04	6.9%	Pass
TWR_INNER_CORNER_T6	M1062	0.00	5.62	1.63	24.04	6.8%	Pass
TWR_INNER_CORNER_T6	M1063	0.00	5.62	1.65	24.04	6.9%	Pass
TWR_INNER_CORNER_T7	M1053	0.00	3.98	3.06	24.08	12.7%	Pass
TWR_INNER_CORNER_T7	M1054	0.00	3.98	3.12	24.08	13.0%	Pass
TWR_INNER_CORNER_T7	M1055	0.00	3.98	3.10	24.08	12.9%	Pass
TWR_INNER_CORNER_T7	M1056	0.00	3.98	3.14	24.08	13.0%	Pass
TWR_INNER_CORNER_T8	M1049	0.00	6.96	4.44	39.84	11.1%	Pass
TWR_INNER_CORNER_T8	M1050	0.00	6.96	4.53	39.84	11.4%	Pass
TWR_INNER_CORNER_T8	M1051	0.00	6.96	4.47	39.84	11.2%	Pass
TWR_INNER_CORNER_T8	M1052	0.00	6.96	4.51	39.84	11.3%	Pass
TWR_INNER_CORNER_T9	M1045	0.00	26.85	6.72	79.69	8.4%	Pass
TWR_INNER_CORNER_T9	M1046	0.00	26.85	6.85	79.69	8.6%	Pass
TWR_INNER_CORNER_T9	M1047	0.00	26.85	6.79	79.69	8.5%	Pass
TWR_INNER_CORNER_T9	M1048	0.00	26.85	6.83	79.69	8.6%	Pass
TWR_INNER_CORNER_T10	M1041	0.00	7.32	8.11	30.21	26.8%	Pass
TWR_INNER_CORNER_T10	M1042	0.00	7.32	8.13	30.21	26.9%	Pass



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Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_INNER_CORNER_T10	M1043	0.00	7.32	8.00	30.21	26.5%	Pass
TWR_INNER_CORNER_T10	M1044	0.00	7.32	8.07	30.21	26.7%	Pass
TWR_INNER_CORNER_T11	M1037	0.00	9.80	8.58	43.76	19.6%	Pass
TWR_INNER_CORNER_T11	M1038	0.00	9.80	8.46	43.76	19.3%	Pass
TWR_INNER_CORNER_T12	M1033	1.20	10.58	29.22	48.00	60.9%	Pass
TWR_INNER_CORNER_T12	M1034	1.23	10.58	28.76	48.00	59.9%	Pass
TWR_INNER_CORNER_T12	M1035	1.39	10.58	28.86	48.00	60.1%	Pass
TWR_INNER_CORNER_T12	M1036	1.19	10.58	28.67	48.00	59.7%	Pass
TWR_INNER_GIRT_T8	M897	0.00	13.92	0.00	39.84	0.0%	Pass
TWR_INNER_GIRT_T8	M898	0.00	13.92	0.00	39.84	0.0%	Pass
TWR_INNER_GIRT_T8	M899	0.00	13.92	0.00	39.84	0.0%	Pass
TWR_INNER_GIRT_T8	M900	0.00	13.92	0.00	39.84	0.0%	Pass
TWR_INNER_GIRT_T10	M866A	1.80	7.32	1.70	30.21	24.6%	Pass
TWR_INNER_GIRT_T10	M867A	1.80	7.32	1.71	30.21	24.6%	Pass
TWR_INNER_GIRT_T10	M868A	1.80	7.32	1.70	30.21	24.5%	Pass
TWR_INNER_GIRT_T10	M869A	1.80	7.32	1.70	30.21	24.6%	Pass
TWR_INNER_GIRT_T10	M874	1.62	7.32	1.62	30.21	22.2%	Pass
TWR_INNER_GIRT_T10	M875	1.62	7.32	1.62	30.21	22.1%	Pass
TWR_INNER_GIRT_T10	M876	1.74	7.32	1.74	30.21	23.8%	Pass
TWR_INNER_GIRT_T10	M877	1.75	7.32	1.74	30.21	23.8%	Pass
TWR_INNER_GIRT_T10	M878	1.63	7.32	1.62	30.21	22.2%	Pass
TWR_INNER_GIRT_T10	M879	1.62	7.32	1.63	30.21	22.2%	Pass
TWR_INNER_GIRT_T10	M880	1.75	7.32	1.74	30.21	23.9%	Pass
TWR_INNER_GIRT_T10	M881	1.75	7.32	1.75	30.21	23.8%	Pass
TWR_INNER_GIRT_T11	M843	1.97	9.80	1.84	43.76	20.1%	Pass
TWR_INNER_GIRT_T11	M844	1.97	9.80	1.84	43.76	20.1%	Pass
TWR_INNER_GIRT_T11	M845	1.96	9.80	1.85	43.76	20.0%	Pass
TWR_INNER_GIRT_T11	M846	1.97	9.80	1.85	43.76	20.0%	Pass
TWR_INNER_GIRT_T11	M851	1.75	9.80	1.75	43.76	17.8%	Pass
TWR_INNER_GIRT_T11	M852	1.75	9.80	1.75	43.76	17.8%	Pass
TWR_INNER_GIRT_T11	M853	1.89	9.80	1.89	43.76	19.2%	Pass
TWR_INNER_GIRT_T11	M854	1.89	9.80	1.88	43.76	19.3%	Pass
TWR_INNER_GIRT_T11	M855	1.75	9.80	1.76	43.76	17.9%	Pass
TWR_INNER_GIRT_T11	M856	1.76	9.80	1.75	43.76	17.9%	Pass
TWR_INNER_GIRT_T11	M857	1.89	9.80	1.89	43.76	19.3%	Pass
TWR_INNER_GIRT_T11	M858	1.89	9.80	1.89	43.76	19.3%	Pass
TWR_INNER_GIRT_T12	M768	5.89	10.65	7.51	48.33	55.3%	Pass
TWR_INNER_GIRT_T12	M769	5.96	10.65	7.45	48.33	55.9%	Pass
TWR_INNER_GIRT_T12	M770	6.17	10.65	7.74	48.33	58.0%	Pass
TWR_INNER_GIRT_T12	M771	6.12	10.65	7.79	48.33	57.5%	Pass
TWR_INNER_GIRT_T12	M772	6.09	10.65	6.28	48.33	57.2%	Pass
TWR_INNER_GIRT_T12	M773	6.14	10.65	6.24	48.33	57.6%	Pass
TWR_INNER_GIRT_T12	M774	0.60	21.29	0.42	48.33	2.8%	Pass
TWR_INNER_GIRT_T12	M775	5.73	10.65	5.91	48.33	53.9%	Pass
TWR_INNER_GIRT_T12	M776	5.74	10.65	5.91	48.33	53.9%	Pass
TWR_INNER_GIRT_T12	M777	0.63	21.29	0.46	48.33	3.0%	Pass
TWR_INNER_GIRT_T12	M778	6.16	10.65	6.37	48.33	57.9%	Pass
TWR_INNER_GIRT_T12	M779	6.22	10.65	6.32	48.33	58.4%	Pass
TWR_INNER_GIRT_T12	M780	0.60	21.29	0.42	48.33	2.8%	Pass
TWR_INNER_GIRT_T12	M781	5.79	10.65	5.95	48.33	54.4%	Pass
TWR_INNER_GIRT_T12	M782	5.79	10.65	6.00	48.33	54.4%	Pass
TWR_INNER_GIRT_T12	M783	0.64	21.29	0.46	48.33	3.0%	Pass
TWR_INNER_SQ_T3	M985	0.17	5.11	0.78	21.04	3.7%	Pass
TWR_INNER_SQ_T3	M986	0.14	5.11	0.78	21.04	3.7%	Pass
TWR_INNER_SQ_T3	M987	0.16	5.11	0.79	21.04	3.8%	Pass
TWR_INNER_SQ_T3	M988	0.16	5.11	0.76	21.04	3.6%	Pass
TWR_INNER_SQ_T4	M977	0.41	13.93	1.20	42.80	2.9%	Pass
TWR_INNER_SQ_T4	M978	0.38	13.93	1.18	42.80	2.8%	Pass
TWR_INNER_SQ_T4	M979	0.40	13.93	1.22	42.80	2.9%	Pass
TWR_INNER_SQ_T4	M980	0.39	13.93	1.16	42.80	2.8%	Pass



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Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_INNER_SQ_T5	M961	0.51	9.55	1.53	42.80	5.3%	Pass
TWR_INNER_SQ_T5	M962	0.47	9.55	1.42	42.80	4.9%	Pass
TWR_INNER_SQ_T5	M963	0.51	9.55	1.53	42.80	5.3%	Pass
TWR_INNER_SQ_T5	M964	0.47	9.55	1.41	42.80	4.9%	Pass
TWR_INNER_SQ_T5	M965	0.48	11.92	1.42	42.80	4.0%	Pass
TWR_INNER_SQ_T5	M966	0.44	11.92	1.34	42.80	3.7%	Pass
TWR_INNER_SQ_T5	M967	0.47	11.92	1.43	42.80	4.0%	Pass
TWR_INNER_SQ_T5	M968	0.45	11.92	1.33	42.80	3.7%	Pass
TWR_INNER_SQ_T6	M913	0.61	6.53	1.81	42.80	9.3%	Pass
TWR_INNER_SQ_T6	M914	0.55	6.53	1.66	42.80	8.4%	Pass
TWR_INNER_SQ_T6	M915	0.60	6.53	1.82	42.80	9.2%	Pass
TWR_INNER_SQ_T6	M916	0.55	6.53	1.64	42.80	8.4%	Pass
TWR_INNER_SQ_T6	M917	0.55	7.83	1.65	42.80	7.0%	Pass
TWR_INNER_SQ_T6	M918	0.50	7.83	1.51	42.80	6.4%	Pass
TWR_INNER_SQ_T6	M919	0.55	7.83	1.65	42.80	7.0%	Pass
TWR_INNER_SQ_T6	M920	0.50	7.83	1.50	42.80	6.4%	Pass
TWR_INNER_SQ_T7	M901A	1.10	9.65	2.81	42.05	11.4%	Pass
TWR_INNER_SQ_T7	M902A	1.03	9.65	2.61	42.05	10.7%	Pass
TWR_INNER_SQ_T7	M903A	1.10	9.65	2.81	42.05	11.4%	Pass
TWR_INNER_SQ_T7	M904A	1.04	9.65	2.60	42.05	10.7%	Pass
TWR_INNER_SQ_T8	M893A	1.45	15.58	3.66	42.80	9.3%	Pass
TWR_INNER_SQ_T8	M894	1.54	15.58	3.96	42.80	9.9%	Pass
TWR_INNER_SQ_T8	M895	1.44	15.58	3.69	42.80	9.2%	Pass
TWR_INNER_SQ_T8	M896	1.54	15.58	3.97	42.80	9.9%	Pass
TWR_INNER_SQ_T9	M877A	2.42	35.58	5.99	79.69	7.5%	Pass
TWR_INNER_SQ_T9	M878A	2.27	35.58	5.53	79.69	6.9%	Pass
TWR_INNER_SQ_T9	M879A	2.41	35.58	6.00	79.69	7.5%	Pass
TWR_INNER_SQ_T9	M880A	2.26	35.58	5.55	79.69	7.0%	Pass
TWR_INNER_SUPP_T3	M65	0.28	38.70	0.33	48.02	0.7%	Pass
TWR_INNER_SUPP_T3	M66	0.36	38.70	0.25	48.02	0.9%	Pass
TWR_INNER_SUPP_T3	M67	0.29	38.70	0.33	48.02	0.7%	Pass
TWR_INNER_SUPP_T3	M68	0.35	38.70	0.27	48.02	0.9%	Pass
TWR_INNER_SUPP_T4	M114	0.48	47.70	0.62	48.02	1.3%	Pass
TWR_INNER_SUPP_T4	M115	0.67	18.31	0.43	48.02	3.7%	Pass
TWR_INNER_SUPP_T4	M116	0.49	47.70	0.60	48.02	1.3%	Pass
TWR_INNER_SUPP_T4	M117	0.66	18.31	0.43	48.02	3.6%	Pass
TWR_INNER_SUPP_T5	M151	0.75	19.68	0.70	48.02	3.8%	Pass
TWR_INNER_SUPP_T5	M152	0.77	19.68	0.69	48.02	3.9%	Pass
TWR_INNER_SUPP_T5	M153	0.75	19.68	0.70	48.02	3.8%	Pass
TWR_INNER_SUPP_T5	M154	0.76	19.68	0.69	48.02	3.9%	Pass
TWR_INNER_SUPP_T5	M184	0.68	24.55	0.68	48.02	2.8%	Pass
TWR_INNER_SUPP_T5	M185	0.74	24.55	0.63	48.02	3.0%	Pass
TWR_INNER_SUPP_T5	M186	0.68	24.55	0.67	48.02	2.8%	Pass
TWR_INNER_SUPP_T5	M187	0.73	24.55	0.63	48.02	3.0%	Pass
TWR_INNER_SUPP_T6	M221	0.90	13.72	0.82	48.02	6.6%	Pass
TWR_INNER_SUPP_T6	M222	0.90	13.72	0.82	48.02	6.6%	Pass
TWR_INNER_SUPP_T6	M223	0.90	13.72	0.82	48.02	6.5%	Pass
TWR_INNER_SUPP_T6	M224	0.90	13.72	0.82	48.02	6.6%	Pass
TWR_INNER_SUPP_T6	M254	0.82	16.13	0.75	48.02	5.1%	Pass
TWR_INNER_SUPP_T6	M255	0.82	16.13	0.75	48.02	5.1%	Pass
TWR_INNER_SUPP_T6	M256	0.82	16.13	0.75	48.02	5.1%	Pass
TWR_INNER_SUPP_T6	M257	0.82	16.13	0.75	48.02	5.1%	Pass
TWR_INNER_SUPP_T7	M327	1.40	20.69	1.36	48.02	6.8%	Pass
TWR_INNER_SUPP_T7	M328	1.40	20.69	1.36	48.02	6.7%	Pass
TWR_INNER_SUPP_T7	M329	1.39	20.69	1.36	48.02	6.7%	Pass
TWR_INNER_SUPP_T7	M330	1.40	20.69	1.35	48.02	6.7%	Pass
TWR_INNER_SUPP_T8	M400	1.97	6.96	1.93	39.84	28.4%	Pass
TWR_INNER_SUPP_T8	M401	1.98	6.96	1.93	39.84	28.4%	Pass
TWR_INNER_SUPP_T8	M402	1.98	6.96	1.92	39.84	28.4%	Pass
TWR_INNER_SUPP_T8	M403	1.97	6.96	1.93	39.84	28.3%	Pass



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TWR_INNER_SUPP_T9	M473	3.02	6.80	2.94	79.69	44.4%	Pass
TWR_INNER_SUPP_T9	M474	3.01	6.80	2.94	79.69	44.3%	Pass
TWR_INNER_SUPP_T9	M475	3.00	6.80	2.93	79.69	44.1%	Pass
TWR_INNER_SUPP_T9	M476	3.01	6.80	2.92	79.69	44.2%	Pass
TWR_INNER_SUPP_T10	M870A	1.48	13.38	5.91	96.00	11.0%	Pass
TWR_INNER_SUPP_T10	M871	1.39	13.38	5.49	96.00	10.4%	Pass
TWR_INNER_SUPP_T10	M872	1.47	13.38	5.92	96.00	11.0%	Pass
TWR_INNER_SUPP_T10	M873	1.39	13.38	5.50	96.00	10.4%	Pass
TWR_INNER_SUPP_T11	M847	1.63	10.91	6.28	96.00	14.9%	Pass
TWR_INNER_SUPP_T11	M848	1.53	10.91	5.80	96.00	14.1%	Pass
TWR_INNER_SUPP_T11	M849	1.63	10.91	6.29	96.00	14.9%	Pass
TWR_INNER_SUPP_T11	M850	1.53	10.91	5.81	96.00	14.0%	Pass
TWR_INNER_SUPP_T12	M768A	4.06	9.06	21.06	96.00	44.8%	Pass
TWR_INNER_SUPP_T12	M769A	3.84	9.06	20.58	96.00	42.4%	Pass
TWR_INNER_SUPP_T12	M770A	4.10	9.06	20.86	96.00	45.3%	Pass
TWR_INNER_SUPP_T12	M771A	3.85	9.06	20.40	96.00	42.4%	Pass
TWR_LEG_T1	M1	11.62	123.05	3.63	124.01	9.4%	Pass
TWR_LEG_T1	M2	12.75	123.05	2.90	124.01	10.4%	Pass
TWR_LEG_T1	M3	12.69	123.05	2.92	124.01	10.3%	Pass
TWR_LEG_T1	M4	11.56	123.05	3.66	124.01	9.4%	Pass
TWR_LEG_T2	M21	37.66	215.32	20.08	214.09	17.5%	Pass
TWR_LEG_T2	M22	38.28	215.32	18.80	214.09	17.8%	Pass
TWR_LEG_T2	M23	38.36	215.32	19.46	214.09	17.8%	Pass
TWR_LEG_T2	M24	36.87	215.32	19.72	214.09	17.1%	Pass
TWR_LEG_T3	M57	58.71	297.61	35.05	292.59	19.7%	Pass
TWR_LEG_T3	M58	57.91	297.61	33.30	292.59	19.5%	Pass
TWR_LEG_T3	M59	58.58	297.61	34.71	292.59	19.7%	Pass
TWR_LEG_T3	M60	57.36	297.61	34.34	292.59	19.3%	Pass
TWR_LEG_T4	M82	70.02	304.37	41.91	292.59	23.0%	Pass
TWR_LEG_T4	M83	68.85	304.37	40.35	292.59	22.6%	Pass
TWR_LEG_T4	M84	69.62	304.37	42.01	292.59	22.9%	Pass
TWR_LEG_T4	M85	68.70	304.37	40.64	292.59	22.6%	Pass
TWR_LEG_T5	M119	101.89	304.37	67.61	292.59	33.5%	Pass
TWR_LEG_T5	M120	100.27	304.37	66.15	292.59	32.9%	Pass
TWR_LEG_T5	M121	100.68	304.37	68.45	292.59	33.1%	Pass
TWR_LEG_T5	M122	99.29	304.37	66.83	292.59	32.6%	Pass
TWR_LEG_T6	M189	136.30	381.72	93.74	351.75	35.7%	Pass
TWR_LEG_T6	M190	133.98	381.72	92.22	351.75	35.1%	Pass
TWR_LEG_T6	M191	134.35	381.72	95.23	351.75	35.2%	Pass
TWR_LEG_T6	M192	132.91	381.72	92.97	351.75	34.8%	Pass
TWR_LEG_T7	M259	146.10	414.61	102.55	406.78	35.2%	Pass
TWR_LEG_T7	M260	143.01	414.61	101.06	406.78	34.5%	Pass
TWR_LEG_T7	M261	143.65	414.61	104.27	406.78	34.6%	Pass
TWR_LEG_T7	M262	143.00	414.61	102.00	406.78	34.5%	Pass
TWR_LEG_T8	M332	183.53	522.20	129.35	505.59	35.1%	Pass
TWR_LEG_T8	M333	179.33	522.20	128.21	505.59	34.3%	Pass
TWR_LEG_T8	M334	180.43	522.20	131.67	505.59	34.6%	Pass
TWR_LEG_T8	M335	179.51	522.20	127.63	505.59	34.4%	Pass
TWR_LEG_T9	M405	219.40	522.20	155.75	505.59	42.0%	Pass
TWR_LEG_T9	M406	214.40	522.20	154.42	505.59	41.1%	Pass
TWR_LEG_T9	M407	215.76	522.20	158.55	505.59	41.3%	Pass
TWR_LEG_T9	M408	214.62	522.20	153.65	505.59	41.1%	Pass
TWR_LEG_T10	M478	230.60	522.20	163.33	505.59	44.2%	Pass
TWR_LEG_T10	M479	225.42	522.20	161.94	505.59	43.2%	Pass
TWR_LEG_T10	M480	226.79	522.20	166.46	505.59	43.4%	Pass
TWR_LEG_T10	M481	225.57	522.20	161.28	505.59	43.2%	Pass
TWR_LEG_T11	M555	269.80	581.45	190.19	505.59	46.4%	Pass
TWR_LEG_T11	M556	263.99	581.45	188.64	505.59	45.4%	Pass
TWR_LEG_T11	M557	265.66	581.45	193.75	505.59	45.7%	Pass
TWR_LEG_T11	M558	264.26	581.45	187.91	505.59	45.4%	Pass



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Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_RED_DIAG_2_T7	M268	7.19	14.64	4.26	42.05	49.1%	Pass
TWR_RED_DIAG_2_T7	M273	7.20	14.64	4.39	42.05	49.1%	Pass
TWR_RED_DIAG_2_T7	M280	6.77	14.64	4.10	42.05	46.3%	Pass
TWR_RED_DIAG_2_T7	M285	6.83	14.64	4.03	42.05	46.7%	Pass
TWR_RED_DIAG_2_T7	M296	7.11	14.64	4.48	42.05	48.5%	Pass
TWR_RED_DIAG_2_T7	M301	7.10	14.64	4.32	42.05	48.5%	Pass
TWR_RED_DIAG_2_T7	M312	6.83	14.64	4.01	42.05	46.7%	Pass
TWR_RED_DIAG_2_T7	M317	6.79	14.64	4.12	42.05	46.3%	Pass
TWR_RED_DIAG_2_T8	M341	5.46	12.07	3.33	42.05	45.2%	Pass
TWR_RED_DIAG_2_T8	M346	5.42	12.07	3.30	42.05	44.9%	Pass
TWR_RED_DIAG_2_T8	M353	5.06	12.07	3.06	42.05	41.9%	Pass
TWR_RED_DIAG_2_T8	M358	5.15	12.07	3.13	42.05	42.6%	Pass
TWR_RED_DIAG_2_T8	M369	5.40	12.07	3.32	42.05	44.7%	Pass
TWR_RED_DIAG_2_T8	M374	5.43	12.07	3.35	42.05	45.0%	Pass
TWR_RED_DIAG_2_T8	M385	5.19	12.07	3.10	42.05	43.0%	Pass
TWR_RED_DIAG_2_T8	M390	5.10	12.07	3.03	42.05	42.2%	Pass
TWR_RED_DIAG_2_T9	M414	5.72	12.73	3.47	48.02	44.9%	Pass
TWR_RED_DIAG_2_T9	M419	5.70	12.73	3.45	48.02	44.8%	Pass
TWR_RED_DIAG_2_T9	M426	5.30	12.73	3.20	48.02	41.6%	Pass
TWR_RED_DIAG_2_T9	M431	5.37	12.73	3.25	48.02	42.2%	Pass
TWR_RED_DIAG_2_T9	M442	5.65	12.73	3.49	48.02	44.4%	Pass
TWR_RED_DIAG_2_T9	M447	5.67	12.73	3.52	48.02	44.5%	Pass
TWR_RED_DIAG_2_T9	M458	5.38	12.73	3.25	48.02	42.2%	Pass
TWR_RED_DIAG_2_T9	M463	5.31	12.73	3.19	48.02	41.7%	Pass
TWR_RED_DIAG_2_T10	M487	20.39	46.97	15.52	63.37	43.4%	Pass
TWR_RED_DIAG_2_T10	M492	19.82	46.97	15.08	63.37	42.2%	Pass
TWR_RED_DIAG_2_T10	M501	19.30	46.97	14.87	63.37	41.1%	Pass
TWR_RED_DIAG_2_T10	M506	20.33	46.97	15.58	63.37	43.3%	Pass
TWR_RED_DIAG_2_T10	M518	19.32	46.97	14.73	63.37	41.1%	Pass
TWR_RED_DIAG_2_T10	M523	19.49	46.97	14.69	63.37	41.5%	Pass
TWR_RED_DIAG_2_T10	M535	19.96	46.97	14.94	63.37	42.5%	Pass
TWR_RED_DIAG_2_T10	M540	19.44	46.97	14.60	63.37	41.4%	Pass
TWR_RED_DIAG_2_T11	M564	18.75	61.31	15.00	63.37	30.6%	Pass
TWR_RED_DIAG_2_T11	M569	18.18	61.31	14.56	63.37	29.7%	Pass
TWR_RED_DIAG_2_T11	M578	17.72	61.31	14.37	63.37	28.9%	Pass
TWR_RED_DIAG_2_T11	M583	18.73	61.31	15.04	63.37	30.5%	Pass
TWR_RED_DIAG_2_T11	M595	17.68	61.31	14.15	63.37	28.8%	Pass
TWR_RED_DIAG_2_T11	M600	17.91	61.31	14.20	63.37	29.2%	Pass
TWR_RED_DIAG_2_T11	M612	18.32	61.31	14.43	63.37	29.9%	Pass
TWR_RED_DIAG_2_T11	M617	17.75	61.31	14.05	63.37	29.0%	Pass
TWR_RED_DIAG_2_T12	M642	4.33	6.38	3.12	30.21	67.9%	Pass
TWR_RED_DIAG_2_T12	M649	4.33	6.38	3.12	30.21	67.9%	Pass
TWR_RED_DIAG_2_T12	M665	4.49	6.38	3.27	30.21	70.4%	Pass
TWR_RED_DIAG_2_T12	M672	4.46	6.38	3.29	30.21	69.9%	Pass
TWR_RED_DIAG_2_T12	M693	4.27	6.38	3.10	30.21	66.9%	Pass
TWR_RED_DIAG_2_T12	M700	4.27	6.38	3.10	30.21	66.9%	Pass
TWR_RED_DIAG_2_T12	M721	4.30	6.38	3.18	30.21	67.4%	Pass
TWR_RED_DIAG_2_T12	M728	4.33	6.38	3.15	30.21	67.9%	Pass
TWR_RED_DIAG_3_T12	M643	127.46	200.20	116.79	214.14	63.7%	Pass
TWR_RED_DIAG_3_T12	M650	127.42	200.20	116.78	214.14	63.6%	Pass
TWR_RED_DIAG_3_T12	M666	137.11	200.20	125.29	214.14	68.5%	Pass
TWR_RED_DIAG_3_T12	M673	135.90	200.20	126.24	214.14	67.9%	Pass
TWR_RED_DIAG_3_T12	M694	126.38	200.20	116.01	214.14	63.1%	Pass
TWR_RED_DIAG_3_T12	M701	126.49	200.20	115.98	214.14	63.2%	Pass
TWR_RED_DIAG_3_T12	M722	136.39	200.20	126.70	214.14	68.1%	Pass
TWR_RED_DIAG_3_T12	M729	137.70	200.20	125.67	214.14	68.8%	Pass
TWR_RED_DIAG_T4	M89	0.44	6.22	0.41	21.04	7.1%	Pass
TWR_RED_DIAG_T4	M92	0.42	6.22	0.45	21.04	6.8%	Pass
TWR_RED_DIAG_T4	M96	0.38	6.22	0.41	21.04	6.1%	Pass
TWR_RED_DIAG_T4	M99	0.45	6.22	0.42	21.04	7.3%	Pass



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TWR_RED_DIAG_T4	M103	0.45	6.22	0.42	21.04	7.2%	Pass
TWR_RED_DIAG_T4	M106	0.44	6.22	0.44	21.04	7.0%	Pass
TWR_RED_DIAG_T4	M110	0.45	6.22	0.44	21.04	7.2%	Pass
TWR_RED_DIAG_T4	M113	0.41	6.22	0.39	21.04	6.5%	Pass
TWR_RED_DIAG_T5	M126	1.07	18.69	0.81	21.04	5.7%	Pass
TWR_RED_DIAG_T5	M129	1.08	18.69	0.82	21.04	5.8%	Pass
TWR_RED_DIAG_T5	M133	1.02	18.69	0.77	21.04	5.5%	Pass
TWR_RED_DIAG_T5	M136	1.06	18.69	0.81	21.04	5.7%	Pass
TWR_RED_DIAG_T5	M140	1.08	18.69	0.83	21.04	5.8%	Pass
TWR_RED_DIAG_T5	M143	1.07	18.69	0.82	21.04	5.7%	Pass
TWR_RED_DIAG_T5	M147	1.05	18.69	0.79	21.04	5.6%	Pass
TWR_RED_DIAG_T5	M150	1.03	18.69	0.78	21.04	5.5%	Pass
TWR_RED_DIAG_T5	M159	0.54	5.57	0.51	21.04	9.8%	Pass
TWR_RED_DIAG_T5	M162	0.55	5.57	0.52	21.04	9.8%	Pass
TWR_RED_DIAG_T5	M166	0.50	5.57	0.48	21.04	9.1%	Pass
TWR_RED_DIAG_T5	M169	0.55	5.57	0.51	21.04	9.9%	Pass
TWR_RED_DIAG_T5	M173	0.55	5.57	0.52	21.04	9.9%	Pass
TWR_RED_DIAG_T5	M176	0.55	5.57	0.51	21.04	9.8%	Pass
TWR_RED_DIAG_T5	M180	0.55	5.57	0.51	21.04	9.9%	Pass
TWR_RED_DIAG_T5	M183	0.50	5.57	0.49	21.04	9.0%	Pass
TWR_RED_DIAG_T6	M196	0.66	6.10	0.74	24.08	10.7%	Pass
TWR_RED_DIAG_T6	M199	0.66	6.10	0.74	24.08	10.8%	Pass
TWR_RED_DIAG_T6	M203	0.66	6.10	0.74	24.08	10.8%	Pass
TWR_RED_DIAG_T6	M206	0.65	6.10	0.74	24.08	10.6%	Pass
TWR_RED_DIAG_T6	M210	0.66	6.10	0.72	24.08	10.9%	Pass
TWR_RED_DIAG_T6	M213	0.68	6.10	0.77	24.08	11.1%	Pass
TWR_RED_DIAG_T6	M217	0.69	6.10	0.75	24.08	11.3%	Pass
TWR_RED_DIAG_T6	M220	0.66	6.10	0.73	24.08	10.9%	Pass
TWR_RED_DIAG_T6	M229	0.75	6.73	0.73	24.08	11.2%	Pass
TWR_RED_DIAG_T6	M232	0.74	6.73	0.72	24.08	11.0%	Pass
TWR_RED_DIAG_T6	M236	0.69	6.73	0.66	24.08	10.2%	Pass
TWR_RED_DIAG_T6	M239	0.72	6.73	0.70	24.08	10.8%	Pass
TWR_RED_DIAG_T6	M243	0.74	6.73	0.72	24.08	11.0%	Pass
TWR_RED_DIAG_T6	M246	0.75	6.73	0.73	24.08	11.1%	Pass
TWR_RED_DIAG_T6	M250	0.73	6.73	0.70	24.08	10.8%	Pass
TWR_RED_DIAG_T6	M253	0.68	6.73	0.67	24.08	10.2%	Pass
TWR_RED_DIAG_T7	M267	0.68	10.18	0.84	30.21	6.7%	Pass
TWR_RED_DIAG_T7	M272	0.67	10.18	0.80	30.21	6.6%	Pass
TWR_RED_DIAG_T7	M279	0.61	10.18	0.73	30.21	6.0%	Pass
TWR_RED_DIAG_T7	M284	0.65	10.18	0.81	30.21	6.3%	Pass
TWR_RED_DIAG_T7	M295	0.67	10.18	0.80	30.21	6.6%	Pass
TWR_RED_DIAG_T7	M300	0.67	10.18	0.86	30.21	6.6%	Pass
TWR_RED_DIAG_T7	M311	0.64	10.18	0.82	30.21	6.3%	Pass
TWR_RED_DIAG_T7	M316	0.60	10.18	0.75	30.21	5.9%	Pass
TWR_RED_DIAG_T8	M340	0.61	9.18	0.80	30.21	6.7%	Pass
TWR_RED_DIAG_T8	M345	0.59	9.18	0.79	30.21	6.4%	Pass
TWR_RED_DIAG_T8	M352	0.54	9.18	0.73	30.21	5.9%	Pass
TWR_RED_DIAG_T8	M357	0.58	9.18	0.76	30.21	6.3%	Pass
TWR_RED_DIAG_T8	M368	0.60	9.18	0.78	30.21	6.5%	Pass
TWR_RED_DIAG_T8	M373	0.62	9.18	0.80	30.21	6.7%	Pass
TWR_RED_DIAG_T8	M384	0.58	9.18	0.76	30.21	6.3%	Pass
TWR_RED_DIAG_T8	M389	0.54	9.18	0.73	30.21	5.8%	Pass
TWR_RED_DIAG_T9	M413	0.61	8.30	0.81	30.21	7.4%	Pass
TWR_RED_DIAG_T9	M418	0.59	8.30	0.80	30.21	7.2%	Pass
TWR_RED_DIAG_T9	M425	0.54	8.30	0.74	30.21	6.5%	Pass
TWR_RED_DIAG_T9	M430	0.57	8.30	0.76	30.21	6.9%	Pass
TWR_RED_DIAG_T9	M441	0.60	8.30	0.79	30.21	7.2%	Pass
TWR_RED_DIAG_T9	M446	0.61	8.30	0.80	30.21	7.4%	Pass
TWR_RED_DIAG_T9	M457	0.57	8.30	0.76	30.21	6.9%	Pass
TWR_RED_DIAG_T9	M462	0.54	8.30	0.74	30.21	6.5%	Pass



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TWR_RED_DIAG_T10	M486	1.16	10.42	1.24	30.21	11.1%	Pass
TWR_RED_DIAG_T10	M491	1.12	10.42	1.22	30.21	10.8%	Pass
TWR_RED_DIAG_T10	M500	1.06	10.42	1.13	30.21	10.1%	Pass
TWR_RED_DIAG_T10	M505	1.06	10.42	1.15	30.21	10.2%	Pass
TWR_RED_DIAG_T10	M517	1.13	10.42	1.21	30.21	10.9%	Pass
TWR_RED_DIAG_T10	M522	1.16	10.42	1.23	30.21	11.1%	Pass
TWR_RED_DIAG_T10	M534	1.06	10.42	1.15	30.21	10.2%	Pass
TWR_RED_DIAG_T10	M539	1.05	10.42	1.13	30.21	10.1%	Pass
TWR_RED_DIAG_T11	M563	4.30	9.78	3.31	30.21	43.9%	Pass
TWR_RED_DIAG_T11	M568	4.16	9.78	3.24	30.21	42.5%	Pass
TWR_RED_DIAG_T11	M577	4.12	9.78	3.22	30.21	42.1%	Pass
TWR_RED_DIAG_T11	M582	4.24	9.78	3.36	30.21	43.4%	Pass
TWR_RED_DIAG_T11	M594	4.11	9.78	3.24	30.21	42.0%	Pass
TWR_RED_DIAG_T11	M599	4.14	9.78	3.20	30.21	42.3%	Pass
TWR_RED_DIAG_T11	M611	4.17	9.78	3.22	30.21	42.6%	Pass
TWR_RED_DIAG_T11	M616	4.16	9.78	3.18	30.21	42.6%	Pass
TWR_RED_DIAG_T12	M640	3.27	9.29	1.82	31.69	35.2%	Pass
TWR_RED_DIAG_T12	M647	3.27	9.29	1.81	31.69	35.2%	Pass
TWR_RED_DIAG_T12	M663	3.10	9.29	1.66	31.69	33.4%	Pass
TWR_RED_DIAG_T12	M670	3.06	9.29	1.67	31.69	32.9%	Pass
TWR_RED_DIAG_T12	M691	3.22	9.29	1.85	31.69	34.7%	Pass
TWR_RED_DIAG_T12	M698	3.22	9.29	1.86	31.69	34.7%	Pass
TWR_RED_DIAG_T12	M719	3.06	9.29	1.66	31.69	32.9%	Pass
TWR_RED_DIAG_T12	M726	3.10	9.29	1.66	31.69	33.4%	Pass
TWR_RED_HIPDIA_2_T12	M792	1.85	26.11	0.76	77.42	7.1%	Pass
TWR_RED_HIPDIA_2_T12	M793	1.84	26.11	0.76	77.42	7.0%	Pass
TWR_RED_HIPDIA_2_T12	M794	1.74	26.11	0.59	77.42	6.7%	Pass
TWR_RED_HIPDIA_2_T12	M795	1.67	26.11	0.65	77.42	6.4%	Pass
TWR_RED_HIPDIA_2_T12	M796	1.63	26.11	0.62	77.42	6.2%	Pass
TWR_RED_HIPDIA_2_T12	M797	1.71	26.11	0.55	77.42	6.5%	Pass
TWR_RED_HIPDIA_2_T12	M798	1.78	26.11	0.70	77.42	6.8%	Pass
TWR_RED_HIPDIA_2_T12	M799	1.79	26.11	0.69	77.42	6.8%	Pass
TWR_RED_HIPDIA_T7	M290	0.32	20.57	0.00	63.37	1.6%	Pass
TWR_RED_HIPDIA_T7	M306	0.32	20.57	0.00	63.37	1.6%	Pass
TWR_RED_HIPDIA_T7	M322	0.32	20.57	0.00	63.37	1.6%	Pass
TWR_RED_HIPDIA_T7	M326	0.32	20.57	0.00	63.37	1.6%	Pass
TWR_RED_HIPDIA_T7	M909	0.32	20.57	0.00	63.37	1.5%	Pass
TWR_RED_HIPDIA_T7	M910	0.32	20.57	0.00	63.37	1.5%	Pass
TWR_RED_HIPDIA_T7	M911	0.32	20.57	0.00	63.37	1.6%	Pass
TWR_RED_HIPDIA_T7	M912	0.32	20.57	0.00	63.37	1.6%	Pass
TWR_RED_HIPDIA_T8	M905	0.39	17.81	0.00	63.37	2.2%	Pass
TWR_RED_HIPDIA_T8	M906	0.39	17.81	0.00	63.37	2.2%	Pass
TWR_RED_HIPDIA_T8	M907	0.39	17.81	0.00	63.37	2.2%	Pass
TWR_RED_HIPDIA_T8	M908	0.39	17.81	0.00	63.37	2.2%	Pass
TWR_RED_HIPDIA_T9	M436	0.68	15.43	0.00	63.37	4.4%	Pass
TWR_RED_HIPDIA_T9	M452	0.68	15.43	0.00	63.37	4.4%	Pass
TWR_RED_HIPDIA_T9	M468	0.68	15.43	0.00	63.37	4.4%	Pass
TWR_RED_HIPDIA_T9	M472	0.68	15.43	0.00	63.37	4.4%	Pass
TWR_RED_HIPDIA_T9	M889A	0.68	15.43	0.00	63.37	4.4%	Pass
TWR_RED_HIPDIA_T9	M890A	0.68	15.43	0.00	63.37	4.4%	Pass
TWR_RED_HIPDIA_T9	M891A	0.68	15.43	0.00	63.37	4.4%	Pass
TWR_RED_HIPDIA_T9	M892A	0.68	15.43	0.00	63.37	4.4%	Pass
TWR_RED_HIPDIA_T10	M886	0.56	20.94	0.00	63.37	2.7%	Pass
TWR_RED_HIPDIA_T10	M887	0.56	20.94	0.00	63.37	2.7%	Pass
TWR_RED_HIPDIA_T10	M888	0.56	20.94	0.00	63.37	2.7%	Pass
TWR_RED_HIPDIA_T10	M889	0.56	20.94	0.00	63.37	2.7%	Pass
TWR_RED_HIPDIA_T10	M890	0.56	20.94	0.00	63.37	2.7%	Pass
TWR_RED_HIPDIA_T10	M891	0.56	20.94	0.00	63.37	2.7%	Pass
TWR_RED_HIPDIA_T10	M892	0.56	20.94	0.00	63.37	2.7%	Pass
TWR_RED_HIPDIA_T10	M893	0.56	20.94	0.00	63.37	2.7%	Pass



TIA-222-H Code Angle Bracing Member Checks

USID #: 45057/TAG0057 - Mikesville

GPD Project # 2026723.12.TAG0057.08

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_RED_HIPDIA_T11	M863	0.68	19.06	0.00	63.37	3.6%	Pass
TWR_RED_HIPDIA_T11	M864	0.68	19.06	0.00	63.37	3.6%	Pass
TWR_RED_HIPDIA_T11	M865	0.68	19.06	0.00	63.37	3.6%	Pass
TWR_RED_HIPDIA_T11	M866	0.68	19.06	0.00	63.37	3.6%	Pass
TWR_RED_HIPDIA_T11	M867	0.68	19.06	0.00	63.37	3.6%	Pass
TWR_RED_HIPDIA_T11	M868	0.68	19.06	0.00	63.37	3.6%	Pass
TWR_RED_HIPDIA_T11	M869	0.68	19.06	0.00	63.37	3.6%	Pass
TWR_RED_HIPDIA_T11	M870	0.68	19.06	0.00	63.37	3.6%	Pass
TWR_RED_HIPDIA_T12	M679	0.31	13.65	0.19	30.21	2.3%	Pass
TWR_RED_HIPDIA_T12	M707	0.31	13.65	0.19	30.21	2.3%	Pass
TWR_RED_HIPDIA_T12	M735	0.34	13.65	0.20	30.21	2.5%	Pass
TWR_RED_HIPDIA_T12	M740	0.30	13.65	0.19	30.21	2.2%	Pass
TWR_RED_HIPDIA_T12	M788	0.30	13.65	0.20	30.21	2.2%	Pass
TWR_RED_HIPDIA_T12	M789	0.31	13.65	0.19	30.21	2.3%	Pass
TWR_RED_HIPDIA_T12	M790	0.31	13.65	0.19	30.21	2.3%	Pass
TWR_RED_HIPDIA_T12	M791	0.33	13.65	0.19	30.21	2.4%	Pass



TIA-222-H Code Angle Bracing Member Checks

USID #: 45057/TAG0057 - Mikesville

GPD Project # 2026723.12.TAG0057.08

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_RED_HIP_2_T7	M288	0.00	11.97	0.15	70.86	0.2%	Pass
TWR_RED_HIP_2_T7	M304	0.00	11.97	0.15	70.86	0.2%	Pass
TWR_RED_HIP_2_T7	M320	0.00	11.97	0.15	70.86	0.2%	Pass
TWR_RED_HIP_2_T7	M324	0.00	11.97	0.15	70.86	0.2%	Pass
TWR_RED_HIP_2_T8	M361	0.00	13.79	0.22	82.60	0.3%	Pass
TWR_RED_HIP_2_T8	M377	0.00	13.79	0.22	82.60	0.3%	Pass
TWR_RED_HIP_2_T8	M393	0.00	13.79	0.22	82.60	0.3%	Pass
TWR_RED_HIP_2_T8	M397	0.00	13.79	0.22	82.60	0.3%	Pass
TWR_RED_HIP_2_T9	M434	0.00	10.45	0.53	82.60	0.6%	Pass
TWR_RED_HIP_2_T9	M450	0.00	10.45	0.53	82.60	0.6%	Pass
TWR_RED_HIP_2_T9	M466	0.00	10.45	0.53	82.60	0.6%	Pass
TWR_RED_HIP_2_T9	M470	0.00	10.45	0.53	82.60	0.6%	Pass
TWR_RED_HIP_2_T10	M509	0.00	16.80	0.31	71.86	0.4%	Pass
TWR_RED_HIP_2_T10	M526	0.00	16.80	0.31	71.86	0.4%	Pass
TWR_RED_HIP_2_T10	M543	0.00	16.80	0.31	71.86	0.4%	Pass
TWR_RED_HIP_2_T10	M546	0.00	16.80	0.31	71.86	0.4%	Pass
TWR_RED_HIP_2_T11	M586	0.00	13.35	0.44	63.37	0.7%	Pass
TWR_RED_HIP_2_T11	M603	0.00	13.35	0.44	63.37	0.7%	Pass
TWR_RED_HIP_2_T11	M620	0.00	13.35	0.44	63.37	0.7%	Pass
TWR_RED_HIP_2_T11	M623	0.00	13.35	0.44	63.37	0.7%	Pass
TWR_RED_HIP_2_T12	M676	0.00	14.73	0.61	48.00	1.3%	Pass
TWR_RED_HIP_2_T12	M704	0.00	14.73	0.62	48.00	1.3%	Pass
TWR_RED_HIP_2_T12	M732	0.00	14.73	0.56	48.00	1.2%	Pass
TWR_RED_HIP_2_T12	M737	0.00	14.73	0.56	48.00	1.2%	Pass
TWR_RED_HIP_3_T12	M678	0.00	3.83	2.35	39.84	5.9%	Pass
TWR_RED_HIP_3_T12	M706	0.00	3.83	2.36	39.84	5.9%	Pass
TWR_RED_HIP_3_T12	M734	0.00	3.83	2.13	39.84	5.3%	Pass
TWR_RED_HIP_3_T12	M739	0.00	3.83	2.14	39.84	5.4%	Pass
TWR_RED_HORZ_2_T7	M266	1.06	32.33	0.84	63.37	3.3%	Pass
TWR_RED_HORZ_2_T7	M271	0.99	32.33	0.67	63.37	3.1%	Pass
TWR_RED_HORZ_2_T7	M278	0.98	32.33	0.59	63.37	3.0%	Pass
TWR_RED_HORZ_2_T7	M283	1.04	32.33	0.84	63.37	3.2%	Pass
TWR_RED_HORZ_2_T7	M294	0.96	32.33	0.75	63.37	3.0%	Pass
TWR_RED_HORZ_2_T7	M299	0.90	32.33	0.77	63.37	2.8%	Pass
TWR_RED_HORZ_2_T7	M310	0.89	32.33	0.78	63.37	2.8%	Pass
TWR_RED_HORZ_2_T7	M315	0.96	32.33	0.73	63.37	3.0%	Pass
TWR_RED_HORZ_2_T8	M339	0.63	23.81	0.40	63.37	2.7%	Pass
TWR_RED_HORZ_2_T8	M344	0.60	23.81	0.36	63.37	2.5%	Pass
TWR_RED_HORZ_2_T8	M351	0.53	23.81	0.30	63.37	2.2%	Pass
TWR_RED_HORZ_2_T8	M356	0.61	23.81	0.41	63.37	2.6%	Pass
TWR_RED_HORZ_2_T8	M367	0.57	23.81	0.39	63.37	2.4%	Pass
TWR_RED_HORZ_2_T8	M372	0.61	23.81	0.42	63.37	2.6%	Pass
TWR_RED_HORZ_2_T8	M383	0.60	23.81	0.42	63.37	2.5%	Pass
TWR_RED_HORZ_2_T8	M388	0.52	23.81	0.31	63.37	2.2%	Pass
TWR_RED_HORZ_2_T9	M412	0.71	18.26	0.43	63.37	3.9%	Pass
TWR_RED_HORZ_2_T9	M417	0.68	18.26	0.41	63.37	3.7%	Pass
TWR_RED_HORZ_2_T9	M424	0.61	18.26	0.35	63.37	3.3%	Pass
TWR_RED_HORZ_2_T9	M429	0.68	18.26	0.43	63.37	3.7%	Pass
TWR_RED_HORZ_2_T9	M440	0.66	18.26	0.42	63.37	3.6%	Pass
TWR_RED_HORZ_2_T9	M445	0.69	18.26	0.45	63.37	3.8%	Pass
TWR_RED_HORZ_2_T9	M456	0.67	18.26	0.43	63.37	3.7%	Pass
TWR_RED_HORZ_2_T9	M461	0.61	18.26	0.34	63.37	3.3%	Pass
TWR_RED_HORZ_2_T10	M485	0.98	34.68	0.73	63.37	2.8%	Pass
TWR_RED_HORZ_2_T10	M490	0.97	34.68	0.72	63.37	2.8%	Pass
TWR_RED_HORZ_2_T10	M499	0.96	34.68	0.73	63.37	2.8%	Pass
TWR_RED_HORZ_2_T10	M504	0.97	34.68	0.74	63.37	2.8%	Pass
TWR_RED_HORZ_2_T10	M516	0.95	34.68	0.76	63.37	2.7%	Pass
TWR_RED_HORZ_2_T10	M521	1.00	34.68	0.79	63.37	2.9%	Pass



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Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_RED_HORZ_2_T10	M533	1.00	34.68	0.79	63.37	2.9%	Pass
TWR_RED_HORZ_2_T10	M538	0.96	34.68	0.74	63.37	2.8%	Pass
TWR_RED_HORZ_2_T11	M562	1.40	28.54	1.25	63.37	4.9%	Pass
TWR_RED_HORZ_2_T11	M567	1.41	28.54	1.26	63.37	4.9%	Pass
TWR_RED_HORZ_2_T11	M576	1.39	28.54	1.27	63.37	4.9%	Pass
TWR_RED_HORZ_2_T11	M581	1.35	28.54	1.23	63.37	4.7%	Pass
TWR_RED_HORZ_2_T11	M593	1.33	28.54	1.26	63.37	4.6%	Pass
TWR_RED_HORZ_2_T11	M598	1.36	28.54	1.28	63.37	4.8%	Pass
TWR_RED_HORZ_2_T11	M610	1.36	28.54	1.28	63.37	4.8%	Pass
TWR_RED_HORZ_2_T11	M615	1.38	28.54	1.27	63.37	4.8%	Pass
TWR_RED_HORZ_2_T12	M639	1.92	49.78	3.19	63.37	5.0%	Pass
TWR_RED_HORZ_2_T12	M646	1.92	49.78	3.19	63.37	5.0%	Pass
TWR_RED_HORZ_2_T12	M662	1.96	49.78	3.23	63.37	5.1%	Pass
TWR_RED_HORZ_2_T12	M669	1.98	49.78	3.20	63.37	5.0%	Pass
TWR_RED_HORZ_2_T12	M690	1.90	49.78	3.12	63.37	4.9%	Pass
TWR_RED_HORZ_2_T12	M697	1.90	49.78	3.12	63.37	4.9%	Pass
TWR_RED_HORZ_2_T12	M718	1.98	49.78	3.22	63.37	5.1%	Pass
TWR_RED_HORZ_2_T12	M725	1.96	49.78	3.25	63.37	5.1%	Pass
TWR_RED_HORZ_3_T12	M641	0.68	22.52	2.66	63.37	4.2%	Pass
TWR_RED_HORZ_3_T12	M648	0.68	22.52	2.64	63.37	4.2%	Pass
TWR_RED_HORZ_3_T12	M664	0.69	22.52	2.65	63.37	4.2%	Pass
TWR_RED_HORZ_3_T12	M671	0.74	22.52	2.58	63.37	4.1%	Pass
TWR_RED_HORZ_3_T12	M692	0.76	22.52	2.60	63.37	4.1%	Pass
TWR_RED_HORZ_3_T12	M699	0.74	22.52	2.60	63.37	4.1%	Pass
TWR_RED_HORZ_3_T12	M720	0.58	22.52	2.42	63.37	3.8%	Pass
TWR_RED_HORZ_3_T12	M727	0.56	22.52	2.51	63.37	4.0%	Pass
TWR_RED_HORZ_T4	M88	0.41	28.80	0.55	31.69	1.7%	Pass
TWR_RED_HORZ_T4	M91	0.42	28.80	0.56	31.69	1.8%	Pass
TWR_RED_HORZ_T4	M95	0.38	28.80	0.51	31.69	1.6%	Pass
TWR_RED_HORZ_T4	M98	0.42	28.80	0.57	31.69	1.8%	Pass
TWR_RED_HORZ_T4	M102	0.42	28.80	0.56	31.69	1.8%	Pass
TWR_RED_HORZ_T4	M105	0.42	28.80	0.59	31.69	1.8%	Pass
TWR_RED_HORZ_T4	M109	0.42	28.80	0.59	31.69	1.9%	Pass
TWR_RED_HORZ_T4	M112	0.38	28.80	0.51	31.69	1.6%	Pass
TWR_RED_HORZ_T5	M125	0.48	10.55	0.56	21.04	4.5%	Pass
TWR_RED_HORZ_T5	M128	0.49	10.55	0.56	21.04	4.7%	Pass
TWR_RED_HORZ_T5	M132	0.48	10.55	0.55	21.04	4.5%	Pass
TWR_RED_HORZ_T5	M135	0.49	10.55	0.58	21.04	4.6%	Pass
TWR_RED_HORZ_T5	M139	0.50	10.55	0.57	21.04	4.7%	Pass
TWR_RED_HORZ_T5	M142	0.51	10.55	0.58	21.04	4.8%	Pass
TWR_RED_HORZ_T5	M146	0.50	10.55	0.59	21.04	4.7%	Pass
TWR_RED_HORZ_T5	M149	0.48	10.55	0.54	21.04	4.6%	Pass
TWR_RED_HORZ_T5	M158	0.55	13.30	0.75	21.04	4.2%	Pass
TWR_RED_HORZ_T5	M161	0.57	13.30	0.75	21.04	4.3%	Pass
TWR_RED_HORZ_T5	M165	0.51	13.30	0.70	21.04	3.9%	Pass
TWR_RED_HORZ_T5	M168	0.55	13.30	0.76	21.04	4.2%	Pass
TWR_RED_HORZ_T5	M172	0.56	13.30	0.76	21.04	4.2%	Pass
TWR_RED_HORZ_T5	M175	0.56	13.30	0.75	21.04	4.2%	Pass
TWR_RED_HORZ_T5	M179	0.55	13.30	0.76	21.04	4.1%	Pass
TWR_RED_HORZ_T5	M182	0.52	13.30	0.69	21.04	3.9%	Pass
TWR_RED_HORZ_T6	M195	0.95	10.40	1.11	24.08	9.1%	Pass
TWR_RED_HORZ_T6	M198	0.95	10.40	1.12	24.08	9.1%	Pass
TWR_RED_HORZ_T6	M202	0.95	10.40	1.12	24.08	9.1%	Pass
TWR_RED_HORZ_T6	M205	0.95	10.40	1.10	24.08	9.1%	Pass
TWR_RED_HORZ_T6	M209	0.93	10.40	1.13	24.08	8.9%	Pass
TWR_RED_HORZ_T6	M212	0.99	10.40	1.15	24.08	9.5%	Pass



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Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_RED_HORZ_T6	M216	0.97	10.40	1.17	24.08	9.3%	Pass
TWR_RED_HORZ_T6	M219	0.94	10.40	1.13	24.08	9.0%	Pass
TWR_RED_HORZ_T6	M228	0.92	12.58	1.20	24.08	7.3%	Pass
TWR_RED_HORZ_T6	M231	0.91	12.58	1.18	24.08	7.2%	Pass
TWR_RED_HORZ_T6	M235	0.83	12.58	1.11	24.08	6.6%	Pass
TWR_RED_HORZ_T6	M238	0.88	12.58	1.16	24.08	7.0%	Pass
TWR_RED_HORZ_T6	M242	0.90	12.58	1.18	24.08	7.2%	Pass
TWR_RED_HORZ_T6	M245	0.92	12.58	1.19	24.08	7.3%	Pass
TWR_RED_HORZ_T6	M249	0.88	12.58	1.16	24.08	7.0%	Pass
TWR_RED_HORZ_T6	M252	0.84	12.58	1.10	24.08	6.6%	Pass
TWR_RED_HORZ_T7	M265	0.70	14.64	0.73	21.33	4.8%	Pass
TWR_RED_HORZ_T7	M270	0.66	14.64	0.73	21.33	4.5%	Pass
TWR_RED_HORZ_T7	M277	0.59	14.64	0.67	21.33	4.1%	Pass
TWR_RED_HORZ_T7	M282	0.67	14.64	0.71	21.33	4.6%	Pass
TWR_RED_HORZ_T7	M293	0.66	14.64	0.73	21.33	4.5%	Pass
TWR_RED_HORZ_T7	M298	0.72	14.64	0.73	21.33	4.9%	Pass
TWR_RED_HORZ_T7	M309	0.68	14.64	0.70	21.33	4.6%	Pass
TWR_RED_HORZ_T7	M314	0.61	14.64	0.66	21.33	4.1%	Pass
TWR_RED_HORZ_T8	M338	0.74	10.66	0.77	21.33	6.9%	Pass
TWR_RED_HORZ_T8	M343	0.72	10.66	0.74	21.33	6.7%	Pass
TWR_RED_HORZ_T8	M350	0.65	10.66	0.68	21.33	6.1%	Pass
TWR_RED_HORZ_T8	M355	0.69	10.66	0.73	21.33	6.5%	Pass
TWR_RED_HORZ_T8	M366	0.71	10.66	0.75	21.33	6.6%	Pass
TWR_RED_HORZ_T8	M371	0.74	10.66	0.77	21.33	6.9%	Pass
TWR_RED_HORZ_T8	M382	0.69	10.66	0.73	21.33	6.5%	Pass
TWR_RED_HORZ_T8	M387	0.65	10.66	0.68	21.33	6.1%	Pass
TWR_RED_HORZ_T9	M411	0.80	11.44	0.85	24.04	7.0%	Pass
TWR_RED_HORZ_T9	M416	0.78	11.44	0.83	24.04	6.8%	Pass
TWR_RED_HORZ_T9	M423	0.71	11.44	0.76	24.04	6.2%	Pass
TWR_RED_HORZ_T9	M428	0.75	11.44	0.81	24.04	6.5%	Pass
TWR_RED_HORZ_T9	M439	0.77	11.44	0.84	24.04	6.8%	Pass
TWR_RED_HORZ_T9	M444	0.80	11.44	0.86	24.04	7.0%	Pass
TWR_RED_HORZ_T9	M455	0.75	11.44	0.81	24.04	6.5%	Pass
TWR_RED_HORZ_T9	M460	0.71	11.44	0.76	24.04	6.2%	Pass
TWR_RED_HORZ_T10	M484	1.05	15.67	1.21	21.33	6.7%	Pass
TWR_RED_HORZ_T10	M489	1.03	15.67	1.17	21.33	6.6%	Pass
TWR_RED_HORZ_T10	M498	0.95	15.67	1.11	21.33	6.0%	Pass
TWR_RED_HORZ_T10	M503	0.97	15.67	1.12	21.33	6.2%	Pass
TWR_RED_HORZ_T10	M515	1.02	15.67	1.18	21.33	6.5%	Pass
TWR_RED_HORZ_T10	M520	1.05	15.67	1.21	21.33	6.7%	Pass
TWR_RED_HORZ_T10	M532	0.97	15.67	1.12	21.33	6.2%	Pass
TWR_RED_HORZ_T10	M537	0.95	15.67	1.11	21.33	6.0%	Pass
TWR_RED_HORZ_T11	M561	0.82	12.86	1.16	21.33	6.3%	Pass
TWR_RED_HORZ_T11	M566	0.81	12.86	1.14	21.33	6.3%	Pass
TWR_RED_HORZ_T11	M575	0.73	12.86	1.08	21.33	5.7%	Pass
TWR_RED_HORZ_T11	M580	0.75	12.86	1.09	21.33	5.9%	Pass
TWR_RED_HORZ_T11	M592	0.81	12.86	1.14	21.33	6.3%	Pass
TWR_RED_HORZ_T11	M597	0.82	12.86	1.16	21.33	6.4%	Pass
TWR_RED_HORZ_T11	M609	0.75	12.86	1.09	21.33	5.8%	Pass
TWR_RED_HORZ_T11	M614	0.73	12.86	1.08	21.33	5.7%	Pass
TWR_RED_HORZ_T12	M638	1.29	20.69	2.62	21.33	12.3%	Pass
TWR_RED_HORZ_T12	M645	1.29	20.69	2.62	21.33	12.3%	Pass
TWR_RED_HORZ_T12	M661	1.17	20.69	2.49	21.33	11.7%	Pass
TWR_RED_HORZ_T12	M668	1.18	20.69	2.45	21.33	11.5%	Pass
TWR_RED_HORZ_T12	M689	1.32	20.69	2.58	21.33	12.1%	Pass
TWR_RED_HORZ_T12	M696	1.33	20.69	2.58	21.33	12.1%	Pass



TIA-222-H Code Angle Bracing Member Checks

USID #: 45057/TAG0057 - Mikesville

GPD Project # 2026723.12.TAG0057.08

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_RED_HORZ_T12	M717	1.18	20.69	2.45	21.33	11.5%	Pass
TWR_RED_HORZ_T12	M724	1.17	20.69	2.48	21.33	11.6%	Pass
TWR_RED_KICKER_2_T12	M753	2.88	7.53	1.26	30.21	38.3%	Pass
TWR_RED_KICKER_2_T12	M754	2.75	7.53	1.11	30.21	36.5%	Pass
TWR_RED_KICKER_2_T12	M754A	2.75	7.53	1.11	30.21	36.5%	Pass
TWR_RED_KICKER_2_T12	M755	2.65	7.53	1.03	30.21	35.2%	Pass
TWR_RED_KICKER_2_T12	M756	2.67	7.53	1.01	30.21	35.5%	Pass
TWR_RED_KICKER_2_T12	M757	2.76	7.53	1.11	30.21	36.7%	Pass
TWR_RED_KICKER_2_T12	M758	2.76	7.53	1.11	30.21	36.7%	Pass
TWR_RED_KICKER_2_T12	M759	2.90	7.53	1.24	30.21	38.6%	Pass
TWR_RED_KICKER_T5	M930	0.79	36.51	1.29	31.69	4.1%	Pass
TWR_RED_KICKER_T5	M931	1.06	26.89	0.62	31.69	3.9%	Pass
TWR_RED_KICKER_T5	M932	1.15	29.54	0.83	31.69	3.9%	Pass
TWR_RED_KICKER_T5	M933	1.07	36.51	1.57	31.69	4.9%	Pass
TWR_RED_KICKER_T5	M934	1.03	36.51	1.50	31.69	4.7%	Pass
TWR_RED_KICKER_T5	M935	1.11	29.54	0.80	31.69	3.7%	Pass
TWR_RED_KICKER_T5	M935A	1.05	26.89	0.62	31.69	3.9%	Pass
TWR_RED_KICKER_T5	M936	0.78	36.51	1.28	31.69	4.0%	Pass
TWR_RED_KICKER_T5	M937	0.77	36.51	1.26	31.69	4.0%	Pass
TWR_RED_KICKER_T5	M938	1.04	26.89	0.60	31.69	3.9%	Pass
TWR_RED_KICKER_T5	M939	1.11	29.54	0.79	31.69	3.8%	Pass
TWR_RED_KICKER_T5	M940	1.02	36.51	1.51	31.69	4.8%	Pass
TWR_RED_KICKER_T5	M941	1.10	36.51	1.58	31.69	5.0%	Pass
TWR_RED_KICKER_T5	M942	1.17	29.54	0.85	31.69	4.0%	Pass
TWR_RED_KICKER_T5	M943	1.04	26.89	0.61	31.69	3.9%	Pass
TWR_RED_KICKER_T5	M944	0.77	36.51	1.27	31.69	4.0%	Pass
TWR_RED_KICKER_T5	M945	0.79	36.51	1.27	31.69	4.0%	Pass
TWR_RED_KICKER_T5	M946	1.04	26.89	0.62	31.69	3.9%	Pass
TWR_RED_KICKER_T5	M947	1.16	29.54	0.86	31.69	3.9%	Pass
TWR_RED_KICKER_T5	M948	1.11	36.51	1.57	31.69	5.0%	Pass
TWR_RED_KICKER_T5	M949	1.03	36.51	1.50	31.69	4.7%	Pass
TWR_RED_KICKER_T5	M950	1.11	29.54	0.80	31.69	3.7%	Pass
TWR_RED_KICKER_T5	M951	1.05	26.89	0.63	31.69	3.9%	Pass
TWR_RED_KICKER_T5	M952	0.80	36.51	1.28	31.69	4.0%	Pass
TWR_RED_KICKER_T5	M953	0.78	36.51	1.26	31.69	4.0%	Pass
TWR_RED_KICKER_T5	M954	1.04	26.89	0.61	31.69	3.9%	Pass
TWR_RED_KICKER_T5	M955	1.11	29.54	0.80	31.69	3.8%	Pass
TWR_RED_KICKER_T5	M956	1.02	36.51	1.51	31.69	4.7%	Pass
TWR_RED_KICKER_T5	M957	1.08	36.51	1.55	31.69	4.9%	Pass
TWR_RED_KICKER_T5	M958	1.14	29.54	0.84	31.69	3.9%	Pass
TWR_RED_KICKER_T5	M959	1.03	26.89	0.61	31.69	3.8%	Pass
TWR_RED_KICKER_T5	M960	0.77	36.51	1.26	31.69	4.0%	Pass
TWR_RED_KICKER_T10	M1003A	0.27	7.85	0.05	23.66	3.4%	Pass
TWR_RED_KICKER_T10	M1004A	0.01	5.53	0.30	23.66	1.3%	Pass
TWR_RED_KICKER_T10	M1005A	0.14	10.96	0.05	23.66	1.2%	Pass
TWR_RED_KICKER_T10	M1007A	0.14	10.96	0.06	23.66	1.3%	Pass
TWR_RED_KICKER_T10	M1008A	0.01	5.53	0.30	23.66	1.3%	Pass
TWR_RED_KICKER_T10	M1009	0.27	7.85	0.05	23.66	3.5%	Pass



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Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_RED_KICKER_T10	M1007B	0.27	7.85	0.05	23.66	3.5%	Pass
TWR_RED_KICKER_T10	M1008B	0.01	5.53	0.30	23.66	1.3%	Pass
TWR_RED_KICKER_T10	M1009A	0.14	10.96	0.06	23.66	1.2%	Pass
TWR_RED_KICKER_T10	M1010	0.13	10.96	0.05	23.66	1.2%	Pass
TWR_RED_KICKER_T10	M1011	0.01	5.53	0.30	23.66	1.2%	Pass
TWR_RED_KICKER_T10	M1012	0.27	7.85	0.05	23.66	3.4%	Pass
TWR_RED_KICKER_T10	M1013	0.27	7.85	0.05	23.66	3.4%	Pass
TWR_RED_KICKER_T10	M1014	0.01	5.53	0.30	23.66	1.3%	Pass
TWR_RED_KICKER_T10	M1015	0.13	10.96	0.05	23.66	1.2%	Pass
TWR_RED_KICKER_T10	M1016	0.13	10.96	0.05	23.66	1.2%	Pass
TWR_RED_KICKER_T10	M1017	0.01	5.53	0.30	23.66	1.2%	Pass
TWR_RED_KICKER_T10	M1018	0.27	7.85	0.05	23.66	3.4%	Pass
TWR_RED_KICKER_T10	M1019	0.27	7.85	0.05	23.66	3.4%	Pass
TWR_RED_KICKER_T10	M1020	0.01	5.53	0.30	23.66	1.3%	Pass
TWR_RED_KICKER_T10	M1021	0.13	10.96	0.05	23.66	1.2%	Pass
TWR_RED_KICKER_T10	M1022	0.14	10.96	0.05	23.66	1.2%	Pass
TWR_RED_KICKER_T10	M1023	0.01	5.53	0.30	23.66	1.3%	Pass
TWR_RED_KICKER_T10	M1024	0.27	7.85	0.05	23.66	3.4%	Pass
TWR_RED_KICKER_T11	M796A	1.62	20.94	2.55	31.69	8.0%	Pass
TWR_RED_KICKER_T11	M797A	1.82	11.49	1.04	31.69	15.9%	Pass
TWR_RED_KICKER_T11	M798A	1.77	11.49	0.96	31.69	15.4%	Pass
TWR_RED_KICKER_T11	M799A	3.76	20.99	2.70	31.69	17.9%	Pass
TWR_RED_KICKER_T11	M800	2.70	37.36	3.71	31.69	11.7%	Pass
TWR_RED_KICKER_T11	M801	2.73	37.36	3.75	31.69	11.8%	Pass
TWR_RED_KICKER_T11	M802	3.81	20.99	2.73	31.69	18.1%	Pass
TWR_RED_KICKER_T11	M803	1.49	20.94	2.48	31.69	7.8%	Pass
TWR_RED_KICKER_T11	M804	4.18	24.26	2.52	31.69	17.2%	Pass
TWR_RED_KICKER_T11	M806	2.55	37.36	4.28	31.69	13.5%	Pass
TWR_RED_KICKER_T11	M807	2.77	37.36	4.44	31.69	14.0%	Pass
TWR_RED_KICKER_T11	M808	4.34	24.26	2.74	31.69	17.9%	Pass
TWR_RED_KICKER_T11	M807A	1.47	20.94	2.37	31.69	7.5%	Pass
TWR_RED_KICKER_T11	M808A	1.70	11.49	0.94	31.69	14.8%	Pass
TWR_RED_KICKER_T11	M809	1.81	11.49	1.05	31.69	15.8%	Pass
TWR_RED_KICKER_T11	M810	3.75	20.99	2.73	31.69	17.9%	Pass
TWR_RED_KICKER_T11	M811	2.72	37.36	3.70	31.69	11.7%	Pass
TWR_RED_KICKER_T11	M812	2.83	37.36	3.82	31.69	12.0%	Pass
TWR_RED_KICKER_T11	M813	3.87	20.99	2.83	31.69	18.4%	Pass
TWR_RED_KICKER_T11	M814	1.63	20.94	2.54	31.69	8.0%	Pass
TWR_RED_KICKER_T11	M815	4.30	24.26	2.78	31.69	17.7%	Pass
TWR_RED_KICKER_T11	M816	2.81	37.36	4.40	31.69	13.9%	Pass



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Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_RED_KICKER_T11	M817	2.53	37.36	4.12	31.69	13.0%	Pass
TWR_RED_KICKER_T11	M818	4.03	24.26	2.51	31.69	16.6%	Pass
TWR_RED_KICKER_T11	M819	1.65	20.94	2.58	31.69	8.1%	Pass
TWR_RED_KICKER_T11	M820	1.84	11.49	1.06	31.69	16.0%	Pass
TWR_RED_KICKER_T11	M821	1.71	11.49	0.94	31.69	14.9%	Pass
TWR_RED_KICKER_T11	M822	3.81	20.99	2.72	31.69	18.2%	Pass
TWR_RED_KICKER_T11	M823	2.71	37.36	3.76	31.69	11.9%	Pass
TWR_RED_KICKER_T11	M824	2.68	37.36	3.71	31.69	11.7%	Pass
TWR_RED_KICKER_T11	M825	3.77	20.99	2.68	31.69	18.0%	Pass
TWR_RED_KICKER_T11	M826	1.46	20.94	2.38	31.69	7.5%	Pass
TWR_RED_KICKER_T11	M827	4.04	24.26	2.50	31.69	16.7%	Pass
TWR_RED_KICKER_T11	M828	2.52	37.36	4.13	31.69	13.0%	Pass
TWR_RED_KICKER_T11	M829	2.83	37.36	4.45	31.69	14.0%	Pass
TWR_RED_KICKER_T11	M830	4.35	24.26	2.80	31.69	17.9%	Pass
TWR_RED_KICKER_T11	M831	1.49	20.94	2.48	31.69	7.8%	Pass
TWR_RED_KICKER_T11	M832	1.77	11.49	0.96	31.69	15.4%	Pass
TWR_RED_KICKER_T11	M833	1.86	11.49	1.05	31.69	16.2%	Pass
TWR_RED_KICKER_T11	M834	3.91	20.99	2.79	31.69	18.6%	Pass
TWR_RED_KICKER_T11	M835	2.79	37.36	3.86	31.69	12.2%	Pass
TWR_RED_KICKER_T11	M836	2.68	37.36	3.75	31.69	11.8%	Pass
TWR_RED_KICKER_T11	M837	3.81	20.99	2.68	31.69	18.1%	Pass
TWR_RED_KICKER_T11	M838	1.63	20.94	2.60	31.69	8.2%	Pass
TWR_RED_KICKER_T11	M839	4.40	24.26	2.75	31.69	18.2%	Pass
TWR_RED_KICKER_T11	M840	2.78	37.36	4.50	31.69	14.2%	Pass
TWR_RED_KICKER_T11	M841	2.54	37.36	4.27	31.69	13.5%	Pass
TWR_RED_KICKER_T11	M842	4.18	24.26	2.52	31.69	17.2%	Pass
TWR_RED_KICKER_T12	M760	0.52	18.80	1.01	24.04	4.2%	Pass
TWR_RED_KICKER_T12	M761	0.54	18.80	1.02	24.04	4.2%	Pass
TWR_RED_KICKER_T12	M762	0.53	18.80	1.03	24.04	4.3%	Pass
TWR_RED_KICKER_T12	M763	0.51	18.80	1.00	24.04	4.2%	Pass
TWR_RED_KICKER_T12	M764	0.52	18.80	1.02	24.04	4.2%	Pass
TWR_RED_KICKER_T12	M765	0.50	18.80	1.01	24.04	4.2%	Pass
TWR_RED_KICKER_T12	M766	0.51	18.80	1.00	24.04	4.2%	Pass
TWR_RED_KICKER_T12	M767	0.51	18.80	1.01	24.04	4.2%	Pass
TWR_RED_SUBDIA_2_T10	M858A	23.61	65.69	24.11	96.00	35.9%	Pass
TWR_RED_SUBDIA_2_T10	M859A	23.50	65.69	24.24	96.00	35.8%	Pass
TWR_RED_SUBDIA_2_T10	M860A	25.40	65.69	25.81	96.00	38.7%	Pass
TWR_RED_SUBDIA_2_T10	M861A	25.21	65.69	26.04	96.00	38.4%	Pass
TWR_RED_SUBDIA_2_T10	M862A	22.97	65.69	23.66	96.00	35.0%	Pass
TWR_RED_SUBDIA_2_T10	M863A	23.02	65.69	23.58	96.00	35.0%	Pass
TWR_RED_SUBDIA_2_T10	M864A	25.63	65.69	26.35	96.00	39.0%	Pass
TWR_RED_SUBDIA_2_T10	M865A	25.71	65.69	26.23	96.00	39.1%	Pass
TWR_RED_SUBDIA_2_T12	M653	182.66	358.60	184.94	410.67	50.9%	Pass
TWR_RED_SUBDIA_2_T12	M655	182.63	358.60	184.87	410.67	50.9%	Pass
TWR_RED_SUBDIA_2_T12	M681	195.80	358.60	199.59	410.67	54.6%	Pass
TWR_RED_SUBDIA_2_T12	M683	197.17	358.60	197.88	410.67	55.0%	Pass
TWR_RED_SUBDIA_2_T12	M709	181.33	358.60	183.49	410.67	50.6%	Pass
TWR_RED_SUBDIA_2_T12	M711	181.29	358.60	183.63	410.67	50.6%	Pass
TWR_RED_SUBDIA_2_T12	M742	197.81	358.60	198.39	410.67	55.2%	Pass
TWR_RED_SUBDIA_2_T12	M744	196.29	358.60	200.26	410.67	54.7%	Pass
TWR_RED_SUBDIA_T10	M494	22.78	55.07	21.39	63.37	41.4%	Pass
TWR_RED_SUBDIA_T10	M495	22.90	55.07	21.29	63.37	41.6%	Pass
TWR_RED_SUBDIA_T10	M511	24.34	55.07	23.04	63.37	44.2%	Pass
TWR_RED_SUBDIA_T10	M512	24.56	55.07	22.87	63.37	44.6%	Pass
TWR_RED_SUBDIA_T10	M528	22.36	55.07	20.81	63.37	40.6%	Pass
TWR_RED_SUBDIA_T10	M529	22.29	55.07	20.85	63.37	40.5%	Pass
TWR_RED_SUBDIA_T10	M548	24.84	55.07	23.26	63.37	45.1%	Pass
TWR_RED_SUBDIA_T10	M549	24.73	55.07	23.32	63.37	44.9%	Pass
TWR_RED_SUBDIA_T11	M571	23.64	54.55	22.02	79.69	43.3%	Pass
TWR_RED_SUBDIA_T11	M572	23.74	54.55	21.93	79.69	43.5%	Pass



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Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_RED_SUBDIA_T11	M588	25.18	54.55	23.69	79.69	46.2%	Pass
TWR_RED_SUBDIA_T11	M589	25.43	54.55	23.49	79.69	46.6%	Pass
TWR_RED_SUBDIA_T11	M605	23.05	54.55	21.29	79.69	42.3%	Pass
TWR_RED_SUBDIA_T11	M606	22.99	54.55	21.33	79.69	42.1%	Pass
TWR_RED_SUBDIA_T11	M625	25.66	54.55	23.82	79.69	47.0%	Pass
TWR_RED_SUBDIA_T11	M626	25.51	54.55	23.92	79.69	46.8%	Pass
TWR_RED_SUBDIA_T11	M787A	24.52	46.29	25.38	79.69	53.0%	Pass
TWR_RED_SUBDIA_T11	M788A	24.61	46.29	25.27	79.69	53.2%	Pass
TWR_RED_SUBDIA_T11	M789A	26.44	46.29	26.96	79.69	57.1%	Pass
TWR_RED_SUBDIA_T11	M790A	26.23	46.29	27.23	79.69	56.7%	Pass
TWR_RED_SUBDIA_T11	M791A	23.81	46.29	24.63	79.69	51.4%	Pass
TWR_RED_SUBDIA_T11	M792A	23.85	46.29	24.56	79.69	51.5%	Pass
TWR_RED_SUBDIA_T11	M793A	26.59	46.29	27.49	79.69	57.4%	Pass
TWR_RED_SUBDIA_T11	M794A	26.70	46.29	27.32	79.69	57.7%	Pass
TWR_RED_SUBDIA_T12	M652	138.61	297.35	134.06	281.39	47.6%	Pass
TWR_RED_SUBDIA_T12	M654	138.55	297.35	134.03	281.39	47.6%	Pass
TWR_RED_SUBDIA_T12	M680	149.46	297.35	143.78	281.39	51.1%	Pass
TWR_RED_SUBDIA_T12	M682	148.19	297.35	144.80	281.39	51.5%	Pass
TWR_RED_SUBDIA_T12	M708	137.53	297.35	133.07	281.39	47.3%	Pass
TWR_RED_SUBDIA_T12	M710	137.64	297.35	133.04	281.39	47.3%	Pass
TWR_RED_SUBDIA_T12	M741	148.69	297.35	145.48	281.39	51.7%	Pass
TWR_RED_SUBDIA_T12	M743	150.08	297.35	144.35	281.39	51.3%	Pass
TWR_RED_SUBHOR_T7	M274	8.67	22.40	4.42	63.37	38.7%	Pass
TWR_RED_SUBHOR_T7	M286	8.21	22.40	4.15	63.37	36.7%	Pass
TWR_RED_SUBHOR_T7	M302	8.54	22.40	4.53	63.37	38.1%	Pass
TWR_RED_SUBHOR_T7	M318	8.23	22.40	4.14	63.37	36.7%	Pass
TWR_RED_SUBHOR_T8	M347	7.11	17.32	3.18	63.37	41.1%	Pass
TWR_RED_SUBHOR_T8	M359	6.71	17.32	2.95	63.37	38.7%	Pass
TWR_RED_SUBHOR_T8	M375	7.05	17.32	3.23	63.37	40.7%	Pass
TWR_RED_SUBHOR_T8	M391	6.75	17.32	2.92	63.37	39.0%	Pass
TWR_RED_SUBHOR_T9	M420	7.61	13.78	3.46	63.37	55.2%	Pass
TWR_RED_SUBHOR_T9	M432	7.14	13.78	3.21	63.37	51.8%	Pass
TWR_RED_SUBHOR_T9	M448	7.52	13.78	3.53	63.37	54.6%	Pass
TWR_RED_SUBHOR_T9	M464	7.16	13.78	3.19	63.37	51.9%	Pass
TWR_RED_SUBHOR_T10	M493	23.47	40.82	16.91	151.54	57.5%	Pass
TWR_RED_SUBHOR_T10	M507	23.40	40.82	16.98	151.54	57.3%	Pass
TWR_RED_SUBHOR_T10	M524	22.47	40.82	16.08	151.54	55.0%	Pass
TWR_RED_SUBHOR_T10	M541	23.00	40.82	16.28	151.54	56.3%	Pass
TWR_RED_SUBHOR_T11	M570	20.76	41.81	15.90	183.52	49.7%	Pass
TWR_RED_SUBHOR_T11	M584	20.76	41.81	16.29	183.52	49.7%	Pass
TWR_RED_SUBHOR_T11	M601	19.70	41.81	14.90	183.52	47.1%	Pass
TWR_RED_SUBHOR_T11	M618	20.96	41.81	16.43	183.52	50.1%	Pass
TWR_RED_VERT_T2	M997	0.24	12.55	0.00	24.04	1.9%	Pass
TWR_RED_VERT_T2	M998	0.24	12.55	0.00	24.04	1.9%	Pass
TWR_RED_VERT_T2	M999	0.24	12.55	0.00	24.04	1.9%	Pass
TWR_RED_VERT_T2	M1000	0.23	12.55	0.00	24.04	1.9%	Pass
TWR_RED_VERT_T2	M1001	0.20	13.01	0.00	24.04	1.5%	Pass
TWR_RED_VERT_T2	M1002	0.20	13.01	0.00	24.04	1.5%	Pass
TWR_RED_VERT_T2	M1003	0.20	13.01	0.00	24.04	1.6%	Pass
TWR_RED_VERT_T2	M1004	0.20	13.01	0.00	24.04	1.6%	Pass
TWR_RED_VERT_T3	M993	0.29	12.23	0.00	24.04	2.4%	Pass
TWR_RED_VERT_T3	M994	0.29	12.23	0.00	24.04	2.4%	Pass
TWR_RED_VERT_T3	M995	0.29	12.23	0.00	24.04	2.4%	Pass
TWR_RED_VERT_T3	M996	0.29	12.23	0.00	24.04	2.4%	Pass
TWR_RED_VERT_T8	M885B	0.21	3.98	0.00	21.33	5.3%	Pass
TWR_RED_VERT_T8	M886B	0.21	3.98	0.00	21.33	5.3%	Pass



TIA-222-H Code Angle Bracing Member Checks

USID #: 45057/TAG0057 - Mikesville

GPD Project # 2026723.12.TAG0057.08

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass / Fail
TWR_RED_VERT_T8	M887B	0.21	3.98	0.00	21.33	5.2%	Pass
TWR_RED_VERT_T8	M888B	0.21	3.98	0.00	21.33	5.3%	Pass
TWR_RED_VERT_T8	M889B	0.21	3.98	0.00	21.33	5.3%	Pass
TWR_RED_VERT_T8	M890B	0.21	3.98	0.00	21.33	5.3%	Pass
TWR_RED_VERT_T8	M891B	0.21	3.98	0.00	21.33	5.3%	Pass
TWR_RED_VERT_T8	M892B	0.21	3.98	0.00	21.33	5.3%	Pass
TWR_RED_VERT_T12	M658	0.58	39.33	0.00	63.37	1.5%	Pass
TWR_RED_VERT_T12	M686	0.58	39.33	0.00	63.37	1.5%	Pass
TWR_RED_VERT_T12	M714	0.58	39.33	0.00	63.37	1.5%	Pass
TWR_RED_VERT_T12	M747	0.59	39.33	0.00	63.37	1.5%	Pass
TWR_RED_VERT_T12	M744A	2.12	39.33	2.66	63.37	5.4%	Pass
TWR_RED_VERT_T12	M745A	2.12	39.33	2.67	63.37	5.4%	Pass
TWR_RED_VERT_T12	M746A	2.01	39.33	2.48	63.37	5.1%	Pass
TWR_RED_VERT_T12	M747A	2.00	39.33	2.50	63.37	5.1%	Pass
TWR_RED_VERT_T12	M748A	2.10	39.33	2.65	63.37	5.3%	Pass
TWR_RED_VERT_T12	M749A	2.10	39.33	2.65	63.37	5.3%	Pass
TWR_RED_VERT_T12	M750A	2.31	39.33	2.84	63.37	5.9%	Pass
TWR_RED_VERT_T12	M751A	2.29	39.33	2.86	63.37	5.8%	Pass
TWR_RED_VERT_T1	M1005	0.00	10.65	0.00	24.04	0.0%	Pass
TWR_RED_VERT_T1	M1006	0.00	10.65	0.00	24.04	0.0%	Pass
TWR_RED_VERT_T1	M1007	0.00	10.65	0.00	24.04	0.0%	Pass
TWR_RED_VERT_T1	M1008	0.00	10.65	0.00	24.04	0.0%	Pass



TIA-222-H Code Bolt Checks
USID #: 45057/TAG0057 - Mikesville
GPD Project # 2026723.12.TAG0057.08

Section #	Elevation (Ft.)	Section Set	Member	Bolt Grade	Bolt Size (in)	# of Bolts	Comp. (K)	Ten. (K)	Maximum Load (K)	Allowable Load (K)	% Capacity	Pass / Fail
T1	262.5	TWR_LEG_T1	L5X5X7/16	A307	0.75	8	12.753	3.658	12.753	79.522	16.0%	Pass
T1	262.5	TWR_HORZ_TOP_GIRT_T1	C8X11.5	A307	0.75	4	0.218	1.03	1.030			
T1	262.5	TWR_DIAG_T1	L31/2X31/2X1/4	A307	0.75	5	4.93	3.315	4.930	49.701	9.9%	Pass
T1	262.5	TWR_RED_VERT_T1	L2.5X2.5X3	A307	0.75	2	0	0	0.000	17.378	0.0%	Pass
T1	262.5	TWR_HORZ_STEP_T1	L21/2X21/2X3/16	A307	0.75	2	0.481	0.482	0.482	17.378	2.8%	Pass
T2	250	TWR_LEG_T2	L6X6X5/8	A307	0.75	12	38.364	20.079	38.364	119.282	32.2%	Pass
T2	250	TWR_HORZ_T2	C8X11.5	A307	0.75	4	1.619	4.311	4.311			
T2	250	TWR_DIAG_T2	L31/2X31/2X5/16	A307	0.75	5	7.721	5.689	7.721	49.701	15.5%	Pass
T2	250	TWR_DIAG_MOD_T2	LL3.5X3.5X5X6	A307	0.75	2	10.871	7.784	10.871	39.761	27.3%	Pass
T2	250	TWR_RED_VERT_T2	L2.5X2.5X3	A307	0.75	2	0.238	0	0.238	17.378	1.4%	Pass
T2	250	TWR_HORZ_STEP_T2	L3X21/2X1/4	A307	0.75	2	1.407	1.185	1.407	19.880	7.1%	Pass
T3	225	TWR_LEG_T3	L6X6X7/8	A307	0.75	3	58.709	35.054	58.709	NA		
T3	225	TWR_HORZ_T3	2L3X21/2X1/4X3/8	A307	0.75	3	1.993	4.335	4.335	59.641	7.3%	Pass
T3	225	TWR_RED_HORZ_T3	L2.5X2.5X3	A307	0.75	2	0.289	0	0.289	17.378	1.7%	Pass
T3	225	TWR_INNER_SUPP_T3	2L21/2X21/2X3/16X3/8	A307	0.75	2	0.355	0.326	0.355	34.755	1.0%	Pass
T3	225	TWR_INNER_SQ_T3	L2X2.5X3	A307	0.75	2	0.166	0.79	0.790	15.339	5.2%	Pass
T3	225	TWR_INNER_CORNER_T3	L2.5X2.5X3	A307	0.75	2	0	0.96	0.960	17.378	5.5%	Pass
T3	225	TWR_DIAG_T3	2L3X21/4X3/8	A307	0.75	3	9.926	8.129	9.926	59.641	16.6%	Pass
T3	225	TWR_HORZ_STEP_T3	L3X21/2X1/4	A307	0.75	2	0.395	0.408	0.408	19.880	2.1%	Pass
T4	212.5	TWR_LEG_T4	L6X6X7/8	A307	0.75	16	70.018	42.012	70.018	159.043	44.0%	Pass
T4	212.5	TWR_HORZ_T4	2L3X21/2X1/4X3/8	A307	0.75	3	7.929	8.315	8.315	59.641	13.9%	Pass
T4	212.5	TWR_DIAG_T4	2L2 1/2X31/4X3/8	A307	0.75	3	12.895	12.447	12.895	59.641	21.6%	Pass
T4	212.5	TWR_RED_HORZ_T4	L21/2X21/2X1/4	A307	0.75	2	0.424	0.594	0.594	19.880	3.0%	Pass
T4	212.5	TWR_RED_DIAG_T4	L21/2X2X3/16	A307	0.75	2	0.454	0.45	0.454	17.378	2.6%	Pass
T4	212.5	TWR_INNER_SUPP_T4	2L21/2X21/2X3/16X3/8	A307	0.75	2	0.673	0.616	0.673	34.755	1.9%	Pass
T4	212.5	TWR_INNER_SQ_T4	LL2X2.5X3X3	A307	0.75	2	0.406	1.22	1.220	30.677	4.0%	Pass
T4	212.5	TWR_INNER_CORNER_T4	L2.5X2.5X3	A307	0.75	2	0	1.767	1.767	17.378	10.2%	Pass
T5	200	TWR_LEG_T5	L6X6X7/8	A307	0.75	20	101.892	68.45	101.892	198.804	51.3%	Pass
T5	200	TWR_HORZ_T5	2L21/2X21/2X1/4X3/8	A307	0.75	3	8.942	7.978	8.942	59.641	15.0%	Pass
T5	200	TWR_DIAG_T5	2L2 1/2X31/4X3/8	A307	0.75	3	13.266	12.687	13.266	59.641	22.2%	Pass
T5	200	TWR_RED_HORZ_T5	L21/2X2X3/16	A307	0.75	2	0.567	0.758	0.758	17.378	4.4%	Pass
T5	200	TWR_RED_DIAG_T5	L21/2X2X3/16	A307	0.75	2	1.077	0.826	1.077	17.378	6.2%	Pass
T5	200	TWR_RED_KICKER_T5	L2.5X2.5X4	A307	0.75	2	1.168	1.584	1.584	19.880	8.0%	Pass
T5	200	TWR_INNER_SUPP_T5	2L21/2X21/2X3/16X3/8	A307	0.75	2	0.766	0.703	0.766	34.755	2.2%	Pass
T5	200	TWR_INNER_SQ_T5	LL2X2.5X3X3	A307	0.75	2	0.51	1.532	1.532	30.677	5.0%	Pass
T5	200	TWR_INNER_CORNER_T5	L2.5X2.5X3	A307	0.75	2	0	1.548	1.548	17.378	8.9%	Pass
T6	175	TWR_LEG_T6	L8X8X3/4	A307	0.75	24	136.299	95.23	136.299	238.565	57.1%	Pass
T6	175	TWR_HORZ_T6	2L3X21/2X1/4X3/8	A307	0.75	3	11.361	10.342	11.361	59.641	19.0%	Pass
T6	175	TWR_DIAG_T6	2L2 1/2X3 1/2X1/4X3/8	A307	0.75	3	15.613	14.859	15.613	59.641	26.2%	Pass
T6	175	TWR_RED_HORZ_T6	L21/2X21/2X3/16	A307	0.75	2	0.99	1.196	1.196	17.378	6.9%	Pass
T6	175	TWR_RED_DIAG_T6	L21/2X21/2X3/16	A307	0.75	2	0.751	0.765	0.765	17.378	4.4%	Pass
T6	175	TWR_INNER_SUPP_T6	2L21/2X21/2X3/16X3/8	A307	0.75	2	0.899	0.82	0.899	34.755	2.6%	Pass
T6	175	TWR_INNER_SQ_T6	LL2X2.5X3X3	A307	0.75	2	0.605	1.815	1.815	30.677	5.9%	Pass
T6	175	TWR_INNER_CORNER_T6	L2.5X2.5X3	A307	0.75	2	0	1.84	1.840	17.378	10.6%	Pass
T7	150	TWR_LEG_T7	L8X8X7/8	A307	0.75	28	146.101	104.273	146.101	278.326	52.5%	Pass
T7	150	TWR_HORZ_T7	2L3 1/2X2 1/2X1/4X3/8	A307	0.75	3	11.883	12.533	12.533	59.641	21.0%	Pass
T7	150	TWR_DIAG_T7	2L3 1/2X4X1/4X3/8	A307	0.75	4	26.551	23.304	26.551	79.522	33.4%	Pass
T7	150	TWR_RED_HORZ_T7	L2.5X2X3	A307	0.75	2	0.716	0.734	0.734	17.378	4.2%	Pass
T7	150	TWR_RED_HORZ_2_T7	2L21/2X21/2X1/4X3/8	A307	0.75	2	1.057	0.839	1.057	39.761	2.7%	Pass
T7	150	TWR_RED_DIAG_T7	L3X3X3	A307	0.75	2	0.677	0.859	0.859	18.397	4.7%	Pass
T7	150	TWR_RED_DIAG_2_T7	2L21/2X2X3/16X3/8	A307	0.75	2	7.196	4.482	7.196	34.755	20.7%	Pass
T7	150	TWR_RED_SUBHOR_T7	2L21/2X21/2X1/4X3/8	A307	0.75	2	8.666	4.527	8.666	39.761	21.8%	Pass
T7	150	TWR_RED_HIP_2_T7	L3.5X3.5X6	A307	0.75	2	0	0.151	0.151	19.880	0.8%	Pass
T7	150	TWR_RED_HIPDIA_T7	2L21/2X21/2X1/4X3/8	A307	0.75	2	0.321	0	0.321	39.761	0.8%	Pass
T7	150	TWR_INNER_SUPP_T7	2L21/2X21/2X3/16X3/8	A307	0.75	2	1.397	1.356	1.397	34.755	4.0%	Pass
T7	150	TWR_INNER_SQ_T7	2L21/2X2X3/16X3/8	A307	0.75	2	1.103	2.811	2.811	34.755	8.1%	Pass
T7	150	TWR_INNER_CORNER_T7	L21/2X21/2X3/16	A307	0.75	2	0	3.141	3.141	17.378	18.1%	Pass
T8	125	TWR_LEG_T8	L8X8X11/8	A307	0.75	32	183.534	131.671	183.534	318.086	57.7%	Pass
T8	125	TWR_HORZ_T8	2L3 1/2X2 1/2X1/4X3/8	A307	0.75	3	14.068	14.456	14.456	59.641	24.2%	Pass
T8	125	TWR_DIAG_T8	2L3 1/2X4X1/4X3/8	A307	0.75	4	27.743	25.318	27.743	79.522	34.9%	Pass
T8	125	TWR_RED_HORZ_T8	L2.5X2X3	A307	0.75	2	0.739	0.774	0.774	17.378	4.5%	Pass
T8	125	TWR_RED_HORZ_2_T8	2L21/2X21/2X1/4X3/8	A307	0.75	2	0.633	0.422	0.633	39.761	1.6%	Pass
T8	125	TWR_RED_DIAG_T8	L3X3X3	A307	0.75	2	0.615	0.804	0.804	18.397	4.4%	Pass
T8	125	TWR_RED_DIAG_2_T8	2L21/2X2X3/16X3/8	A307	0.75	2	5.456	3.352	5.456	34.755	15.7%	Pass
T8	125	TWR_RED_SUBHOR_T8	2L21/2X21/2X1/4X3/8	A307	0.75	2	7.111	3.234	7.111	39.761	17.9%	Pass
T8	125	TWR_RED_VERT_T8	L2.5X2X3	A307	0.75	2	0.212	0	0.212	17.378	1.2%	Pass
T8	125	TWR_RED_HIP_2_T8	L4X4X6	A307	0.75	2	0	0.224	0.224	19.880	1.1%	Pass
T8	125	TWR_RED_HIPDIA_T8	2L21/2X21/2X1/4X3/8	A307	0.75	2	0.391	0	0.391	39.761	1.0%	Pass
T8	125	TWR_INNER_SUPP_T8	L3X3X1/4	A307	0.75	2	1.979	1.931	1.979	19.880	10.0%	Pass
T8	125	TWR_INNER_SQ_T8	LL2X2.5X3X3	A307	0.75	2	1.541	3.968	3.968	30.677	12.9%	Pass

Section #	Elevation (Ft.)	Section Set	Member	Bolt Grade	Bolt Size (in)	# of Bolts	Comp. (K)	Ten. (K)	Maximum Load (K)	Allowable Load (K)	% Capacity	Pass / Fail
T8	125	TWR INNER GIRT T8	L3X3X1/4	A307	0.75	2	0.001	0	0.001	19.880	0.0%	Pass
T8	125	TWR INNER CORNER T8	L3X3X1/4	A307	0.75	2	0	4.527	4.527	19.880	22.8%	Pass
T9	100	TWR LEG T9	L8X8X11/8	A307	0.75	36	219.4	158.552	219.400	357.847	61.3%	Pass
T9	100	TWR HORZ T9	LL3.5X3.5X4X6	A307	0.75	3	15.298	14.811	15.298	59.641	25.7%	Pass
T9	100	TWR DIAG T9	2L3 1/2x4x1/4x3/8	A307	0.75	4	28.923	25.904	28.923	79.522	36.4%	Pass
T9	100	TWR RED HORZ T9	L2.5X2.5X3	A307	0.75	2	0.799	0.855	0.855	17.378	4.9%	Pass
T9	100	TWR RED HORZ 2 T9	2L21/2X21/2X1/4X3/8	A307	0.75	2	0.706	0.448	0.706	39.761	1.8%	Pass
T9	100	TWR RED DIAG T9	L3X3X3	A307	0.75	2	0.614	0.808	0.808	18.397	4.4%	Pass
T9	100	TWR RED DIAG 2 T9	2L3x2x3/16x3/8	A307	0.75	2	5.72	3.517	5.720	36.795	15.5%	Pass
T9	100	TWR RED SUBHOR T9	2L21/2X21/2X1/4X3/8	A307	0.75	2	7.609	3.533	7.609	39.761	19.1%	Pass
T9	100	TWR RED HIP 2 T9	L4X4X6	A307	0.75	2	0	0.526	0.526	19.880	2.6%	Pass
T9	100	TWR RED HIPDIA T9	2L21/2X21/2X1/4X3/8	A307	0.75	2	0.679	0	0.679	39.761	1.7%	Pass
T9	100	TWR INNER SUPP T9	2L3X3X1/4X3/8	A307	0.75	2	3.015	2.94	3.015	39.761	7.6%	Pass
T9	100	TWR INNER SQ T9	LL3X3X4X6	A307	0.75	2	2.418	6.003	6.003	39.761	15.1%	Pass
T9	100	TWR INNER BRACE T9	L3X3X3	A307	0.75	2	0.002	0.001	0.002	18.397	0.0%	Pass
T9	100	TWR INNER CORNER T9	LL3X3X4X6	A307	0.75	2	0	6.847	6.847	39.761	17.2%	Pass
T10	75	TWR LEG T10	L8X8X11/8	A307	0.875	28	230.597	166.461	230.597	378.832	60.9%	Pass
T10	75	TWR HORZ T10	2L4X3X1/4X3/8	A307	0.75	4	27.516	28.668	28.668	79.522	36.1%	Pass
T10	75	TWR DIAG T10	2L3 1/2x4x5/16x3/8	A307	0.75	4	40.111	32.593	40.111	79.522	50.4%	Pass
T10	75	TWR RED HORZ T10	L2.5X2X3	A307	0.75	2	1.05	1.21	1.210	17.378	7.0%	Pass
T10	75	TWR RED HORZ 2 T10	2L21/2X21/2X1/4X3/8	A307	0.75	2	0.997	0.792	0.997	39.761	2.5%	Pass
T10	75	TWR RED DIAG T10	L3X3X3	A307	0.75	2	1.157	1.236	1.236	18.397	6.7%	Pass
T10	75	TWR RED DIAG 2 T10	2L21/2X21/2X1/4X3/8	A307	0.75	2	20.387	15.576	20.387	39.761	51.3%	Pass
T10	75	TWR RED SUBDIA T10	2L21/2X21/2X1/4X3/8	A307	0.75	4	24.841	23.322	24.841	79.522	31.2%	Pass
T10	75	TWR RED SUBHOR T10	LL3X3X8X6	A307	0.75	2	23.469	16.978	23.469	39.761	59.0%	Pass
T10	75	TWR RED KICKER T10	L2X2X4	A307	0.75	2	0.274	0.302	0.302	19.880	1.5%	Pass
T10	75	TWR RED SUBDIA 2 T10	2L3 1/2x3 1/2x1/4x3/8	A307	0.75	2	25.707	26.352	26.352	39.761	66.3%	Pass
T10	75	TWR RED HIP 2 T10	LL2.5X3X4X6	A307	0.75	2	0	0.308	0.308	39.761	0.8%	Pass
T10	75	TWR RED HIPDIA T10	2L21/2X21/2X1/4X3/8	A307	0.75	2	0.557	0	0.557	39.761	1.4%	Pass
T10	75	TWR INNER SUPP T10	2L4X3X1/4X3/8	A307	0.75	2	1.475	5.921	5.921	39.761	14.9%	Pass
T10	75	TWR INNER GIRT T10	L3X3X3/16	A307	0.75	2	1.8	1.745	1.800	18.397	9.8%	Pass
T10	75	TWR INNER CORNER T10	L3X3X3/16	A307	0.75	2	0	8.13	8.130	18.397	44.2%	Pass
T11	50	TWR LEG T11	L8X8X11/8	A307	0.875	28	269.802	193.753	269.802	378.832	71.2%	Pass
T11	50	TWR HORZ T11	2L4x4x1/4x3/8	A307	0.75	4	30.837	30.987	30.987	79.522	39.0%	Pass
T11	50	TWR DIAG T11	2L3 1/2x4x5/16x3/8	A307	0.75	5	41.77	33.891	41.770	99.402	42.0%	Pass
T11	50	TWR RED HORZ T11	L2.5X2X3	A307	0.75	2	0.818	1.156	1.156	17.378	6.7%	Pass
T11	50	TWR RED HORZ 2 T11	2L21/2X21/2X1/4X3/8	A307	0.75	2	1.405	1.278	1.405	39.761	3.5%	Pass
T11	50	TWR RED DIAG T11	L3X3X3	A307	0.75	2	4.295	3.36	4.295	18.397	23.3%	Pass
T11	50	TWR RED DIAG 2 T11	2L21/2X21/2X1/4X3/8	A307	0.75	2	18.748	15.04	18.748	39.761	47.2%	Pass
T11	50	TWR RED SUBDIA T11	2L3 1/2x2 1/2x1/4x3/8	A307	0.75	4	26.699	27.49	27.490	79.522	34.6%	Pass
T11	50	TWR RED SUBHOR T11	2L31/2X31/2X1/2X3/8	A307	0.75	2	20.955	16.434	20.955	39.761	52.7%	Pass
T11	50	TWR RED KICKER T11	L2.5X2.5X4	A307	0.75	2	4.339	4.435	4.435	19.880	22.3%	Pass
T11	50	TWR RED HIP 2 T11	2L21/2X21/2X1/4X3/8	A307	0.75	2	0	0.438	0.438	39.761	1.1%	Pass
T11	50	TWR RED HIPDIA T11	2L21/2X21/2X1/4X3/8	A307	0.75	2	0.684	0	0.684	39.761	1.7%	Pass
T11	50	TWR INNER SUPP T11	2L4X3X1/4X3/8	A307	0.75	2	1.628	6.294	6.294	39.761	15.8%	Pass
T11	50	TWR INNER GIRT T11	L3 1/2x3x1/4	A307	0.75	2	1.972	1.892	1.972	19.880	9.9%	Pass
T11	50	TWR INNER CORNER T11	L3 1/2x3x1/4	A307	0.75	2	0	8.581	8.581	19.880	43.2%	Pass
T12	25	TWR HORZ T12	2L5x5x5/8x1/2	A325N	1	6	180.028	210.297	210.297	301.890	69.7%	Pass
T12	25	TWR DIAG T12	2L4x6x3/4x3/8	A307	1	8	236.685	219.085	236.685	282.743	83.7%	Pass
T12	25	TWR RED HORZ T12	L2.5X2X3	A307	0.75	2	1.328	2.621	2.621	17.378	15.1%	Pass
T12	25	TWR RED HORZ 2 T12	2L21/2X21/2X1/4X3/8	A307	0.75	2	1.983	3.247	3.247	39.761	8.2%	Pass
T12	25	TWR RED DIAG T12	L2.5X2.5X4	A307	0.75	2	3.274	1.859	3.274	19.880	16.5%	Pass
T12	25	TWR RED HORZ 3 T12	2L21/2X21/2X1/4X3/8	A307	0.75	2	0.758	2.663	2.663	39.761	6.7%	Pass
T12	25	TWR RED DIAG 2 T12	L3X3X3	A307	0.75	2	4.491	3.293	4.491	18.397	24.4%	Pass
T12	25	TWR RED DIAG 3 T12	2L4x6x3/8x3/8	A307	1	4	137.703	126.701	137.703	137.025	100.5%	Pass
T12	25	TWR RED SUBDIA T12	LL6X4X8X6	A307	1	5	150.075	145.478	150.075	176.715	84.9%	Pass
T12	25	TWR RED SUBDIA 2 T12	2L5x5x3/4x3/8	A307	1	7	197.813	200.256	200.256	247.400	80.9%	Pass
T12	25	TWR RED SUBHOR T12	LL5X5X12X6	A325N	1	5	145.506	135.182	145.506	246.210	59.1%	Pass
T12	25	TWR RED VERT T12	2L21/2X21/2X1/4X3/8	A307	0.75	2	2.306	2.857	2.857	39.761	7.2%	Pass
T12	25	TWR RED HIP 2 T12	L31/2X31/2X1/4	A307	0.75	2	0	0.616	0.616	19.880	3.1%	Pass
T12	25	TWR RED HIPDIA T12	L3X3X3/16	A307	0.75	2	0.335	0.201	0.335	18.397	1.8%	Pass
T12	25	TWR RED HIPDIA 2 T12	LL2.5X2.5X5X6	A307	0.75	2	1.845	0.761	1.845	39.761	4.6%	Pass
T12	25	TWR RED HIP 3 T12	L3X3X1/4	A307	0.75	2	0	2.359	2.359	19.880	11.9%	Pass
T12	25	TWR INNER SUPP T12	2L4X3X1/4X3/8	A307	0.75	2	4.099	21.056	21.056	39.761	53.0%	Pass
T12	25	TWR INNER GIRT T12	L3.5X3.5X4	A307	0.75	2	6.219	7.793	7.793	19.880	39.2%	Pass
T12	25	TWR RED KICKER T12	L2.5X2.5X3	A307	0.75	2	0.537	1.025	1.025	17.378	5.9%	Pass
T12	25	TWR RED KICKER 2 T12	L3X3X3	A307	0.75	2	2.903	1.262	2.903	18.397	15.8%	Pass
T12	25	TWR INNER CORNER T12	L31/2X31/2X1/4	A325N	0.75	2	1.391	29.218	29.218	33.495	87.2%	Pass
T12	25	TWR LEG T12	L8x8x1 w/ L4x4x1/2	A307	1	28	349.636	266.374	349.636	378.832	92.3%	Pass

APPENDIX C

Additional Calculations



Self-Support Anchor Rod Analysis - TIA-222-H-1
USID #: 45057/TAG0057 - Mikesville
2026723.12.TAG0057.08

General Info	
Apply TIA-222-H Section 15.5	No
Modified Anchor Rods	No
Leg Eccentricity	No
Overstrength	No
Max Capacity	105%

Tower Reactions		
Compression, P_u =	549.04	kips
Compression Shear, V_u =	81.50	kips
Uplift, P_u =	422.70	kips
Uplift Shear, V_u =	44.12	kips
Number of Tower Legs =	4	
Tower Axial Force =		kips

Anchor Rods		
Number of Anchor Rods, n =	12	
Anchor Rod Grade =	C-1015	
Anchor Rod Diameter, d =	2.25	in
Bolt Circle Diameter, BC =	8	in
Rod Clear Span, l_{ar} =	1.5	in
Is grout present?	Yes	
Yield Strength, F_y =	47	ksi
Tensile Strength, F_u =	56	ksi
Rod Compression, P_{uc} =	45.75	kips
Rod Shear, V_u =	6.79	kips
Rod Moment, M_u =	6.62	k-in
Rod Tension, P_{ut} =	35.23	kips
Rod Shear, V_u =	3.68	kips
Rod Moment, M_u =	3.58	k-in

Anchor Rod Results		
$\phi_t R_{nt}$ =	136.50	kips
$\phi_c R_{nc}$ =	168.19	kips
$\phi_c R_{nb}$ =	168.07	kips
$\phi_v R_{nv}$ =	83.50	kips
$\phi_c R_{nvc}$ =	75.68	kips
$\phi_f M_n$ =	80.30	k-in
Tension Interaction	6.9%	OK
Compression Interaction	28.0%	OK

Project Title: USID #: 45057/TAG0057 - Mikesville
 Engineer:
 Project ID: 2026723.12.TAG0057.08
 Project Descr: Column Analysis

Concrete Column

Project File: TAG0057 Bunker Column.ec6

LIC#: KW-06016111, Build:20.26.01.14

GPD ASSOCIATES

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DESCRIPTION: Bunker Column

Code References

Governing Code : IBC 2021
 Referenced Design Standard(s) : ACI 318-19
 Load Combinations Used : IBC 2021

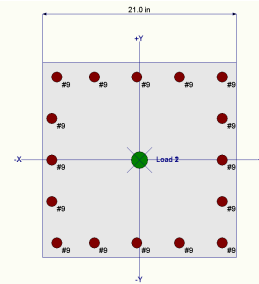
General Information

f'_c : Concrete 28 day strength = 3.0 ksi
 E = 3,122.0 ksi
 Density = 150.0 pcf
 β = 0.850
 f_y - Main Rebar = 60.0 ksi
 E - Main Rebar = 29,000.0 ksi
 Allow. Reinforcing Limits *ASTM A615 Bars Used*
 Min. Reinf. = 1.0 %
 Max. Reinf. = 8.0 %
 Seismic Design Category = A

Overall Column Height = 13.167 ft
 End Fixity Top Fixed, Bottom Fixed
 Brace condition for deflection (buckling) along column
 X-X (width) axis :
 Unbraced Length for buckling ABOUT X-X Axis = 13.167 ft, $K = 0.65$
 Y-Y (depth) axis :
 Unbraced Length for buckling ABOUT Y-Y Axis = 13.167 ft, $K = 0.65$

Column Cross Section

Column Dimensions : 21.0in Square Column, Column
 Edge to Rebar Edge Cover = 1.0in
 Column Reinforcing : 4 - #9 bars @ corners,, 3.0 - #9 bars
 top & bottom between corner bars,
 3.0 - #9 bars left & right between



Applied Loads

Entered loads are factored per load combinations specified by user.

Column self weight included : 6,048.59 lbs * Dead Load Factor
 AXIAL LOADS . . .
 Tower Axial: Axial Load at 13.167 ft above base, $D = 392.140$ k
 6' Concrete Ceiling: Axial Load at 13.167 ft above base, $D = 308.0$ k

DESIGN SUMMARY

Load Combination	+1.40D	Maximum SERVICE Load Reactions .			
Location of max. above base	13.079 ft	Top along Y-Y	0.0 k	Bottom along Y-Y	0.0 k
		Top along X-X	0.0 k	Bottom along X-X	0.0 k
Maximum Stress Ratio	0.937 : 1	Maximum SERVICE Load Deflections . .			
Ratio = $(P_u^2 + M_u^2)^{.5} / (\Phi P_n^2 + \Phi M_n^2)^{.5}$		Along Y-Y	0.0 in at	0.0 ft above base	
$P_u = 988.66$ k	$\Phi * P_n = 1,062.75$ k	for load combination :			
$M_{u-x} = 0.0$ k-ft	$\Phi * M_{n-x} = 0.0$ k-ft	Along X-X	0.0 in at	0.0 ft above base	
$M_{u-y} = 101.338$ k-ft	$\Phi * M_{n-y} = 105.379$ k-ft	for load combination :			
M_u Angle = 90.0 deg	$\Phi = 0.650$	General Section Information			
M_u at Angle = 101.338 k-ft	ΦM_n at Angle = 107.655 k-ft	ρ : % Reinforcing	3.628 %	Rebar % Ok	
<i>P_n & M_n values located at P_u-M_u vector intersection with capacity curve</i>		Reinforcing Area	16.0 in ²	Concrete Area	441.0 in ²
Column Capacities . .		β	0.850	θ	0.80
P_{nmax} : Nominal Max. Compressive Axial Capacity	2,043.75 k				
P_{nmin} : Nominal Min. Tension Axial Capacity	k				
ΦP_n , max : Usable Compressive Axial Capacity	1,062.75 k				
ΦP_n , min : Usable Tension Axial Capacity	k				

Concrete Column

Project File: TAG0057 Bunker Column.ec6

LIC# : KW-06016111, Build:20.26.01.14

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DESCRIPTION: Bunker Column

Governing Load Combination Results

Governing Factored Load Combination	Moment		Dist. from base ft	Axial Load k			Bending Analysis k-ft						Utilization	
	X-X	Y-Y		Pu	ϕ	* Pn	δx	$\delta x * Mux$	δy	$\delta y * Muy$	Alpha (deg)	δMu	ϕMn	Ratio
+1.40D	Actual	M2,min	13.08	988.66	1,062.75	1.000			1.000	101.34	90.000	101.34	107.65	0.937
+1.40D	M2,min	Actual	13.08	988.66	1,062.75	1.000	101.34	1.000			0.000	101.34	110.42	0.923
+1.20D	Actual	M2,min	13.08	847.43	1,062.75	1.000			1.000	86.86	90.000	86.86	107.65	0.803
+1.20D	M2,min	Actual	13.08	847.43	1,062.75	1.000	86.86	1.000			0.000	86.86	110.42	0.791
+0.90D	Actual	M2,min	13.08	635.57	1,062.75	1.000			1.000	65.15	90.000	65.15	107.65	0.602
+0.90D	M2,min	Actual	13.08	635.57	1,062.75	1.000	65.15	1.000			0.000	65.15	110.42	0.593

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction		k	Y-Y Axis Reaction		Axial Reaction	Mx - End Moments		k-ft	My - End Moments	
	@ Base	@ Top		@ Base	@ Top		@ Base	@ Top		@ Base	@ Top
D Only						706.189					
+0.60D						423.713					

Maximum Moment Reactions

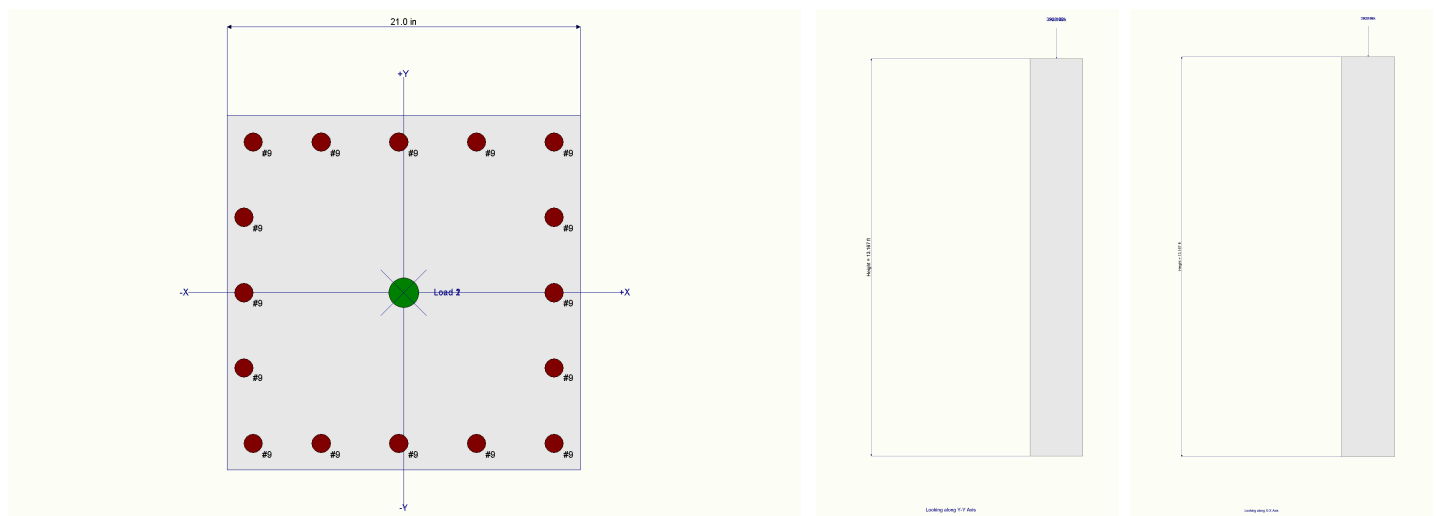
Note: Only non-zero reactions are listed.

Load Combination	Moment About X-X Axis		k-ft	Moment About Y-Y Axis		k-ft
	@ Base	@ Top		@ Base	@ Top	
D Only						
+0.60D						

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Max. Y-Y Deflection	
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
+0.60D	0.0000 in	0.000 ft	0.000 in	0.000 ft

Sketches



Interaction Diagrams

Concrete Column

Project File: TAG0057 Bunker Column.ec6

LIC# : KW-06016111, Build:20.26.01.14

GPD ASSOCIATES

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DESCRIPTION: Bunker Column

Concrete Column P-M Interaction Diagram

Phi * Mn @ Alpha (k-ft)



Concrete Column

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LIC# : KW-06016111, Build:20.26.01.14

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DESCRIPTION: Bunker Column

Concrete Column P-M Interaction Diagram

Phi * Mn @ Alpha (k-ft)

Phi * Pn (k)



Concrete Column

Project File: TAG0057 Bunker Column.ec6

LIC# : KW-06016111, Build:20.26.01.14

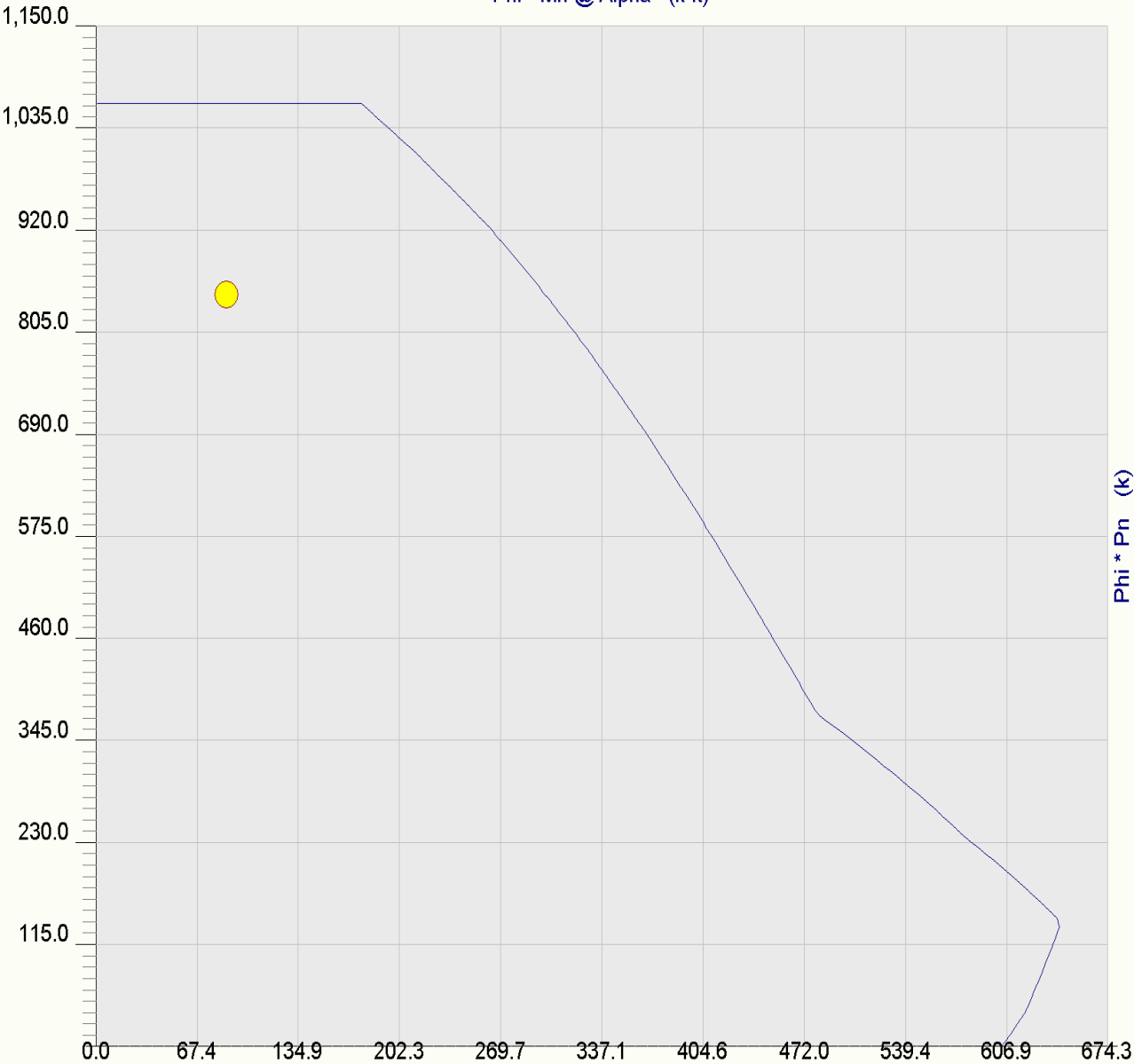
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DESCRIPTION: Bunker Column

Concrete Column P-M Interaction Diagram

Phi * Mn @ Alpha (k-ft)



Load Comb. = +1.2D, Alpha= 90.0deg, (847.43, 86.86)

Concrete Column

Project File: TAG0057 Bunker Column.ec6

LIC# : KW-06016111, Build:20.26.01.14

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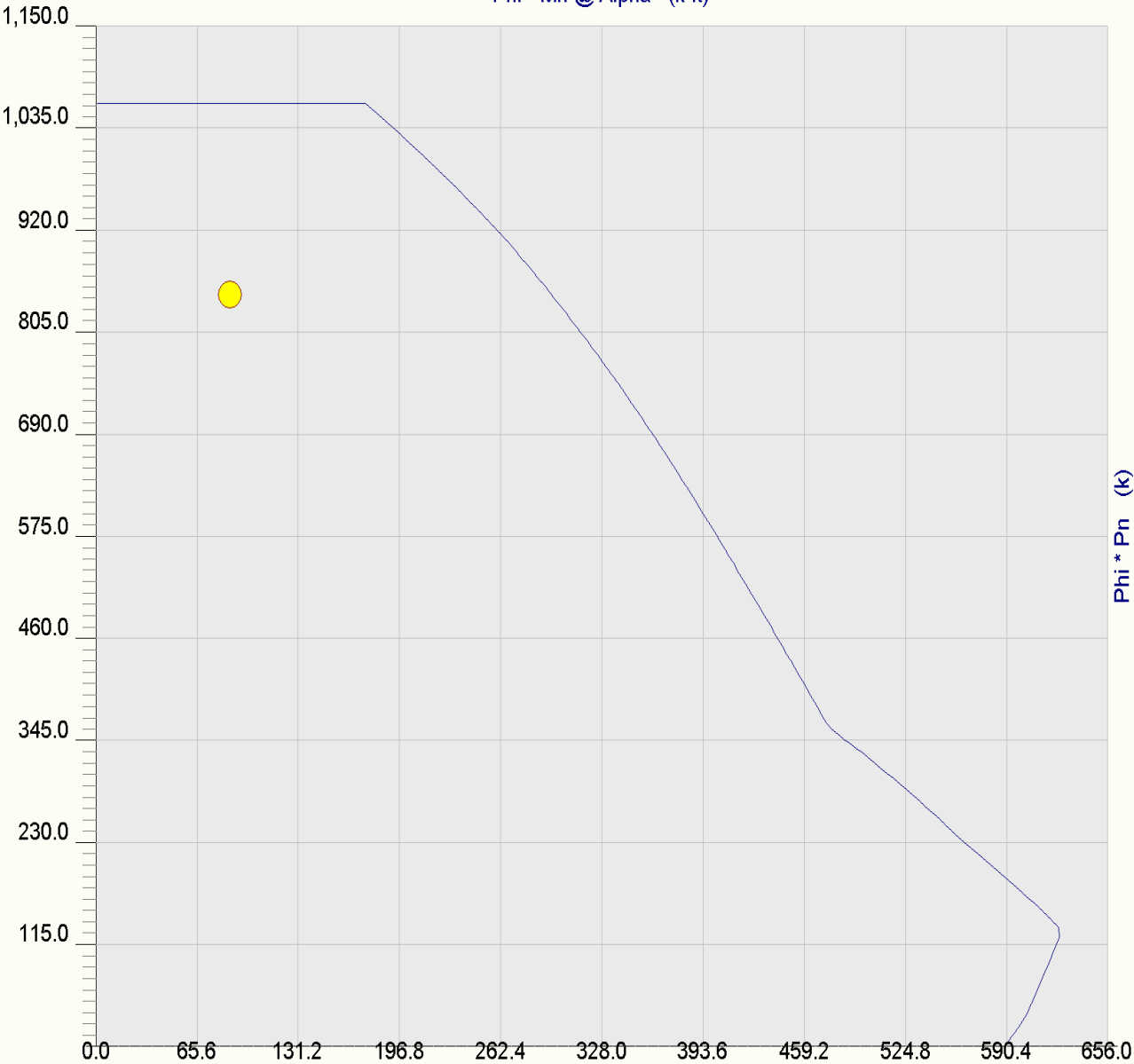
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DESCRIPTION: Bunker Column

Concrete Column P-M Interaction Diagram

Phi * Mn @ Alpha (k-ft)

Phi * Pn (k)



Load Comb. = +1.2D, Alpha= 0.0deg, (847.43, 86.86)

Concrete Column

Project File: TAG0057 Bunker Column.ec6

LIC# : KW-06016111, Build:20.26.01.14

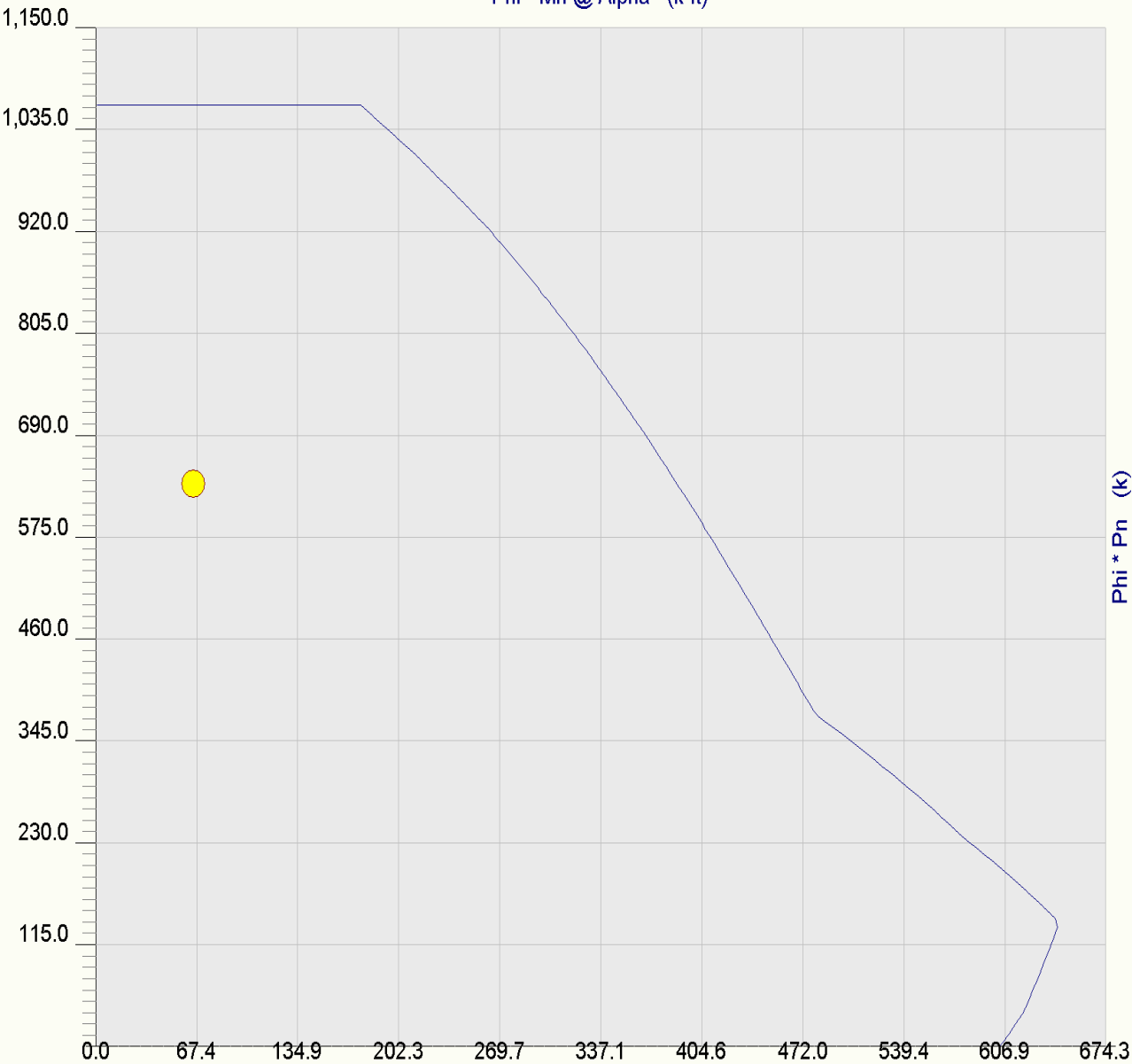
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DESCRIPTION: Bunker Column

Concrete Column P-M Interaction Diagram

Phi * Mn @ Alpha (k-ft)



Load Comb. = +0.90D, Alpha= 90.0deg, (636.57, 65.15)

Concrete Column

Project File: TAG0057 Bunker Column.ec6

LIC# : KW-06016111, Build:20.26.01.14

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DESCRIPTION: Bunker Column

Concrete Column P-M Interaction Diagram

Phi * Mn @ Alpha (k-ft)

Phi * Pn (k)

