Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

September 24, 2021

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

RE: **Notice of Exempt Modification for T-Mobile: CT11961A**
Crown Site ID: 881535
425 Indian Ledge Park Rd, Trumbull, CT 06611
Latitude: 41° 16" 23.81" / Longitude: -73° 12' 47.18"

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 145-foot mount on the existing 195-foot monopole tower located at 425 Indian Ledge Park Rd, Trumbull, CT. The property is owned by the Town of Trumbull and Crown Castle owns the cell tower. T-Mobile now intends to add three (3) new antennas and ancillary equipment at the 145ft level. This modification/proposal includes hardware that is both 4G (LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:
Tower:

Installed New:
(3) RFS – APX16DWV-S-E-A20 Antenna
(3) Ericsson- AIR6449 B41 Antenna
(3) Ericsson Radio 4460 B25 + B66 Remote Radios
(2) Ericsson Hybrid Cables 6X24

Remove:
(3) Ericsson – AIR21 KRC118046-1_B2P_B4A Antennas
(3) Ericsson – RRUS 11 B2
(3) Ericsson – KRY 112 144/1 TMAs
(12) Coax Cable (1-5/8")
(1) Hybrid Cable (9x18)

Ground:

Install New:
(1) 6160 Cabinet
(1) B160 Battery Cabinet
(1) CSR IXRE V2 Router
(1) PSU4813 Voltage Booster
(1) BB6648 IN 6160 SSC Cabinet

Remove:
(1) Nortel Cabinet
(6) Radio RU22

Per the Town of Trumbull, there are no original planning or zoning approval documents.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The First Selectman, Ms. Vicki A. Tesoro, for the Town of Trumbull and The Land Use Planner, Mr. Rob Librandi. The Town of Trumbull is the property owner and Crown Castle is the tower owner.

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

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

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(781) 970-0053
Jeff.Barbadora@crowncastle.com

Attachments
cc:

Vicki A. Tesoro, First Selectman
Town of Trumbull, Second Floor
5866 Main Street
Trumbull, CT 06611
(203) 452-5007

Rob Librandi, Land Use Planner
Town of Trumbull, Planning & Zoning
5866 Main Street
Trumbull, CT 06611
(203) 452-5044

Town of Trumbull, Property Owner

Crown Castle, Tower Owner

Hanlon, Dashanna

From: Myl, Kimberly
Sent: Friday, March 11, 2016 9:34 AM
To: siting.council@ct.gov
Subject: Existing Telecommunications Tower - 425 Indian Ledge Park Road, Trumbull (Crown: 881535 / T-Mobile CT11961A)

Good Morning,
Please be advised per the below email from the Town of Trumbull and on behalf of Crown Castle the Tower Owner, neither party have the original zoning approval on file. Please use this email notification to replace that requirement. Please let me know if you have any questions or need additional information. Thank you in advance.

KIMBERLY MYL
Real Estate Specialist
T: (201) 236-9069 | M: (201) 993-3697

CROWN CASTLE
1200 MacArthur Blvd, Suite 200
Mahwah, NJ 07430

From: Gail Andreyka [mailto:gandreyka@trumbull-ct.gov]
Sent: Tuesday, March 08, 2016 9:48 AM
To: Myl, Kimberly
Cc: Douglas Wenz
Subject: RE: Zoning Approval - Telecommunications Tower 425 Indian Ledge Park Road

Hi Kim,

We cannot locate the zoning approval. They never came to Planning & Zoning with an application as far as we know. If you have any further questions, please contact Doug Wenz 203-452-5052.

Thank you,

Gail Andreyka

From: Myl, Kimberly [mailto:Kimberly.Myl@crowncastle.com]
Sent: Monday, February 29, 2016 12:45 PM
To: Gail Andreyka
Subject: Zoning Approval - Telecommunications Tower 425 Indian Ledge Park Road

Good Afternoon Gail,
I have another existing telecommunications facility that I will need a copy of the original zoning resolution to submit into the CSC. Can you kindly forward this over to me so I can submit on behalf of T-Mobile, one of our tenants. If you do not have this document, kindly reply stating that the township does not have this on record and I can use your email in place of this requirement. Please call or email me if you have any questions or need additional information. Thank you in advance.

KIMBERLY MYL
Real Estate Specialist
T: (201) 236-9069 | M: (201) 993-3697

425 INDIAN LEDGE PARK ROAD

Location	425 INDIAN LEDGE PARK ROAD	**Mblu**	F/05 / 00096/ 000/
Acct#		**Owner**	TRUMBULL TOWN OF
Assessment	$1,320,620	**Appraisal**	$1,886,600
PID	12730	**Building Count**	1
Fire District	T		

Current Value

Appraisal	
Valuation Year	**Total**
2015	$1,886,600

Assessment	
Valuation Year	**Total**
2015	$1,320,620

Owner of Record

Owner	TRUMBULL TOWN OF	**Sale Price**	$0
Co-Owner		**Book & Page**	1/ 466
Address	5866 MAIN STREET TRUMBULL, CT 06611	**Sale Date**	06/15/1989
		Instrument	

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
TRUMBULL TOWN OF	$0	1/ 466		06/15/1989

Building Information

Building 1 : Section 1

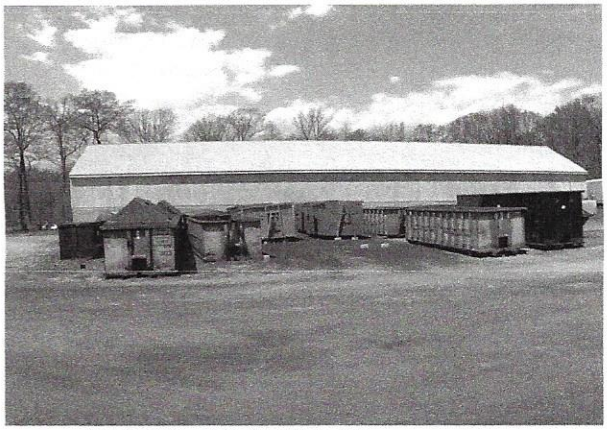
Year Built:

Living Area: 0

Building Attributes	
Field	**Description**

Style	Outbuildings
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor Covering	
Alt. Floor Cover	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Total Kitchens	
Total Elec Meters	

Building Photo



F05-96 05/04/2015

(http://images.vgsi.com/photos2/TrumbullCTPhotos/\00\02\19/51.JPG)

Building Layout

Building Layout

(http://images.vgsi.com/photos2/TrumbullCTPhotos//Sketches/12730_127

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	921
Description	Mun Lnd Res
Zone	AA
Neighborhood	320
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	46.5
Frontage	
Depth	

Outbuildings

Outbuildings	Legend

Code	Description	Sub Code	Sub Description	Size	Bldg #
BHS1	Comm Bth Hse	CB	CindBk/Frame	200 S.F.	1

Valuation History

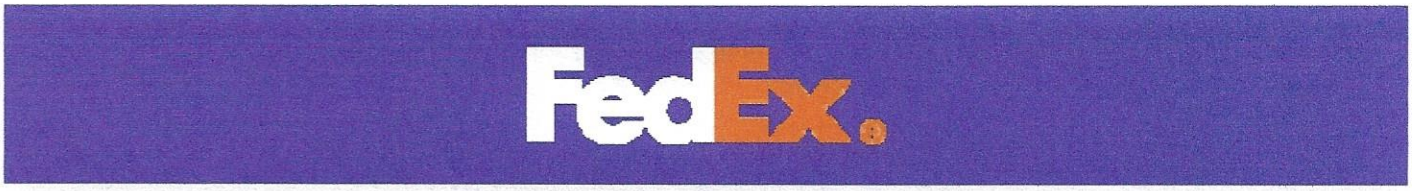
Appraisal	
Valuation Year	**Total**
2019	$1,886,600
2018	$1,886,600
2017	$1,886,600

Assessment	
Valuation Year	**Total**
2019	$1,320,620
2018	$1,320,620
2017	$1,320,620

Louis St
John St
Harned Pl
Carmel Rdg
Saint Joseph's Manor
Unnamed Street
Turney Pl
Hyde Ter
Gwendolyn Dr
Calhoun Ave
Sheldon Ter
Pequonnock Valley Wildlife Area
Indian Ledge Park
Indian Ledge Park
State Hwy 25
Connecting Road
State Hwy 25
Deer Run Dr
Putting Green Rd N
Putting Green Rd
Heavenly Ln
Longmeadow Rd
Scenic Hill Rd
Par Ln
Under Cliff Rd
Putting Green Rd
Roosevelt Dr

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Monday, September 27, 2021 9:32 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 284152909916: Your package has been delivered



Hi. Your package was delivered Mon, 09/27/2021 at 9:30am.

Delivered to 5866 MAIN ST, TRUMBULL, CT 06611
Received by L.DUNLAP

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 284152909916

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Trumbull Mr. Rob Librandi Land Use Planner 5866 Main Street TRUMBULL, CT, US, 06611
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Fri 9/24/2021 06:42 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Pak
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	TRUMBULL, CT, US, 06611
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Monday, September 27, 2021 9:32 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 284152822325: Your package has been delivered

Hi. Your package was delivered Mon, 09/27/2021 at 9:30am.

Delivered to 5866 MAIN ST, TRUMBULL, CT 06611
Received by L.DUNLAP

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 284152822325

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Trumbull Ms. Vicki Tesoro First Selectman 5866 Main Street TRUMBULL, CT, US, 06611
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Fri 9/24/2021 06:42 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Pak
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	TRUMBULL, CT, US, 06611
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Date: **July 29, 2021**

Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
(913) 458-6909

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Site Number:	CT11961A
Crown Castle Designation:	**BU Number:**	881535
	Site Name:	TRUMBULL TOWER
	JDE Job Number:	673848
	Work Order Number:	2000545
	Order Number:	575117 Rev. 0
Engineering Firm Designation:	**Black & Veatch Corp. Project Number:**	406642
Site Data:	**425 Indian Ledge Park Rd, Trumbull, Fairfield County, CT**	
	Latitude *41° 16' 23.81"*, Longitude *-73° 12' 47.18"*	
	195 Foot - Monopole Tower	

Black & Veatch Corp. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity – 66.5%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Angkoon Pansit

Respectfully submitted by:

Ping Jiang, P.E.
Professional Engineer

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Equipment Configuration
Table 2 - Other Considered Equipment

3) ANALYSIS PROCEDURE
Table 3 - Documents Provided
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 4 - Section Capacity (Summary)
Table 5 – Tower Component Stresses vs. Capacity
4.1) Recommendations

5) APPENDIX A
tnxTower Output

6) APPENDIX B
Base Level Drawing

7) APPENDIX C
Additional Calculations

1) INTRODUCTION

This tower is a 195 ft Monopole tower designed by Engineered Endeavors, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
146.0	146.0	1	cci tower mounts (v2.1)	Platform Mount [LP 602-1]	3	1-5/8
	145.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	rfs celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
185.0	187.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	2 4 12 2	3/8 5/8 1-1/4 2" Conduit
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS12/RRUS A2		
		3	kathrein	80010965 w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
	185.0	6	cci tower mounts (v2.1)	Miscellaneous [NA 509-1]		
		1	cci tower mounts (v2.1)	Platform Mount [LP 602-1_KCKR]		
		6	powerwave technologies	LGP21401		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		2	raycap	DC6-48-60-18-8F		
175.0	175.0	3	fujitsu	TA08025-B604	1	1-3/4
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		
164.0	166.0	3	dragonwave	A-ANT-23G-2-C	4 6 2 1	1-1/4 5/16 7983A 2” Conduit
		3	alcatel lucent	1900MHz RRH (65MHz)		
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER		
		3	alcatel lucent	800MHZ RRH		
		3	alcatel lucent	TD-RRH8x20-25		
		3	argus technologies	LLPX310R w/ Mount Pipe		
		9	rfs celwave	ACU-A20-N		
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
		3	samsung telecommunications	FDD_R6_RRH		
	164.0	1	cci tower mounts (v2.1)	Platform Mount [LP 602-1]		
154.0	155.0	2	antel	LPA-4016 w/ Mount Pipe	20	1-5/8
		3	commscope	CBC78T-DS-43-2X		
		6	commscope	JAHH-65B-R3B		
		4	decibel	DB844G65ZAXY w/ Mount Pipe		
		2	rfs celwave	DB-B1-6C-8AB-0Z		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		3	vzw	Sub6 Antenna - VZS01 w/ Mount Pipe		
	154.0	1	cci tower mounts (v2.1)	Platform Mount [LP 601-1]		
134.0	135.0	12	decibel	DB844H90E-XY w/ Mount Pipe	9 6	1-1/4 1-5/8
	134.0	1	cci tower mounts (v2.1)	Platform Mount [LP 303-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1406210	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1405798	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1405789	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Black & Veatch Corp. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary) (Monopole Tower)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	195 - 157.65	Pole	TP33.875x25x0.25	1	-13.24	1584.12	22.9	Pass
L2	157.65 - 117.08	Pole	TP42.9063x32.2511x0.3125	2	-30.06	2511.09	56.5	Pass
L3	117.08 - 81.09	Pole	TP50.75x40.9029x0.375	3	-41.43	3565.31	64.1	Pass
L4	81.09 - 40.03	Pole	TP59.6563x48.3906x0.5	4	-59.92	5584.37	53.9	Pass
L5	40.03 - 0	Pole	TP68x56.7865x0.5	5	-85.90	6580.00	61.5	Pass
							Summary	
						Pole (L3)	64.1	Pass
						Rating =	64.1	Pass

Table 5 - Tower Component Stresses vs. Capacity (Monopole Tower) – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	62.7	Pass
	Base Plate		55.4	Pass
1	Base Foundation (Structure)	0	66.5	Pass
	Base Foundation (Soil Interaction)		64.7	Pass

Structure Rating (max from all components) =	66.5%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity. Rating per TIA-222-H Section 15.5.

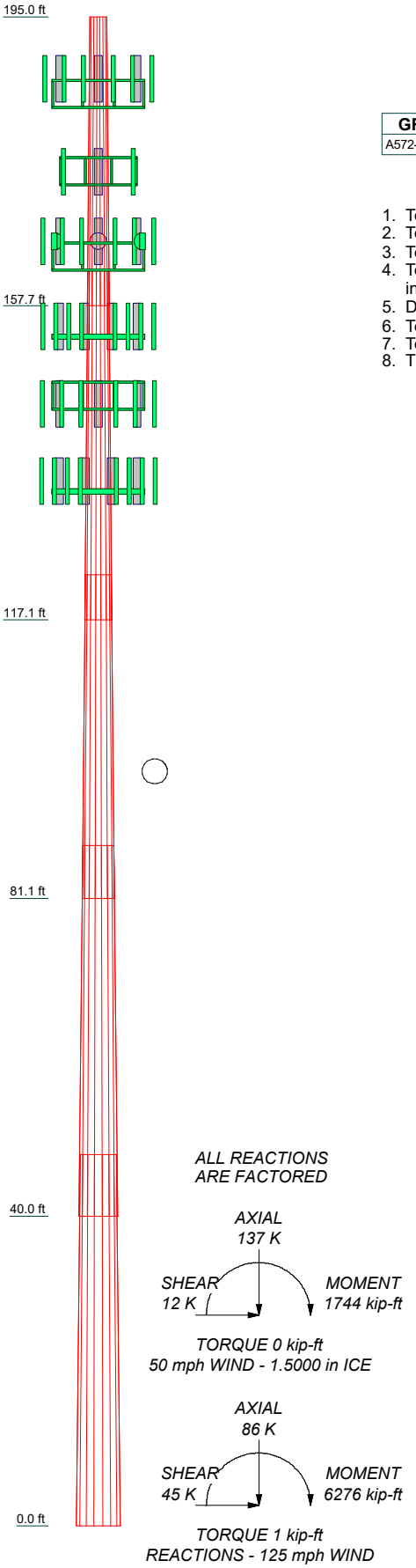
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	37.35	18	0.2500	4.73	25.0000	33.8750		2.9
2	45.30	18	0.3125	5.86	32.2511	42.9063		5.7
3	41.85	18	0.3750	6.84	40.9029	50.7500	A572-65	7.7
4	47.90	18	0.5000	7.95	48.3906	59.6563		13.8
5	47.98	18	0.5000		56.7865	68.0000		16.0
								46.2



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 64.1%

BLACK & VEATCH
Building a world of difference.

Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
Phone: (913) 458-6909
FAX:

Job:	***TRUMBULL TOWER (BU# 881535)***		
Project:	***406642 (881535.2000545)***		
Client: Crown Castle	Drawn by: pan94203	App'd:	
Code: TIA-222-H	Date: 07/29/21	Scale: NTS	
Path:		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

- Tower is located in Fairfield County, Connecticut.
- Tower base elevation above sea level: 323.00 ft.
- Basic wind speed of 125 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	195.00-157.65	37.35	4.73	18	25.0000	33.8750	0.2500	1.0000	A572-65 (65 ksi)
L2	157.65-117.08	45.30	5.86	18	32.2511	42.9063	0.3125	1.2500	A572-65 (65 ksi)
L3	117.08-81.09	41.85	6.84	18	40.9029	50.7500	0.3750	1.5000	A572-65 (65 ksi)
L4	81.09-40.03	47.90	7.95	18	48.3906	59.6563	0.5000	2.0000	A572-65 (65 ksi)
L5	40.03-0.00	47.98		18	56.7865	68.0000	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	25.3471	19.6391	1519.8824	8.7863	12.7000	119.6758	3041.7647	9.8214	3.9600	15.84
	34.3590	26.6814	3811.2835	11.9369	17.2085	221.4768	7627.5821	13.3433	5.5220	22.088
L2	33.8301	31.6791	4082.6377	11.3382	16.3835	249.1914	8170.6474	15.8425	5.1262	16.404
	43.5199	42.2477	9683.4926	15.1208	21.7964	444.2708	19379.7271	21.1279	7.0015	22.405
L3	42.8761	48.2383	10010.0876	14.3874	20.7787	481.7482	20033.3468	24.1237	6.5389	17.437
	51.4751	59.9588	19222.9846	17.8831	25.7810	745.6260	38471.2633	29.9851	8.2720	22.059
L4	50.6935	76.0024	22022.4024	17.0012	24.5824	895.8600	44073.7825	38.0084	7.6367	15.273
	60.4994	93.8810	41506.5163	21.0005	30.3054	1369.6091	83067.6479	46.9494	9.6195	19.239
L5	59.4720	89.3266	35754.1617	19.9817	28.8475	1239.4184	71555.3697	44.6718	9.1144	18.229
	68.9719	107.1225	61663.1484	23.9625	34.5440	1785.0610	123407.4348	53.5714	11.0880	22.176

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 195.00-157.65				1	1	1			
L2 157.65-117.08				1	1	1			
L3 117.08-81.09				1	1	1			
L4 81.09-40.03				1	1	1			
L5 40.03-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
** Safety Line **										
Safety Line 3/8	A	No	Surface Ar (CaAa)	195.00 - 8.00	1	1	0.030 0.037	0.3750		0.22
** 175R **										
CU12PSM6P4XXX(1-3/4)	C	No	Surface Ar (CaAa)	175.00 - 0.00	1	1	-0.450 -0.416	1.7500		2.72

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
** 154R ** AL7-50(1-5/8) ***	B	No	Surface Ar (CaAa)	154.00 - 3.00	6	6	-0.230 -0.009	1.9600		0.52

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
** 185E ** LDF6-50A(1-1/4)	B	No	No	Inside Pole	185.00 - 7.00	12	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
FB-L98B-002-75000(3/8)	B	No	No	Inside Pole	185.00 - 7.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG82ST-BRDA(5/8)	B	No	No	Inside Pole	185.00 - 7.00	4	No Ice	0.00	0.31
							1/2" Ice	0.00	0.31
							1" Ice	0.00	0.31
							2" Ice	0.00	0.31
2" innerduct conduit	B	No	No	Inside Pole	185.00 - 7.00	2	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
							2" Ice	0.00	0.20
** 164E ** 7983A(ELLIPTICAL)	B	No	No	Inside Pole	164.00 - 3.00	2	No Ice	0.00	0.08
							1/2" Ice	0.00	0.08
							1" Ice	0.00	0.08
							2" Ice	0.00	0.08
9207(5/16)	B	No	No	Inside Pole	164.00 - 3.00	6	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
2" innerduct conduit	B	No	No	Inside Pole	164.00 - 3.00	1	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
							2" Ice	0.00	0.20
HB114-1-0813U4-M5J(1-1/4)	B	No	No	Inside Pole	164.00 - 3.00	3	No Ice	0.00	1.20
							1/2" Ice	0.00	1.20
							1" Ice	0.00	1.20
							2" Ice	0.00	1.20
HB114-21U3M12-XXXF(1-1/4)	B	No	No	Inside Pole	164.00 - 3.00	1	No Ice	0.00	1.22
							1/2" Ice	0.00	1.22
							1" Ice	0.00	1.22
							2" Ice	0.00	1.22
HJ7-50A(1-5/8)	B	No	No	Inside Pole	154.00 - 3.00	12	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
							2" Ice	0.00	1.04
HB158-1-08U8-S8J18(1-5/8)	B	No	No	Inside Pole	154.00 - 3.00	2	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
							2" Ice	0.00	1.30
** 146P ** HCS 6X12 4AWG(1-5/8)	A	No	No	Inside Pole	146.00 - 3.00	1	No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
							2" Ice	0.00	2.40
HB158-21U6S24-xxM_TMO(1-5/8)	A	No	No	Inside Pole	146.00 - 0.00	2	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							2" Ice	0.00	2.50
** 134E **									
LDF6-50A(1-1/4)	A	No	No	Inside Pole	134.00 - 11.00	9	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
LDF7-50A(1-5/8)	A	No	No	Inside Pole	134.00 - 11.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	195.00-157.65	A	0.000	0.000	1.401	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.28
		C	0.000	0.000	3.036	0.000	0.05
L2	157.65-117.08	A	0.000	0.000	1.521	0.000	0.40
		B	0.000	0.000	43.418	0.000	1.26
		C	0.000	0.000	7.100	0.000	0.11
L3	117.08-81.09	A	0.000	0.000	1.350	0.000	0.65
		B	0.000	0.000	42.324	0.000	1.18
		C	0.000	0.000	6.298	0.000	0.10
L4	81.09-40.03	A	0.000	0.000	1.540	0.000	0.74
		B	0.000	0.000	48.287	0.000	1.34
		C	0.000	0.000	7.186	0.000	0.11
L5	40.03-0.00	A	0.000	0.000	1.201	0.000	0.60
		B	0.000	0.000	43.547	0.000	1.18
		C	0.000	0.000	7.005	0.000	0.11

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	195.00-157.65	A	1.507	0.000	0.000	12.657	0.000	0.14
		B		0.000	0.000	0.000	0.000	0.28
		C		0.000	0.000	8.265	0.000	0.15
L2	157.65-117.08	A	1.470	0.000	0.000	13.749	0.000	0.54
		B		0.000	0.000	68.181	0.000	1.98
		C		0.000	0.000	19.327	0.000	0.35
L3	117.08-81.09	A	1.423	0.000	0.000	11.929	0.000	0.76
		B		0.000	0.000	66.129	0.000	1.86
		C		0.000	0.000	16.878	0.000	0.31
L4	81.09-40.03	A	1.355	0.000	0.000	13.223	0.000	0.86
		B		0.000	0.000	74.963	0.000	2.10
		C		0.000	0.000	18.869	0.000	0.34
L5	40.03-0.00	A	1.210	0.000	0.000	9.879	0.000	0.69
		B		0.000	0.000	66.974	0.000	1.82
		C		0.000	0.000	17.850	0.000	0.31

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	195.00-157.65	0.3159	0.2728	-0.3281	-0.1398
L2	157.65-117.08	4.8575	-3.6884	3.6588	-2.9899
L3	117.08-81.09	5.3973	-4.1827	4.1593	-3.4536
L4	81.09-40.03	5.6434	-4.3739	4.4195	-3.6724
L5	40.03-0.00	5.5703	-4.1739	4.5828	-3.4856

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	2	Safety Line 3/8	157.65 - 195.00	1.0000	1.0000
L1	9	CU12PSM6P4XXX(1-3/4)	157.65 - 175.00	1.0000	1.0000
L2	2	Safety Line 3/8	117.08 - 157.65	1.0000	1.0000
L2	9	CU12PSM6P4XXX(1-3/4)	117.08 - 157.65	1.0000	1.0000
L2	17	AL7-50(1-5/8)	117.08 - 154.00	1.0000	1.0000
L3	2	Safety Line 3/8	81.09 - 117.08	1.0000	1.0000
L3	9	CU12PSM6P4XXX(1-3/4)	81.09 - 117.08	1.0000	1.0000
L3	17	AL7-50(1-5/8)	81.09 - 117.08	1.0000	1.0000
L4	2	Safety Line 3/8	40.03 - 81.09	1.0000	1.0000
L4	9	CU12PSM6P4XXX(1-3/4)	40.03 - 81.09	1.0000	1.0000
L4	17	AL7-50(1-5/8)	40.03 - 81.09	1.0000	1.0000
L5	2	Safety Line 3/8	8.00 - 40.03	1.0000	1.0000
L5	9	CU12PSM6P4XXX(1-3/4)	0.00 - 40.03	1.0000	1.0000
L5	17	AL7-50(1-5/8)	3.00 - 40.03	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
185										
7770.00 w/ Mount Pipe	A	From Leg	4.00	0.00	0.00	185.00	No Ice	5.75	4.25	0.06
			0.00				1/2" Ice	6.18	5.01	0.10
			2.00				1" Ice	6.61	5.71	0.16
							2" Ice	7.49	7.16	0.29
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.00	0.00	185.00	No Ice	5.75	4.25	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.00	185.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00	0.00	185.00	No Ice	9.22	6.25	0.07
			0.00			1/2"	9.98	6.96	0.14
			2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.00	0.00	185.00	No Ice	9.22	6.25	0.07
			0.00			1/2"	9.98	6.96	0.14
			2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.00	0.00	185.00	No Ice	9.22	6.25	0.07
			0.00			1/2"	9.98	6.96	0.14
			2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
80010965 w/ Mount Pipe	A	From Leg	4.00	0.00	185.00	No Ice	12.26	5.79	0.14
			0.00			1/2"	13.03	6.47	0.23
			2.00			Ice	13.80	7.17	0.33
						1" Ice	15.41	8.60	0.57
						2" Ice			
80010965 w/ Mount Pipe	B	From Leg	4.00	0.00	185.00	No Ice	12.26	5.79	0.14
			0.00			1/2"	13.03	6.47	0.23
			2.00			Ice	13.80	7.17	0.33
						1" Ice	15.41	8.60	0.57
						2" Ice			
80010965 w/ Mount Pipe	C	From Leg	4.00	0.00	185.00	No Ice	12.26	5.79	0.14
			0.00			1/2"	13.03	6.47	0.23
			2.00			Ice	13.80	7.17	0.33
						1" Ice	15.41	8.60	0.57
						2" Ice			
RRUS 32	A	From Leg	4.00	0.00	185.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
RRUS 32	B	From Leg	4.00	0.00	185.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
RRUS 32	C	From Leg	4.00	0.00	185.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
RRUS 4449 B5/B12	A	From Leg	4.00	0.00	185.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			2.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	B	From Leg	4.00	0.00	185.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			2.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	C	From Leg	4.00	0.00	185.00	No Ice	1.97	1.41	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2"	2.14	1.56	0.09
			2.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS12/RRUS A2	A	From Leg	4.00	0.00	185.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			2.00			Ice	3.59	2.20	0.13
						1" Ice	4.07	2.59	0.20
						2" Ice			
RRUS12/RRUS A2	B	From Leg	4.00	0.00	185.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			2.00			Ice	3.59	2.20	0.13
						1" Ice	4.07	2.59	0.20
						2" Ice			
RRUS12/RRUS A2	C	From Leg	4.00	0.00	185.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			2.00			Ice	3.59	2.20	0.13
						1" Ice	4.07	2.59	0.20
						2" Ice			
(2) LGP21401	A	From Leg	4.00	0.00	185.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			0.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
(2) LGP21401	B	From Leg	4.00	0.00	185.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			0.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
(2) LGP21401	C	From Leg	4.00	0.00	185.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			0.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
DC6-48-60-18-8F	A	From Leg	4.00	0.00	185.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			0.00			Ice	1.64	1.64	0.06
						1" Ice	2.04	2.04	0.11
						2" Ice			
DC6-48-60-18-8F	B	From Leg	4.00	0.00	185.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			0.00			Ice	1.64	1.64	0.06
						1" Ice	2.04	2.04	0.11
						2" Ice			
8' x 2" Mount Pipe	A	From Leg	4.00	0.00	185.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
8' x 2" Mount Pipe	B	From Leg	4.00	0.00	185.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
8' x 2" Mount Pipe	C	From Leg	4.00	0.00	185.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
12' horizontal x 2" Pipe Mount	A	From Leg	4.00	0.00	185.00	No Ice	2.28	0.01	0.03
			0.00			1/2"	3.50	0.04	0.05
			0.00			Ice	4.75	0.09	0.08
						1" Ice	7.28	0.21	0.15
						2" Ice			
12' horizontal x 2" Pipe	B	From Leg	4.00	0.00	185.00	No Ice	2.28	0.01	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount			0.00 0.00			1/2" Ice 1" Ice 2" Ice	3.50 4.75 7.28	0.04 0.09 0.21	0.05 0.08 0.15
12' horizontal x 2" Pipe Mount	C	From Leg	4.00 0.00 0.00	0.00	185.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.28 3.50 4.75 7.28	0.01 0.04 0.09 0.21	0.03 0.05 0.08 0.15
(2) Miscellaneous [NA 509-1]	A	From Leg	2.00 0.00 0.00	0.00	185.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.32 7.79 9.36 12.81	4.85 6.36 7.94 11.32	0.09 0.14 0.20 0.36
(2) Miscellaneous [NA 509-1]	B	From Leg	2.00 0.00 0.00	0.00	185.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.32 7.79 9.36 12.81	4.85 6.36 7.94 11.32	0.09 0.14 0.20 0.36
(2) Miscellaneous [NA 509-1]	C	From Leg	2.00 0.00 0.00	0.00	185.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.32 7.79 9.36 12.81	4.85 6.36 7.94 11.32	0.09 0.14 0.20 0.36
Platform Mount [LP 602-1_KCKR]	C	None		0.00	185.00	No Ice 1/2" Ice 1" Ice 2" Ice	42.30 49.04 55.87 69.85	42.30 49.04 55.87 69.85	1.62 2.38 3.27 5.40
** 175 **									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
RDIDC-9181-PF-48	B	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.01 2.19 2.37 2.76	1.17 1.31 1.46 1.78	0.02 0.04 0.06 0.11
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
Commscope MC-PK8-DSH	C	None		0.00	175.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	34.24 62.95 91.66 149.08	34.24 62.95 91.66 149.08	1.75 2.10 2.45 3.15
**** **164**									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	164.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	164.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	164.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	164.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	164.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	164.00	No Ice 1/2" Ice Ice	4.09 4.48 4.88	2.86 3.23 3.61	0.08 0.13 0.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	5.71	4.40	0.33
						2" Ice			
LLPX310R w/ Mount Pipe	A	From Leg	4.00	0.00	164.00	No Ice	4.54	2.98	0.05
			0.00			1/2"	4.89	3.53	0.08
			2.00			Ice	5.25	4.09	0.13
						1" Ice	6.01	5.24	0.23
						2" Ice			
LLPX310R w/ Mount Pipe	B	From Leg	4.00	0.00	164.00	No Ice	4.54	2.98	0.05
			0.00			1/2"	4.89	3.53	0.08
			2.00			Ice	5.25	4.09	0.13
						1" Ice	6.01	5.24	0.23
						2" Ice			
LLPX310R w/ Mount Pipe	C	From Leg	4.00	0.00	164.00	No Ice	4.54	2.98	0.05
			0.00			1/2"	4.89	3.53	0.08
			2.00			Ice	5.25	4.09	0.13
						1" Ice	6.01	5.24	0.23
						2" Ice			
1900MHz RRH (65MHz)	A	From Leg	4.00	0.00	164.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			2.00			Ice	2.74	2.65	0.11
						1" Ice	3.19	3.09	0.17
						2" Ice			
1900MHz RRH (65MHz)	B	From Leg	4.00	0.00	164.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			2.00			Ice	2.74	2.65	0.11
						1" Ice	3.19	3.09	0.17
						2" Ice			
1900MHz RRH (65MHz)	C	From Leg	4.00	0.00	164.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			2.00			Ice	2.74	2.65	0.11
						1" Ice	3.19	3.09	0.17
						2" Ice			
800MHZ RRH	A	From Leg	4.00	0.00	164.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			2.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
800MHZ RRH	B	From Leg	4.00	0.00	164.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			2.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
800MHZ RRH	C	From Leg	4.00	0.00	164.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			2.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
800 EXTERNAL NOTCH FILTER	A	From Leg	4.00	0.00	164.00	No Ice	0.66	0.32	0.01
			0.00			1/2"	0.76	0.40	0.02
			2.00			Ice	0.87	0.48	0.02
						1" Ice	1.11	0.67	0.04
						2" Ice			
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00	0.00	164.00	No Ice	0.66	0.32	0.01
			0.00			1/2"	0.76	0.40	0.02
			2.00			Ice	0.87	0.48	0.02
						1" Ice	1.11	0.67	0.04
						2" Ice			
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00	0.00	164.00	No Ice	0.66	0.32	0.01
			0.00			1/2"	0.76	0.40	0.02
			2.00			Ice	0.87	0.48	0.02
						1" Ice	1.11	0.67	0.04
						2" Ice			
(3) ACU-A20-N	A	From Leg	4.00	0.00	164.00	No Ice	0.07	0.12	0.00
			0.00			1/2"	0.10	0.16	0.00
			2.00			Ice	0.15	0.21	0.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	0.26	0.34	0.01
						2" Ice			
(3) ACU-A20-N	B	From Leg	4.00	0.00	164.00	No Ice	0.07	0.12	0.00
			0.00			1/2"	0.10	0.16	0.00
			2.00			Ice	0.15	0.21	0.00
						1" Ice	0.26	0.34	0.01
						2" Ice			
(3) ACU-A20-N	C	From Leg	4.00	0.00	164.00	No Ice	0.07	0.12	0.00
			0.00			1/2"	0.10	0.16	0.00
			2.00			Ice	0.15	0.21	0.00
						1" Ice	0.26	0.34	0.01
						2" Ice			
TD-RRH8x20-25	B	From Leg	4.00	0.00	164.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			2.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
						2" Ice			
TD-RRH8x20-25	B	From Leg	4.00	0.00	164.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			2.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
						2" Ice			
TD-RRH8x20-25	C	From Leg	4.00	0.00	164.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			2.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
						2" Ice			
FDD_R6_RRH	A	From Leg	4.00	0.00	164.00	No Ice	1.53	0.68	0.03
			0.00			1/2"	1.69	0.80	0.04
			2.00			Ice	1.85	0.92	0.06
						1" Ice	2.20	1.19	0.09
						2" Ice			
FDD_R6_RRH	B	From Leg	4.00	0.00	164.00	No Ice	1.53	0.68	0.03
			0.00			1/2"	1.69	0.80	0.04
			2.00			Ice	1.85	0.92	0.06
						1" Ice	2.20	1.19	0.09
						2" Ice			
FDD_R6_RRH	C	From Leg	4.00	0.00	164.00	No Ice	1.53	0.68	0.03
			0.00			1/2"	1.69	0.80	0.04
			2.00			Ice	1.85	0.92	0.06
						1" Ice	2.20	1.19	0.09
						2" Ice			
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0.00	164.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.00	164.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.00	164.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
8' Ladder	A	From Leg	2.00	0.00	164.00	No Ice	1.53	5.33	0.10
			0.00			1/2"	4.36	8.08	0.11
			-2.00			Ice	7.19	10.83	0.13
						1" Ice	12.86	16.33	0.16
						2" Ice			
Platform Mount [LP 602-1]	C	None		0.00	164.00	No Ice	31.07	31.07	1.34
						1/2"	34.82	34.82	1.97
						Ice	38.48	38.48	2.67

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
							1" Ice	45.60	45.60	4.31
							2" Ice			
154										
(2) DB844G65ZAXY w/ Mount Pipe	A	From Leg	4.00	0.00	0.00	154.00	No Ice	4.23	4.51	0.03
			0.00				1/2" Ice	4.71	5.00	0.08
			1.00				1" Ice	5.21	5.50	0.13
							2" Ice	6.26	6.57	0.25
(2) DB844G65ZAXY w/ Mount Pipe	C	From Leg	4.00	0.00	0.00	154.00	No Ice	4.23	4.51	0.03
			0.00				1/2" Ice	4.71	5.00	0.08
			1.00				1" Ice	5.21	5.50	0.13
							2" Ice	6.26	6.57	0.25
(2) LPA-4016 w/ Mount Pipe	B	From Leg	4.00	0.00	0.00	154.00	No Ice	5.06	6.03	0.04
			0.00				1/2" Ice	8.44	6.06	0.08
			1.00				1" Ice	11.82	6.09	0.12
							2" Ice	18.58	6.15	0.19
(2) JAHH-65B-R3B	A	From Leg	4.00	0.00	0.00	154.00	No Ice	5.29	3.05	0.06
			0.00				1/2" Ice	5.75	3.48	0.12
			1.00				1" Ice	6.22	3.93	0.19
							2" Ice	7.20	4.84	0.33
(2) JAHH-65B-R3B	B	From Leg	4.00	0.00	0.00	154.00	No Ice	5.29	3.05	0.06
			0.00				1/2" Ice	5.75	3.48	0.12
			1.00				1" Ice	6.22	3.93	0.19
							2" Ice	7.20	4.84	0.33
(2) JAHH-65B-R3B	C	From Leg	4.00	0.00	0.00	154.00	No Ice	5.29	3.05	0.06
			0.00				1/2" Ice	5.75	3.48	0.12
			1.00				1" Ice	6.22	3.93	0.19
							2" Ice	7.20	4.84	0.33
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Leg	4.00	0.00	0.00	154.00	No Ice	5.91	3.74	0.12
			0.00				1/2" Ice	6.72	4.79	0.17
			1.00				1" Ice	7.44	5.70	0.22
							2" Ice	8.68	7.17	0.36
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Leg	4.00	0.00	0.00	154.00	No Ice	5.91	3.74	0.12
			0.00				1/2" Ice	6.72	4.79	0.17
			1.00				1" Ice	7.44	5.70	0.22
							2" Ice	8.68	7.17	0.36
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Leg	4.00	0.00	0.00	154.00	No Ice	5.91	3.74	0.12
			0.00				1/2" Ice	6.72	4.79	0.17
			1.00				1" Ice	7.44	5.70	0.22
							2" Ice	8.68	7.17	0.36
(2) DB-B1-6C-8AB-0Z	C	From Leg	4.00	0.00	0.00	154.00	No Ice	4.80	2.00	0.04
			0.00				1/2" Ice	5.07	2.19	0.08
			1.00				1" Ice	5.35	2.39	0.12
							2" Ice	5.93	2.81	0.21
CBC78T-DS-43-2X	A	From Leg	4.00	0.00	0.00	154.00	No Ice	0.37	0.51	0.02
			0.00				1/2" Ice	0.45	0.60	0.03
			1.00				1" Ice	0.53	0.70	0.04
							2" Ice	0.72	0.93	0.06
CBC78T-DS-43-2X	B	From Leg	4.00	0.00	0.00	154.00	No Ice	0.37	0.51	0.02
			0.00				1/2" Ice	0.45	0.60	0.03
			1.00				1" Ice	0.53	0.70	0.04
							2" Ice	0.72	0.93	0.06
CBC78T-DS-43-2X	C	From Leg	4.00	0.00	0.00	154.00	No Ice	0.37	0.51	0.02
			0.00				1/2" Ice	0.45	0.60	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			Ice	0.53	0.70	0.04
						1" Ice	0.72	0.93	0.06
						2" Ice			
RFV01U-D1A	A	From Leg	4.00	0.00	154.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			1.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D1A	B	From Leg	4.00	0.00	154.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			1.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D1A	C	From Leg	4.00	0.00	154.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			1.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D2A	A	From Leg	4.00	0.00	154.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			1.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
RFV01U-D2A	B	From Leg	4.00	0.00	154.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			1.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
RFV01U-D2A	C	From Leg	4.00	0.00	154.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			1.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0.00	154.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.00	154.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.00	154.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
BSAMNT-SBS-2-2 Side By Side Bracket	A	From Leg	4.00	0.00	154.00	No Ice	0.00	0.00	0.07
			0.00			1/2"	0.00	0.00	0.09
			0.00			Ice	0.00	0.00	0.11
						1" Ice	0.00	0.00	0.15
						2" Ice			
BSAMNT-SBS-2-2 Side By Side Bracket	B	From Leg	4.00	0.00	154.00	No Ice	0.00	0.00	0.07
			0.00			1/2"	0.00	0.00	0.09
			0.00			Ice	0.00	0.00	0.11
						1" Ice	0.00	0.00	0.15
						2" Ice			
BSAMNT-SBS-2-2 Side By Side Bracket	B	From Leg	4.00	0.00	154.00	No Ice	0.00	0.00	0.07
			0.00			1/2"	0.00	0.00	0.09
			0.00			Ice	0.00	0.00	0.11
						1" Ice	0.00	0.00	0.15
						2" Ice			
Platform Mount [LP 601-1]	C	None		0.00	154.00	No Ice	28.50	28.50	1.12
						1/2"	31.69	31.69	1.68

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						Ice	34.87	34.87	2.28
						1" Ice	41.23	41.23	3.65
						2" Ice			
146									
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90	2.71 3.04 3.38 4.12	0.13 0.17 0.23 0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90	2.71 3.04 3.38 4.12	0.13 0.17 0.23 0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90	2.71 3.04 3.38 4.12	0.13 0.17 0.23 0.35
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4460 B2/B25	A	From Leg	4.00	0.00	146.00	No Ice	2.14	1.69	0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
B66_TMO			0.00 -1.00			1/2" Ice 1" Ice 2" Ice	2.32 2.51 2.91	1.85 2.02 2.39	0.13 0.16 0.22
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.14 2.32 2.51 2.91	1.69 1.85 2.02 2.39	0.11 0.13 0.16 0.22
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00 0.00 -1.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.14 2.32 2.51 2.91	1.69 1.85 2.02 2.39	0.11 0.13 0.16 0.22
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
Platform Mount [LP 602-1]	C	None		0.00	146.00	No Ice 1/2" Ice 1" Ice 2" Ice	31.07 34.82 38.48 45.60	31.07 34.82 38.48 45.60	1.34 1.97 2.67 4.31
**** **134** (4) DB844H90E-XY w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	134.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.30 3.67 4.03 4.80	4.80 5.42 6.04 7.34	0.03 0.07 0.12 0.23
(4) DB844H90E-XY w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	134.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.30 3.67 4.03 4.80	4.80 5.42 6.04 7.34	0.03 0.07 0.12 0.23
(4) DB844H90E-XY w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	134.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.30 3.67 4.03 4.80	4.80 5.42 6.04 7.34	0.03 0.07 0.12 0.23
Platform Mount [LP 303-1]	C	None		0.00	134.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 18.01 21.34 28.08	14.69 18.01 21.34 28.08	1.25 1.57 1.94 2.85
*** ** *									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft	°	°	ft	ft		ft^2	K
164											
A-ANT-23G-2-C	A	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 2.00	0.00		164.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.01 0.02 0.03 0.05
A-ANT-23G-2-C	B	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 2.00	40.00		164.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.01 0.02 0.03 0.05
A-ANT-23G-2-C	C	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 2.00	20.00		164.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.01 0.02 0.03 0.05
***											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service

Comb. No.	Description
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	195 - 157.65	Pole	Max Tension	8	0.00	0.00	0.00
			Max. Compression	26	-32.54	-1.54	-1.04
			Max. Mx	8	-13.23	-268.98	-0.74
			Max. My	14	-13.27	-0.81	-268.14
			Max. Vy	8	18.35	-268.98	-0.74
			Max. Vx	14	18.10	-0.81	-268.14
			Max. Torque	4			-1.17
L2	157.65 - 117.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.44	-1.96	-1.72
			Max. Mx	8	-30.06	-1352.30	-0.33
			Max. My	14	-30.11	0.28	-1339.09
			Max. Vy	8	33.89	-1352.30	-0.33
			Max. Vx	14	33.56	0.28	-1339.09
			Max. Torque	4			-1.39
L3	117.08 - 81.09	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-82.55	-3.09	-1.45
			Max. Mx	8	-41.43	-2603.53	0.96
			Max. My	14	-41.46	2.27	-2578.77
			Max. Vy	8	37.49	-2603.53	0.96
			Max. Vx	14	37.16	2.27	-2578.77
			Max. Torque	4			-1.39
L4	81.09 - 40.03	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.78	-4.60	-1.09
			Max. Mx	8	-59.92	-4185.99	2.42
			Max. My	14	-59.94	4.49	-4148.14
			Max. Vy	8	41.55	-4185.99	2.42
			Max. Vx	14	41.23	4.49	-4148.14
			Max. Torque	4			-1.39
L5	40.03 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-137.32	-6.51	-0.73
			Max. Mx	8	-85.90	-6275.79	4.12
			Max. My	14	-85.90	7.10	-6222.60
			Max. Vy	8	45.34	-6275.79	4.12
			Max. Vx	14	45.03	7.10	-6222.60
			Max. Torque	4			-1.38

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	30	137.32	-11.98	-0.04
	Max. H_x	20	85.92	45.25	0.03
	Max. H_z	2	85.92	-0.04	44.98
	Max. M_x	2	6219.99	-0.04	44.98
	Max. M_z	8	6275.79	-45.29	0.04

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. Torsion	16	1.18	22.65	-39.00
	Min. Vert	25	64.44	22.61	38.94
	Min. H_x	8	85.92	-45.29	0.04
	Min. H_z	14	85.92	0.06	-44.98
	Min. M_x	14	-6222.60	0.06	-44.98
	Min. M_z	20	-6263.83	45.25	0.03
	Min. Torsion	4	-1.38	-22.66	39.00

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	71.60	0.00	0.00	0.93	-1.64	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	85.92	0.04	-44.98	-6219.99	-7.37	0.86
0.9 Dead+1.0 Wind 0 deg - No Ice	64.44	0.04	-44.98	-6146.56	-6.76	0.85
1.2 Dead+1.0 Wind 30 deg - No Ice	85.92	22.66	-39.00	-5392.96	-3140.80	1.38
0.9 Dead+1.0 Wind 30 deg - No Ice	64.44	22.66	-39.00	-5329.30	-3103.02	1.37
1.2 Dead+1.0 Wind 60 deg - No Ice	85.92	39.23	-22.56	-3119.84	-5435.48	1.08
0.9 Dead+1.0 Wind 60 deg - No Ice	64.44	39.23	-22.56	-3083.14	-5370.47	1.07
1.2 Dead+1.0 Wind 90 deg - No Ice	85.92	45.29	-0.04	-4.12	-6275.79	0.48
0.9 Dead+1.0 Wind 90 deg - No Ice	64.44	45.29	-0.04	-4.38	-6200.84	0.47
1.2 Dead+1.0 Wind 120 deg - No Ice	85.92	39.17	22.51	3116.00	-5427.47	0.12
0.9 Dead+1.0 Wind 120 deg - No Ice	64.44	39.17	22.51	3078.74	-5362.55	0.11
1.2 Dead+1.0 Wind 150 deg - No Ice	85.92	22.62	38.92	5384.33	-3135.79	-0.22
0.9 Dead+1.0 Wind 150 deg - No Ice	64.44	22.62	38.92	5320.17	-3098.05	-0.21
1.2 Dead+1.0 Wind 180 deg - No Ice	85.92	-0.06	44.98	6222.60	7.10	-0.70
0.9 Dead+1.0 Wind 180 deg - No Ice	64.44	-0.06	44.98	6148.53	7.54	-0.69
1.2 Dead+1.0 Wind 210 deg - No Ice	85.92	-22.65	39.00	5395.69	3134.26	-1.18
0.9 Dead+1.0 Wind 210 deg - No Ice	64.44	-22.65	39.00	5331.40	3097.61	-1.17
1.2 Dead+1.0 Wind 240 deg - No Ice	85.92	-39.17	22.60	3128.97	5421.29	-1.16
0.9 Dead+1.0 Wind 240 deg - No Ice	64.44	-39.17	22.60	3091.56	5357.51	-1.15
1.2 Dead+1.0 Wind 270 deg - No Ice	85.92	-45.25	-0.03	-5.36	6263.83	-0.27
0.9 Dead+1.0 Wind 270 deg - No Ice	64.44	-45.25	-0.03	-5.58	6190.08	-0.27
1.2 Dead+1.0 Wind 300 deg - No Ice	85.92	-39.17	-22.50	-3112.05	5422.29	0.19
0.9 Dead+1.0 Wind 300 deg - No Ice	64.44	-39.17	-22.50	-3075.43	5358.48	0.19
1.2 Dead+1.0 Wind 330 deg - No Ice	85.92	-22.61	-38.94	-5384.05	3129.00	0.34
0.9 Dead+1.0 Wind 330 deg - No Ice	64.44	-22.61	-38.94	-5320.49	3092.40	0.33
1.2 Dead+1.0 Ice+1.0 Temp	137.32	0.00	0.00	0.73	-6.51	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	137.32	-0.04	-11.87	-1716.01	0.50	0.10

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	137.32	5.95	-10.27	-1483.03	-867.62	0.13
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	137.32	10.35	-5.91	-852.30	-1505.61	0.04
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	137.32	11.98	0.04	8.36	-1742.37	-0.07
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	137.32	10.39	5.98	867.65	-1512.56	-0.08
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	137.32	6.03	10.30	1491.06	-881.46	-0.06
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	137.32	0.04	11.87	1717.78	-13.68	-0.07
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	137.32	-5.95	10.27	1484.84	853.13	-0.09
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	137.32	-10.34	5.91	855.44	1489.53	-0.05
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	137.32	-11.97	-0.06	-9.10	1726.76	0.11
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	137.32	-10.39	-5.98	-865.57	1498.33	0.15
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	137.32	-6.03	-10.30	-1489.77	866.92	0.09
Dead+Wind 0 deg - Service	71.60	0.01	-9.76	-1340.25	-2.88	0.19
Dead+Wind 30 deg - Service	71.60	4.92	-8.46	-1161.95	-678.42	0.30
Dead+Wind 60 deg - Service	71.60	8.51	-4.90	-671.89	-1173.14	0.24
Dead+Wind 90 deg - Service	71.60	9.83	-0.01	-0.16	-1354.32	0.10
Dead+Wind 120 deg - Service	71.60	8.50	4.89	672.52	-1171.41	0.02
Dead+Wind 150 deg - Service	71.60	4.91	8.45	1161.55	-677.33	-0.05
Dead+Wind 180 deg - Service	71.60	-0.01	9.76	1342.28	0.24	-0.16
Dead+Wind 210 deg - Service	71.60	-4.92	8.46	1164.00	674.43	-0.26
Dead+Wind 240 deg - Service	71.60	-8.50	4.90	675.32	1167.51	-0.25
Dead+Wind 270 deg - Service	71.60	-9.82	-0.01	-0.42	1349.17	-0.06
Dead+Wind 300 deg - Service	71.60	-8.50	-4.88	-670.21	1167.72	0.05
Dead+Wind 330 deg - Service	71.60	-4.91	-8.45	-1160.02	673.30	0.08

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-71.60	0.00	0.00	71.60	0.00	0.000%
2	0.04	-85.92	-44.98	-0.04	85.92	44.98	0.000%
3	0.04	-64.44	-44.98	-0.04	64.44	44.98	0.000%
4	22.66	-85.92	-39.00	-22.66	85.92	39.00	0.000%
5	22.66	-64.44	-39.00	-22.66	64.44	39.00	0.000%
6	39.23	-85.92	-22.56	-39.23	85.92	22.56	0.000%
7	39.23	-64.44	-22.56	-39.23	64.44	22.56	0.000%
8	45.29	-85.92	-0.04	-45.29	85.92	0.04	0.000%
9	45.29	-64.44	-0.04	-45.29	64.44	0.04	0.000%
10	39.17	-85.92	22.51	-39.17	85.92	-22.51	0.000%
11	39.17	-64.44	22.51	-39.17	64.44	-22.51	0.000%
12	22.62	-85.92	38.92	-22.62	85.92	-38.92	0.000%
13	22.62	-64.44	38.92	-22.62	64.44	-38.92	0.000%
14	-0.06	-85.92	44.98	0.06	85.92	-44.98	0.000%
15	-0.06	-64.44	44.98	0.06	64.44	-44.98	0.000%
16	-22.65	-85.92	39.00	22.65	85.92	-39.00	0.000%
17	-22.65	-64.44	39.00	22.65	64.44	-39.00	0.000%
18	-39.17	-85.92	22.60	39.17	85.92	-22.60	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
19	-39.17	-64.44	22.60	39.17	64.44	-22.60	0.000%
20	-45.25	-85.92	-0.03	45.25	85.92	0.03	0.000%
21	-45.25	-64.44	-0.03	45.25	64.44	0.03	0.000%
22	-39.17	-85.92	-22.50	39.17	85.92	22.50	0.000%
23	-39.17	-64.44	-22.50	39.17	64.44	22.50	0.000%
24	-22.61	-85.92	-38.94	22.61	85.92	38.94	0.000%
25	-22.61	-64.44	-38.94	22.61	64.44	38.94	0.000%
26	0.00	-137.32	0.00	-0.00	137.32	-0.00	0.000%
27	-0.04	-137.32	-11.87	0.04	137.32	11.87	0.000%
28	5.95	-137.32	-10.27	-5.95	137.32	10.27	0.000%
29	10.35	-137.32	-5.91	-10.35	137.32	5.91	0.000%
30	11.98	-137.32	0.04	-11.98	137.32	-0.04	0.000%
31	10.39	-137.32	5.98	-10.39	137.32	-5.98	0.000%
32	6.03	-137.32	10.30	-6.03	137.32	-10.30	0.000%
33	0.04	-137.32	11.87	-0.04	137.32	-11.87	0.000%
34	-5.95	-137.32	10.27	5.95	137.32	-10.27	0.000%
35	-10.34	-137.32	5.91	10.34	137.32	-5.91	0.000%
36	-11.97	-137.32	-0.06	11.97	137.32	0.06	0.000%
37	-10.39	-137.32	-5.98	10.39	137.32	5.98	0.000%
38	-6.03	-137.32	-10.30	6.03	137.32	10.30	0.000%
39	0.01	-71.60	-9.76	-0.01	71.60	9.76	0.000%
40	4.92	-71.60	-8.46	-4.92	71.60	8.46	0.000%
41	8.51	-71.60	-4.90	-8.51	71.60	4.90	0.000%
42	9.83	-71.60	-0.01	-9.83	71.60	0.01	0.000%
43	8.50	-71.60	4.89	-8.50	71.60	-4.89	0.000%
44	4.91	-71.60	8.45	-4.91	71.60	-8.45	0.000%
45	-0.01	-71.60	9.76	0.01	71.60	-9.76	0.000%
46	-4.92	-71.60	8.46	4.92	71.60	-8.46	0.000%
47	-8.50	-71.60	4.90	8.50	71.60	-4.90	0.000%
48	-9.82	-71.60	-0.01	9.82	71.60	0.01	0.000%
49	-8.50	-71.60	-4.88	8.50	71.60	4.88	0.000%
50	-4.91	-71.60	-8.45	4.91	71.60	8.45	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00086200
3	Yes	4	0.00000001	0.00048048
4	Yes	6	0.00000001	0.00010234
5	Yes	5	0.00000001	0.00086588
6	Yes	6	0.00000001	0.00010013
7	Yes	5	0.00000001	0.00084650
8	Yes	4	0.00000001	0.00063208
9	Yes	4	0.00000001	0.00029155
10	Yes	6	0.00000001	0.00010114
11	Yes	5	0.00000001	0.00085508
12	Yes	6	0.00000001	0.00010096
13	Yes	5	0.00000001	0.00085398
14	Yes	4	0.00000001	0.00069101
15	Yes	4	0.00000001	0.00034505
16	Yes	6	0.00000001	0.00009956
17	Yes	5	0.00000001	0.00084215
18	Yes	6	0.00000001	0.00010234
19	Yes	5	0.00000001	0.00086569
20	Yes	4	0.00000001	0.00059282
21	Yes	4	0.00000001	0.00025618
22	Yes	6	0.00000001	0.00010094
23	Yes	5	0.00000001	0.00085409
24	Yes	6	0.00000001	0.00009998
25	Yes	5	0.00000001	0.00084616
26	Yes	4	0.00000001	0.00001406
27	Yes	5	0.00000001	0.00077881
28	Yes	5	0.00000001	0.00098329

29	Yes	5	0.00000001	0.00098586
30	Yes	5	0.00000001	0.00079257
31	Yes	6	0.00000001	0.00012361
32	Yes	5	0.00000001	0.00099978
33	Yes	5	0.00000001	0.00078215
34	Yes	5	0.00000001	0.00097563
35	Yes	5	0.00000001	0.00098095
36	Yes	5	0.00000001	0.00078461
37	Yes	5	0.00000001	0.00099056
38	Yes	5	0.00000001	0.00098427
39	Yes	4	0.00000001	0.00009803
40	Yes	4	0.00000001	0.00047018
41	Yes	4	0.00000001	0.00043903
42	Yes	4	0.00000001	0.00009534
43	Yes	4	0.00000001	0.00045383
44	Yes	4	0.00000001	0.00045470
45	Yes	4	0.00000001	0.00009643
46	Yes	4	0.00000001	0.00043387
47	Yes	4	0.00000001	0.00046704
48	Yes	4	0.00000001	0.00009411
49	Yes	4	0.00000001	0.00045029
50	Yes	4	0.00000001	0.00043939

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	195 - 157.65	26.5278	42	1.17	0.00
L2	162.38 - 117.08	18.6327	42	1.11	0.00
L3	122.94 - 81.09	10.3760	42	0.84	0.00
L4	87.93 - 40.03	5.1676	42	0.55	0.00
L5	47.98 - 0	1.5587	42	0.29	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.00	7770.00 w/ Mount Pipe	42	24.0657	1.16	0.00	46113
175.00	MX08FRO665-21 w/ Mount Pipe	42	21.6295	1.15	0.00	23056
166.00	A-ANT-23G-2-C	42	19.4808	1.13	0.00	15900
164.00	APXVSPP18-C-A20 w/ Mount Pipe	42	19.0109	1.12	0.00	14875
154.00	(2) DB844G65ZAXY w/ Mount Pipe	42	16.7141	1.07	0.00	11264
146.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	42	14.9521	1.02	0.00	9427
134.00	(4) DB844H90E-XY w/ Mount Pipe	42	12.4661	0.93	0.00	7574

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	195 - 157.65	122.9323	8	5.43	0.01
L2	162.38 - 117.08	86.3759	8	5.16	0.01
L3	122.94 - 81.09	48.1168	8	3.91	0.00
L4	87.93 - 40.03	23.9643	8	2.57	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L5	47.98 - 0	7.2269	8	1.36	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.00	7770.00 w/ Mount Pipe	8	111.5334	5.39	0.01	10170
175.00	MX08FRO665-21 w/ Mount Pipe	8	100.2541	5.32	0.01	5083
166.00	A-ANT-23G-2-C	8	90.3038	5.22	0.01	3503
164.00	APXVSPP18-C-A20 w/ Mount Pipe	8	88.1277	5.18	0.01	3277
154.00	(2) DB844G65ZAXY w/ Mount Pipe	8	77.4889	4.97	0.00	2471
146.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	8	69.3256	4.74	0.00	2063
134.00	(4) DB844H90E-XY w/ Mount Pipe	8	57.8054	4.33	0.00	1653

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	195 - 157.65 (1)	TP33.875x25x0.25	37.35	0.00	0.0	25.7896	-13.24	1508.69	0.009
L2	157.65 - 117.08 (2)	TP42.9063x32.2511x0.3125	45.30	0.00	0.0	40.8805	-30.06	2391.51	0.013
L3	117.08 - 81.09 (3)	TP50.75x40.9029x0.375	41.85	0.00	0.0	58.0432	-41.43	3395.53	0.012
L4	81.09 - 40.03 (4)	TP59.6563x48.3906x0.5	47.90	0.00	0.0	90.9136	-59.92	5318.45	0.011
L5	40.03 - 0 (5)	TP68x56.7865x0.5	47.98	0.00	0.0	107.1220	-85.90	6266.67	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	195 - 157.65 (1)	TP33.875x25x0.25	269.24	1168.53	0.230	0.00	1168.53	0.000
L2	157.65 - 117.08 (2)	TP42.9063x32.2511x0.3125	1352.30	2337.04	0.579	0.00	2337.04	0.000
L3	117.08 - 81.09 (3)	TP50.75x40.9029x0.375	2603.53	3945.68	0.660	0.00	3945.68	0.000
L4	81.09 - 40.03 (4)	TP59.6563x48.3906x0.5	4185.99	7560.90	0.554	0.00	7560.90	0.000
L5	40.03 - 0 (5)	TP68x56.7865x0.5	6275.79	9944.92	0.631	0.00	9944.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	195 - 157.65 (1)	TP33.875x25x0.25	18.34	452.61	0.041	0.54	1288.25	0.000
L2	157.65 - 117.08 (2)	TP42.9063x32.2511x0.3125	33.89	717.45	0.047	0.48	2589.60	0.000
L3	117.08 - 81.09 (3)	TP50.75x40.9029x0.375	37.49	1018.66	0.037	0.48	4350.33	0.000
L4	81.09 - 40.03 (4)	TP59.6563x48.3906x0.5	41.55	1595.53	0.026	0.48	8004.57	0.000
L5	40.03 - 0 (5)	TP68x56.7865x0.5	45.34	1880.00	0.024	0.48	11113.25	0.000

Pole Interaction Design Data

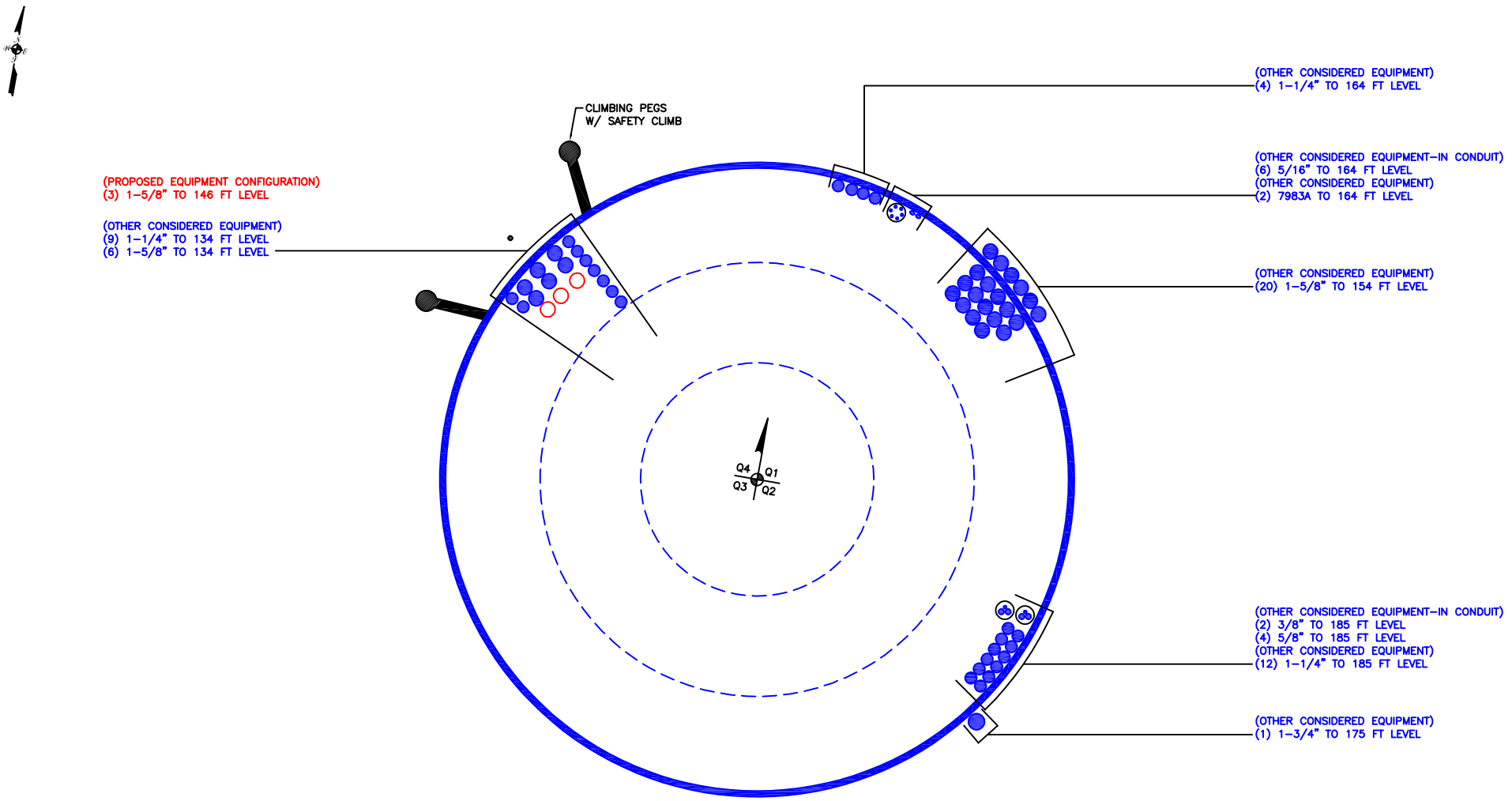
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	195 - 157.65 (1)	0.009	0.230	0.000	0.041	0.000	0.241	1.050	4.8.2
L2	157.65 - 117.08 (2)	0.013	0.579	0.000	0.047	0.000	0.593	1.050	4.8.2
L3	117.08 - 81.09 (3)	0.012	0.660	0.000	0.037	0.000	0.673	1.050	4.8.2
L4	81.09 - 40.03 (4)	0.011	0.554	0.000	0.026	0.000	0.566	1.050	4.8.2
L5	40.03 - 0 (5)	0.014	0.631	0.000	0.024	0.000	0.645	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	195 - 157.65	Pole	TP33.875x25x0.25	1	-13.24	1584.12	22.9	Pass
L2	157.65 - 117.08	Pole	TP42.9063x32.2511x0.3125	2	-30.06	2511.09	56.5	Pass
L3	117.08 - 81.09	Pole	TP50.75x40.9029x0.375	3	-41.43	3565.31	64.1	Pass
L4	81.09 - 40.03	Pole	TP59.6563x48.3906x0.5	4	-59.92	5584.37	53.9	Pass
L5	40.03 - 0	Pole	TP68x56.7865x0.5	5	-85.90	6580.00	61.5	Pass
							Summary	
						Pole (L3)	64.1	Pass
						RATING =	**64.1**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(PROPOSED EQUIPMENT CONFIGURATION)
(3) 1-5/8" TO 146 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(9) 1-1/4" TO 134 FT LEVEL
(6) 1-5/8" TO 134 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(4) 1-1/4" TO 164 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)
(6) 5/16" TO 164 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 7983A TO 164 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(20) 1-5/8" TO 154 FT LEVEL
Q4
Q1
Q3
Q2
(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)
(2) 3/8" TO 185 FT LEVEL
(4) 5/8" TO 185 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-1/4" TO 185 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1-3/4" TO 175 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

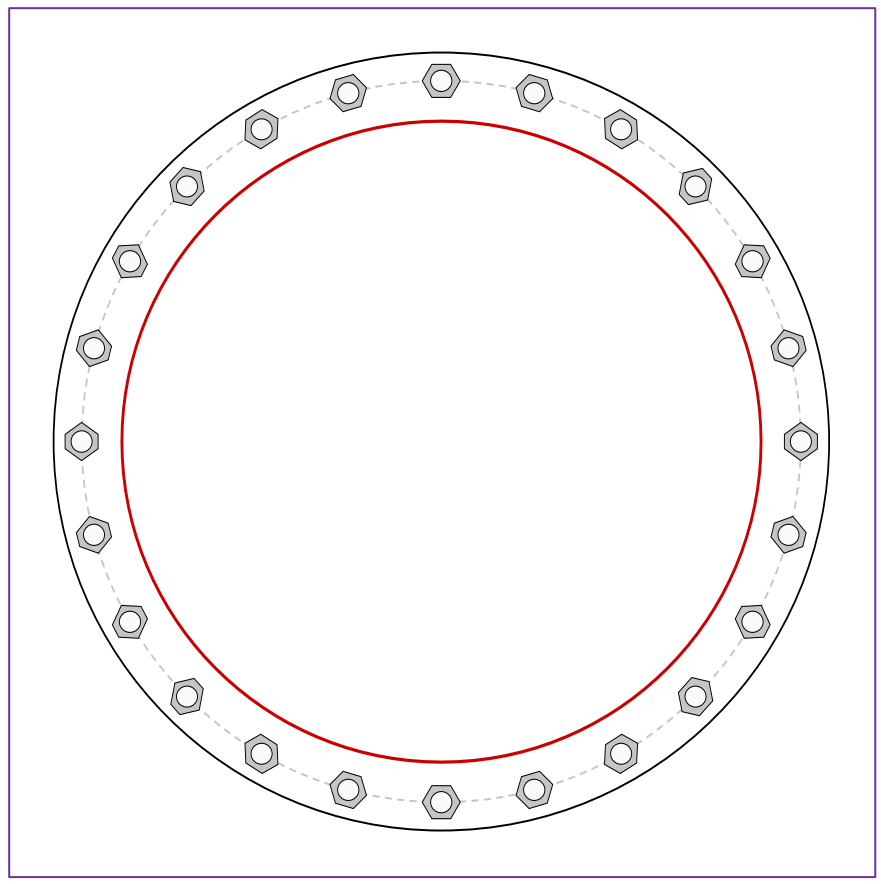
Monopole Base Plate Connection

Site Info	
BU #	881535
Site Name	TRUMBULL TOWER
Order #	575117 (Rev. 0)

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2.0625

Applied Loads	
Moment (kip-ft)	6275.79
Axial Force (kips)	85.90
Shear Force (kips)	45.34

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(24) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 76.5" BC

Base Plate Data

82.5" OD x 2.5" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

68" x 0.5" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 160.44	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.89	ϕVn = 149.1	**62.7%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	31.39	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**55.4%**	**Pass**

Pier and Pad Foundation

BU # :	881535
Site Name:	TRUMBULL TOWE
App. Number:	575117 (Rev. 0)

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☑
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions

Compression, P_{comp}:	85.92	kips
Base Shear, Vu_comp:	45.29	kips
Moment, M_u:	6275.79	ft-kips
Tower Height, **H**:	195	ft
BP Dist. Above Fdn, bp_{dist}:	4.25	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	9	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	54	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	7	ft
Pad Width, W_1:	29	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	30	
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	55	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	12.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:	60	
Base Friction, μ:	0.6	
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	15	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	488.37	45.29	**8.8%**	**Pass**
Bearing Pressure (ksf)	9.00	2.53	**28.1%**	**Pass**
*Overturning (kip*ft)*	10291.80	6654.15	**64.7%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	9308.40	6502.24	**66.5%**	**Pass**
Pier Compression (kip)	51554.88	158.82	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	5943.63	2328.02	**37.3%**	**Pass**
Pad Shear - 1-way (kips)	1039.95	330.91	**30.3%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.046	**22.9%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	5714.52	3901.34	**65.0%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Structural Rating*:	**66.5%**
Soil Rating*:	**64.7%**

Version 4.1.0

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 322.51 ft (NAVD 88)
Latitude: 41.273281
Longitude: -73.213106

Wind

Results:

Wind Speed:	121 Vmph	(125 mph per jurisdiction requirement)
10-year MRI	76 Vmph	
25-year MRI	86 Vmph	
50-year MRI	92 Vmph	
100-year MRI	99 Vmph	

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Mon Jul 26 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

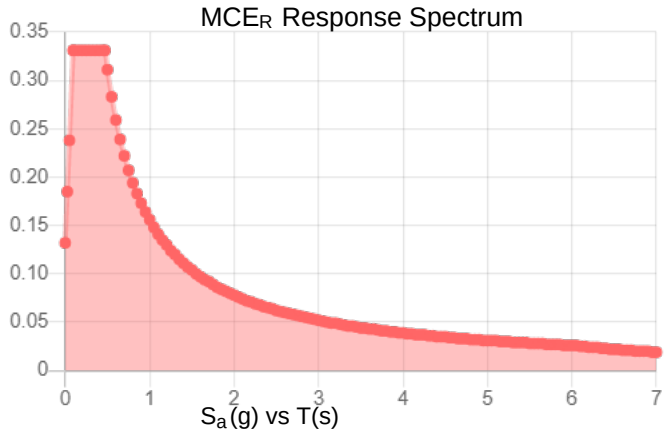
Seismic

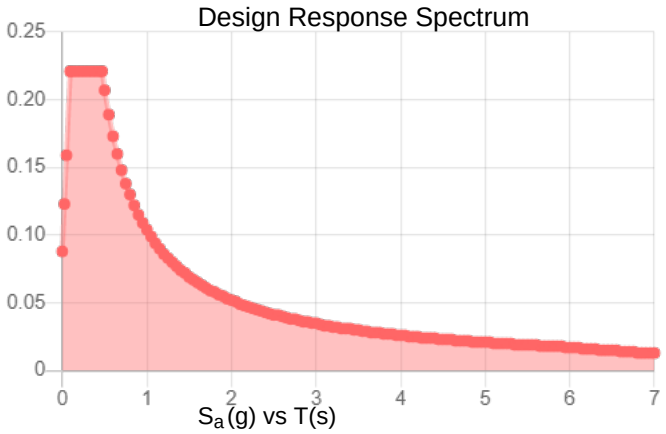
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.207	S_{DS} :	0.221
S_1 :	0.065	S_{D1} :	0.104
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.112
S_{MS} :	0.331	PGA_M :	0.176
S_{M1} :	0.156	F_{PGA} :	1.577
		I_e :	1

Seismic Design Category B





Data Accessed: Mon Jul 26 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Jul 26 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Date: **July 21, 2021**

Darcy Tarr
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(704) 405-6589

Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject:	**Mount Analysis Report**	
Carrier Designation:	**T-Mobile Anchor**	
	Carrier Site Number:	CT11961A
	Carrier Site Name:	CT961/Indian Ledge Prk
Crown Castle Designation:	**Crown Castle BU Number:**	881535
	Crown Castle Site Name:	TRUMBULL TOWER
	Crown Castle JDE Job Number:	673848
	Crown Castle Order Number:	575117 Rev. *0*
Engineering Firm Designation:	**Trylon Report Designation:**	188055
Site Data:	**425 Indian Ledge Park Rd, Trumbull, Fairfield County CT, 06611 Latitude 41°16'23.81" Longitude -73°12'47.18"**	
Structure Information:	**Tower Height & Type:**	**195.0 ft Monopole**
	Mount Elevation:	**146.0 ft**
	Mount Type:	**12.1 ft Platform**

Dear Darcy Tarr,

Trylon is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform	**Sufficient**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2015 Connecticut State Building Code. Applicable Standard references and design criteria are listed Section 2-Analysis Criteria.

Mount analysis prepared by: Mostafa Faghihnia, P.E.

Respectfully Submitted by:
Cliff Abernathy, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Equipment Configuration

3) ANALYSIS PROCEDURE
Table 2 - Documents Provided
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 3 - Mount Component Stresses vs. Capacity
4.1) Recommendations

5) APPENDIX A
Wire Frame and Rendered Models

6) APPENDIX B
Software Input Calculations

7) APPENDIX C
Software Analysis Output

8) APPENDIX D
Additional Calculations

1) INTRODUCTION

This is an existing 3 sector 12.1 ft Platform, mapped by P-Sec.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	125 mph
Exposure Category:	B
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.215
Seismic S_1:	0.065
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
146.0	145.0	3	ERICSSON	AIR6449 B41_T-MOBILE	12.1 ft Platform
		3	RFS/CELWAVE	APXVAARR24_43-U-NA20	
		3	RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	
		3	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	
		3	ERICSSON	RADIO 4460 B2/B25 B66_TMO	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	575117 Rev. 0	CCI Sites
Mount Mapping	P-Sec	8347302	CCI Sites
Mount Analysis Report	MasTec Network Solutionsn	8447389	CCI Sites
Structural Analysisi Report	Black& Veatch Corp.	8459524	CCI Sites

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed, using Microsoft Excel, by Trylon was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.
This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision B). In addition, this analysis is in accordance with OTHER SOW.

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Trylon should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mount Pipe(s)	MP6	146.0	30.4	Pass
	Horizontal(s)	H3		27.7	Pass
	Standoff(s)	M19		46.3	Pass
	Bracing(s)	M6		30.4	Pass
	Plate(s)	P147		75.6	Pass
	Handrail(s)	M94A		35.1	Pass
	Mount Connection(s)	---		78.2	Pass

Structure Rating (max from all components) =	78.2%

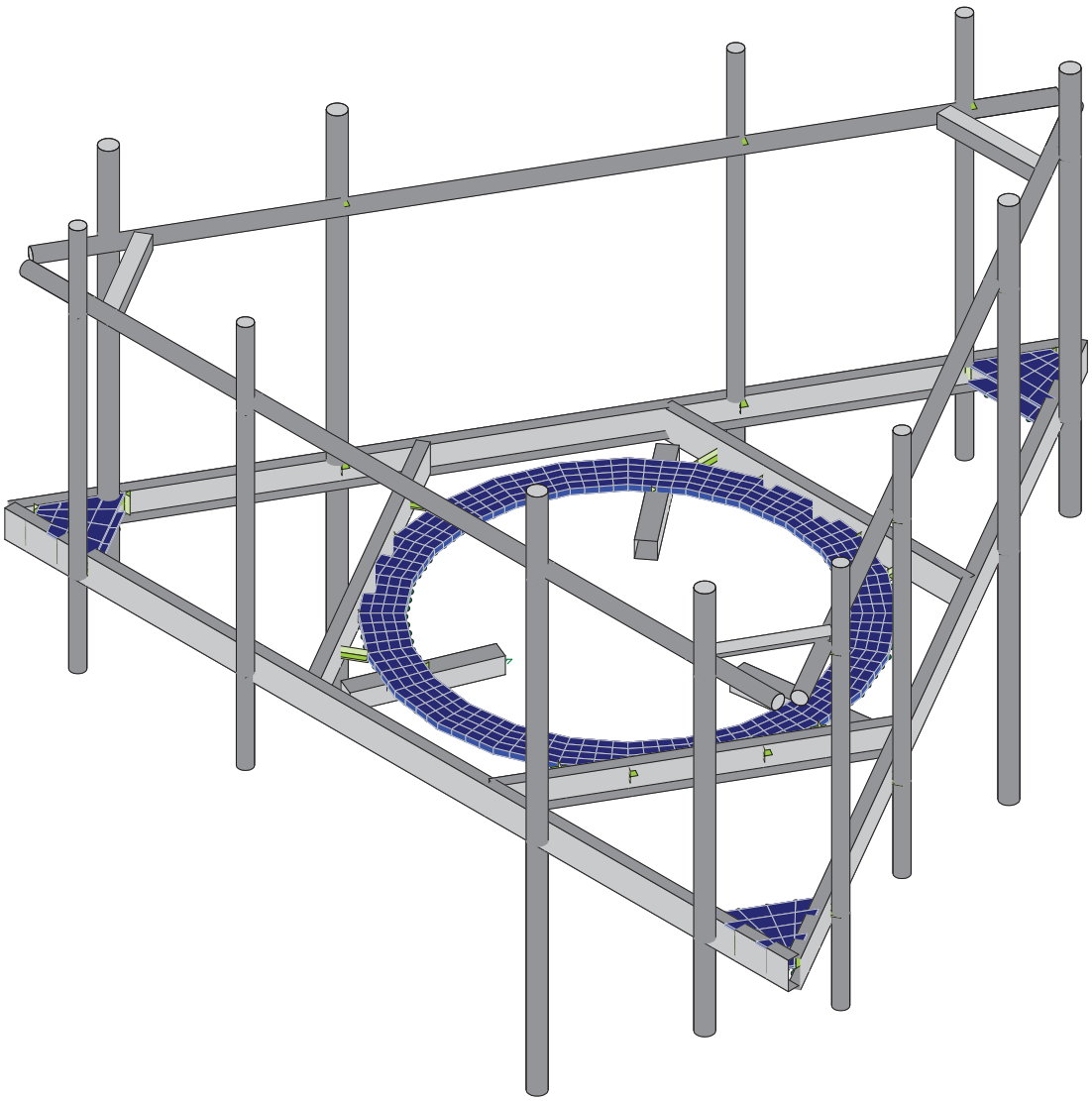
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) Rating per TIA-222-H, Section 15.5

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

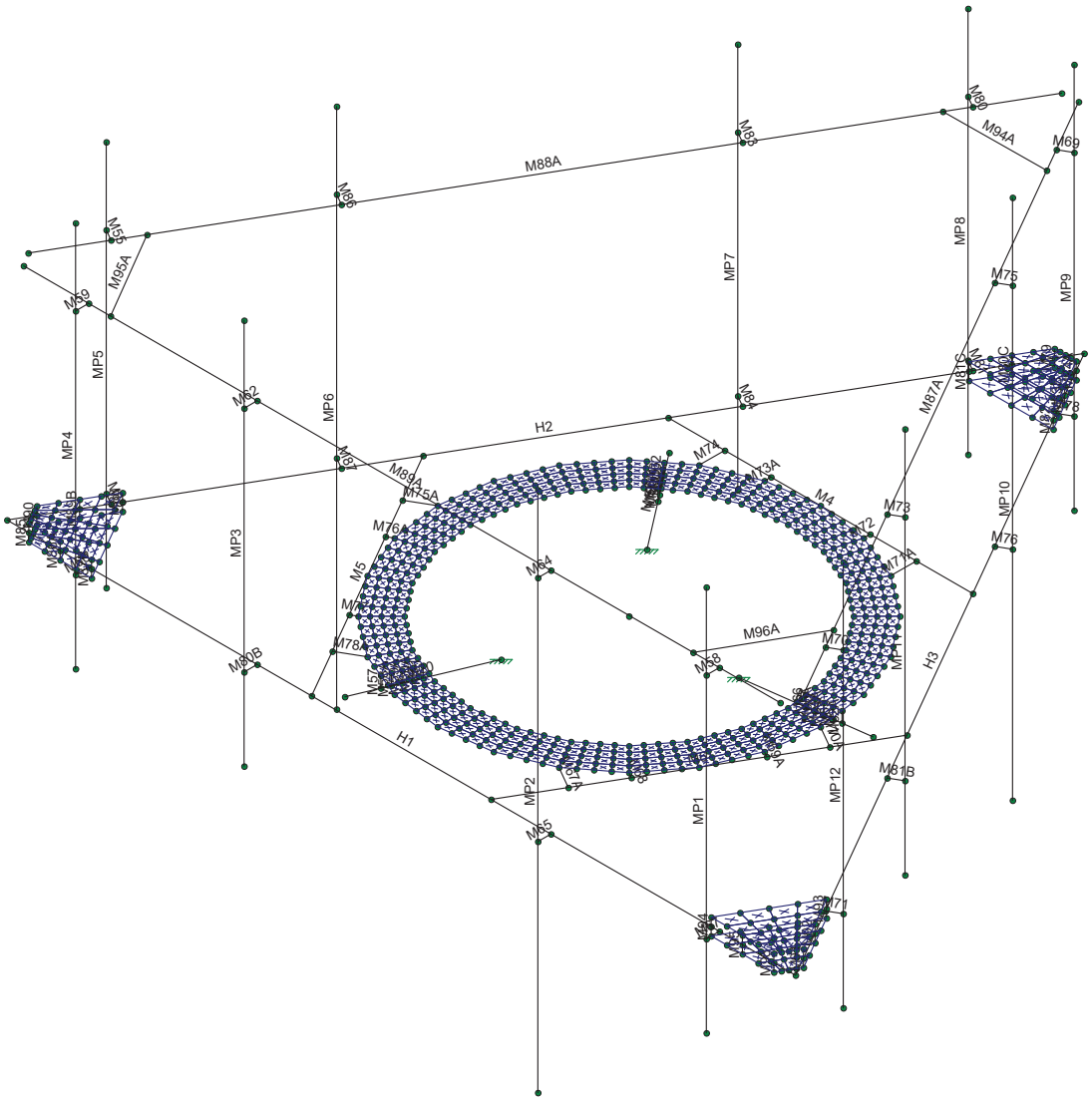
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Trylon	881535	Render
MFT		July 21, 2021 at 4:42 PM
188055		TRUMBULL_loaded.r3d



Envelope Only Solution

Trylon	881535	Wireframe
MFT		July 21, 2021 at 4:43 PM
188055		TRUMBULL_loaded.r3d

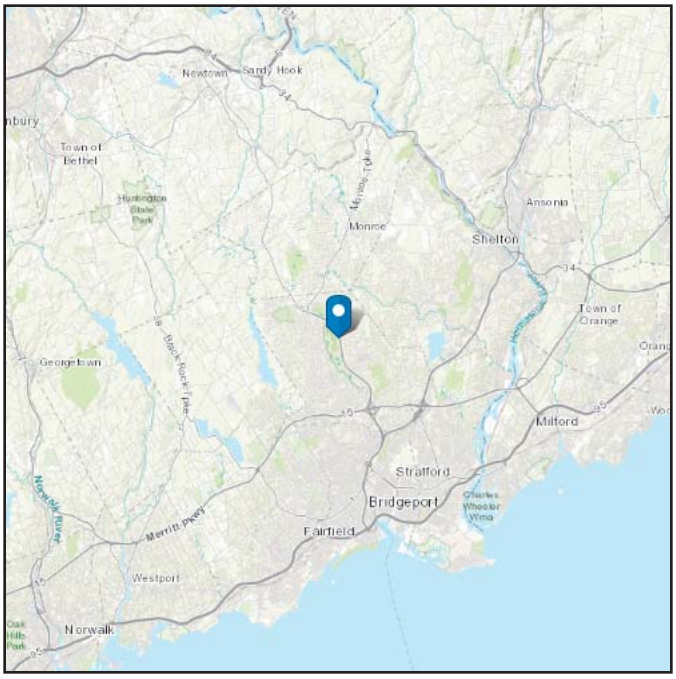
APPENDIX B

SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	322.51 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.273281
Soil Class:	D - Stiff Soil	**Longitude:**	-73.213106



Wind

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

Seismic

Site Soil Class: D - Stiff Soil

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Jul 19 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Trylon
1825 W. Walnut Hill Lane Suite 120
Irving, TX 75038

TIA LOAD CALCULATOR 2.0

PROJECT DATA	
Job Code:	188055
Carrier Site ID:	881535
Carrier Site Name:	TRUMBULL TOWER

CODES AND STANDARDS	
Building Code:	2015 IBC
Local Building Code:	2018 CSBC
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	146.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	195.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Default	--
Ground Elevation:	322.51	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	125	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.10	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	41.36	psf

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.50	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	41.36	psf
Mount Ice Thickness (t_{iz}):	1.74	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	74.44	psf
Round Member Pressure:	44.66	psf
Ice Wind Pressure:	7.53	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.22	g
1 Second Accel (S_1):	0.07	g
Short Period Des. (S_{DS}):	0.23	g
1 Second Des. (S_{D1}):	0.10	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (Cs):	0.11	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

#	Description
121	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP3
122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

EQUIPMENT LOADING

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
AIR6449 B41_T-MOBILE	3	145	No Ice	5.27	2.03	114.63
MP1/MP5/MP9, 0/120/260	--	--	w/ Ice	6.63	3.10	153.92
APXVAARR24_43-U-NA20	3	145	No Ice	14.66603009	5.321531982	128.00
MP2/MP6/MP10, 0/120/260	--	--	w/ Ice	17.04	7.40	428.86
APX16DWV-16DWV-S-E-A20	3	145	No Ice	6.26	1.5	40.70
MP3/MP7/MP11, 0/120/260	--	--	w/ Ice	8.13	3.10	138.12
RADIO 4449 B71 B85A_T-MOBILE	3	145	No Ice	1.97	1.59	73.21
MP2/MP6/MP10, 0/120/240	--	--	w/ Ice	2.40	1.99	81.66
RADIO 4460 B2/B25 B66_TMO	3	145	No Ice	2.14	1.69	109.00
MP2/MP6/MP10, 0/120/240	--	--	w/ Ice	2.58	2.09	90.62
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT LOADING [CONT.]

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
AIR6449 B41_T-MOBILE	3	145	1.00	1.10	0.95	1.74	41.27	6.60
APXVAARR24_43-U-NA20	3	145	1.00	1.10	0.95	1.74	41.27	6.60
PX16DWV-16DWV-S-E-A2	3	145	1.00	1.10	0.95	1.74	41.27	6.60
IO 4449 B71 B85A_T-MOI	3	145	1.00	1.10	0.95	1.74	41.27	6.60
ADIO 4460 B2/B25 B66_TM	3	145	1.00	1.10	0.95	1.74	41.27	6.60

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
AIR6449 B41_T-MOBILE	3	No Ice	195.76	105.50	165.67	75.41	165.67	105.50
MP1/MP5/MP9, 0/120/260	--	w/ Ice	39.43	23.67	34.18	18.42	34.18	23.67
APXVAARR24_43-U-NA20	3	No Ice	544.79	284.46	458.01	197.68	458.01	284.46
MP2/MP6/MP10, 0/120/260	--	w/ Ice	101.29	58.33	86.97	44.01	86.97	58.33
APX16DWV-16DWV-S-E-A20	3	No Ice	232.54	99.92	188.33	55.72	188.33	99.92
MP3/MP7/MP11, 0/120/260	--	w/ Ice	48.29	25.91	40.83	18.45	40.83	25.91
ADIO 4449 B71 B85A_T-MOBIL	3	No Ice	73.18	62.50	69.62	58.93	69.62	62.50
MP2/MP6/MP10, 0/120/240	--	w/ Ice	14.29	12.44	13.67	11.82	13.67	12.44
RADIO 4460 B2/B25 B66_TMO	3	No Ice	79.46	66.83	75.25	62.62	75.25	66.83
MP2/MP6/MP10, 0/120/240	--	w/ Ice	15.36	13.16	14.63	12.43	14.63	13.16
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT SEISMIC FORCE CALCULATIONS

Appurtenance Name	*Qty.*	*Elevation [ft]*	*Weight [lbs]*	F_p [lbs]
AIR6449 B41_T-MOBILE	3	145	114.63	15.77
APXVAARR24_43-U-NA20	3	145	128	17.61
APX16DWV-16DWV-S-E-A20	3	145	40.7	5.60
RADIO 4449 B71 B85A_T-MOBILE	3	145	73.21	10.07
RADIO 4460 B2/B25 B66_TMO	3	145	109	15.00

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	AWC NDS-18: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	TMS 402-16: ASD
Aluminum Code	AA ADM1-15: ASD - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
3	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
4	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Horizontals	C5X9	Beam	None	A36 Gr.36	Typical	2.64	.624	8.89	.109
2	Bracings	C5X9	Beam	None	A36 Gr.36	Typical	2.64	.624	8.89	.109
3	Handrails	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Mount Pipe2	PIPE_2.5	Beam	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
5	Mount Pipe1	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Corner Bracing	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011
7	Standoffs	HSS3X3X4	Beam	None	A500 Gr.B Rect	Typical	2.44	3.02	3.02	5.08

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N71A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N74	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N77A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	H2	N1	N2		180	Horizontals	Beam	None	A36 Gr.36	Typical
2	H1	N2	N4		180	Horizontals	Beam	None	A36 Gr.36	Typical
3	H3	N4	N1		180	Horizontals	Beam	None	A36 Gr.36	Typical
4	M4	N12	N5			Bracings	Beam	None	A36 Gr.36	Typical
5	M5	N6A	N8			Bracings	Beam	None	A36 Gr.36	Typical
6	M6	N9	N11			Bracings	Beam	None	A36 Gr.36	Typical
7	M19	N71A	N72			Standoffs	Beam	None	A500 Gr.B...	Typical
8	M20	N74	N75			Standoffs	Beam	None	A500 Gr.B...	Typical
9	M21	N77A	N78A			Standoffs	Beam	None	A500 Gr.B...	Typical
10	M55	N704	N703			RIGID	None	None	RIGID	Typical
11	M80	N684	N683			RIGID	None	None	RIGID	Typical
12	M81	N685	N682			RIGID	None	None	RIGID	Typical
13	MP8	N686	N687			Mount Pipe1	Beam	None	A53 Gr.B	Typical
14	M83	N690	N689			RIGID	None	None	RIGID	Typical
15	M84	N691	N688			RIGID	None	None	RIGID	Typical
16	MP7	N692	N693			Mount Pipe1	Beam	None	A53 Gr.B	Typical
17	M86	N698	N697			RIGID	None	None	RIGID	Typical
18	M87	N699	N696			RIGID	None	None	RIGID	Typical
19	MP6	N700	N701			Mount Pipe2	Beam	None	A53 Gr.B	Typical
20	M89	N705	N702			RIGID	None	None	RIGID	Typical
21	MP5	N706	N707A			Mount Pipe2	Beam	None	A53 Gr.B	Typical
22	M87A	N756B	N759			Handrails	Beam	None	A53 Gr.B	Typical
23	M88A	N755A	N763			Handrails	Beam	None	A53 Gr.B	Typical
24	M89A	N756A	N757A			Handrails	Beam	None	A53 Gr.B	Typical
25	M58	N734	N733			RIGID	None	None	RIGID	Typical
26	M59	N716	N715			RIGID	None	None	RIGID	Typical
27	M60	N717	N714			RIGID	None	None	RIGID	Typical
28	MP4	N718	N719			Mount Pipe1	Beam	None	A53 Gr.B	Typical
29	M62	N722	N721			RIGID	None	None	RIGID	Typical
30	MP3	N724	N725			Mount Pipe1	Beam	None	A53 Gr.B	Typical
31	M64	N728	N727			RIGID	None	None	RIGID	Typical
32	M65	N729	N726			RIGID	None	None	RIGID	Typical
33	MP2	N730	N731			Mount Pipe2	Beam	None	A53 Gr.B	Typical
34	M67	N735	N732			RIGID	None	None	RIGID	Typical
35	MP1	N736	N737			Mount Pipe2	Beam	None	A53 Gr.B	Typical
36	M69	N758	N757B			RIGID	None	None	RIGID	Typical
37	M70	N740	N739			RIGID	None	None	RIGID	Typical
38	M71	N741	N738			RIGID	None	None	RIGID	Typical
39	MP12	N742	N743			Mount Pipe1	Beam	None	A53 Gr.B	Typical
40	M73	N746	N745			RIGID	None	None	RIGID	Typical
41	MP11	N748	N749			Mount Pipe1	Beam	None	A53 Gr.B	Typical
42	M75	N752	N751			RIGID	None	None	RIGID	Typical
43	M76	N753	N750			RIGID	None	None	RIGID	Typical
44	MP10	N754	N755			Mount Pipe2	Beam	None	A53 Gr.B	Typical
45	M78	N759A	N756			RIGID	None	None	RIGID	Typical
46	MP9	N760A	N761A			Mount Pipe2	Beam	None	A53 Gr.B	Typical
47	M80B	N723	N720			RIGID	None	None	RIGID	Typical
48	M81B	N744	N747			RIGID	None	None	RIGID	Typical
49	M52	N475	N511			RIGID	None	None	RIGID	Typical
50	M53	N479	N768			RIGID	None	None	RIGID	Typical
51	M54	N484	N769			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
52	M55A	N489	N770			RIGID	None	None	RIGID	Typical
53	M56	N493	N512			RIGID	None	None	RIGID	Typical
54	M57	N683A	N509			RIGID	None	None	RIGID	Typical
55	M58A	N687A	N775			RIGID	None	None	RIGID	Typical
56	M59A	N692A	N776			RIGID	None	None	RIGID	Typical
57	M60A	N697A	N777			RIGID	None	None	RIGID	Typical
58	M61	N701A	N510			RIGID	None	None	RIGID	Typical
59	M62A	N267	N513			RIGID	None	None	RIGID	Typical
60	M63	N271	N761B			RIGID	None	None	RIGID	Typical
61	M64A	N276	N762			RIGID	None	None	RIGID	Typical
62	M65A	N281	N763A			RIGID	None	None	RIGID	Typical
63	M66	N285	N514			RIGID	None	None	RIGID	Typical
64	M67A	N60A	N206			RIGID	None	None	RIGID	Typical
65	M68	N62A	N209			RIGID	None	None	RIGID	Typical
66	M69A	N61A	N143			RIGID	None	None	RIGID	Typical
67	M70A	N59	N146			RIGID	None	None	RIGID	Typical
68	M71A	N69	N158			RIGID	None	None	RIGID	Typical
69	M72	N71	N161			RIGID	None	None	RIGID	Typical
70	M73A	N70	N167			RIGID	None	None	RIGID	Typical
71	M74	N68	N170			RIGID	None	None	RIGID	Typical
72	M75A	N78	N182			RIGID	None	None	RIGID	Typical
73	M76A	N80	N185			RIGID	None	None	RIGID	Typical
74	M77	N79	N191			RIGID	None	None	RIGID	Typical
75	M78A	N77	N194			RIGID	None	None	RIGID	Typical
76	M79	N608	N620B			RIGID	None	None	RIGID	Typical
77	M80C	N640A	N661A			RIGID	None	None	RIGID	Typical
78	M81C	N609	N621A			RIGID	None	None	RIGID	Typical
79	M82	N621	N631A			RIGID	None	None	RIGID	Typical
80	M83B	N644A	N665A			RIGID	None	None	RIGID	Typical
81	M84A	N620	N630A			RIGID	None	None	RIGID	Typical
82	M85	N613	N624A			RIGID	None	None	RIGID	Typical
83	M86A	N686B	N707			RIGID	None	None	RIGID	Typical
84	M87B	N614	N625			RIGID	None	None	RIGID	Typical
85	M88	N611	N623A			RIGID	None	None	RIGID	Typical
86	M89B	N682B	N703A			RIGID	None	None	RIGID	Typical
87	M90	N610	N622A			RIGID	None	None	RIGID	Typical
88	M91	N618	N628			RIGID	None	None	RIGID	Typical
89	M92	N717B	N738B			RIGID	None	None	RIGID	Typical
90	M93	N619	N629			RIGID	None	None	RIGID	Typical
91	M94	N616	N627			RIGID	None	None	RIGID	Typical
92	M95	N735B	N756D			RIGID	None	None	RIGID	Typical
93	M96	N615	N626			RIGID	None	None	RIGID	Typical
94	M94A	N777B	N770B		90	Corner Bracing	Beam	None	A36 Gr.36	Typical
95	M95A	N771A	N773A		90	Corner Bracing	Beam	None	A36 Gr.36	Typical
96	M96A	N774A	N776B		90	Corner Bracing	Beam	None	A36 Gr.36	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	H2	Horizontals	145			Lbyy						Lateral
2	H1	Horizontals	145			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
3	H3	Horizontals	145			Lbyy						Lateral
4	M4	Bracings	56			Lbyy						Lateral
5	M5	Bracings	56			Lbyy						Lateral
6	M6	Bracings	56			Lbyy						Lateral
7	M19	Standoffs	22			Lbyy						Lateral
8	M20	Standoffs	22			Lbyy						Lateral
9	M21	Standoffs	22			Lbyy						Lateral
10	MP8	Mount Pipe1	71			Lbyy						Lateral
11	MP7	Mount Pipe1	71			Lbyy						Lateral
12	MP6	Mount Pipe2	96			Lbyy						Lateral
13	MP5	Mount Pipe2	71			Lbyy						Lateral
14	M87A	Handrails	139.122			Lbyy						Lateral
15	M88A	Handrails	139.122			Lbyy						Lateral
16	M89A	Handrails	139.122			Lbyy						Lateral
17	MP4	Mount Pipe1	71			Lbyy						Lateral
18	MP3	Mount Pipe1	71			Lbyy						Lateral
19	MP2	Mount Pipe2	96			Lbyy						Lateral
20	MP1	Mount Pipe2	71			Lbyy						Lateral
21	MP12	Mount Pipe1	71			Lbyy						Lateral
22	MP11	Mount Pipe1	71			Lbyy						Lateral
23	MP10	Mount Pipe2	96			Lbyy						Lateral
24	MP9	Mount Pipe2	71			Lbyy						Lateral
25	M94A	Corner Brac...	18.94			Lbyy						Lateral
26	M95A	Corner Brac...	18.94			Lbyy						Lateral
27	M96A	Corner Brac...	18.94			Lbyy						Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1			24		3	
2	Structure Wind Z	WLZ						96		
3	Structure Wind X	WLX						96		
4	Wind Load 0 AZI	WLZ					48			
5	Wind Load 30 AZI	None					48			
6	Wind Load 45 AZI	None					48			
7	Wind Load 60 AZI	None					48			
8	Wind Load 90 AZI	WLX					48			
9	Wind Load 120 AZI	None					48			
10	Wind Load 135 AZI	None					48			
11	Wind Load 150 AZI	None					48			
12	Ice Weight	OL1					24	96	3	
13	Ice Structure Wind Z	OL2						96		
14	Ice Structure Wind X	OL3						96		
15	Ice Wind Load 0 AZI	OL2					48			
16	Ice Wind Load 30 AZI	None					48			
17	Ice Wind Load 45 AZI	None					48			
18	Ice Wind Load 60 AZI	None					48			
19	Ice Wind Load 90 AZI	OL3					48			
20	Ice Wind Load 120 AZI	None					48			
21	Ice Wind Load 135 AZI	None					48			
22	Ice Wind Load 150 AZI	None					48			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
23	Seismic Load Z	ELZ			-.138		24			
24	Seismic Load X	ELX	-.138				24			
25	Live Load 1 (Lv)	None					1			
26	Live Load 2 (Lv)	None					1			
27	Live Load 3 (Lv)	None					1			
28	Live Load 4 (Lv)	None					1			
29	Live Load 5 (Lv)	None					1			
30	Live Load 6 (Lv)	None					1			
31	Live Load 7 (Lv)	None					1			
32	Live Load 8 (Lv)	None					1			
33	Live Load 9 (Lv)	None					1			
34	Maintenance Load 1 (...	None					1			
35	Maintenance Load 2 (...	None					1			
36	Maintenance Load 3 (...	None					1			
37	Maintenance Load 4 (...	None					1			
38	Maintenance Load 5 (...	None					1			
39	Maintenance Load 6 (...	None					1			
40	Maintenance Load 7 (...	None					1			
41	Maintenance Load 8 (...	None					1			
42	Maintenance Load 9 (...	None					1			
43	Maintenance Load 10 ...	None					1			
44	Maintenance Load 11 ...	None					1			
45	Maintenance Load 12 ...	None					1			
46	BLC 1 Transient Area...	None						39		
47	BLC 12 Transient Are...	None						39		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.4DL	Yes	Y		DL	1.4																				
2	1.2DL + 1WL 0 AZI	Yes	Y		DL	1.2	2	1	3		4	1														
3	1.2DL + 1WL 30 AZI	Yes	Y		DL	1.2	2	.866	3	.5	5	1														
4	1.2DL + 1WL 45 AZI	Yes	Y		DL	1.2	2	.707	3	.707	6	1														
5	1.2DL + 1WL 60 AZI	Yes	Y		DL	1.2	2	.5	3	.866	7	1														
6	1.2DL + 1WL 90 AZI	Yes	Y		DL	1.2	2		3	1	8	1														
7	1.2DL + 1WL 120 AZI	Yes	Y		DL	1.2	2	-.5	3	.866	9	1														
8	1.2DL + 1WL 135 AZI	Yes	Y		DL	1.2	2	-.707	3	.707	10	1														
9	1.2DL + 1WL 150 AZI	Yes	Y		DL	1.2	2	-.866	3	.5	11	1														
10	1.2DL + 1WL 180 AZI	Yes	Y		DL	1.2	2	-1	3		4	-1														
11	1.2DL + 1WL 210 AZI	Yes	Y		DL	1.2	2	-.866	3	-.5	5	-1														
12	1.2DL + 1WL 225 AZI	Yes	Y		DL	1.2	2	-.707	3	-.707	6	-1														
13	1.2DL + 1WL 240 AZI	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1														
14	1.2DL + 1WL 270 AZI	Yes	Y		DL	1.2	2		3	-1	8	-1														
15	1.2DL + 1WL 300 AZI	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1														
16	1.2DL + 1WL 315 AZI	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1														
17	1.2DL + 1WL 330 AZI	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1														
18	0.9DL + 1WL 0 AZI	Yes	Y		DL	.9	2	1	3		4	1														
19	0.9DL + 1WL 30 AZI	Yes	Y		DL	.9	2	.866	3	.5	5	1														
20	0.9DL + 1WL 45 AZI	Yes	Y		DL	.9	2	.707	3	.707	6	1														
21	0.9DL + 1WL 60 AZI	Yes	Y		DL	.9	2	.5	3	.866	7	1														
22	0.9DL + 1WL 90 AZI	Yes	Y		DL	.9	2		3	1	8	1														

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
23	0.9DL + 1WL 120 AZI	Yes	Y		DL	.9	2	-.5	3	.866	9	1														
24	0.9DL + 1WL 135 AZI	Yes	Y		DL	.9	2	-.707	3	.707	10	1														
25	0.9DL + 1WL 150 AZI	Yes	Y		DL	.9	2	-.866	3	.5	11	1														
26	0.9DL + 1WL 180 AZI	Yes	Y		DL	.9	2	-1	3		4	-1														
27	0.9DL + 1WL 210 AZI	Yes	Y		DL	.9	2	-.866	3	-.5	5	-1														
28	0.9DL + 1WL 225 AZI	Yes	Y		DL	.9	2	-.707	3	-.707	6	-1														
29	0.9DL + 1WL 240 AZI	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1														
30	0.9DL + 1WL 270 AZI	Yes	Y		DL	.9	2		3	-1	8	-1														
31	0.9DL + 1WL 300 AZI	Yes	Y		DL	.9	2	.5	3	-.866	9	-1														
32	0.9DL + 1WL 315 AZI	Yes	Y		DL	.9	2	.707	3	-.707	10	-1														
33	0.9DL + 1WL 330 AZI	Yes	Y		DL	.9	2	.866	3	-.5	11	-1														
34	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	1	14		15	1												
35	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	.866	14	.5	16	1												
36	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	.707	14	.707	17	1												
37	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	.5	14	.866	18	1												
38	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13		14	1	19	1												
39	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	.866	20	1												
40	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	.707	21	1												
41	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	.5	22	1												
42	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	-1	14		15	-1												
43	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	-.5	16	-1												
44	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	-.707	17	-1												
45	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	-.866	18	-1												
46	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13		14	-1	19	-1												
47	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	.5	14	-.866	20	-1												
48	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	.707	14	-.707	21	-1												
49	1.2DL + 1DLi + 1W Li...	Yes	Y		DL	1.2	OL1	1	13	.866	14	-.5	22	-1												
50	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	1	24																	
51	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	.866	24	.5																
52	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	.707	24	.707																
53	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	.5	24	.866																
54	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23		24	1																
55	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	-.5	24	.866																
56	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	-.707	24	.707																
57	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	-.866	24	.5																
58	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	-1	24																	
59	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	-.866	24	-.5																
60	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	-.707	24	-.707																
61	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	-.5	24	-.866																
62	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23		24	-1																
63	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	.5	24	-.866																
64	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	.707	24	-.707																
65	(1.2+0.2Sds)DL + 1...	Yes	Y		DL	1.2...	23	.866	24	-.5																
66	(0.9-0.2Sds)DL + 1E...	Yes	Y		DL	.854	23	1	24																	
67	(0.9-0.2Sds)DL + 1E...	Yes	Y		DL	.854	23	.866	24	.5																
68	(0.9-0.2Sds)DL + 1E...	Yes	Y		DL	.854	23	.707	24	.707																
69	(0.9-0.2Sds)DL + 1E...	Yes	Y		DL	.854	23	.5	24	.866																
70	(0.9-0.2Sds)DL + 1E...	Yes	Y		DL	.854	23		24	1																
71	(0.9-0.2Sds)DL + 1E...	Yes	Y		DL	.854	23	-.5	24	.866																
72	(0.9-0.2Sds)DL + 1E...	Yes	Y		DL	.854	23	-.707	24	.707																
73	(0.9-0.2Sds)DL + 1E...	Yes	Y		DL	.854	23	-.866	24	.5																
74	(0.9-0.2Sds)DL + 1E...	Yes	Y		DL	.854	23	-1	24																	

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
75	(0.9-0.2Sds)DL + 1E..	Yes	Y		DL	.854	23	-.866	24	-.5														
76	(0.9-0.2Sds)DL + 1E..	Yes	Y		DL	.854	23	-.707	24	-.707														
77	(0.9-0.2Sds)DL + 1E..	Yes	Y		DL	.854	23	-.5	24	-.866														
78	(0.9-0.2Sds)DL + 1E..	Yes	Y		DL	.854	23		24	-1														
79	(0.9-0.2Sds)DL + 1E..	Yes	Y		DL	.854	23	.5	24	-.866														
80	(0.9-0.2Sds)DL + 1E..	Yes	Y		DL	.854	23	.707	24	-.707														
81	(0.9-0.2Sds)DL + 1E..	Yes	Y		DL	.854	23	.866	24	-.5														
82	1.2DL + 1Lv1	Yes	Y		DL	1.2	25	1.5																
83	1.2DL + 1Lv2	Yes	Y		DL	1.2	26	1.5																
84	1.2DL + 1Lv3	Yes	Y		DL	1.2	27	1.5																
85	1.2DL + 1Lv4	Yes	Y		DL	1.2	28	1.5																
86	1.2DL + 1Lv5	Yes	Y		DL	1.2	29	1.5																
87	1.2DL + 1Lv6	Yes	Y		DL	1.2	30	1.5																
88	1.2DL + 1Lv7	Yes	Y		DL	1.2	31	1.5																
89	1.2DL + 1Lv8	Yes	Y		DL	1.2	32	1.5																
90	1.2DL + 1Lv9	Yes	Y		DL	1.2	33	1.5																
91	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	.058	3		4	.058										
92	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	.05	3	.029	5	.058										
93	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	.041	3	.041	6	.058										
94	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	.029	3	.05	7	.058										
95	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2		3	.058	8	.058										
96	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	-.029	3	.05	9	.058										
97	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	-.041	3	.041	10	.058										
98	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	-.05	3	.029	11	.058										
99	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	-.058	3		4	-.058										
100	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	-.05	3	-.029	5	-.058										
101	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	-.041	3	-.041	6	-.058										
102	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	-.029	3	-.05	7	-.058										
103	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2		3	-.058	8	-.058										
104	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	.029	3	-.05	9	-.058										
105	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	.041	3	-.041	10	-.058										
106	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	34	1.5	2	.05	3	-.029	11	-.058										
107	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	.058	3		4	.058										
108	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	.05	3	.029	5	.058										
109	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	.041	3	.041	6	.058										
110	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	.029	3	.05	7	.058										
111	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2		3	.058	8	.058										
112	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	-.029	3	.05	9	.058										
113	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	-.041	3	.041	10	.058										
114	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	-.05	3	.029	11	.058										
115	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	-.058	3		4	-.058										
116	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	-.05	3	-.029	5	-.058										
117	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	-.041	3	-.041	6	-.058										
118	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	-.029	3	-.05	7	-.058										
119	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2		3	-.058	8	-.058										
120	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	.029	3	-.05	9	-.058										
121	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	.041	3	-.041	10	-.058										
122	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	35	1.5	2	.05	3	-.029	11	-.058										
123	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	36	1.5	2	.058	3		4	.058										
124	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	36	1.5	2	.05	3	.029	5	.058										
125	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	36	1.5	2	.041	3	.041	6	.058										
126	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	36	1.5	2	.029	3	.05	7	.058										

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
127	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2		3	.058	8	.058										
128	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.029	3	.05	9	.058										
129	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.041	3	.041	10	.058										
130	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.05	3	.029	11	.058										
131	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.058	3		4	-.058										
132	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.05	3	-.029	5	-.058										
133	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.041	3	-.041	6	-.058										
134	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.029	3	-.05	7	-.058										
135	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2		3	-.058	8	-.058										
136	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.029	3	-.05	9	-.058										
137	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.041	3	-.041	10	-.058										
138	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.05	3	-.029	11	-.058										
139	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.058	3		4	.058										
140	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.05	3	.029	5	.058										
141	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.041	3	.041	6	.058										
142	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.029	3	.05	7	.058										
143	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2		3	.058	8	.058										
144	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.029	3	.05	9	.058										
145	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.041	3	.041	10	.058										
146	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.05	3	.029	11	.058										
147	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.058	3		4	-.058										
148	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.05	3	-.029	5	-.058										
149	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.041	3	-.041	6	-.058										
150	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.029	3	-.05	7	-.058										
151	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2		3	-.058	8	-.058										
152	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.029	3	-.05	9	-.058										
153	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.041	3	-.041	10	-.058										
154	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.05	3	-.029	11	-.058										
155	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.058	3		4	.058										
156	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.05	3	.029	5	.058										
157	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.041	3	.041	6	.058										
158	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.029	3	.05	7	.058										
159	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2		3	.058	8	.058										
160	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.029	3	.05	9	.058										
161	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.041	3	.041	10	.058										
162	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.05	3	.029	11	.058										
163	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.058	3		4	-.058										
164	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.05	3	-.029	5	-.058										
165	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.041	3	-.041	6	-.058										
166	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.029	3	-.05	7	-.058										
167	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2		3	-.058	8	-.058										
168	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.029	3	-.05	9	-.058										
169	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.041	3	-.041	10	-.058										
170	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.05	3	-.029	11	-.058										
171	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.058	3		4	.058										
172	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.05	3	.029	5	.058										
173	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.041	3	.041	6	.058										
174	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.029	3	.05	7	.058										
175	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2		3	.058	8	.058										
176	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.029	3	.05	9	.058										
177	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.041	3	.041	10	.058										
178	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.05	3	.029	11	.058										

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
179	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.058	3		4	-.058										
180	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.05	3	-.029	5	-.058										
181	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.041	3	-.041	6	-.058										
182	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.029	3	-.05	7	-.058										
183	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2		3	-.058	8	-.058										
184	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.029	3	-.05	9	-.058										
185	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.041	3	-.041	10	-.058										
186	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.05	3	-.029	11	-.058										
187	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.058	3		4	.058										
188	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.05	3	.029	5	.058										
189	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.041	3	.041	6	.058										
190	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.029	3	.05	7	.058										
191	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2		3	.058	8	.058										
192	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.029	3	.05	9	.058										
193	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.041	3	.041	10	.058										
194	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.05	3	.029	11	.058										
195	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.058	3		4	-.058										
196	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.05	3	-.029	5	-.058										
197	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.041	3	-.041	6	-.058										
198	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.029	3	-.05	7	-.058										
199	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2		3	-.058	8	-.058										
200	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.029	3	-.05	9	-.058										
201	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.041	3	-.041	10	-.058										
202	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.05	3	-.029	11	-.058										
203	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.058	3		4	.058										
204	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.05	3	.029	5	.058										
205	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.041	3	.041	6	.058										
206	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.029	3	.05	7	.058										
207	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2		3	.058	8	.058										
208	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.029	3	.05	9	.058										
209	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.041	3	.041	10	.058										
210	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.05	3	.029	11	.058										
211	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.058	3		4	-.058										
212	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.05	3	-.029	5	-.058										
213	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.041	3	-.041	6	-.058										
214	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.029	3	-.05	7	-.058										
215	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2		3	-.058	8	-.058										
216	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.029	3	-.05	9	-.058										
217	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.041	3	-.041	10	-.058										
218	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.05	3	-.029	11	-.058										
219	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.058	3		4	.058										
220	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.05	3	.029	5	.058										
221	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.041	3	.041	6	.058										
222	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.029	3	.05	7	.058										
223	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2		3	.058	8	.058										
224	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.029	3	.05	9	.058										
225	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.041	3	.041	10	.058										
226	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.05	3	.029	11	.058										
227	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.058	3		4	-.058										
228	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.05	3	-.029	5	-.058										
229	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.041	3	-.041	6	-.058										
230	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.029	3	-.05	7	-.058										

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..
231	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	42	1.5	2		3	-.058	8	-.058										
232	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	42	1.5	2	.029	3	-.05	9	-.058										
233	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	42	1.5	2	.041	3	-.041	10	-.058										
234	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	42	1.5	2	.05	3	-.029	11	-.058										
235	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	.058	3		4	.058										
236	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	.05	3	.029	5	.058										
237	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	.041	3	.041	6	.058										
238	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	.029	3	.05	7	.058										
239	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2		3	.058	8	.058										
240	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	-.029	3	.05	9	.058										
241	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	-.041	3	.041	10	.058										
242	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	-.05	3	.029	11	.058										
243	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	-.058	3		4	-.058										
244	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	-.05	3	-.029	5	-.058										
245	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	-.041	3	-.041	6	-.058										
246	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	-.029	3	-.05	7	-.058										
247	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2		3	-.058	8	-.058										
248	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	.029	3	-.05	9	-.058										
249	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	.041	3	-.041	10	-.058										
250	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	43	1.5	2	.05	3	-.029	11	-.058										
251	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	.058	3		4	.058										
252	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	.05	3	.029	5	.058										
253	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	.041	3	.041	6	.058										
254	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	.029	3	.05	7	.058										
255	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2		3	.058	8	.058										
256	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	-.029	3	.05	9	.058										
257	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	-.041	3	.041	10	.058										
258	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	-.05	3	.029	11	.058										
259	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	-.058	3		4	-.058										
260	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	-.05	3	-.029	5	-.058										
261	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	-.041	3	-.041	6	-.058										
262	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	-.029	3	-.05	7	-.058										
263	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2		3	-.058	8	-.058										
264	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	.029	3	-.05	9	-.058										
265	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	.041	3	-.041	10	-.058										
266	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	44	1.5	2	.05	3	-.029	11	-.058										
267	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	.058	3		4	.058										
268	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	.05	3	.029	5	.058										
269	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	.041	3	.041	6	.058										
270	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	.029	3	.05	7	.058										
271	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2		3	.058	8	.058										
272	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	-.029	3	.05	9	.058										
273	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	-.041	3	.041	10	.058										
274	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	-.05	3	.029	11	.058										
275	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	-.058	3		4	-.058										
276	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	-.05	3	-.029	5	-.058										
277	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	-.041	3	-.041	6	-.058										
278	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	-.029	3	-.05	7	-.058										
279	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2		3	-.058	8	-.058										
280	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	.029	3	-.05	9	-.058										
281	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	.041	3	-.041	10	-.058										
282	1.2DL + 1.5Lm + 1W..	Yes	Y		DL	1.2	45	1.5	2	.05	3	-.029	11	-.058										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N71A	max	681.51	22	3119.437	35	26.575	19	3508.252	35	999.152	30	370.963	29
2		min	-4111.719	46	-6.647	27	-5126.753	42	-419.534	27	-1031.754	6	-1700.344	37
3	N74	max	478.504	21	3111.88	41	5924.478	34	348.037	33	825.742	20	234.618	32
4		min	-2569.684	45	42.397	33	294.315	26	-3190.97	41	-858.554	12	-2204.709	40
5	N77A	max	6372.271	38	3115.671	46	1282.753	18	332.708	18	839.929	26	3871.316	46
6		min	124.523	30	.684	22	-1855.771	10	-516.629	10	-872.823	2	-489.432	22
7	Totals:	max	4449.467	22	8589.285	42	4343.636	2						
8		min	-4449.475	14	2524.839	66	-4343.635	26						

Envelope Plate/Shell Principal Stresses

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1	P3	max	T	1.656	11	.426	143	.824	11	2.266	31	1.652	11
2		min		.004	278	-1.2	19	.014	119	.074	32	.04	31
3		max	B	1.273	19	.522	3	.705	11	1.958	265	1.665	11
4		min		-.439	27	-1.837	11	.004	255	-.544	31	.06	262
5	P4	max	T	.851	11	-.017	66	.566	11	2.347	147	1.021	11
6		min		.025	262	-.631	19	.023	260	-.785	86	.041	262
7		max	B	.636	19	.004	6	.527	11	2.281	258	.973	11
8		min		.015	67	-.865	11	.013	260	-.779	262	.025	260
9	P5	max	T	.654	19	-.013	31	.572	11	2.356	255	1.035	11
10		min		.006	15	-.872	11	.014	15	-.746	263	.026	15
11		max	B	.9	11	-.006	257	.543	11	2.232	23	1.006	11
12		min		.001	16	-.601	19	.004	257	.538	6	.007	257
13	P6	max	T	1.216	19	-.025	277	.828	11	2.353	262	1.656	11
14		min		-.421	144	-1.657	11	.019	114	-.76	258	.063	31
15		max	B	1.833	11	.465	27	.687	11	2.341	120	1.652	11
16		min		-.501	3	-1.298	19	.045	263	-.765	112	.083	260
17	P7	max	T	2.386	11	.362	143	1.191	11	2.35	49	2.384	11
18		min		.042	277	-1.825	19	.02	69	-.774	53	.066	31
19		max	B	1.784	19	.209	3	1.099	11	2.294	263	2.29	11
20		min		-.179	27	-2.372	11	.02	259	-.777	258	.04	260
21	P8	max	T	.676	11	.075	139	.459	11	1.401	30	.824	11
22		min		0	31	-.554	19	.005	15	-.516	31	.008	15
23		max	B	.645	19	.019	108	.542	11	2.307	261	.982	11
24		min		.03	259	-.832	11	.006	108	-.773	108	.026	109
25	P9	max	T	.536	19	-.034	31	.462	11	2.352	31	.837	11
26		min		-.144	141	-.709	11	.002	81	-.515	34	.03	31
27		max	B	.838	11	-.031	69	.525	11	2.353	112	.962	11
28		min		.009	110	-.685	19	.026	67	-.762	35	.045	67
29	P10	max	T	1.854	19	.007	278	1.211	11	2.348	6	2.41	11
30		min		-.317	143	-2.399	11	.02	31	-.739	108	.037	31
31		max	B	2.33	11	.18	27	1.08	11	2.274	23	2.25	11
32		min		-.248	3	-1.836	19	.005	110	.542	6	.05	122
33	P11	max	T	3.226	11	1.117	11	1.054	11	2.281	48	2.837	11
34		min		-.515	19	-2.507	19	.004	80	-.619	142	.107	31
35		max	B	2.407	19	1.23	19	.964	11	2.309	6	2.816	11
36		min		-1.305	11	-3.232	11	.022	264	-.776	264	.092	31
37	P12	max	T	1.119	11	.185	147	.493	11	2.122	23	1.059	11
38		min		-.06	18	-.972	19	.003	80	-.61	38	.029	81

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
39		max	B	.976	19	.106	20	.514	11	1.702	21	1.127	11
40		min		-.186	12	-1.205	11	.01	69	.124	157	.027	69
41	P13	max	T	.851	19	.02	19	.528	11	.843	28	1.148	11
42		min		-.23	148	-1.222	11	.022	258	-.672	18	.046	258
43		max	B	1.207	11	.167	11	.52	11	2.356	86	1.133	11
44		min		-.161	19	-1.016	19	.006	67	-.775	71	.014	68
45	P14	max	T	2.531	19	.51	19	1.113	11	.937	30	2.871	11
46		min		-1.013	11	-3.24	11	.012	15	-.64	278	.049	31
47		max	B	3.161	11	1.398	11	.881	11	2.328	120	2.743	11
48		min		-1.342	19	-2.524	19	.02	258	-.771	112	.104	31
49	P15	max	T	2.587	11	.216	141	1.616	11	2.344	65	2.963	11
50		min		.032	31	-2.17	19	.01	117	-.781	54	.064	118
51		max	B	2.177	19	.031	108	1.626	11	2.168	6	3.04	11
52		min		.007	31	-2.77	11	.014	107	-.566	108	.028	259
53	P16	max	T	1.307	11	-.038	70	.844	11	1.819	23	1.534	11
54		min		.005	67	-1.184	19	.03	69	.033	22	.056	69
55		max	B	1.077	19	-.089	258	.909	11	1.627	22	1.658	11
56		min		.003	70	-1.43	11	.051	68	.074	25	.098	68
57	P17	max	T	1.017	19	-.07	90	.895	11	.905	23	1.654	11
58		min		-.004	111	-1.474	11	.045	109	-.64	22	.084	257
59		max	B	1.355	11	-.005	70	.872	11	2.352	1	1.586	11
60		min		-.01	15	-1.179	19	.013	81	-.783	236	.023	81
61	P18	max	T	1.901	19	-.22	258	1.676	11	2.355	271	3.071	11
62		min		-.203	140	-2.677	11	.104	68	-.782	2	.221	260
63		max	B	2.592	11	-.124	70	1.517	11	2.356	220	2.838	11
64		min		-.056	35	-2.352	19	.068	68	-.783	245	.138	69
65	P18A	max	T	1.778	11	.371	27	.711	11	2.177	22	1.629	11
66		min		-.47	3	-1.219	19	.003	265	-.548	82	.047	31
67		max	B	1.235	19	-.007	279	.806	11	2.348	69	1.659	11
68		min		-.443	144	-1.703	11	.007	31	-.762	113	.032	31
69	P19	max	T	.886	11	-.01	15	.544	11	2.048	29	1.002	11
70		min		0	31	-.654	19	.007	31	.483	267	.014	261
71		max	B	.619	19	-.015	31	.546	11	2.022	278	.986	11
72		min		0	31	-.827	11	.007	31	.39	170	.014	31
73	P20	max	T	.559	19	.003	257	.513	11	2.302	264	.95	11
74		min		.005	258	-.847	11	.002	257	-.666	256	.005	257
75		max	B	.922	11	-.007	15	.599	11	2.218	170	1.086	11
76		min		.003	31	-.698	19	.005	31	.599	279	.009	31
77	P21	max	T	1.246	19	.464	3	.676	11	1.122	167	1.601	11
78		min		-.424	27	-1.768	11	.03	31	-.417	267	.052	31
79		max	B	1.723	11	.436	144	.84	11	.93	278	1.702	11
80		min		.013	278	-1.27	19	.009	31	-.701	84	.019	31
81	P22	max	T	2.551	11	.204	27	1.175	11	2.033	30	2.456	11
82		min		-.226	3	-1.94	19	.011	261	.45	278	.021	261
83		max	B	1.682	19	-.034	31	1.122	11	2.207	31	2.23	11
84		min		-.362	143	-2.214	11	.007	15	-.282	15	.039	31
85	P23	max	T	.836	11	-.004	31	.529	11	1.389	139	.967	11
86		min		-.031	6	-.651	19	.005	108	-.239	18	.018	261
87		max	B	.542	19	-.022	260	.473	11	2.345	142	.844	11
88		min		-.05	142	-.674	11	.021	69	-.766	80	.04	66
89	P24	max	T	.71	19	.007	31	.542	11	1.351	30	.995	11
90		min		.025	31	-.871	11	.009	31	-.202	18	.022	31

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
91		max	B	.676	11	.136	140	.444	11	2.149	118	.803	11
92		min		.044	81	-.509	19	.002	53	-.774	115	.041	66
93	P25	max	T	1.934	19	.244	3	1.142	11	2.327	258	2.371	11
94		min		-.175	27	-2.45	11	.006	107	-.737	262	.03	31
95		max	B	2.28	11	.316	143	1.149	11	2.235	157	2.289	11
96		min		-.001	278	-1.756	19	.012	31	.658	280	.021	31
97	P26	max	T	3.55	11	1.463	11	1.044	11	1.64	24	3.091	11
98		min		-1.368	19	-2.674	19	.019	256	.075	21	.087	262
99		max	B	2.245	19	.373	19	.987	11	1.905	15	2.58	11
100		min		-.946	11	-2.92	11	.004	80	-.032	172	.074	31
101	P27	max	T	1.348	11	.075	85	.673	11	2.196	51	1.347	11
102		min		.004	102	-1.106	19	.007	113	-.785	31	.023	112
103		max	B	.879	19	.144	19	.377	11	2.033	31	.917	11
104		min		-.266	11	-1.02	11	.005	174	-.777	172	.035	172
105	P28	max	T	1.164	19	.079	3	.657	11	1.934	31	1.352	11
106		min		-.076	27	-1.388	11	.006	120	-.65	32	.015	120
107		max	B	1.082	11	.219	10	.433	11	2.328	157	.992	11
108		min		-.083	18	-.725	19	.02	258	.751	20	.039	264
109	P29	max	T	2.754	19	1.346	19	1.009	11	.984	28	2.99	11
110		min		-1.418	11	-3.435	11	.017	262	-.568	18	.105	67
111		max	B	2.978	11	.982	11	.998	11	2.355	197	2.629	11
112		min		-.497	19	-2.311	19	.02	31	-.785	196	.056	31
113	P30	max	T	2.227	11	.006	31	1.385	11	2.078	15	2.542	11
114		min		-.048	6	-1.729	19	.003	261	-.776	31	.015	260
115		max	B	2.615	19	-.019	31	1.871	11	2.342	15	3.481	11
116		min		-.208	141	-3.144	11	.029	81	.311	156	.091	81
117	P31	max	T	1.333	11	.003	15	.933	11	2.341	34	1.665	11
118		min		.061	261	-1.035	19	.042	260	-.772	68	.076	260
119		max	B	1.329	19	-.001	112	.885	11	2.332	34	1.642	11
120		min		.031	70	-1.471	11	.026	114	-.773	66	.048	118
121	P32	max	T	1.285	19	.008	15	.96	11	2.2	31	1.745	11
122		min		.002	118	-1.489	11	.016	81	-.605	32	.03	119
123		max	B	1.364	11	0	67	.83	11	2.352	213	1.534	11
124		min		.053	264	-.925	19	.035	263	-.78	8	.064	263
125	P33	max	T	2.177	19	.05	35	1.459	11	2.19	19	2.703	11
126		min		.124	80	-2.418	11	.064	67	.669	165	.134	66
127		max	B	2.853	11	.196	140	1.736	11	2.219	28	3.208	11
128		min		.195	262	-2.049	19	.101	67	.717	19	.2	260
129	P33A	max	T	1.574	17	.426	212	.782	17	2.346	137	1.569	17
130		min		.004	139	-1.117	25	.018	172	-.745	177	.058	138
131		max	B	1.192	25	.499	9	.683	16	2.332	12	1.593	17
132		min		-.417	33	-1.756	17	.004	132	-.746	28	.06	124
133	P34	max	T	.811	17	-.015	73	.54	17	2.353	131	.974	17
134		min		.025	123	-.59	25	.022	138	-.781	128	.038	138
135		max	B	.596	24	0	11	.503	16	2.352	39	.93	16
136		min		.014	73	-.826	16	.014	178	-.785	183	.025	178
137	P35	max	T	.612	24	-.01	21	.542	16	2.351	218	.983	16
138		min		.004	21	-.831	16	.007	21	-.773	77	.013	21
139		max	B	.86	17	-.005	123	.519	17	1.804	28	.961	17
140		min		0	134	-.561	25	.005	125	-.492	11	.01	125
141	P36	max	T	1.138	25	-.025	139	.782	17	1.432	167	1.572	17
142		min		-.421	214	-1.58	17	.019	183	-.171	87	.071	21

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
143		max	B	1.745	17	.434	33	.664	16	1.61	234	1.576	17
144		min		-.469	9	-1.21	25	.045	124	.132	145	.088	123
145	P37	max	T	2.279	17	.362	212	1.134	17	2.35	136	2.273	17
146		min		.042	139	-1.717	25	.02	74	-.755	124	.088	138
147		max	B	1.658	25	.196	9	1.043	17	2.341	173	2.17	17
148		min		-.165	33	-2.246	17	.015	28	-.783	182	.036	137
149	P38	max	T	.641	17	.073	208	.433	17	2.348	174	.779	17
150		min		.006	21	-.52	25	.008	21	-.75	73	.014	21
151		max	B	.605	25	.017	178	.518	17	1.99	29	.938	17
152		min		.027	178	-.791	17	.005	178	-.543	12	.024	178
153	P39	max	T	.502	25	-.046	70	.438	17	2.212	55	.795	17
154		min		-.143	210	-.676	17	.002	58	-.282	171	.04	21
155		max	B	.795	17	-.031	74	.498	17	1.866	31	.912	17
156		min		-.006	28	-.641	25	.016	28	.332	26	.034	12
157	P40	max	T	1.731	25	.006	139	1.145	17	2.355	56	2.283	17
158		min		-.316	212	-2.275	17	.021	71	-.739	58	.068	138
159		max	B	2.221	17	.17	33	1.031	17	2.219	28	2.146	17
160		min		-.238	9	-1.726	25	.005	179	-.489	11	.047	175
161	P41	max	T	3.079	17	1.08	17	1	17	2.318	172	2.706	17
162		min		-.478	25	-2.36	25	.004	76	-.762	54	.132	138
163		max	B	2.236	25	1.15	25	.923	16	2.215	18	2.669	17
164		min		-1.224	17	-3.061	17	.022	126	.671	23	.095	138
165	P42	max	T	1.068	17	.185	216	.473	17	2.349	179	1.012	17
166		min		-.054	23	-.92	25	.003	76	-.774	178	.031	70
167		max	B	.909	25	.101	26	.484	16	2.355	65	1.061	17
168		min		-.18	2	-1.138	17	.012	74	-.784	4	.029	74
169	P43	max	T	.791	25	.021	24	.498	17	2.351	73	1.088	17
170		min		-.23	218	-1.162	17	.023	124	-.767	72	.045	134
171		max	B	1.147	17	.159	16	.496	17	1.755	21	1.078	17
172		min		-.154	24	-.955	25	.006	72	-.16	126	.013	72
173	P44	max	T	2.366	25	.477	24	1.052	17	2.273	75	2.722	17
174		min		-.98	16	-3.074	17	.017	171	-.743	38	.108	138
175		max	B	3.009	17	1.326	17	.842	17	1.557	28	2.612	17
176		min		-1.27	25	-2.373	25	.02	136	-.143	27	.103	21
177	P45	max	T	2.474	16	.215	210	1.524	17	2.346	180	2.801	16
178		min		.029	21	-2.054	24	.013	186	-.746	179	.064	171
179		max	B	2.061	25	.055	12	1.558	17	2.348	181	2.913	17
180		min		.015	21	-2.653	17	.012	177	-.784	40	.028	136
181	P46	max	T	1.24	16	-.033	12	.8	17	2.356	148	1.451	17
182		min		.004	74	-1.118	24	.028	74	-.785	144	.054	74
183		max	B	1.013	25	-.046	28	.865	17	2.355	99	1.58	17
184		min		.006	75	-1.368	17	.05	73	-.785	49	.097	73
185	P47	max	T	.954	25	-.037	12	.854	17	2.323	177	1.58	17
186		min		-.002	181	-1.411	17	.045	135	-.773	176	.086	134
187		max	B	1.285	16	-.005	75	.824	17	1.757	88	1.497	17
188		min		-.009	5	-1.108	24	.013	70	-.706	5	.023	70
189	P48	max	T	1.778	25	-.206	28	1.593	17	2.34	211	2.923	17
190		min		-.203	210	-2.556	17	.104	74	-.783	207	.223	138
191		max	B	2.441	17	-.118	29	1.432	17	2.348	137	2.678	17
192		min		-.056	12	-2.201	25	.062	12	-.774	136	.138	74
193	P49	max	T	1.693	16	.341	33	.688	16	2.127	153	1.559	16
194		min		-.44	9	-1.132	24	.005	132	.375	226	.063	124

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
195		max	B	1.156	25	-.008	140	.761	17	2.223	226	1.576	17
196		min		-.442	215	-1.624	17	.019	71	.635	25	.069	138
197	P50	max	T	.848	17	-.007	21	.522	17	1.003	18	.961	17
198		min		.004	123	-.616	25	.011	136	-.564	139	.02	136
199		max	B	.575	25	-.022	123	.515	17	.972	139	.931	17
200		min		.004	21	-.783	17	.02	138	-.657	223	.035	138
201	P51	max	T	.519	24	0	134	.489	16	2.114	124	.905	16
202		min		.002	123	-.807	16	.005	135	-.739	135	.009	135
203		max	B	.883	17	-.008	21	.573	17	1.171	224	1.039	17
204		min		.025	21	-.658	25	.017	21	-.448	140	.03	21
205	P52	max	T	1.169	25	.438	9	.657	16	2.334	125	1.533	16
206		min		-.401	33	-1.689	17	.038	124	-.758	134	.075	123
207		max	B	1.64	17	.436	214	.798	17	2.306	172	1.619	17
208		min		.014	139	-1.187	25	.017	172	-.729	42	.059	21
209	P53	max	T	2.434	17	.192	33	1.122	17	.986	18	2.345	17
210		min		-.214	9	-1.823	25	.01	138	-.598	139	.019	138
211		max	B	1.567	25	-.038	139	1.062	17	2.127	21	2.111	17
212		min		-.361	212	-2.099	17	.014	172	-.724	5	.061	21
213	P54	max	T	.79	17	-.013	21	.502	17	2.259	135	.916	17
214		min		-.041	28	-.606	25	.004	177	-.752	28	.018	138
215		max	B	.511	25	-.026	138	.451	17	1.798	227	.805	17
216		min		-.049	211	-.644	17	.018	74	.232	26	.037	74
217	P55	max	T	.672	25	-.009	123	.519	17	2.352	136	.952	17
218		min		.028	21	-.832	17	.02	21	-.765	28	.035	21
219		max	B	.639	17	.135	209	.418	17	2.195	43	.757	17
220		min		.044	70	-.472	25	.002	75	-.565	58	.041	71
221	P56	max	T	1.81	25	.231	9	1.086	17	2.229	179	2.253	17
222		min		-.163	33	-2.326	17	.007	176	-.561	175	.047	175
223		max	B	2.171	17	.316	212	1.09	17	1.188	226	2.175	17
224		min		0	139	-1.646	25	.022	71	-.389	142	.071	138
225	P57	max	T	3.385	17	1.395	17	.995	17	2.267	170	2.947	17
226		min		-1.3	25	-2.508	25	.018	134	-.785	130	.087	123
227		max	B	2.092	25	.361	24	.935	17	2.354	199	2.445	17
228		min		-.94	48	-2.767	17	.007	76	-.782	189	.101	21
229	P58	max	T	1.277	17	.075	88	.644	17	2.175	170	1.282	17
230		min		.003	155	-1.035	25	.008	173	.592	87	.022	182
231		max	B	.832	25	.143	25	.356	16	2.352	20	.872	17
232		min		-.264	17	-.973	17	.005	240	-.78	246	.036	242
233	P59	max	T	1.101	25	.084	9	.623	17	2.312	181	1.288	17
234		min		-.08	33	-1.326	17	.007	174	-.765	72	.015	72
235		max	B	1.023	17	.217	217	.411	17	1.28	226	.938	17
236		min		-.078	24	-.666	25	.019	134	-.292	25	.034	134
237	P60	max	T	2.585	25	1.257	25	.969	17	2.297	123	2.845	17
238		min		-1.329	17	-3.267	17	.017	123	-.739	136	.101	21
239		max	B	2.83	17	.954	17	.938	17	1.432	226	2.494	17
240		min		-.47	25	-2.162	25	.021	21	-.152	25	.113	138
241	P61	max	T	2.086	16	-.007	21	1.309	16	1.074	21	2.396	16
242		min		-.064	28	-1.586	24	.003	137	-.718	142	.017	137
243		max	B	2.511	25	-.022	21	1.8	17	1.743	5	3.355	17
244		min		-.207	210	-3.041	17	.029	70	-.737	226	.065	5
245	P62	max	T	1.244	17	.002	21	.882	17	2.053	139	1.57	17
246		min		.061	138	-.95	25	.043	138	.457	18	.077	138

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
247		max	B	1.287	25	-.002	173	.854	17	2.354	33	1.587	17
248		min		.033	171	-1.427	17	.026	183	-.782	2	.046	171
249	P63	max	T	1.233	25	.003	21	.918	17	2.355	183	1.672	17
250		min		.001	171	-1.438	17	.016	172	-.66	55	.03	172
251		max	B	1.28	16	-.001	73	.777	16	1.371	18	1.437	16
252		min		.053	134	-.841	24	.035	124	-.161	23	.064	124
253	P64	max	T	2.082	25	.054	12	1.4	17	1.14	24	2.595	17
254		min		.125	70	-2.322	17	.065	73	-.378	18	.134	71
255		max	B	2.677	17	.195	210	1.627	17	1.173	33	3.008	17
256		min		.194	123	-1.875	25	.101	73	-.326	24	.202	138
257	P65	max	T	1.676	6	.425	282	.84	6	2.354	75	1.678	6
258		min		.005	208	-1.219	30	.017	76	-.777	240	.055	191
259		max	B	1.3	30	.537	14	.711	6	2.355	15	1.688	6
260		min		-.454	22	-1.865	6	.004	202	-.731	31	.06	193
261	P66	max	T	.863	6	-.014	78	.575	6	1.495	211	1.037	6
262		min		.025	193	-.642	30	.023	191	-.113	102	.039	191
263		max	B	.647	30	0	17	.533	6	1.478	19	.986	6
264		min		.011	78	-.877	6	.014	191	-.087	32	.025	246
265	P67	max	T	.666	30	-.008	26	.58	6	1.705	102	1.05	6
266		min		.009	10	-.884	6	.009	26	.055	210	.016	26
267		max	B	.912	6	-.006	188	.55	6	2.132	187	1.02	6
268		min		0	187	-.614	30	.005	187	-.368	194	.01	187
269	P68	max	T	1.239	30	-.025	207	.842	6	2.341	281	1.683	6
270		min		-.421	267	-1.681	6	.017	80	-.781	277	.056	26
271		max	B	1.858	6	.477	22	.694	6	2.326	223	1.673	6
272		min		-.512	14	-1.323	30	.045	194	-.777	15	.087	190
273	P69	max	T	2.429	6	.362	282	1.215	6	1.439	31	2.43	6
274		min		.041	207	-1.867	30	.021	76	-.145	103	.074	26
275		max	B	1.809	30	.213	14	1.11	6	1.471	18	2.314	6
276		min		-.182	22	-2.398	6	.02	247	-.132	33	.043	191
277	P70	max	T	.687	6	.073	278	.467	6	2.353	20	.838	6
278		min		0	26	-.565	30	.004	26	-.778	5	.008	26
279		max	B	.657	30	.02	247	.55	6	2.339	13	.997	6
280		min		.03	190	-.844	6	.005	247	-.783	28	.027	247
281	P71	max	T	.547	30	-.032	26	.471	6	2.356	264	.853	6
282		min		-.144	279	-.721	6	0	26	-.781	261	.031	26
283		max	B	.851	6	-.028	79	.532	6	.823	21	.975	6
284		min		.009	247	-.698	30	.026	79	-.706	31	.045	79
285	P72	max	T	1.89	30	.006	208	1.231	6	1.924	26	2.449	6
286		min		-.316	282	-2.436	6	.021	77	.102	208	.048	26
287		max	B	2.366	6	.186	22	1.094	6	2.316	191	2.282	6
288		min		-.255	14	-1.87	30	.005	248	-.559	245	.05	191
289	P73	max	T	3.287	6	1.129	6	1.079	6	1.784	239	2.893	6
290		min		-.527	30	-2.568	30	.005	59	-.517	119	.121	26
291		max	B	2.438	30	1.25	30	.97	6	1.167	22	2.844	6
292		min		-1.325	6	-3.264	6	.022	195	-.374	29	.09	191
293	P74	max	T	1.144	6	.185	270	.509	6	2.35	120	1.086	6
294		min		-.06	28	-.997	30	.003	86	-.768	117	.029	75
295		max	B	.988	30	.105	30	.516	6	2.345	243	1.136	6
296		min		-.185	6	-1.217	6	.012	79	-.702	250	.028	78
297	P75	max	T	.869	30	.02	29	.536	6	1.892	22	1.165	6
298		min		-.231	271	-1.24	6	.023	190	.381	29	.049	194

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
299		max	B	1.225	6	.172	6	.526	6	2.292	250	1.149	6
300		min		-.167	30	-1.033	30	.006	78	-.69	243	.014	78
301	P76	max	T	2.584	30	.515	30	1.137	6	1.982	23	2.92	6
302		min		-1.02	6	-3.293	6	.009	26	.407	208	.083	26
303		max	B	3.207	6	1.431	6	.888	6	2.297	187	2.782	6
304		min		-1.375	30	-2.569	30	.019	189	-.714	194	.093	26
305	P77	max	T	2.615	6	.216	279	1.64	6	1.852	10	3.003	6
306		min		.024	26	-2.198	30	.016	75	-.338	118	.065	240
307		max	B	2.241	30	.032	247	1.66	6	2.087	189	3.105	6
308		min		.013	26	-2.833	6	.009	189	-.78	193	.019	189
309	P78	max	T	1.327	6	-.04	81	.859	6	2.35	65	1.559	6
310		min		.005	78	-1.202	30	.03	80	-.783	74	.054	80
311		max	B	1.1	30	-.089	189	.923	6	2.293	187	1.685	6
312		min		.002	81	-1.454	6	.051	79	-.783	196	.099	79
313	P79	max	T	1.039	30	-.07	88	.908	6	1.946	21	1.679	6
314		min		-.002	235	-1.496	6	.045	247	.414	32	.086	247
315		max	B	1.375	6	-.005	81	.885	6	2.352	77	1.609	6
316		min		-.01	10	-1.198	30	.013	75	-.767	235	.023	76
317	P80	max	T	1.929	30	-.219	189	1.701	6	1.729	21	3.113	6
318		min		-.204	279	-2.705	6	.104	79	.231	31	.221	191
319		max	B	2.64	6	-.122	81	1.539	6	1.628	30	2.885	6
320		min		-.062	46	-2.4	30	.069	78	.11	21	.138	79
321	P81	max	T	1.798	6	.374	22	.719	6	1.08	207	1.648	6
322		min		-.473	14	-1.238	30	.006	195	-.701	26	.064	193
323		max	B	1.26	30	-.008	210	.817	6	1.176	103	1.683	6
324		min		-.443	268	-1.728	6	.014	26	-.412	30	.054	26
325	P82	max	T	.902	6	-.004	26	.554	6	2.241	247	1.021	6
326		min		.001	191	-.67	30	.007	26	-.755	246	.013	26
327		max	B	.627	30	-.02	191	.551	6	2.323	249	.995	6
328		min		.003	26	-.835	6	.02	191	-.768	245	.034	191
329	P83	max	T	.566	30	0	187	.516	6	1.686	18	.956	6
330		min		.005	188	-.854	6	.004	194	-.092	17	.007	194
331		max	B	.94	6	-.004	26	.611	6	2.304	245	1.108	6
332		min		.012	26	-.716	30	.008	26	-.781	249	.014	26
333	P84	max	T	1.27	30	.472	14	.683	6	2.168	96	1.621	6
334		min		-.433	22	-1.792	6	.039	194	.63	213	.078	192
335		max	B	1.749	6	.436	268	.855	6	1.976	208	1.73	6
336		min		.014	208	-1.295	30	.014	26	.346	82	.043	26
337	P85	max	T	2.595	6	.208	22	1.195	6	2.305	247	2.499	6
338		min		-.23	14	-1.984	30	.012	192	-.781	190	.027	191
339		max	B	1.708	30	-.037	207	1.139	6	2.303	79	2.259	6
340		min		-.361	281	-2.24	6	.004	26	-.769	77	.043	26
341	P86	max	T	.845	6	-.01	26	.535	6	2.356	238	.978	6
342		min		-.028	17	-.661	30	.005	247	-.785	58	.019	192
343		max	B	.554	30	-.024	26	.483	6	2.35	15	.861	6
344		min		-.049	280	-.687	6	.02	79	-.784	14	.04	76
345	P87	max	T	.728	30	-.006	26	.553	6	2.349	4	1.015	6
346		min		.028	26	-.889	6	.017	26	-.785	20	.032	26
347		max	B	.683	6	.136	279	.45	6	2.355	250	.813	6
348		min		.044	75	-.516	30	.002	63	-.785	244	.04	76
349	P88	max	T	1.973	30	.248	14	1.16	6	1.697	18	2.409	6
350		min		-.179	22	-2.489	6	.008	246	.112	33	.047	191

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
351		max	B	2.313	6	.316	282	1.166	6	2.352	78	2.322	6
352		min		0	208	-1.788	30	.022	77	-.697	45	.055	26
353	P89	max	T	3.611	6	1.499	6	1.056	6	2.226	194	3.142	6
354		min		-1.404	30	-2.733	30	.018	187	-.782	193	.086	191
355		max	B	2.278	30	.385	29	1.006	6	2.352	49	2.614	6
356		min		-.959	5	-2.954	6	.009	86	-.723	239	.091	26
357	P90	max	T	1.368	6	.075	90	.69	6	1.128	223	1.374	6
358		min		.004	223	-1.127	30	.009	235	-.456	22	.021	235
359		max	B	.899	30	.155	30	.382	6	2.205	49	.934	6
360		min		-.276	6	-1.041	6	.005	120	-.727	65	.034	75
361	P91	max	T	1.197	30	.085	14	.67	6	2.245	10	1.383	6
362		min		-.081	22	-1.421	6	.006	243	-.528	26	.015	78
363		max	B	1.087	6	.222	5	.436	6	2.242	202	.997	6
364		min		-.086	29	-.729	30	.022	188	-.734	187	.04	195
365	P92	max	T	2.816	30	1.367	30	1.029	6	2.032	22	3.045	6
366		min		-1.44	6	-3.498	6	.017	192	.481	29	.08	26
367		max	B	3.016	6	.997	6	1.009	6	2.333	44	2.661	6
368		min		-.513	30	-2.348	30	.016	26	-.777	242	.082	26
369	P93	max	T	2.222	6	-.008	26	1.39	6	2.25	248	2.547	6
370		min		-.039	17	-1.723	30	.003	190	-.688	249	.017	191
371		max	B	2.713	30	-.018	26	1.926	6	2.341	80	3.587	6
372		min		-.208	279	-3.243	6	.029	75	-.766	62	.081	76
373	P94	max	T	1.336	6	.001	240	.947	6	1.001	208	1.687	6
374		min		.059	191	-1.041	30	.041	191	-.573	23	.074	191
375		max	B	1.382	30	-.002	243	.912	6	1.308	23	1.693	6
376		min		.033	81	-1.522	6	.026	241	-.24	29	.047	241
377	P95	max	T	1.329	30	.006	26	.983	6	2.263	90	1.79	6
378		min		-.001	236	-1.534	6	.012	76	-.316	10	.022	76
379		max	B	1.359	6	0	78	.831	6	2.294	202	1.533	6
380		min		.051	187	-.92	30	.035	188	-.695	195	.066	188
381	P96	max	T	2.237	30	.056	46	1.491	6	2.354	79	2.764	6
382		min		.124	81	-2.478	6	.065	78	-.781	242	.134	77
383		max	B	2.867	6	.196	279	1.751	6	2.355	244	3.232	6
384		min		.196	189	-2.064	30	.101	78	-.748	250	.2	191
385	P98	max	T	2.07	38	.091	223	1.257	6	1.128	207	2.322	38
386		min		.085	207	-.657	30	.005	207	-.682	25	.078	205
387		max	B	.735	28	-.016	25	.932	4	2.356	29	1.706	4
388		min		-.048	32	-1.482	4	.039	25	-.763	11	.071	25
389	P99	max	T	1.097	6	.013	239	.853	6	2.351	8	1.497	6
390		min		.013	87	-.608	6	.009	87	-.773	23	.015	87
391		max	B	.482	28	-.15	26	.776	5	2.296	27	1.386	36
392		min		.014	32	-1.274	36	.136	25	.879	22	.243	25
393	P100	max	T	.946	5	-.015	33	.783	5	2.324	282	1.365	5
394		min		.011	188	-.645	6	.026	263	-.785	2	.045	263
395		max	B	.451	29	-.212	26	.782	5	2.193	29	1.478	37
396		min		.017	16	-1.383	37	.132	32	.862	21	.255	32
397	P101	max	T	1.094	30	.091	17	1.007	5	2.253	18	1.754	5
398		min		.083	78	-1.239	6	.029	17	-.452	17	.092	78
399		max	B	.913	143	-.2	26	.984	38	2.149	30	1.733	38
400		min		-.078	33	-1.304	37	.081	33	.754	20	.212	33
401	P102	max	T	1.784	37	.081	243	1.187	5	.731	28	2.101	37
402		min		.13	26	-.875	6	.044	26	-.744	23	.115	26

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
403		max	B	.808	5	-.089	10	1.008	5	2.351	13	1.758	5
404		min		.009	32	-1.209	5	.098	32	-.782	12	.172	190
405	P103	max	T	1.855	37	.065	242	1.183	6	.69	29	2.104	37
406		min		.189	26	-.776	6	.076	26	-.762	23	.173	26
407		max	B	.778	29	-.022	25	.922	5	2.355	12	1.612	5
408		min		.002	32	-1.137	4	.068	32	-.783	29	.119	77
409	P104	max	T	1.556	37	.094	263	1.124	6	2.356	9	1.966	6
410		min		.15	26	-.844	6	.036	26	-.78	4	.13	26
411		max	B	.763	5	-.011	190	.911	5	2.312	26	1.585	5
412		min		.016	32	-1.059	5	.05	32	.728	25	.092	32
413	P105	max	T	1.373	5	.159	263	1.079	6	2.351	19	1.891	6
414		min		.144	192	-.796	6	.003	192	-.777	191	.14	193
415		max	B	.77	5	-.026	16	.958	5	2.26	31	1.67	5
416		min		.003	16	-1.146	5	.014	16	-.754	32	.027	16
417	P106	max	T	2.332	37	.07	242	1.377	37	.637	29	2.569	37
418		min		.325	26	-.873	6	.143	26	-.705	22	.307	26
419		max	B	1.051	5	.062	262	1.098	5	.843	33	1.902	5
420		min		.076	32	-1.144	5	.018	262	-.697	29	.075	32
421	P107	max	T	2.411	37	.057	241	1.375	37	.582	29	2.597	37
422		min		.409	26	-.776	6	.183	26	-.729	22	.39	26
423		max	B	.965	5	.054	259	1.003	5	.764	18	1.738	5
424		min		.11	32	-1.041	5	.054	32	-.711	29	.109	32
425	P108	max	T	2.398	37	.077	242	1.345	37	.559	29	2.556	37
426		min		.463	32	-.737	6	.201	26	-.754	22	.438	26
427		max	B	.991	13	.068	45	.961	5	.686	18	1.664	5
428		min		.14	32	-.969	5	.07	32	-.762	29	.14	32
429	P109	max	T	2.324	38	.137	242	1.28	38	2.351	22	2.45	38
430		min		.374	32	-.678	6	.178	26	-.785	21	.381	32
431		max	B	1.068	13	.16	45	.985	5	2.35	11	1.706	5
432		min		.167	32	-1.002	21	.085	32	-.735	26	.168	32
433	P110	max	T	3.018	36	.042	236	1.608	37	.505	29	3.119	37
434		min		.588	26	-.622	22	.286	26	-.644	22	.581	26
435		max	B	1.43	37	.036	190	1.011	5	.726	22	1.754	5
436		min		.288	33	-.923	21	.166	32	-.588	29	.325	33
437	P111	max	T	2.987	37	.018	239	1.584	37	.446	29	3.082	37
438		min		.666	26	-.518	22	.329	26	-.657	22	.661	26
439		max	B	1.444	37	.019	189	.912	5	.659	21	1.604	37
440		min		.271	33	-.831	21	.166	32	-.607	29	.307	33
441	P112	max	T	3.068	37	.027	240	1.621	37	.413	29	3.158	37
442		min		.63	32	-.498	21	.315	32	-.647	21	.63	32
443		max	B	1.652	41	.022	259	.908	37	.614	19	1.73	37
444		min		.279	33	-.745	21	.168	32	-.616	29	.312	33
445	P113	max	T	3.413	38	.069	242	1.757	38	.376	30	3.464	38
446		min		.53	32	-.461	21	.261	32	-.687	21	.526	32
447		max	B	2.023	42	.084	45	1.019	38	.559	19	2.003	38
448		min		.303	33	-.761	21	.178	32	-.658	30	.343	33
449	P113A	max	T	4.516	37	.272	230	2.494	37	2.064	31	4.769	37
450		min		.419	214	-.822	5	.089	214	-.785	32	.364	214
451		max	B	.866	28	-.072	26	2.229	36	.882	19	4.15	36
452		min		-.226	31	-3.75	36	.164	219	-.514	29	.329	204
453	P114	max	T	1.292	37	-.007	223	1.034	37	.776	30	1.809	37
454		min		.174	206	-.943	5	.091	206	-.598	21	.178	206

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
455		max	B	.753	5	-.04	25	.818	5	2.353	212	1.417	5
456		min		.03	32	-.912	4	.074	191	-.755	30	.133	191
457	P115	max	T	1.112	37	.04	32	.962	5	2.272	26	1.667	5
458		min		.017	207	-.965	6	.021	222	-.763	25	.037	222
459		max	B	.532	5	-.184	25	.797	5	2.331	30	1.407	5
460		min		-.06	260	-1.176	36	.118	76	-.777	13	.216	25
461	P116	max	T	.925	37	.048	32	1.212	6	2.346	2	2.127	6
462		min		.017	207	-1.553	6	.063	16	-.782	18	.144	16
463		max	B	.637	20	-.259	32	.816	4	2.274	29	1.428	5
464		min		-.068	44	-1.213	37	.126	32	.91	20	.256	32
465	P117	max	T	2.158	37	.362	32	1.319	5	2.356	116	2.428	37
466		min		.19	26	-1.017	6	.009	32	-.785	17	.196	26
467		max	B	.82	5	-.174	25	1.085	5	.748	22	1.899	5
468		min		-.007	251	-1.482	36	.215	25	-.574	28	.374	25
469	P118	max	T	2.229	37	.148	15	1.479	37	.769	29	2.669	37
470		min		.211	26	-1.079	6	.132	26	-.654	22	.242	26
471		max	B	.76	5	-.089	25	1.032	5	1.623	262	1.809	5
472		min		-.252	263	-1.306	4	.025	32	-.652	235	.177	77
473	P119	max	T	1.706	37	.067	32	1.308	37	.728	29	2.3	37
474		min		.16	26	-1.221	6	.128	26	-.685	22	.224	26
475		max	B	.816	5	-.083	77	.922	5	2.351	250	1.601	5
476		min		-.087	255	-1.028	5	.038	89	-.785	249	.093	77
477	P120	max	T	1.728	37	.057	32	1.231	37	.733	29	2.189	37
478		min		.125	26	-1.06	6	.077	26	-.702	22	.142	26
479		max	B	.837	5	-.104	190	1.013	5	2.356	210	1.763	5
480		min		-.028	260	-1.188	5	.075	190	-.782	214	.133	190
481	P121	max	T	1.749	37	.376	264	1.091	6	.784	27	1.897	6
482		min		.096	26	-.928	6	.075	26	-.706	23	.131	26
483		max	B	.729	29	-.122	25	.783	5	.898	22	1.372	5
484		min		-.243	271	-.994	5	.098	74	-.595	27	.189	74
485	P122	max	T	1.982	37	.153	16	1.251	37	.751	28	2.287	37
486		min		.158	26	-1.081	6	.104	26	-.677	23	.188	26
487		max	B	.821	5	-.081	25	.927	5	.901	22	1.608	5
488		min		-.12	254	-1.032	5	.06	254	-.61	28	.137	77
489	P123	max	T	2.145	37	.074	16	1.389	37	.695	29	2.522	37
490		min		.232	26	-1.095	6	.134	26	-.658	22	.252	26
491		max	B	.968	5	-.045	16	1.006	5	.867	18	1.743	5
492		min		-.04	251	-1.044	5	.024	251	-.626	28	.074	257
493	P124	max	T	2.226	37	.056	248	1.395	37	.672	29	2.555	37
494		min		.272	26	-1.015	6	.135	26	-.677	22	.271	26
495		max	B	1.066	5	.019	16	1.096	5	.877	33	1.899	5
496		min		.028	263	-1.126	5	.011	263	-.667	29	.025	263
497	P125	max	T	1.511	35	.187	46	.841	6	1.773	26	1.497	36
498		min		-.001	26	-.823	22	.046	26	-.745	25	.092	26
499		max	B	.68	30	-.068	74	.66	5	2.342	263	1.15	5
500		min		-.213	270	-.855	6	.011	74	-.673	27	.06	74
501	P126	max	T	1.867	35	.06	263	1.044	37	.769	27	1.983	36
502		min		.098	26	-.818	22	.049	26	-.676	23	.098	26
503		max	B	.82	4	-.043	77	.812	5	.941	22	1.407	5
504		min		-.042	255	-.813	6	.015	255	-.612	27	.062	254
505	P127	max	T	2.223	35	.033	16	1.261	37	.67	28	2.385	36
506		min		.286	26	-.802	22	.143	26	-.612	22	.285	26

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
507		max	B	1.035	37	-.01	190	.912	5	.877	22	1.584	5
508		min		.214	260	-.799	5	.12	260	-.554	28	.228	260
509	P128	max	T	2.702	36	.042	235	1.484	37	.592	28	2.842	36
510		min		.47	26	-.758	22	.23	26	-.612	22	.465	26
511		max	B	1.371	37	.025	190	1.026	5	.806	22	1.784	5
512		min		.296	33	-.876	5	.154	32	-.551	29	.313	32
513	P129	max	T	13.598	36	4.274	34	4.698	36	2.355	17	12.059	36
514		min		.76	26	-.816	28	.193	213	-.784	211	.713	26
515		max	B	1.484	29	-.118	27	6.437	36	.849	23	13.048	36
516		min		-.936	3	-13.214	36	.66	27	.073	29	1.265	27
517	P130	max	T	5.232	34	.034	28	2.71	34	.537	29	5.328	34
518		min		.7	26	-.206	110	.353	26	.212	24	.703	26
519		max	B	.805	27	.059	25	.928	268	2.355	77	1.813	268
520		min		.021	33	-1.767	268	.028	24	-.783	76	.083	24
521	P131	max	T	3.389	49	.277	143	1.584	48	.997	21	3.284	49
522		min		.268	24	-.067	29	.065	23	.23	25	.232	24
523		max	B	1.132	45	-.113	26	1.595	49	.038	25	2.807	49
524		min		.092	21	-2.113	34	.274	25	-.5	251	.481	25
525	P132	max	T	1.92	35	.003	212	2.012	37	2.128	25	3.486	37
526		min		.16	26	-2.23	5	.084	26	-.145	26	.164	26
527		max	B	3.443	36	-.161	26	2.779	36	.36	22	4.86	36
528		min		.33	26	-2.123	35	.246	26	-.621	28	.434	26
529	P133	max	T	8.382	35	3.91	35	2.247	34	1.943	25	7.265	35
530		min		.443	26	-.374	27	.081	25	.428	26	.462	26
531		max	B	.73	29	-.469	27	3.781	34	.251	24	8.323	35
532		min		-1.552	4	-8.931	35	.564	26	-.226	30	.981	26
533	P134	max	T	4.081	34	2.857	36	.705	47	.797	280	3.615	34
534		min		.253	26	-.153	28	.091	20	-.506	22	.255	26
535		max	B	.663	29	-.317	26	1.431	47	.576	22	3.567	34
536		min		-1.466	5	-4.036	34	.138	22	-.395	266	.454	25
537	P135	max	T	2.369	48	.853	37	.808	47	2.342	8	2.094	48
538		min		.202	26	-.142	24	.022	168	-.781	157	.227	26
539		max	B	.932	46	-.278	26	1.781	47	.102	23	3.213	48
540		min		-.03	21	-2.689	49	.266	25	-.457	29	.462	25
541	P136	max	T	1.688	36	.722	46	.844	5	2.324	9	1.522	37
542		min		.18	26	-.607	22	.024	193	-.774	25	.189	26
543		max	B	.891	46	-.208	26	1.431	34	.518	22	2.544	34
544		min		.239	69	-2.003	34	.268	26	-.525	28	.468	26
545	P137	max	T	8.385	34	1.262	36	3.583	34	1.386	25	7.847	34
546		min		-.06	27	-.203	28	.066	26	-.511	26	.136	26
547		max	B	.503	29	-.837	26	4.793	34	-.332	26	9.806	34
548		min		-.826	5	-10.012	34	.502	26	-.495	266	.932	26
549	P138	max	T	4.42	34	1.243	36	1.615	49	2.207	26	3.958	34
550		min		-.004	27	-.185	28	.079	27	.91	30	.161	27
551		max	B	.504	30	-.557	26	2.734	49	-.394	146	5.616	34
552		min		-.758	6	-5.776	34	.283	25	-.53	260	.629	26
553	P139	max	T	2.152	48	1.093	36	.673	264	2.337	85	1.868	48
554		min		.028	26	-.26	24	.014	182	-.763	143	.121	10
555		max	B	.596	30	-.315	25	1.619	47	.45	22	3.167	47
556		min		-.606	6	-3.118	49	.034	23	-.568	27	.284	25
557	P140	max	T	1.375	36	.852	47	.781	6	.792	27	1.368	6
558		min		.044	26	-.631	22	.024	273	-.775	100	.107	26

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
559		max	B	.683	30	-.165	25	.918	46	.843	22	1.729	46
560		min		-.199	95	-1.6	47	.1	25	-.576	27	.185	25
561	P141	max	T	7.175	34	.165	21	3.778	34	1.977	26	7.373	34
562		min		-.08	27	-.831	27	.234	25	.871	19	.407	25
563		max	B	.291	30	-1.205	26	5.457	34	2.348	24	10.878	34
564		min		-.289	6	-10.842	34	.597	26	-.785	26	1.2	26
565	P142	max	T	3.789	34	.215	21	1.973	34	1.888	26	3.87	34
566		min		.006	26	-.578	27	.121	23	.747	20	.249	24
567		max	B	.337	30	-.763	26	3.111	34	2.356	37	6.178	34
568		min		-.259	6	-6.133	34	.394	26	-.785	281	.776	26
569	P143	max	T	1.984	49	.346	4	.908	47	2.317	159	1.902	48
570		min		.008	26	-.407	26	.016	129	-.773	158	.178	166
571		max	B	.39	30	-.49	25	1.655	48	2.356	43	3.318	49
572		min		-.322	5	-3.333	49	.205	25	-.783	49	.456	25
573	P144	max	T	1.252	47	.408	34	.623	14	2.349	9	1.205	15
574		min		0	26	-.651	23	.074	74	-.767	23	.187	10
575		max	B	.546	30	-.251	25	.779	46	2.356	76	1.552	46
576		min		-.307	109	-1.545	46	.085	167	-.785	62	.232	25
577	P145	max	T	11.354	36	.039	23	5.718	36	.902	33	11.395	36
578		min		1.878	28	-.153	282	.979	28	.655	27	1.919	28
579		max	B	1.708	29	-.075	229	2.578	37	2.354	134	5.227	37
580		min		-.172	42	-5.296	37	.014	227	-.785	127	.065	228
581	P146	max	T	12.911	37	1.034	38	5.945	36	.871	19	12.429	37
582		min		2.535	28	0	29	1.251	28	.655	28	2.518	28
583		max	B	1.945	29	.017	30	2.247	5	2.355	165	4.918	37
584		min		-1.071	38	-5.356	37	.115	26	-.785	160	.286	208
585	P147	max	T	27.18	35	3.234	35	11.973	35	.89	22	25.716	35
586		min		2.404	27	.043	27	1.181	27	.591	28	2.383	27
587		max	B	1.597	27	.01	27	8.934	35	.535	27	19.124	35
588		min		-2.313	34	-20.171	35	.295	29	-.693	31	.511	29
589	P148	max	T	19.283	35	1.65	46	8.963	35	1.605	23	18.642	35
590		min		1.276	26	-.515	27	.605	26	.577	27	1.244	26
591		max	B	3.19	39	-.237	27	10.363	35	.311	26	19.401	35
592		min		.32	33	-17.726	35	.605	28	-.192	30	1.07	28
593	P149	max	T	10.083	36	.438	6	4.898	36	1.024	32	9.943	36
594		min		.927	28	-.281	30	.548	28	.687	26	1.022	28
595		max	B	.892	28	-.278	30	2.981	37	2.356	60	6.489	37
596		min		-.952	36	-6.911	37	.077	14	-.785	72	.418	30
597	P150	max	T	11.431	37	1.661	37	4.889	36	.938	282	10.7	36
598		min		1.05	28	-.239	29	.633	28	.684	29	1.173	28
599		max	B	.686	29	-.276	29	2.866	37	2.354	239	7.182	37
600		min		-2.323	37	-8.056	37	.029	14	-.781	238	.443	30
601	P151	max	T	20.6	35	4.973	35	7.814	35	1.054	22	18.619	35
602		min		1.13	27	-.262	27	.598	26	.534	27	1.186	26
603		max	B	.511	27	-.429	27	7.592	35	.124	27	17.585	35
604		min		-4.083	35	-19.267	35	.443	28	-.567	33	.791	28
605	P152	max	T	14.111	35	3.855	35	5.128	35	1.367	22	12.633	35
606		min		.788	26	-.445	27	.367	25	.432	27	.812	26
607		max	B	.826	27	-.609	27	6.236	35	.08	26	13.258	35
608		min		-1.684	3	-13.925	35	.717	27	-.314	31	1.247	27
609	P153	max	T	8.127	37	.724	6	3.786	36	1.685	28	7.864	36
610		min		-.175	28	-.624	30	.072	28	.37	27	.173	27

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
611		max	B	.378	27	-.963	28	3.759	36	2.352	6	8.246	36
612		min		-1.313	35	-8.82	36	.495	30	-.78	15	1.065	29
613	P154	max	T	9.019	36	2.255	36	3.382	36	1.154	28	8.13	36
614		min		-.366	28	-.597	28	.116	28	.708	26	.437	27
615		max	B	-.005	28	-.803	28	3.812	36	2.356	277	9.327	36
616		min		-2.776	36	-10.4	36	.354	29	-.785	278	.789	29
617	P155	max	T	13.587	35	2.892	35	5.347	35	1.091	111	12.396	35
618		min		-.008	27	-.591	27	.199	26	.272	27	.368	26
619		max	B	.037	26	-1.163	27	6.725	35	-.204	26	14.865	35
620		min		-2.509	35	-15.959	35	.583	27	-.582	33	1.165	27
621	P156	max	T	11.843	34	1.874	35	5.002	34	1.121	113	11.039	34
622		min		.018	27	-.458	27	.183	25	-.127	26	.374	28
623		max	B	.397	29	-1.176	27	6.217	34	-.276	26	13.093	34
624		min		-1.292	36	-13.678	35	.735	26	-.524	33	1.38	26
625	P157	max	T	6.119	37	.263	6	2.957	37	2.341	12	6.019	37
626		min		-.04	29	-1.765	29	.074	212	-.771	28	.143	212
627		max	B	.141	27	-1.649	27	5.543	35	2.355	3	11.421	35
628		min		-.645	35	-11.73	35	.895	27	-.782	17	1.724	27
629	P158	max	T	5.374	5	2.094	36	1.691	5	2.087	27	4.706	5
630		min		-.768	28	-2.469	29	.128	26	-.253	26	.264	10
631		max	B	-.24	22	-1.563	27	5.079	35	2.334	22	11.165	35
632		min		-1.809	47	-11.955	35	.625	27	1.835	27	1.432	27
633	P159	max	T	9.04	35	.58	20	4.664	34	2.249	11	9.181	34
634		min		-.648	27	-1.953	27	.209	29	-.662	28	.541	24
635		max	B	.117	19	-2.31	29	7.096	36	-.506	26	14.315	36
636		min		-.459	11	-14.434	36	.971	29	-.625	30	2.15	29
637	P160	max	T	9.771	34	.005	21	5.133	34	2.186	26	10.028	34
638		min		-.031	27	-1.194	27	.265	25	.947	20	.465	25
639		max	B	.183	30	-1.785	27	7.435	34	-.631	108	14.87	34
640		min		-.236	6	-14.875	35	.914	26	-.738	27	1.807	26
641	P161	max	T	6.366	36	-.014	20	3.212	36	1.171	32	6.395	36
642		min		.793	28	-.127	25	.415	28	.712	26	.812	28
643		max	B	.551	28	-.032	30	2.397	37	2.354	172	4.743	37
644		min		-.006	15	-4.69	37	.138	30	-.783	132	.262	30
645	P162	max	T	8.002	36	.009	21	4.001	36	1.103	32	8.002	36
646		min		1.083	28	-.092	26	.553	28	.7	26	1.094	28
647		max	B	.898	29	-.026	30	2.574	37	2.355	72	5.128	37
648		min		-.013	107	-5.107	37	.142	31	-.784	237	.271	14
649	P163	max	T	9.287	36	.024	21	4.646	36	1.061	32	9.29	36
650		min		1.342	28	-.083	26	.69	28	.716	26	1.361	28
651		max	B	1.244	29	-.042	30	2.548	37	2.355	59	5.121	37
652		min		-.062	34	-5.146	37	.12	31	-.785	126	.212	31
653	P164	max	T	9.858	35	.037	22	4.953	35	.989	33	9.882	35
654		min		1.514	27	-.1	32	.788	27	.7	26	1.546	27
655		max	B	1.468	29	-.063	30	2.366	37	2.356	240	4.801	37
656		min		-.14	49	-4.866	37	.127	232	-.781	77	.237	231
657	P165	max	T	6.407	37	-.004	21	3.234	37	1.335	31	6.438	37
658		min		.564	28	-.213	31	.304	28	.68	26	.587	28
659		max	B	.615	27	-.342	30	2.773	37	2.356	39	5.452	37
660		min		-.025	31	-5.352	37	.236	30	-.785	78	.423	30
661	P166	max	T	7.321	36	.014	21	3.676	36	1.271	30	7.336	36
662		min		.597	28	-.229	31	.316	28	.658	26	.615	28

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
663		max	B	.7	28	-.335	30	3.001	37	2.356	48	5.959	37
664		min		-.032	102	-5.914	37	.24	30	-.784	70	.427	30
665	P167	max	T	8.157	36	.036	6	4.104	36	1.197	31	8.183	36
666		min		.649	28	-.25	31	.352	28	.648	26	.678	28
667		max	B	.763	28	-.294	30	3.113	37	2.356	64	6.274	37
668		min		-.113	34	-6.322	37	.207	30	-.783	37	.369	30
669	P168	max	T	9.006	36	.162	6	4.508	36	1.103	31	9.011	36
670		min		.778	28	-.285	31	.443	28	.646	26	.838	28
671		max	B	.855	28	-.266	30	3.019	37	2.356	35	6.267	37
672		min		-.452	34	-6.473	37	.205	30	-.785	34	.36	30
673	P169	max	T	6.287	37	.018	21	3.152	37	1.518	30	6.296	37
674		min		.246	29	-.314	31	.155	29	.589	27	.283	29
675		max	B	.594	27	-.65	29	3.04	37	2.356	74	6.001	37
676		min		-.031	31	-5.918	37	.396	30	-.785	246	.77	30
677	P170	max	T	6.7	37	.017	21	3.361	37	1.533	29	6.711	37
678		min		.109	29	-.344	31	.104	29	.472	27	.18	29
679		max	B	.547	27	-.723	29	3.38	37	2.356	241	6.738	36
680		min		-.035	15	-6.718	36	.472	30	-.784	73	.935	30
681	P171	max	T	7.169	37	.058	6	3.599	37	1.767	29	7.184	37
682		min		.013	28	-.397	30	.062	28	.174	28	.117	28
683		max	B	.505	27	-.806	29	3.71	36	2.356	46	7.494	36
684		min		-.155	34	-7.566	36	.536	30	-.785	61	.979	29
685	P172	max	T	7.741	37	.21	6	3.841	36	1.668	29	7.709	37
686		min		-.061	28	-.47	30	.038	28	.054	28	.119	28
687		max	B	.477	27	-.856	29	3.851	36	2.355	66	7.987	36
688		min		-.547	35	-8.243	36	.528	30	-.777	6	1.003	29
689	P173	max	T	6.259	37	.024	5	3.12	37	1.813	30	6.249	37
690		min		-.011	29	-.318	30	.097	29	-.437	29	.2	29
691		max	B	.363	27	-.818	28	3.32	36	2.356	176	6.624	36
692		min		-.019	119	-6.608	36	.502	29	-.785	191	.94	29
693	P174	max	T	6.003	37	.003	21	3.007	37	2.031	30	6.008	37
694		min		-.012	29	-.564	29	.026	13	-.575	29	.05	13
695		max	B	.263	27	-.967	28	3.743	36	2.356	183	7.486	36
696		min		-.013	30	-7.485	36	.578	28	-.785	151	1.074	28
697	P175	max	T	6.056	37	.007	22	3.049	37	2.13	30	6.077	37
698		min		-.034	13	-.914	29	.163	12	-.662	13	.302	12
699		max	B	.217	27	-1.17	28	4.307	36	2.356	217	8.641	35
700		min		-.056	34	-8.668	35	.658	28	-.785	7	1.249	28
701	P176	max	T	6.5	37	.145	6	3.202	37	2.125	30	6.453	37
702		min		-.088	29	-1.328	29	.212	214	-.774	13	.41	214
703		max	B	.162	27	-1.476	27	5.112	35	2.355	86	10.397	35
704		min		-.337	34	-10.561	35	.792	28	-.785	42	1.542	28
705	P177	max	T	2.547	39	.013	2	1.433	39	2.178	30	2.72	39
706		min		.074	29	-.52	146	.069	14	.415	29	.121	29
707		max	B	.471	146	-.757	29	2.12	38	2.337	24	4.071	38
708		min		.021	18	-3.882	37	.424	29	-.78	9	.807	29
709	P178	max	T	3.602	38	.009	2	1.885	38	1.649	31	3.689	38
710		min		.218	29	-.369	146	.11	29	.682	27	.219	29
711		max	B	.428	146	-.57	29	2.365	38	2.334	12	4.579	38
712		min		.011	18	-4.423	37	.331	30	-.776	8	.646	30
713	P179	max	T	4.6	37	-.002	19	2.355	37	1.45	31	4.656	37
714		min		.432	29	-.28	146	.222	29	.742	27	.438	29

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
715		max	B	.378	147	-.334	29	2.429	38	2.352	24	4.738	37
716		min		-.003	31	-4.611	37	.19	30	-.761	8	.365	30
717	P180	max	T	5.271	36	-.018	19	2.689	37	1.303	31	5.324	36
718		min		.594	28	-.211	146	.321	29	.754	26	.623	28
719		max	B	.394	27	-.102	30	2.333	37	2.355	218	4.575	37
720		min		-.002	31	-4.478	37	.082	30	-.785	231	.143	30
721	P181	max	T	3.351	38	.036	2	1.803	39	1.827	31	3.485	39
722		min		.338	29	-.54	145	.153	29	.758	26	.323	29
723		max	B	.855	146	-.59	30	2.198	40	2.355	158	4.06	39
724		min		.046	18	-3.618	38	.361	31	-.785	169	.675	30
725	P182	max	T	4.148	38	.014	121	2.143	38	1.669	31	4.219	38
726		min		.406	29	-.391	145	.197	29	.733	26	.4	29
727		max	B	.728	147	-.528	30	2.364	39	2.356	204	4.445	38
728		min		.025	18	-4.109	38	.336	30	-.781	195	.613	30
729	P183	max	T	4.864	37	-.008	19	2.479	38	1.557	31	4.91	37
730		min		.442	29	-.316	25	.228	29	.719	26	.45	29
731		max	B	.595	147	-.478	30	2.501	38	2.355	130	4.786	38
732		min		.007	31	-4.552	37	.303	30	-.785	129	.553	30
733	P184	max	T	5.578	37	-.012	20	2.83	37	1.438	31	5.619	37
734		min		.505	29	-.249	25	.271	29	.705	26	.525	29
735		max	B	.56	27	-.397	30	2.61	38	2.356	128	5.079	37
736		min		-.016	31	-4.926	37	.255	30	-.783	136	.463	30
737	P185	max	T	4.186	38	.054	121	2.162	39	1.69	31	4.252	39
738		min		.716	29	-.473	24	.335	29	.77	25	.694	29
739		max	B	1.048	147	-.256	31	2.058	40	2.356	55	3.72	40
740		min		.046	18	-3.128	39	.168	31	-.785	40	.304	31
741	P186	max	T	4.725	38	.019	13	2.407	38	1.614	31	4.77	38
742		min		.609	29	-.385	25	.296	29	.743	26	.601	29
743		max	B	.811	147	-.389	30	2.183	40	2.356	243	4.057	39
744		min		.027	18	-3.665	38	.23	31	-.784	77	.443	31
745	P187	max	T	5.211	37	.003	20	2.633	38	1.576	30	5.235	37
746		min		.46	29	-.327	25	.235	29	.709	26	.465	29
747		max	B	.619	27	-.505	30	2.394	38	2.356	137	4.579	38
748		min		0	31	-4.354	37	.314	30	-.784	138	.576	30
749	P188	max	T	5.753	37	.011	20	2.889	37	1.552	30	5.765	37
750		min		.349	29	-.28	31	.194	29	.672	27	.37	29
751		max	B	.607	27	-.598	29	2.711	37	2.356	128	5.291	37
752		min		-.023	31	-5.151	37	.352	30	-.781	136	.667	30
753	P189	max	T	5.306	38	.042	121	2.686	38	1.487	32	5.339	38
754		min		1.195	29	-.354	25	.585	29	.812	25	1.182	29
755		max	B	.925	148	.046	16	1.548	40	2.345	35	2.781	40
756		min		.021	19	-2.287	39	.012	16	-.738	6	.062	16
757	P190	max	T	5.301	38	.009	121	2.687	38	1.452	31	5.338	38
758		min		.815	29	-.286	25	.408	29	.775	26	.816	29
759		max	B	.588	147	-.125	30	1.698	39	2.344	7	3.196	39
760		min		.01	19	-2.957	38	.113	30	-.785	86	.197	30
761	P191	max	T	5.503	37	-.004	20	2.789	38	1.47	31	5.538	37
762		min		.497	29	-.269	26	.259	29	.742	26	.508	29
763		max	B	.506	27	-.367	29	2.053	38	2.356	158	3.99	37
764		min		.001	15	-3.866	37	.215	30	-.785	150	.42	30
765	P192	max	T	6.088	37	.023	4	3.045	37	1.588	30	6.089	37
766		min		.177	29	-.261	26	.104	29	.609	27	.195	29

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
767		max	B	.466	27	-.583	29	2.71	37	2.356	164	5.364	36
768		min		-.022	98	-5.306	36	.403	29	-.785	163	.72	29
769	P193	max	T	1.746	39	-.407	223	2.131	141	1.005	29	3.717	141
770		min		-.499	30	-2.728	123	.208	30	-.383	30	.563	29
771		max	B	1.329	22	-.481	18	1.533	42	2.35	50	3.005	43
772		min		-.337	17	-2.977	44	.145	92	-.782	42	.468	270
773	P194	max	T	1.223	39	-.234	216	1.407	144	.841	26	2.463	144
774		min		.026	29	-1.779	140	.202	28	-.267	31	.36	28
775		max	B	1.016	144	-.579	20	1.976	41	2.348	4	3.644	42
776		min		.025	18	-3.296	45	.398	18	-.774	127	.736	19
777	P195	max	T	1.475	40	.005	281	1.235	40	1.086	281	2.153	40
778		min		.012	14	-1.231	146	.061	280	-.405	32	.125	280
779		max	B	.738	145	-.686	21	1.991	41	2.356	25	3.729	42
780		min		.01	18	-3.455	45	.427	19	-.77	7	.809	20
781	P196	max	T	1.829	39	.009	18	1.227	39	1.722	18	2.208	39
782		min		.019	14	-.847	146	.021	18	-.659	33	.047	18
783		max	B	.604	145	-.901	74	1.971	40	-.181	32	3.718	39
784		min		.025	18	-3.454	35	.507	79	-.785	24	.967	77
785	P197	max	T	1.667	40	-.009	275	1.179	41	1.797	30	2.1	41
786		min		-.071	14	-.952	144	.062	14	-.727	31	.171	14
787		max	B	.808	145	-.253	269	1.328	42	2.354	78	2.38	42
788		min		-.185	17	-1.943	42	.057	17	-.784	256	.219	269
789	P198	max	T	2.027	41	.13	91	1.43	40	2.346	31	2.547	40
790		min		.177	2	-1.233	144	.063	91	-.778	15	.212	14
791		max	B	1.313	145	-.16	18	1.805	41	2.355	39	3.195	41
792		min		-.014	18	-2.467	42	.073	18	-.784	116	.154	18
793	P199	max	T	2.371	40	.08	2	1.514	40	2.185	32	2.759	40
794		min		.214	18	-1.008	144	.089	2	.678	123	.225	18
795		max	B	1.201	146	-.482	18	1.941	41	2.356	167	3.468	41
796		min		.031	18	-2.79	41	.256	18	-.785	169	.498	18
797	P200	max	T	2.758	39	.052	2	1.594	39	2.02	31	2.997	39
798		min		.308	29	-.752	145	.139	29	.75	147	.294	29
799		max	B	1	146	-.641	31	2.049	40	2.347	7	3.724	40
800		min		.05	18	-3.177	40	.358	31	-.78	11	.682	31
801	P201	max	T	2.448	42	.268	108	1.26	42	2.267	18	2.485	42
802		min		.315	20	-.525	25	.122	4	-.589	3	.31	4
803		max	B	1.472	42	.045	31	1.327	42	2.352	26	2.304	42
804		min		.3	21	-1.186	41	.189	276	-.785	27	.366	275
805	P202	max	T	2.886	42	.195	3	1.559	42	2.035	18	3.009	42
806		min		.206	19	-.647	24	.018	19	-.75	19	.191	19
807		max	B	1.569	42	.05	31	1.585	41	2.356	206	2.746	41
808		min		.215	270	-1.605	41	.142	282	-.785	218	.256	282
809	P203	max	T	3.304	41	.076	2	1.824	41	1.815	33	3.489	41
810		min		.566	19	-.675	145	.248	19	.786	23	.534	19
811		max	B	1.446	147	.052	32	1.711	41	2.352	188	2.977	41
812		min		.074	18	-2.001	41	.04	18	-.692	99	.077	18
813	P204	max	T	3.704	39	.064	96	1.977	40	1.759	31	3.834	39
814		min		.838	29	-.578	145	.397	29	.792	24	.817	29
815		max	B	1.25	147	-.077	31	1.885	41	2.354	47	3.333	41
816		min		.041	18	-2.565	40	.075	32	-.785	200	.129	32
817	P205	max	T	4.238	45	.125	4	2.098	45	1.859	19	4.217	45
818		min		.187	21	-.525	23	.09	20	.615	21	.2	21

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
819		max	B	2.671	47	.063	15	1.499	45	2.354	25	2.843	46
820		min		.199	22	-.868	25	.167	21	-.755	24	.298	21
821	P206	max	T	4.207	45	.076	3	2.139	44	1.674	18	4.24	45
822		min		.426	21	-.523	23	.195	20	.732	22	.418	20
823		max	B	2.143	46	.036	31	1.379	42	2.338	24	2.478	43
824		min		.201	21	-.893	8	.191	21	-.783	22	.331	21
825	P207	max	T	4.365	45	.035	19	2.262	43	1.616	33	4.441	44
826		min		.761	21	-.51	24	.385	20	.833	23	.769	20
827		max	B	1.704	44	.026	31	1.324	41	2.355	23	2.317	41
828		min		.154	20	-.993	40	.127	19	-.758	22	.237	19
829	P208	max	T	4.867	39	.047	96	2.513	40	1.567	32	4.948	40
830		min		1.262	20	-.462	24	.632	20	.85	24	1.263	20
831		max	B	1.344	148	.043	16	1.433	41	2.348	23	2.485	41
832		min		.033	267	-1.564	40	.077	18	-.767	6	.152	18
833	P209	max	T	1.218	26	.042	22	.895	2	1.53	22	1.661	2
834		min		.058	81	-1.49	2	.074	6	-.105	21	.158	6
835		max	B	.402	20	-.109	22	1.326	43	2.117	22	2.532	44
836		min		-.052	125	-2.394	44	.123	6	-.54	6	.226	6
837	P210	max	T	.644	25	.048	22	.663	47	1.658	22	1.29	48
838		min		-.015	31	-1.286	15	.097	6	-.272	21	.219	6
839		max	B	.242	22	-.071	22	1.129	45	2.067	22	2.248	45
840		min		-.073	124	-2.241	46	.046	5	-.728	6	.109	5
841	P211	max	T	.56	23	-.084	6	.747	47	1.681	22	1.459	47
842		min		-.064	126	-1.422	47	.144	5	-.667	21	.275	21
843		max	B	.393	22	-.004	22	1.128	46	2.251	23	2.203	46
844		min		.032	79	-2.145	46	.085	5	-.734	24	.148	5
845	P212	max	T	1.904	126	.451	23	1.368	35	.651	27	2.372	125
846		min		-.4	31	-1.922	14	.273	24	-.562	22	.58	73
847		max	B	.83	27	-.359	72	.87	124	2.314	10	2.022	124
848		min		-1.227	41	-2.218	124	.026	72	-.665	176	.333	73
849	P213	max	T	1.252	11	.051	6	.942	11	1.868	22	1.661	11
850		min		.115	82	-.633	11	.04	256	-.368	21	.102	82
851		max	B	.655	18	-.068	128	.862	10	1.364	21	1.508	10
852		min		-.006	129	-1.075	10	.032	128	-.751	22	.066	128
853	P214	max	T	1.113	11	.044	6	.768	11	1.759	22	1.375	11
854		min		.028	31	-.617	18	.004	256	-.455	275	.042	263
855		max	B	.499	10	-.069	138	.718	10	2.32	6	1.264	10
856		min		.012	83	-.938	10	.059	257	-.611	23	.105	136
857	P215	max	T	.88	10	.216	6	.664	11	2.165	22	1.166	11
858		min		.011	31	-.53	13	.039	260	-.565	272	.104	260
859		max	B	.585	10	-.138	67	.678	10	2.34	150	1.178	10
860		min		-.108	34	-.836	42	.032	83	-.761	24	.125	83
861	P216	max	T	1.218	41	.094	22	.805	42	.932	213	1.452	42
862		min		-.166	31	-.639	13	.092	31	-.409	282	.259	261
863		max	B	.68	10	-.152	255	.812	10	2.355	58	1.412	10
864		min		-.143	82	-1.226	42	.006	255	-.785	42	.146	255
865	P217	max	T	2.294	43	.132	120	1.255	43	2.168	268	2.41	43
866		min		.305	22	-.556	11	.136	22	-.737	33	.29	22
867		max	B	1.045	2	.158	14	.908	10	2.354	60	1.572	10
868		min		.238	68	-.921	26	.086	30	-.783	238	.224	67
869	P218	max	T	2.274	43	.111	124	1.209	43	2.314	2	2.349	43
870		min		.225	22	-.418	11	.082	22	-.766	5	.202	22

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
871		max	B	1.067	42	.092	14	.818	10	2.356	163	1.417	10
872		min		.289	22	-.811	26	.157	66	-.75	86	.309	67
873	P219	max	T	2.19	43	.165	124	1.108	43	2.338	18	2.203	43
874		min		.175	22	-.365	27	.039	22	-.743	3	.152	22
875		max	B	1.221	42	.074	30	.841	42	2.355	225	1.505	42
876		min		.316	22	-.779	9	.192	66	-.785	226	.366	66
877	P220	max	T	2.238	43	.253	111	1.117	43	2.306	18	2.236	43
878		min		.317	21	-.416	26	.117	5	-.686	3	.296	5
879		max	B	1.317	42	.041	30	1.045	42	2.356	23	1.83	42
880		min		.275	21	-.897	9	.213	21	-.779	187	.373	21
881	P221	max	T	3.671	44	.07	119	1.864	43	2.349	21	3.698	44
882		min		.378	22	-.339	26	.182	22	-.767	19	.371	22
883		max	B	2.301	48	.071	14	1.122	47	2.354	206	2.274	47
884		min		.245	22	-.694	26	.188	22	-.783	197	.331	22
885	P222	max	T	3.579	45	.048	124	1.814	44	2.35	21	3.603	45
886		min		.186	22	-.29	26	.093	22	1.202	23	.185	22
887		max	B	2.474	47	.034	30	1.255	47	2.332	27	2.492	47
888		min		.197	22	-.644	25	.196	22	-.765	10	.339	22
889	P223	max	T	3.636	45	.059	123	1.831	45	2.28	20	3.649	45
890		min		.124	22	-.313	25	.114	22	-.725	21	.197	22
891		max	B	2.685	47	.04	30	1.38	46	2.321	10	2.72	47
892		min		.18	22	-.654	25	.21	21	-.757	9	.396	21
893	P224	max	T	3.976	46	.145	34	1.954	45	2.228	20	3.939	45
894		min		.129	21	-.426	24	.075	21	-.453	21	.141	21
895		max	B	2.902	47	.064	30	1.528	46	2.336	9	2.981	46
896		min		.182	22	-.758	25	.177	21	-.78	8	.328	21
897	P225	max	T	2.059	43	.09	100	1.251	43	2.093	100	2.312	43
898		min		.085	276	-.611	11	.006	99	-.735	99	.078	275
899		max	B	.659	33	-.06	30	.882	10	1.371	32	1.603	10
900		min		-.022	128	-1.417	9	.062	30	-.127	28	.108	30
901	P226	max	T	1.056	11	.013	116	.834	11	2.339	115	1.462	11
902		min		.013	82	-.612	11	.009	82	-.738	117	.016	82
903		max	B	.452	18	-.167	31	.751	10	1.238	33	1.381	42
904		min		.027	66	-1.266	42	.144	66	-.157	27	.272	15
905	P227	max	T	.891	11	-.012	22	.766	11	1.71	22	1.333	11
906		min		.011	257	-.642	11	.027	124	-.418	5	.046	124
907		max	B	.417	18	-.229	31	.777	42	1.14	18	1.475	42
908		min		.021	259	-1.381	42	.152	31	-.18	26	.274	31
909	P228	max	T	1.037	19	.059	6	.962	11	1.83	22	1.681	11
910		min		.082	68	-1.182	11	.049	68	-.44	21	.092	68
911		max	B	.916	212	-.199	32	.992	11	1.113	20	1.744	43
912		min		-.104	22	-1.301	42	.06	22	-.289	26	.195	22
913	P229	max	T	1.777	42	.081	120	1.165	11	2.129	108	2.091	42
914		min		.115	31	-.863	11	.033	31	-.743	16	.1	31
915		max	B	.775	10	-.094	260	.966	10	1.34	31	1.684	10
916		min		.059	126	-1.157	10	.1	259	-.184	28	.174	259
917	P230	max	T	1.847	42	.065	119	1.161	11	2.345	101	2.095	43
918		min		.168	31	-.76	11	.063	31	-.783	276	.151	31
919		max	B	.73	18	-.038	30	.885	10	1.35	31	1.547	10
920		min		.057	83	-1.088	10	.068	66	-.278	30	.119	66
921	P231	max	T	1.548	42	.093	124	1.099	11	2.303	108	1.924	11
922		min		.145	31	-.818	11	.034	31	-.691	100	.126	31

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
923		max	B	.745	10	-.011	259	.879	10	1.247	31	1.528	10
924		min		.049	128	-1.013	10	.067	259	-.309	27	.123	83
925	P232	max	T	1.342	42	.159	125	1.058	11	2.35	257	1.854	11
926		min		.146	262	-.776	11	.005	262	-.581	256	.141	263
927		max	B	.746	10	-.079	259	.922	10	1.246	21	1.607	10
928		min		.062	128	-1.099	10	.088	127	-.51	22	.154	127
929	P233	max	T	2.329	42	.07	119	1.372	42	2.355	5	2.562	42
930		min		.328	31	-.851	11	.144	31	-.785	280	.31	31
931		max	B	1.024	10	.061	123	1.05	10	2.348	138	1.818	10
932		min		.095	124	-1.075	10	.017	123	-.696	125	.083	124
933	P234	max	T	2.407	42	.057	118	1.37	42	2.348	5	2.59	42
934		min		.409	31	-.752	11	.183	31	-.747	17	.389	31
935		max	B	.945	10	.054	136	.962	10	2.302	131	1.666	10
936		min		.149	22	-.978	10	.087	127	-.726	34	.205	127
937	P235	max	T	2.393	42	.077	119	1.341	43	2.326	17	2.55	43
938		min		.444	32	-.714	11	.195	31	-.774	5	.43	31
939		max	B	.95	42	.064	34	.921	10	2.356	79	1.594	10
940		min		.161	22	-.908	10	.108	66	-.78	51	.226	67
941	P236	max	T	2.325	43	.144	16	1.28	43	2.301	17	2.451	43
942		min		.389	32	-.663	11	.152	32	-.719	5	.354	32
943		max	B	.999	2	.155	34	.936	10	2.346	63	1.621	10
944		min		.197	22	-.933	26	.087	66	-.772	53	.205	66
945	P237	max	T	3.016	42	.042	114	1.607	42	2.35	21	3.12	42
946		min		.598	32	-.596	27	.294	31	-.763	32	.596	31
947		max	B	1.435	42	.036	259	.971	10	2.345	48	1.686	10
948		min		.252	22	-.847	10	.161	22	-.785	80	.294	22
949	P238	max	T	2.989	42	.018	116	1.583	42	2.329	21	3.082	42
950		min		.64	32	-.498	27	.334	31	-.762	3	.665	32
951		max	B	1.452	43	.019	259	.877	10	2.353	61	1.606	42
952		min		.238	22	-.764	26	.152	22	-.785	247	.277	22
953	P239	max	T	3.068	42	.027	118	1.619	42	2.355	21	3.157	42
954		min		.648	22	-.472	27	.328	22	-.771	3	.651	22
955		max	B	1.66	46	.022	136	.908	42	2.355	6	1.737	43
956		min		.248	22	-.683	26	.155	22	-.715	22	.284	22
957	P240	max	T	3.418	43	.069	119	1.759	43	2.321	3	3.469	43
958		min		.544	22	-.425	26	.269	22	-.771	21	.541	22
959		max	B	2.024	47	.082	34	1.022	43	2.351	167	2.01	44
960		min		.272	22	-.69	26	.177	22	-.784	13	.321	22
961	P241	max	T	4.505	42	.371	4	2.487	42	1.989	16	4.757	42
962		min		.395	32	-.793	10	.021	4	-.732	17	.359	21
963		max	B	.826	11	-.077	31	2.221	42	2.269	15	4.127	42
964		min		-.225	21	-3.727	41	.144	20	-.652	4	.329	275
965	P242	max	T	1.287	42	-.005	16	1.029	42	2.354	102	1.802	42
966		min		.166	31	-.909	10	.086	31	-.778	97	.169	31
967		max	B	.728	11	-.047	30	.784	10	1.709	15	1.359	10
968		min		.038	259	-.852	9	.074	260	-.351	30	.134	260
969	P243	max	T	1.107	42	.01	5	.947	42	2.318	16	1.648	42
970		min		.009	31	-.965	11	.015	16	-.623	5	.028	16
971		max	B	.504	10	-.196	30	.767	10	1.386	33	1.353	10
972		min		-.06	138	-1.168	42	.119	66	-.087	214	.232	30
973	P244	max	T	.921	42	-.021	5	1.188	11	1.471	22	2.085	11
974		min		.004	16	-1.521	11	.087	32	-.422	5	.168	32

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
975		max	B	.602	26	-.284	66	.789	10	1.222	18	1.381	10
976		min		-.068	34	-1.211	42	.137	66	-.133	26	.28	66
977	P245	max	T	2.152	42	.329	108	1.309	42	2.325	101	2.419	42
978		min		.183	31	-1.01	11	.045	99	-.772	278	.186	31
979		max	B	.792	211	-.176	30	1.044	10	2.35	35	1.854	42
980		min		-.008	127	-1.47	42	.226	30	-.778	49	.395	30
981	P246	max	T	2.223	42	.139	5	1.473	42	2.352	92	2.659	42
982		min		.183	32	-1.062	11	.101	32	-.78	5	.193	32
983		max	B	.731	10	-.094	30	.988	10	1.704	259	1.731	10
984		min		-.253	124	-1.245	10	.042	123	-.409	30	.177	66
985	P247	max	T	1.701	42	.036	5	1.302	42	2.336	271	2.291	42
986		min		.149	31	-1.196	11	.109	32	-.784	280	.196	32
987		max	B	.789	10	-.083	66	.883	10	1.542	15	1.532	10
988		min		-.087	133	-.977	10	.038	83	-.498	30	.093	66
989	P248	max	T	1.722	42	.04	108	1.225	42	2.348	101	2.18	42
990		min		.115	31	-1.042	11	.067	31	-.783	276	.126	31
991		max	B	.806	10	-.105	259	.97	10	1.454	31	1.689	10
992		min		-.029	138	-1.135	10	.077	259	-.306	30	.136	259
993	P249	max	T	1.747	42	.377	125	1.078	11	2.342	110	1.876	11
994		min		.095	31	-.889	11	.067	31	-.783	109	.119	31
995		max	B	.665	18	-.12	30	.749	10	2.348	40	1.31	10
996		min		-.24	148	-.936	10	.098	79	-.772	45	.189	79
997	P250	max	T	1.98	42	.125	109	1.246	42	2.349	272	2.28	42
998		min		.156	31	-1.041	11	.095	31	-.785	103	.176	31
999		max	B	.805	10	-.081	30	.887	10	2.356	49	1.539	10
1000		min		-.117	131	-.97	10	.062	131	-.757	36	.137	66
1001	P251	max	T	2.144	42	.051	109	1.385	42	2.355	106	2.515	42
1002		min		.233	31	-1.06	11	.13	31	-.782	281	.247	31
1003		max	B	.946	10	-.058	66	.962	10	1.98	135	1.667	10
1004		min		-.04	128	-.979	10	.024	128	-.761	83	.076	127
1005	P252	max	T	2.223	42	.055	109	1.391	42	2.353	271	2.549	42
1006		min		.275	31	-.988	11	.135	31	-.777	5	.272	31
1007		max	B	1.039	10	.007	124	1.048	10	2.253	138	1.815	10
1008		min		.025	125	-1.057	10	.01	124	-.72	125	.023	125
1009	P253	max	T	1.506	41	.184	35	.83	11	2.343	265	1.491	41
1010		min		0	31	-.775	28	.033	31	-.785	254	.065	31
1011		max	B	.614	19	-.068	79	.635	11	2.287	79	1.111	11
1012		min		-.213	147	-.794	11	.011	79	-.716	46	.061	79
1013	P254	max	T	1.863	41	.06	124	1.043	42	2.304	31	1.977	42
1014		min		.123	31	-.766	27	.062	31	-.777	99	.124	31
1015		max	B	.818	10	-.043	66	.78	10	2.311	83	1.351	10
1016		min		-.036	132	-.769	11	.018	132	-.701	34	.062	132
1017	P255	max	T	2.22	41	.029	111	1.261	42	2.355	279	2.38	42
1018		min		.307	31	-.763	11	.153	31	-.779	271	.307	31
1019		max	B	1.04	42	-.011	259	.877	10	2.299	136	1.526	10
1020		min		.202	22	-.735	10	.119	138	-.775	127	.227	138
1021	P256	max	T	2.696	41	.042	112	1.484	42	2.338	267	2.84	42
1022		min		.488	31	-.723	27	.239	31	-.722	21	.483	31
1023		max	B	1.376	42	.024	259	.987	10	2.341	135	1.718	10
1024		min		.257	22	-.805	10	.166	22	-.78	83	.302	22
1025	P257	max	T	13.563	41	4.269	39	4.668	41	1.844	15	12.02	41
1026		min		.787	31	-.552	33	.2	16	-.628	16	.727	31

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1027		max	B	1.348	18	-.262	33	6.416	42	2.332	33	12.994	42
1028		min		-.892	9	-13.153	41	.643	32	-.723	20	1.141	32
1029	P258	max	T	5.227	39	.029	18	2.707	39	2.356	12	5.323	39
1030		min		.7	30	-.205	179	.361	31	-.771	11	.718	31
1031		max	B	.748	33	.064	30	.927	145	2.252	31	1.812	145
1032		min		.018	22	-1.766	145	.047	232	-.768	30	.1	231
1033	P259	max	T	3.392	38	.277	212	1.586	38	2.217	30	3.288	38
1034		min		.247	29	-.059	19	.03	29	-.713	31	.223	29
1035		max	B	1.132	34	-.11	31	1.595	38	2.176	30	2.809	38
1036		min		.098	26	-2.111	39	.282	30	1.594	127	.495	29
1037	P260	max	T	1.915	41	.096	16	2.009	42	2.051	31	3.481	42
1038		min		.171	31	-2.174	10	.086	31	-.648	32	.171	31
1039		max	B	3.435	42	-.158	31	2.768	41	2.355	178	4.838	41
1040		min		.327	32	-2.118	41	.249	31	-.785	182	.44	31
1041	P261	max	T	8.382	40	3.901	41	2.244	39	1.086	30	7.265	40
1042		min		.445	31	-.26	33	.116	30	-.622	31	.452	31
1043		max	B	.65	18	-.546	32	3.777	39	2.347	29	8.319	40
1044		min		-1.464	9	-8.917	40	.557	32	-.78	30	.964	32
1045	P262	max	T	4.074	39	2.85	41	.711	36	2.346	15	3.61	39
1046		min		.268	31	-.094	33	.114	25	-.785	240	.268	31
1047		max	B	.592	18	-.315	31	1.434	36	2.343	13	3.563	39
1048		min		-1.399	42	-4.033	39	.148	27	-.779	12	.452	30
1049	P263	max	T	2.367	38	.852	42	.811	37	2.316	15	2.094	37
1050		min		.212	31	-.177	29	.021	222	-.74	32	.233	31
1051		max	B	.929	35	-.272	30	1.782	37	2.245	29	3.209	38
1052		min		-.004	26	-2.692	38	.275	30	1.638	18	.477	30
1053	P264	max	T	1.68	42	.723	35	.845	11	2.062	31	1.518	42
1054		min		.187	31	-.613	28	.024	262	-.639	16	.195	31
1055		max	B	.889	35	-.213	31	1.429	39	2.35	222	2.54	39
1056		min		.23	23	-2.001	39	.278	31	-.785	234	.486	31
1057	P265	max	T	8.375	40	1.254	41	3.577	39	2.18	32	7.835	39
1058		min		-.066	32	-.153	33	.031	32	-.27	33	.112	32
1059		max	B	.446	19	-.821	31	4.789	39	1.773	30	9.8	39
1060		min		-.77	11	-10.012	40	.505	31	1.599	127	.93	31
1061	P266	max	T	4.412	39	1.236	41	1.617	38	1.158	31	3.951	39
1062		min		-.04	32	-.17	31	.039	32	-.129	19	.105	32
1063		max	B	.465	19	-.552	31	2.735	38	1.73	30	5.61	39
1064		min		-.72	11	-5.773	39	.267	30	1.564	138	.598	30
1065	P267	max	T	2.151	38	1.089	42	.674	126	1.361	221	1.865	38
1066		min		.007	32	-.275	30	.014	235	-.283	279	.066	32
1067		max	B	.559	19	-.283	30	1.623	36	2.013	26	3.174	37
1068		min		-.548	11	-3.123	38	.081	29	-.661	27	.263	30
1069	P268	max	T	1.372	42	.852	37	.768	11	2.354	83	1.35	11
1070		min		.045	31	-.648	28	.025	151	-.783	144	.096	31
1071		max	B	.65	19	-.162	30	.916	35	2.353	182	1.729	35
1072		min		-.195	164	-1.61	36	.122	30	-.785	179	.216	30
1073	P269	max	T	7.17	40	.158	26	3.772	39	.92	31	7.361	39
1074		min		-.055	32	-.793	32	.246	30	-.174	25	.434	30
1075		max	B	.257	19	-1.184	31	5.454	39	1.408	19	10.874	39
1076		min		-.263	11	-10.84	39	.591	31	1.31	29	1.183	31
1077	P270	max	T	3.781	39	.208	26	1.968	39	.888	30	3.861	39
1078		min		.003	32	-.562	32	.102	29	-.294	26	.24	29

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1079		max	B	.303	19	-.75	31	3.109	38	1.402	19	6.175	39
1080		min		-.246	11	-6.132	39	.375	30	1.131	29	.767	31
1081	P271	max	T	1.98	38	.332	10	.905	37	1.74	11	1.893	38
1082		min		.009	31	-.395	30	.017	199	-.743	26	.179	219
1083		max	B	.348	19	-.42	30	1.661	37	1.456	19	3.328	38
1084		min		-.304	10	-3.344	38	.171	30	.763	29	.387	30
1085	P272	max	T	1.236	37	.408	39	.61	4	2.342	81	1.196	4
1086		min		0	31	-.628	29	.074	79	-.784	53	.163	15
1087		max	B	.489	19	-.197	30	.786	35	1.52	269	1.568	35
1088		min		-.306	178	-1.565	36	.068	24	.065	25	.185	30
1089	P273	max	T	11.342	41	.046	28	5.714	41	-.136	22	11.386	41
1090		min		1.941	33	-.153	143	1.005	33	-.383	32	1.976	33
1091		max	B	1.563	18	-.074	106	2.571	42	2.113	94	5.215	42
1092		min		-.172	47	-5.284	42	.007	105	-.746	93	.064	106
1093	P274	max	T	12.922	42	1.038	43	5.947	42	-.174	23	12.44	42
1094		min		2.542	18	0	19	1.264	18	-.376	33	2.535	18
1095		max	B	1.853	19	.017	19	2.166	10	2.322	277	4.901	42
1096		min		-1.075	44	-5.338	42	.111	31	-.781	273	.286	278
1097	P275	max	T	27.158	40	3.234	40	11.962	40	-.154	28	25.694	40
1098		min		2.494	32	.106	32	1.194	32	-.415	33	2.443	32
1099		max	B	1.335	32	-.078	33	8.907	41	2.154	18	19.064	41
1100		min		-2.308	40	-20.106	41	.29	18	-.762	31	.522	18
1101	P276	max	T	19.267	40	1.662	35	8.939	41	.588	29	18.605	40
1102		min		1.277	31	-.411	27	.593	31	-.418	32	1.233	31
1103		max	B	3.202	45	-.481	33	10.346	41	2.284	14	19.364	41
1104		min		.267	22	-17.683	41	.741	33	-.779	30	1.309	33
1105	P277	max	T	10.07	42	.439	11	4.89	41	-.009	21	9.921	42
1106		min		1.064	18	-.305	20	.61	33	-.354	31	1.172	33
1107		max	B	.756	18	-.259	19	2.979	42	1.844	21	6.487	42
1108		min		-.953	42	-6.911	42	.088	3	-.537	20	.268	20
1109	P278	max	T	11.434	42	1.663	42	4.885	42	-.109	143	10.7	42
1110		min		1.129	18	-.21	18	.669	18	-.331	32	1.247	18
1111		max	B	.582	18	-.276	19	2.864	42	1.845	21	7.179	42
1112		min		-2.325	42	-8.053	42	.039	3	-.639	20	.356	20
1113	P279	max	T	20.586	40	4.968	40	7.809	40	.01	28	18.606	40
1114		min		1.155	32	-.135	33	.594	31	-.452	33	1.184	31
1115		max	B	.463	32	-.595	32	7.58	40	2.166	32	17.559	40
1116		min		-4.079	40	-19.239	40	.489	33	1.526	22	.86	33
1117	P280	max	T	14.103	40	3.848	40	5.128	40	.34	28	12.627	40
1118		min		.778	31	-.285	33	.324	30	-.601	32	.787	31
1119		max	B	.783	32	-.768	32	6.233	40	2.177	31	13.243	40
1120		min		-1.616	9	-13.902	40	.765	33	1.774	21	1.326	33
1121	P281	max	T	8.126	42	.717	11	3.773	42	.441	18	7.852	42
1122		min		.011	18	-.651	19	.113	33	-.524	32	.197	33
1123		max	B	.306	33	-.961	18	3.763	42	1.462	22	8.246	42
1124		min		-1.311	41	-8.814	42	.429	19	.671	18	1.028	18
1125	P282	max	T	9	42	2.253	42	3.374	42	.08	18	8.112	42
1126		min		-.155	18	-.545	18	.185	33	-.36	31	.417	33
1127		max	B	-.111	33	-.844	18	3.813	42	1.314	143	9.324	42
1128		min		-2.773	41	-10.394	42	.314	19	.514	18	.773	18
1129	P283	max	T	13.57	40	2.884	40	5.343	40	.048	29	12.383	40
1130		min		.024	32	-.448	32	.177	31	-.691	32	.339	31

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1131		max	B	.036	31	-1.202	32	6.727	40	1.887	31	14.869	40
1132		min		-2.509	40	-15.964	40	.608	32	1.515	22	1.209	32
1133	P284	max	T	11.847	40	1.869	41	4.994	39	2.312	33	11.035	40
1134		min		.048	32	-.379	32	.124	30	-.23	16	.353	31
1135		max	B	.335	18	-1.209	32	6.216	39	1.819	31	13.096	40
1136		min		-1.28	42	-13.68	40	.717	31	1.57	22	1.34	31
1137	P285	max	T	6.102	42	.252	11	2.95	42	2.179	31	6.003	42
1138		min		-.028	18	-1.588	18	.078	282	-.663	15	.15	282
1139		max	B	.114	33	-1.713	33	5.539	41	1.345	22	11.414	41
1140		min		-.643	41	-11.722	41	.914	33	1.005	33	1.773	33
1141	P286	max	T	5.222	10	2.079	42	1.664	212	2.314	15	4.572	10
1142		min		-.677	33	-2.319	18	.125	31	-.69	30	.24	15
1143		max	B	-.321	28	-1.648	33	5.073	41	1.247	27	11.153	41
1144		min		-1.8	40	-11.941	41	.655	33	.822	33	1.508	33
1145	P287	max	T	9.035	40	.541	25	4.661	40	1.474	32	9.182	40
1146		min		-.606	33	-1.867	32	.182	18	.091	127	.688	18
1147		max	B	.106	25	-2.569	31	7.084	40	1.585	31	14.296	40
1148		min		-.448	17	-14.421	40	1.116	18	1.479	20	2.433	31
1149	P288	max	T	9.77	40	.003	26	5.129	40	1.123	31	10.023	40
1150		min		-.015	32	-1.14	32	.297	30	-.098	25	.531	30
1151		max	B	.166	19	-1.731	31	7.436	39	1.464	178	14.875	40
1152		min		-.22	11	-14.88	40	.888	31	1.364	33	1.754	31
1153	P289	max	T	6.371	42	-.015	70	3.216	42	.157	21	6.402	42
1154		min		.819	18	-.127	30	.418	18	-.323	32	.827	18
1155		max	B	.471	18	-.017	20	2.394	42	1.793	21	4.737	42
1156		min		-.004	4	-4.684	42	.029	20	-.42	20	.051	20
1157	P290	max	T	7.999	42	.007	26	4	42	.078	21	7.999	42
1158		min		1.16	18	-.086	30	.585	18	-.332	31	1.165	18
1159		max	B	.794	18	-.01	20	2.57	42	1.988	21	5.12	42
1160		min		-.013	176	-5.099	42	.079	4	-.158	20	.156	4
1161	P291	max	T	9.278	41	.021	26	4.643	41	.026	21	9.282	41
1162		min		1.402	33	-.088	21	.726	33	-.318	31	1.428	33
1163		max	B	1.122	18	-.037	20	2.543	42	1.669	5	5.111	42
1164		min		-.061	39	-5.136	42	.088	4	-.703	21	.158	4
1165	P292	max	T	9.853	41	.034	27	4.95	41	-.048	22	9.877	41
1166		min		1.565	33	-.103	21	.81	33	-.336	31	1.593	33
1167		max	B	1.339	18	-.059	19	2.361	42	2.031	5	4.79	42
1168		min		-.139	38	-4.856	42	.125	94	-.604	21	.234	93
1169	P293	max	T	6.416	42	-.01	26	3.239	42	.335	20	6.447	42
1170		min		.596	18	-.235	21	.32	18	-.351	31	.619	18
1171		max	B	.562	33	-.279	19	2.777	43	1.633	22	5.455	42
1172		min		-.02	21	-5.356	42	.167	20	.668	18	.33	20
1173	P294	max	T	7.326	42	.01	26	3.677	42	.266	20	7.34	42
1174		min		.662	18	-.254	21	.355	18	-.373	31	.687	18
1175		max	B	.621	33	-.271	19	3.003	42	1.59	22	5.963	42
1176		min		-.032	168	-5.918	42	.167	20	.567	18	.331	20
1177	P295	max	T	8.156	42	.033	11	4.1	42	.186	20	8.178	42
1178		min		.739	18	-.272	21	.406	18	-.383	31	.778	18
1179		max	B	.646	33	-.239	19	3.115	42	1.571	22	6.278	42
1180		min		-.111	39	-6.325	42	.126	20	.45	18	.274	20
1181	P296	max	T	8.999	42	.155	11	4.499	42	.081	21	8.998	42
1182		min		.895	18	-.302	21	.515	18	-.387	31	.969	18

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1183		max	B	.706	18	-.195	20	3.019	42	1.607	21	6.268	42
1184		min		-.451	40	-6.475	42	.04	20	.197	19	.17	20
1185	P297	max	T	6.285	42	.012	26	3.152	42	.49	19	6.295	42
1186		min		.303	18	-.337	21	.178	18	-.424	32	.332	18
1187		max	B	.547	33	-.601	19	3.048	42	1.658	22	6.015	42
1188		min		-.028	156	-5.932	42	.337	19	.841	18	.641	19
1189	P298	max	T	6.697	42	.013	26	3.36	42	.502	19	6.709	42
1190		min		.169	18	-.375	20	.123	18	-.498	33	.218	18
1191		max	B	.496	33	-.697	18	3.388	42	1.605	22	6.751	42
1192		min		-.033	176	-6.727	42	.398	19	.816	33	.777	19
1193	P299	max	T	7.166	42	.055	11	3.598	42	.546	18	7.181	42
1194		min		.077	18	-.441	20	.118	18	-.576	33	.208	18
1195		max	B	.448	33	-.782	18	3.714	42	1.559	22	7.499	42
1196		min		-.153	39	-7.567	42	.453	19	.787	33	.914	19
1197	P300	max	T	7.738	42	.203	11	3.838	42	.486	18	7.707	42
1198		min		.053	18	-.511	20	.143	18	-.606	33	.264	18
1199		max	B	.412	33	-.837	18	3.855	42	1.5	22	7.989	42
1200		min		-.546	40	-8.242	42	.451	19	.729	33	.955	19
1201	P301	max	T	6.245	42	.02	10	3.113	42	1.868	18	6.235	42
1202		min		-.002	18	-.31	20	.039	18	-.598	33	.078	18
1203		max	B	.332	32	-.782	18	3.326	42	1.687	22	6.631	42
1204		min		-.019	173	-6.611	42	.467	18	.967	33	.868	18
1205	P302	max	T	5.988	42	.001	26	2.999	42	2.258	33	5.993	42
1206		min		-.01	18	-.495	19	.067	2	-.682	32	.127	2
1207		max	B	.242	32	-.996	18	3.741	42	1.612	22	7.48	42
1208		min		-.013	4	-7.477	42	.542	18	.999	33	1.042	18
1209	P303	max	T	6.04	42	.005	27	3.041	42	2.311	32	6.061	42
1210		min		-.032	2	-.766	19	.095	2	-.645	17	.208	2
1211		max	B	.201	32	-1.212	33	4.305	41	1.574	22	8.637	41
1212		min		-.055	39	-8.664	41	.658	18	1.04	33	1.29	18
1213	P304	max	T	6.483	42	.143	11	3.194	42	2.217	17	6.436	42
1214		min		-.081	18	-1.154	18	.214	17	-.712	31	.371	17
1215		max	B	.145	32	-1.519	33	5.109	41	1.483	22	10.391	41
1216		min		-.337	40	-10.554	41	.826	33	1.027	33	1.589	33
1217	P305	max	T	2.568	44	.012	7	1.443	45	1.24	19	2.74	45
1218		min		.068	18	-.52	215	.048	3	-.709	18	.096	3
1219		max	B	.472	215	-.772	18	2.127	44	1.83	22	4.08	43
1220		min		.021	23	-3.884	43	.421	19	1.265	31	.819	18
1221	P306	max	T	3.625	43	.01	7	1.9	44	.719	20	3.715	44
1222		min		.19	18	-.369	215	.098	18	-.356	33	.193	18
1223		max	B	.429	215	-.598	18	2.371	43	1.776	22	4.589	43
1224		min		.012	23	-4.422	42	.317	19	1.181	32	.619	19
1225	P307	max	T	4.615	42	0	24	2.366	43	.474	21	4.671	42
1226		min		.396	18	-.28	215	.203	18	-.289	32	.401	18
1227		max	B	.378	215	-.322	19	2.434	43	1.762	22	4.739	43
1228		min		-.002	20	-4.608	42	.175	19	1.057	18	.337	19
1229	P308	max	T	5.283	42	-.018	24	2.698	42	.303	21	5.34	42
1230		min		.58	18	-.211	215	.3	18	-.287	32	.59	18
1231		max	B	.352	32	-.082	19	2.334	43	1.766	21	4.571	42
1232		min		-.009	20	-4.473	42	.073	19	.719	18	.127	19
1233	P309	max	T	3.368	44	.039	7	1.81	45	.823	20	3.499	45
1234		min		.336	18	-.54	215	.151	18	-.28	31	.321	18

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1235		max	B	.856	215	-.524	20	2.21	45	1.839	22	4.085	45
1236		min		.046	23	-3.639	44	.303	20	1.18	32	.569	20
1237	P310	max	T	4.162	43	.015	18	2.153	44	.673	20	4.233	43
1238		min		.406	18	-.391	215	.196	18	-.302	31	.399	18
1239		max	B	.728	216	-.458	19	2.378	45	1.785	22	4.471	44
1240		min		.026	23	-4.129	43	.265	20	1.073	33	.502	20
1241	P311	max	T	4.87	42	-.009	25	2.489	43	.564	20	4.924	43
1242		min		.445	18	-.319	30	.228	18	-.314	31	.45	18
1243		max	B	.594	216	-.405	19	2.512	44	1.746	22	4.808	43
1244		min		.006	21	-4.558	43	.237	20	.965	18	.457	20
1245	P312	max	T	5.586	42	-.017	25	2.834	42	.442	20	5.628	42
1246		min		.507	18	-.254	30	.269	18	-.327	32	.523	18
1247		max	B	.516	33	-.329	19	2.621	43	1.695	22	5.088	43
1248		min		-.012	21	-4.93	42	.195	20	.819	18	.384	20
1249	P313	max	T	4.191	44	.055	174	2.166	45	.661	21	4.262	44
1250		min		.737	18	-.477	30	.345	18	-.278	30	.714	18
1251		max	B	1.047	216	-.12	21	2.067	46	1.982	22	3.741	45
1252		min		.046	23	-3.157	45	.096	21	1.042	18	.168	21
1253	P314	max	T	4.73	43	.02	2	2.41	43	.587	21	4.775	43
1254		min		.643	18	-.395	30	.312	18	-.297	31	.634	18
1255		max	B	.81	216	-.234	20	2.2	45	1.893	22	4.092	45
1256		min		.025	24	-3.695	44	.149	21	.968	18	.282	21
1257	P315	max	T	5.209	42	.002	9	2.637	43	.558	20	5.242	43
1258		min		.505	18	-.336	30	.256	18	-.33	31	.508	18
1259		max	B	.613	216	-.385	20	2.415	44	1.821	22	4.611	44
1260		min		0	141	-4.37	43	.208	20	.933	18	.402	20
1261	P316	max	T	5.751	42	.001	26	2.889	42	.521	20	5.764	42
1262		min		.399	18	-.299	21	.215	18	-.369	32	.416	18
1263		max	B	.565	33	-.496	19	2.726	43	1.736	22	5.306	42
1264		min		-.021	140	-5.165	42	.271	20	.889	18	.541	20
1265	P317	max	T	5.301	43	.043	174	2.686	44	.446	21	5.335	43
1266		min		1.244	18	-.372	30	.608	18	-.244	30	1.23	18
1267		max	B	.924	217	.048	5	1.557	46	1.996	23	2.801	45
1268		min		.02	24	-2.322	45	.067	6	-.455	6	.133	6
1269	P318	max	T	5.297	43	.01	174	2.686	43	.414	21	5.335	43
1270		min		.882	18	-.303	30	.441	18	-.271	31	.882	18
1271		max	B	.588	217	.015	20	1.718	45	2.21	22	3.237	45
1272		min		.01	25	-2.996	44	.032	20	-.62	21	.072	20
1273	P319	max	T	5.493	42	-.006	9	2.788	43	.436	20	5.534	43
1274		min		.582	18	-.284	30	.3	18	-.305	31	.591	18
1275		max	B	.477	33	-.237	19	2.074	44	1.981	21	4.017	43
1276		min		0	20	-3.886	42	.136	19	.913	18	.256	19
1277	P320	max	T	6.075	42	.016	26	3.039	43	.513	19	6.077	42
1278		min		.284	18	-.257	31	.153	18	-.391	32	.296	18
1279		max	B	.431	33	-.52	18	2.723	42	1.817	22	5.383	42
1280		min		-.023	167	-5.319	42	.305	19	.962	33	.607	19
1281	P321	max	T	1.746	45	-.409	100	2.13	211	2.356	63	3.713	211
1282		min		-.492	19	-2.726	193	.149	19	-.778	45	.542	18
1283		max	B	1.311	27	-.46	23	1.533	47	2.268	22	2.995	48
1284		min		-.283	6	-2.959	34	.147	162	.27	23	.473	147
1285	P322	max	T	1.225	45	-.232	270	1.409	214	2.356	163	2.467	214
1286		min		.027	18	-1.777	210	.219	94	-.785	169	.381	94

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1287		max	B	1.018	214	-.604	25	1.985	46	2.027	21	3.651	46
1288		min		.023	22	-3.288	34	.371	24	1.119	27	.696	24
1289	P323	max	T	1.478	45	.006	142	1.238	45	2.323	24	2.157	45
1290		min		.012	3	-1.232	215	.06	142	-.725	2	.123	142
1291		max	B	.739	214	-.71	26	1.998	46	2.001	22	3.74	46
1292		min		.01	23	-3.449	34	.434	25	1.259	28	.826	25
1293	P324	max	T	1.84	45	.014	23	1.233	45	2.281	18	2.22	45
1294		min		.02	3	-.847	215	.017	23	-.615	2	.043	23
1295		max	B	.605	215	-.901	79	1.978	45	1.936	22	3.732	45
1296		min		.025	23	-3.458	44	.507	68	1.311	30	.967	66
1297	P325	max	T	1.66	46	-.011	152	1.178	46	2.355	194	2.097	46
1298		min		-.067	4	-.954	214	.083	4	-.783	190	.2	3
1299		max	B	.808	214	-.256	146	1.328	46	2.02	21	2.381	47
1300		min		-.14	160	-1.947	47	.059	145	-.688	6	.222	146
1301	P326	max	T	2.023	46	.129	160	1.423	46	2.316	25	2.537	46
1302		min		.172	23	-1.235	214	.065	160	-.697	9	.224	160
1303		max	B	1.315	214	-.14	23	1.816	46	2.195	22	3.213	46
1304		min		-.008	23	-2.477	46	.066	23	.974	25	.136	23
1305	P327	max	T	2.368	45	.078	7	1.512	45	1.138	22	2.756	45
1306		min		.2	23	-1.009	214	.082	24	-.37	191	.193	24
1307		max	B	1.203	215	-.454	22	1.951	46	2.016	22	3.486	46
1308		min		.027	23	-2.805	46	.242	23	1.236	197	.47	23
1309	P328	max	T	2.765	45	.054	7	1.598	45	.998	21	3.004	45
1310		min		.308	18	-.752	214	.14	18	-.297	217	.295	18
1311		max	B	1.001	215	-.57	21	2.057	46	1.923	22	3.738	46
1312		min		.049	23	-3.194	45	.32	21	1.254	31	.608	21
1313	P329	max	T	2.445	48	.267	178	1.255	47	2.329	26	2.477	47
1314		min		.347	26	-.531	30	.116	9	-.591	10	.32	9
1315		max	B	1.471	47	.069	21	1.327	47	1.34	281	2.302	47
1316		min		.289	26	-1.194	46	.19	153	.142	22	.367	152
1317	P330	max	T	2.88	47	.19	8	1.556	46	.994	24	3	47
1318		min		.212	25	-.654	29	.015	25	-.411	26	.198	25
1319		max	B	1.571	46	.079	21	1.594	46	1.315	281	2.76	46
1320		min		.214	147	-1.617	46	.14	143	.184	22	.254	143
1321	P331	max	T	3.302	46	.093	8	1.823	46	.774	22	3.487	46
1322		min		.585	25	-.675	214	.263	25	-.269	28	.558	25
1323		max	B	1.446	215	.069	21	1.72	46	1.51	143	2.994	46
1324		min		.076	143	-2.016	46	.044	23	-.007	22	.086	23
1325	P332	max	T	3.705	45	.07	8	1.978	45	.723	21	3.836	45
1326		min		.849	18	-.578	214	.402	18	-.253	30	.827	18
1327		max	B	1.25	216	.042	21	1.895	46	2.302	22	3.352	46
1328		min		.04	23	-2.582	45	.022	21	1.113	18	.075	21
1329	P333	max	T	4.231	34	.121	177	2.095	34	.763	24	4.21	34
1330		min		.212	26	-.523	29	.11	26	-.408	27	.216	26
1331		max	B	2.669	36	.077	20	1.496	34	1.368	28	2.834	35
1332		min		.217	27	-.901	30	.178	26	.285	23	.319	26
1333	P334	max	T	4.204	34	.073	9	2.134	34	.619	23	4.237	34
1334		min		.445	26	-.533	29	.261	26	-.316	27	.489	26
1335		max	B	2.14	35	.044	20	1.378	47	1.323	28	2.477	47
1336		min		.21	26	-.943	14	.206	26	.264	22	.357	26
1337	P335	max	T	4.366	34	.04	8	2.26	49	.577	22	4.436	49
1338		min		.762	26	-.52	29	.423	25	-.225	29	.82	26

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1339		max	B	1.701	34	.033	20	1.328	46	1.349	27	2.323	46
1340		min		.187	26	-1.04	14	.128	25	.211	22	.234	25
1341	P336	max	T	4.865	49	.047	166	2.511	46	.523	22	4.944	46
1342		min		1.249	26	-.469	30	.634	25	-.199	29	1.283	25
1343		max	B	1.343	218	.047	5	1.44	46	1.706	143	2.497	46
1344		min		.021	24	-1.58	45	.071	24	-.045	23	.133	24
1345	P337	max	T	1.159	31	.057	27	.86	8	2.35	86	1.589	7
1346		min		.05	20	-1.424	7	.009	27	-.783	20	.068	27
1347		max	B	.37	16	-.115	27	1.318	49	2.354	131	2.518	49
1348		min		-.051	194	-2.379	49	.098	10	-.785	171	.173	10
1349	P338	max	T	.593	30	.048	27	.653	37	2.324	201	1.267	38
1350		min		-.022	20	-1.228	38	.048	11	-.783	71	.121	11
1351		max	B	.214	30	-.085	26	1.122	34	2.355	169	2.235	34
1352		min		-.073	194	-2.227	35	.054	10	-.785	152	.13	26
1353	P339	max	T	.489	30	-.081	11	.738	36	2.355	68	1.438	37
1354		min		-.064	195	-1.4	37	.133	11	-.778	58	.235	11
1355		max	B	.342	28	.002	27	1.12	35	2.356	148	2.187	35
1356		min		.032	68	-2.13	35	.084	26	-.782	159	.162	26
1357	P340	max	T	1.9	196	.38	29	1.366	41	2.351	244	2.366	41
1358		min		-.419	20	-1.859	3	.335	78	-.784	245	.58	78
1359		max	B	.786	32	-.36	78	.867	194	2.338	36	2.017	193
1360		min		-1.238	46	-2.215	193	.032	78	-.776	1	.333	78
1361	P341	max	T	1.234	16	.068	11	.914	16	2.347	185	1.615	16
1362		min		.115	84	-.604	17	.04	84	-.754	132	.102	84
1363		max	B	.646	23	-.069	197	.852	15	2.35	200	1.492	15
1364		min		-.005	199	-1.071	15	.033	198	-.768	201	.068	198
1365	P342	max	T	1.103	16	.048	11	.749	16	2.317	124	1.345	16
1366		min		.029	21	-.602	24	.006	134	-.691	21	.041	124
1367		max	B	.496	23	-.068	191	.711	15	2.246	19	1.253	15
1368		min		.012	86	-.942	15	.059	135	-.695	4	.106	190
1369	P343	max	T	.863	16	.216	12	.634	17	2.324	202	1.115	16
1370		min		.006	21	-.501	2	.039	137	-.73	21	.105	138
1371		max	B	.554	15	-.137	72	.664	15	2.352	4	1.156	15
1372		min		-.103	40	-.836	47	.032	86	-.726	20	.125	86
1373	P344	max	T	1.216	46	.079	28	.804	47	2.297	86	1.449	47
1374		min		-.175	21	-.604	2	.059	21	-.774	210	.255	21
1375		max	B	.643	15	-.153	132	.798	15	2.301	125	1.39	15
1376		min		-.143	84	-1.225	47	.005	132	-.731	126	.148	132
1377	P345	max	T	2.285	48	.131	174	1.25	48	1.594	25	2.399	48
1378		min		.284	27	-.536	16	.122	27	.227	31	.266	27
1379		max	B	1.024	7	.145	3	.889	15	1.622	280	1.539	15
1380		min		.239	73	-.899	31	.088	19	.188	23	.224	72
1381	P346	max	T	2.265	49	.11	193	1.202	49	1.502	25	2.338	49
1382		min		.207	27	-.405	16	.071	27	.171	30	.183	27
1383		max	B	1.064	47	.094	19	.8	15	1.524	31	1.385	15
1384		min		.275	27	-.8	30	.157	71	.194	23	.309	73
1385	P347	max	T	2.183	49	.164	193	1.102	49	1.553	26	2.194	49
1386		min		.168	27	-.356	32	.039	27	-.54	27	.145	27
1387		max	B	1.219	47	.081	19	.837	47	1.404	31	1.499	47
1388		min		.303	27	-.802	14	.192	71	.145	23	.365	72
1389	P348	max	T	2.23	49	.253	180	1.113	48	1.955	10	2.228	48
1390		min		.302	26	-.412	31	.099	10	-.55	27	.279	10

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1391		max	B	1.314	47	.067	20	1.041	47	1.344	280	1.824	47
1392		min		.263	26	-.937	14	.206	26	.093	22	.362	26
1393	P349	max	T	3.657	49	.07	193	1.858	49	1.288	25	3.687	49
1394		min		.386	27	-.333	31	.182	27	.29	30	.376	27
1395		max	B	2.295	37	.073	4	1.12	36	1.528	29	2.268	37
1396		min		.255	27	-.681	30	.177	27	.347	24	.317	27
1397	P350	max	T	3.571	34	.048	193	1.809	34	1.23	26	3.594	34
1398		min		.198	27	-.284	31	.094	27	.159	29	.193	27
1399		max	B	2.466	37	.035	4	1.252	36	1.489	29	2.484	37
1400		min		.208	27	-.647	30	.184	27	.348	24	.32	27
1401	P351	max	T	3.628	35	.059	192	1.827	34	1.274	26	3.64	34
1402		min		.129	27	-.318	30	.103	27	-.227	27	.181	27
1403		max	B	2.676	37	.04	4	1.377	36	1.481	28	2.715	36
1404		min		.191	27	-.657	30	.214	26	.357	24	.385	27
1405	P352	max	T	3.971	35	.144	39	1.95	34	1.501	26	3.931	34
1406		min		.13	26	-.413	30	.052	26	-.43	27	.119	26
1407		max	B	2.897	36	.074	4	1.523	35	1.444	28	2.97	35
1408		min		.197	27	-.771	30	.185	26	.335	23	.345	26
1409	P353	max	T	2.053	48	.089	169	1.247	48	2.15	153	2.305	48
1410		min		.086	153	-.59	16	.006	169	.367	19	.077	152
1411		max	B	.752	22	-.004	19	.916	14	2.355	73	1.696	14
1412		min		-.023	197	-1.517	14	.038	19	-.778	70	.075	19
1413	P354	max	T	1.025	16	.012	185	.809	16	2.165	127	1.417	16
1414		min		.013	84	-.592	16	.009	84	-.764	132	.015	84
1415		max	B	.454	23	-.068	20	.75	15	2.355	27	1.38	47
1416		min		.023	27	-1.275	46	.054	20	-.779	72	.095	20
1417	P355	max	T	.883	16	-.004	27	.749	16	2.321	125	1.304	16
1418		min		.011	135	-.615	16	.028	193	-.774	21	.048	193
1419		max	B	.415	23	-.206	21	.776	47	2.339	4	1.473	47
1420		min		.011	20	-1.38	47	.124	20	-.764	86	.242	20
1421	P356	max	T	.982	24	.098	11	.936	16	2.354	40	1.632	16
1422		min		.083	73	-1.124	16	.039	11	-.766	41	.092	73
1423		max	B	.914	281	-.203	21	.988	48	2.352	124	1.739	48
1424		min		-.091	27	-1.3	48	.063	27	-.785	134	.189	27
1425	P357	max	T	1.77	47	.082	174	1.15	48	1.763	22	2.086	48
1426		min		.138	21	-.83	16	.051	21	.301	19	.124	21
1427		max	B	.769	15	.041	4	.958	15	2.23	39	1.671	15
1428		min		.059	195	-1.148	15	.025	4	-.764	86	.078	4
1429	P358	max	T	1.844	48	.066	173	1.137	48	1.722	23	2.092	48
1430		min		.205	21	-.725	16	.089	21	.284	18	.193	21
1431		max	B	.725	23	.049	4	.881	15	2.195	39	1.538	15
1432		min		.057	86	-1.083	15	.052	4	-.724	86	.119	71
1433	P359	max	T	1.546	48	.093	193	1.064	16	1.693	23	1.864	16
1434		min		.154	21	-.779	16	.042	21	.222	18	.134	21
1435		max	B	.745	15	.092	4	.876	15	2.164	86	1.524	15
1436		min		.049	198	-1.008	15	.015	4	-.755	200	.11	4
1437	P360	max	T	1.34	48	.158	194	1.025	16	1.898	124	1.8	16
1438		min		.145	123	-.737	16	.004	123	-.655	21	.141	124
1439		max	B	.744	15	-.079	136	.919	15	2.353	201	1.601	15
1440		min		.062	198	-1.094	15	.089	196	-.775	199	.155	196
1441	P361	max	T	2.325	47	.07	173	1.367	47	1.673	23	2.555	47
1442		min		.299	21	-.816	16	.13	21	.35	33	.281	21

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1443		max	B	1.021	15	.063	4	1.04	15	1.881	28	1.801	15
1444		min		.096	192	-1.059	15	.017	192	.342	23	.084	193
1445	P362	max	T	2.402	47	.057	172	1.367	48	1.615	23	2.583	48
1446		min		.391	21	-.719	16	.174	21	.327	33	.371	21
1447		max	B	.944	15	.073	4	.954	15	1.803	29	1.653	15
1448		min		.155	27	-.965	15	.088	197	.328	23	.205	197
1449	P363	max	T	2.392	48	.077	172	1.34	48	1.589	24	2.548	48
1450		min		.461	21	-.684	16	.202	21	.299	33	.435	21
1451		max	B	.948	47	.096	4	.913	15	1.731	29	1.582	15
1452		min		.166	27	-.896	15	.108	71	.284	23	.225	72
1453	P364	max	T	2.32	48	.137	173	1.276	48	1.609	24	2.444	48
1454		min		.38	27	-.636	16	.175	27	.257	33	.365	27
1455		max	B	.982	7	.15	39	.923	15	1.677	30	1.599	15
1456		min		.191	27	-.916	31	.087	71	.214	23	.204	72
1457	P365	max	T	3.016	47	.042	183	1.606	47	1.546	23	3.118	47
1458		min		.532	21	-.568	32	.259	21	.421	33	.525	21
1459		max	B	1.438	47	.036	136	.963	15	1.755	32	1.673	15
1460		min		.292	27	-.826	15	.167	27	.448	23	.315	27
1461	P366	max	T	2.988	47	.018	185	1.582	47	1.481	23	3.079	47
1462		min		.626	21	-.48	32	.308	21	.406	33	.621	21
1463		max	B	1.452	47	.019	136	.871	15	1.681	31	1.606	47
1464		min		.272	27	-.747	31	.158	27	.433	23	.297	27
1465	P367	max	T	3.067	47	.027	171	1.618	48	1.445	24	3.154	47
1466		min		.664	27	-.461	32	.332	27	.411	32	.664	27
1467		max	B	1.653	35	.034	4	.908	47	1.643	30	1.735	48
1468		min		.271	27	-.667	31	.158	27	.431	23	.296	27
1469	P368	max	T	3.408	49	.069	172	1.754	48	1.392	25	3.459	48
1470		min		.551	27	-.42	32	.269	27	.374	31	.545	27
1471		max	B	2.02	36	.081	39	1.02	48	1.59	30	2.004	34
1472		min		.286	27	-.67	31	.173	27	.392	24	.32	27
1473	P369	max	T	4.489	47	.271	161	2.479	47	1.949	25	4.741	47
1474		min		.426	145	-.792	15	.092	145	.003	26	.37	144
1475		max	B	.842	22	-.061	21	2.213	47	1.933	30	4.114	47
1476		min		-.218	26	-3.734	46	.163	166	.568	23	.328	152
1477	P370	max	T	1.282	48	-.008	170	1.026	48	1.789	24	1.795	48
1478		min		.173	152	-.903	15	.09	152	.443	31	.177	152
1479		max	B	.717	16	.024	4	.779	15	2.335	40	1.35	15
1480		min		.038	136	-.894	14	.075	138	-.744	11	.135	138
1481	P371	max	T	1.101	47	.02	10	.945	48	2.339	153	1.643	48
1482		min		.018	153	-.929	16	.023	169	.233	21	.04	169
1483		max	B	.502	15	-.073	20	.763	15	2.355	211	1.346	15
1484		min		-.06	191	-1.168	46	.033	20	-.78	207	.07	20
1485	P372	max	T	.916	47	-.01	10	1.168	48	2.342	147	2.038	48
1486		min		.018	154	-1.459	17	.09	6	-.775	159	.166	6
1487		max	B	.609	31	-.284	71	.791	15	2.35	208	1.382	15
1488		min		-.068	39	-1.209	47	.137	71	-.78	74	.28	71
1489	P373	max	T	2.145	47	.346	10	1.306	48	1.825	26	2.409	48
1490		min		.185	21	-.954	17	.045	168	.232	27	.198	21
1491		max	B	.792	15	-.064	20	1.038	47	1.787	33	1.848	47
1492		min		-.007	197	-1.471	46	.136	20	.479	22	.246	20
1493	P374	max	T	2.216	47	.148	10	1.47	48	1.798	23	2.651	48
1494		min		.208	21	-1.012	17	.134	140	.394	18	.25	21

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1495		max	B	.732	15	-.056	20	.983	15	2.299	188	1.72	15
1496		min		-.252	193	-1.233	15	.042	192	-.782	189	.158	4
1497	P375	max	T	1.696	47	.049	10	1.301	48	1.755	23	2.287	48
1498		min		.157	21	-1.143	17	.137	21	.363	18	.238	21
1499		max	B	.791	15	-.082	4	.879	15	2.142	27	1.526	15
1500		min		-.087	202	-.968	15	.039	86	-.64	86	.093	71
1501	P376	max	T	1.716	47	.04	178	1.222	48	1.761	23	2.173	48
1502		min		.123	21	-.997	16	.083	21	.344	18	.149	21
1503		max	B	.805	15	-.017	4	.964	15	2.302	86	1.678	15
1504		min		-.029	191	-1.124	15	.036	4	-.742	200	.065	4
1505	P377	max	T	1.744	47	.376	195	1.04	16	1.857	22	1.822	48
1506		min		.076	21	-.847	17	.082	21	.345	18	.143	21
1507		max	B	.649	24	-.08	20	.747	15	1.93	18	1.306	15
1508		min		-.24	218	-.92	15	.086	20	.432	22	.15	20
1509	P378	max	T	1.976	47	.124	179	1.244	48	1.805	22	2.272	47
1510		min		.135	21	-.995	17	.106	21	.372	18	.186	21
1511		max	B	.814	15	-.062	20	.884	15	1.933	33	1.532	15
1512		min		-.116	201	-.954	15	.063	200	.418	22	.137	71
1513	P379	max	T	2.14	47	.059	10	1.38	48	1.733	23	2.507	47
1514		min		.201	21	-1.012	17	.126	21	.394	18	.231	21
1515		max	B	.951	15	-.036	4	.957	15	1.903	29	1.658	15
1516		min		-.041	197	-.963	15	.022	197	.409	23	.074	197
1517	P380	max	T	2.219	47	.056	179	1.386	47	1.708	23	2.541	47
1518		min		.241	21	-.941	16	.123	21	.378	33	.244	21
1519		max	B	1.039	15	.008	4	1.039	15	1.913	28	1.8	15
1520		min		.026	194	-1.039	15	.01	194	.371	23	.024	194
1521	P381	max	T	1.523	46	.182	41	.804	16	2.059	22	1.505	46
1522		min		-.005	21	-.726	33	.074	5	-.292	21	.13	5
1523		max	B	.586	25	-.068	69	.626	15	2.329	88	1.089	16
1524		min		-.213	216	-.764	17	.011	69	-.297	217	.061	69
1525	P382	max	T	1.877	46	.06	194	1.042	47	1.872	22	1.981	46
1526		min		.021	21	-.731	33	.013	21	.379	18	.024	21
1527		max	B	.833	15	-.008	20	.776	15	1.968	18	1.346	15
1528		min		-.037	202	-.749	16	.018	202	.386	22	.062	201
1529	P383	max	T	2.233	46	.029	180	1.259	47	1.738	22	2.38	46
1530		min		.215	21	-.726	17	.108	21	.445	18	.216	21
1531		max	B	1.043	47	-.001	20	.873	15	1.901	33	1.519	15
1532		min		.21	191	-.729	16	.118	191	.469	22	.224	191
1533	P384	max	T	2.709	46	.042	182	1.482	47	1.629	23	2.839	47
1534		min		.405	21	-.684	33	.198	21	.454	33	.4	21
1535		max	B	1.378	47	.025	136	.98	15	1.834	33	1.708	15
1536		min		.301	27	-.791	16	.173	27	.479	23	.326	27
1537	P385	max	T	13.587	46	4.278	44	4.681	46	2.099	24	12.044	46
1538		min		.713	21	-.81	22	.181	8	-.605	25	.744	21
1539		max	B	1.322	23	-.176	22	6.409	46	1.896	18	12.986	46
1540		min		-.914	14	-13.149	46	.669	22	1.186	23	1.236	21
1541	P386	max	T	5.237	44	.037	22	2.71	45	1.57	24	5.33	44
1542		min		.647	20	-.205	248	.336	21	1.259	19	.668	20
1543		max	B	.777	22	.067	19	.927	215	1.339	19	1.812	215
1544		min		.018	28	-1.766	215	.047	93	-.362	18	.1	92
1545	P387	max	T	3.393	43	.276	282	1.587	43	2.062	32	3.289	43
1546		min		.261	19	-.056	23	.065	18	1.178	19	.233	19

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1547		max	B	1.132	39	-.1	21	1.598	44	1.126	20	2.814	44
1548		min		.098	31	-2.114	45	.274	19	.547	197	.484	19
1549	P388	max	T	1.916	46	.012	6	2.003	47	2.343	156	3.471	47
1550		min		.183	21	-2.166	15	.104	21	-.785	165	.196	21
1551		max	B	3.425	47	-.147	21	2.768	46	1.404	33	4.837	46
1552		min		.318	21	-2.119	46	.233	21	.472	22	.412	21
1553	P389	max	T	8.382	45	3.905	46	2.248	45	2.326	86	7.265	45
1554		min		.402	21	-.384	22	.09	19	-.764	71	.362	20
1555		max	B	.618	23	-.527	22	3.782	45	1.318	19	8.308	46
1556		min		-1.466	14	-8.91	46	.544	21	.831	25	.945	21
1557	P390	max	T	4.087	44	2.854	46	.706	42	1.844	211	3.62	45
1558		min		.201	21	-.143	22	.114	30	.553	33	.224	21
1559		max	B	.567	23	-.288	21	1.431	42	1.556	18	3.569	44
1560		min		-1.39	47	-4.037	45	.143	32	.653	196	.387	20
1561	P391	max	T	2.373	43	.85	47	.809	42	2.344	250	2.094	43
1562		min		.182	21	-.165	19	.022	99	-.627	259	.223	21
1563		max	B	.927	40	-.24	20	1.782	42	1.158	18	3.215	43
1564		min		.012	31	-2.693	44	.254	19	.586	23	.441	19
1565	P392	max	T	1.677	46	.717	41	.82	16	2.355	27	1.513	47
1566		min		.168	21	-.56	33	.024	123	-.782	188	.187	21
1567		max	B	.888	41	-.161	20	1.433	45	1.549	33	2.547	45
1568		min		.239	79	-2.004	45	.212	20	.539	22	.37	20
1569	P393	max	T	8.394	45	1.258	46	3.586	45	2.251	18	7.855	45
1570		min		-.035	22	-.254	21	.077	20	-.54	19	.135	20
1571		max	B	.438	24	-.793	21	4.794	45	.726	20	9.804	45
1572		min		-.762	16	-10.007	45	.469	21	.552	196	.874	21
1573	P394	max	T	4.427	45	1.242	46	1.62	44	2.356	269	3.964	45
1574		min		-.006	21	-.257	21	.09	22	-.784	268	.178	22
1575		max	B	.444	24	-.535	21	2.738	43	.653	268	5.624	44
1576		min		-.699	16	-5.773	45	.254	19	.506	22	.545	20
1577	P395	max	T	2.16	43	1.087	47	.673	195	2.316	116	1.874	43
1578		min		.013	21	-.304	19	.013	118	-.77	113	.135	5
1579		max	B	.529	24	-.292	19	1.62	42	1.407	18	3.17	42
1580		min		-.531	17	-3.121	43	.045	18	.449	22	.255	19
1581	P396	max	T	1.37	47	.852	42	.732	17	1.871	22	1.288	17
1582		min		.024	21	-.604	18	.024	204	.271	21	.135	21
1583		max	B	.626	24	-.15	20	.911	41	1.867	18	1.722	41
1584		min		-.195	234	-1.603	42	.102	20	.447	22	.184	20
1585	P397	max	T	7.187	45	.16	31	3.783	45	2.315	23	7.384	45
1586		min		-.077	22	-.866	21	.243	19	-.646	4	.43	19
1587		max	B	.249	25	-1.196	21	5.453	45	.363	25	10.869	45
1588		min		-.255	17	-10.831	45	.585	21	.238	21	1.183	21
1589	P398	max	T	3.801	45	.209	31	1.979	44	2.241	23	3.88	45
1590		min		-.004	21	-.641	21	.119	18	-.706	18	.252	18
1591		max	B	.293	25	-.778	21	3.114	44	.357	25	6.174	44
1592		min		-.235	17	-6.123	45	.373	20	.078	18	.766	20
1593	P399	max	T	1.995	43	.33	15	.907	42	2.139	110	1.908	43
1594		min		.001	21	-.494	21	.015	252	-.704	6	.179	96
1595		max	B	.332	25	-.492	20	1.655	42	.413	25	3.319	43
1596		min		-.302	16	-3.331	43	.215	19	-.236	18	.475	20
1597	P400	max	T	1.247	42	.409	45	.583	10	2.308	22	1.191	10
1598		min		-.006	21	-.639	18	.074	69	-.229	21	.208	68

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1599		max	B	.467	25	-.287	20	.782	40	2.35	276	1.563	40
1600		min		-.306	247	-1.562	40	.088	98	-.785	18	.274	20
1601	P401	max	T	11.385	46	.039	18	5.736	46	1.952	28	11.428	46
1602		min		1.712	22	-.153	212	.893	22	1.697	22	1.75	22
1603		max	B	1.558	23	-.074	159	2.567	47	2.326	142	5.208	47
1604		min		-.171	37	-5.277	47	.014	158	-.689	141	.065	159
1605	P402	max	T	12.928	47	1.036	49	5.949	47	1.912	29	12.445	47
1606		min		2.487	23	.008	24	1.236	22	1.716	22	2.482	23
1607		max	B	1.786	24	-.006	24	2.154	15	1.892	22	4.894	48
1608		min		-1.069	49	-5.337	48	.125	154	-.471	21	.286	139
1609	P403	max	T	27.137	46	3.235	45	11.953	46	1.932	33	25.674	46
1610		min		2.37	21	.058	22	1.128	21	1.664	22	2.315	21
1611		max	B	1.564	22	.007	22	8.919	46	1.565	22	19.095	46
1612		min		-2.322	45	-20.142	46	.298	23	.354	27	.551	23
1613	P404	max	T	19.246	46	1.655	40	8.95	46	2.356	184	18.61	46
1614		min		1.164	20	-.509	22	.422	20	-.785	130	1.041	20
1615		max	B	3.196	34	-.347	22	10.345	46	1.382	21	19.362	46
1616		min		.294	27	-17.683	46	.675	22	.876	25	1.215	22
1617	P405	max	T	10.081	46	.431	282	4.907	46	2.073	27	9.95	46
1618		min		.909	22	-.272	26	.51	22	1.715	21	.969	22
1619		max	B	.813	22	-.259	25	2.978	47	2.204	23	6.487	47
1620		min		-.955	47	-6.911	47	.094	9	-.76	22	.367	25
1621	P406	max	T	11.435	47	1.666	47	4.885	47	1.985	212	10.7	47
1622		min		1.088	23	-.216	23	.647	22	1.787	21	1.21	23
1623		max	B	.603	23	-.27	24	2.863	47	2.213	7	7.178	47
1624		min		-2.326	47	-8.053	47	.053	9	-.598	6	.39	25
1625	P407	max	T	20.558	45	4.971	46	7.796	45	2.094	33	18.579	45
1626		min		1.007	21	-.237	22	.552	21	1.621	22	1.059	21
1627		max	B	.55	21	-.506	22	7.576	46	1.13	21	17.548	46
1628		min		-4.075	45	-19.227	46	.481	22	.477	28	.834	22
1629	P408	max	T	14.092	45	3.849	46	5.128	45	2.356	275	12.619	45
1630		min		.738	21	-.445	22	.269	20	-.784	2	.713	20
1631		max	B	.796	21	-.704	22	6.224	46	1.146	21	13.229	46
1632		min		-1.654	14	-13.891	46	.747	22	.734	26	1.294	22
1633	P409	max	T	8.125	47	.686	17	3.782	46	2.261	26	7.852	47
1634		min		-.059	22	-.581	25	.056	22	-.78	25	.15	22
1635		max	B	.457	22	-.891	23	3.767	47	.408	28	8.256	47
1636		min		-1.322	46	-8.826	47	.453	24	-.441	22	.971	23
1637	P410	max	T	9.002	47	2.254	47	3.375	46	2.271	22	8.114	47
1638		min		-.291	22	-.589	22	.149	22	1.759	20	.51	22
1639		max	B	.041	22	-.778	22	3.815	47	.267	212	9.331	47
1640		min		-2.785	46	-10.403	47	.296	24	-.593	22	.718	23
1641	P411	max	T	13.542	46	2.891	46	5.327	45	2.138	250	12.353	46
1642		min		-.006	21	-.543	22	.201	21	1.439	22	.404	21
1643		max	B	.079	21	-1.222	21	6.718	45	.876	21	14.85	45
1644		min		-2.507	45	-15.944	45	.641	22	.462	28	1.264	21
1645	P412	max	T	11.855	45	1.872	46	5.007	45	2.168	235	11.05	45
1646		min		.057	22	-.497	21	.145	19	.875	21	.27	20
1647		max	B	.318	22	-1.244	21	6.213	45	.784	21	13.083	45
1648		min		-1.272	47	-13.653	45	.726	21	.522	28	1.36	21
1649	P413	max	T	6.092	47	.245	17	2.945	47	2.333	163	5.994	47
1650		min		-.023	23	-1.574	23	.075	143	-.767	147	.144	143

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1651		max	B	.171	22	-1.37	22	5.573	46	.292	28	11.484	46
1652		min		-.648	46	-11.794	46	.771	22	-.101	22	1.463	22
1653	P414	max	T	5.235	15	2.079	46	1.663	280	2.356	132	4.584	15
1654		min		-.768	22	-2.332	23	.138	5	-.782	177	.284	127
1655		max	B	-.26	22	-1.173	22	5.116	46	.194	33	11.246	46
1656		min		-1.815	45	-12.04	46	.456	22	-.319	22	1.067	22
1657	P415	max	T	9.044	45	.564	30	4.673	45	2.355	142	9.198	45
1658		min		-.645	22	-1.992	21	.169	23	-.785	124	.641	23
1659		max	B	.151	30	-2.769	24	7.052	46	.547	21	14.222	46
1660		min		-.492	6	-14.338	46	1.212	23	.437	25	2.621	24
1661	P416	max	T	9.788	45	.004	31	5.142	45	2.348	3	10.045	45
1662		min		-.035	22	-1.257	21	.277	19	-.626	23	.497	19
1663		max	B	.159	25	-1.797	21	7.425	45	.417	247	14.85	45
1664		min		-.212	17	-14.85	45	.917	21	.304	22	1.816	21
1665	P417	max	T	6.383	47	-.015	75	3.222	47	2.225	26	6.414	47
1666		min		.735	22	-.146	20	.386	23	1.725	21	.764	23
1667		max	B	.471	22	-.032	25	2.395	48	2.349	25	4.735	48
1668		min		-.005	10	-4.68	47	.105	25	-.739	24	.196	25
1669	P418	max	T	8.027	46	.007	31	4.014	46	2.153	26	8.028	46
1670		min		.97	22	-.11	21	.513	22	1.714	21	.999	22
1671		max	B	.784	23	-.024	25	2.57	48	2.296	23	5.115	47
1672		min		-.013	246	-5.094	47	.128	26	-.613	22	.238	9
1673	P419	max	T	9.323	46	.021	32	4.665	46	2.11	27	9.327	46
1674		min		1.174	22	-.098	21	.618	22	1.732	21	1.206	22
1675		max	B	1.113	23	-.039	25	2.54	47	2.335	7	5.106	47
1676		min		-.063	45	-5.13	47	.118	26	-.759	22	.206	26
1677	P420	max	T	9.898	46	.031	33	4.973	46	2.04	27	9.922	46
1678		min		1.333	22	-.101	27	.697	22	1.722	21	1.365	22
1679		max	B	1.332	23	-.058	25	2.358	47	2.233	22	4.784	47
1680		min		-.141	44	-4.85	47	.127	163	-.768	6	.239	162
1681	P421	max	T	6.421	47	-.013	31	3.242	47	2.337	27	6.453	47
1682		min		.561	23	-.215	20	.302	23	-.765	25	.584	23
1683		max	B	.631	22	-.326	24	2.778	48	.575	27	5.459	47
1684		min		-.023	26	-5.359	47	.223	25	-.394	23	.4	25
1685	P422	max	T	7.331	47	.008	31	3.68	47	2.325	26	7.345	47
1686		min		.625	23	-.231	26	.337	23	1.669	21	.651	23
1687		max	B	.714	22	-.32	24	3.005	47	.535	27	5.966	47
1688		min		-.032	222	-5.921	47	.228	25	-.497	23	.405	25
1689	P423	max	T	8.161	47	.036	32	4.104	46	2.253	26	8.184	47
1690		min		.697	23	-.251	26	.385	23	1.659	21	.737	23
1691		max	B	.765	22	-.283	25	3.116	47	.518	27	6.281	47
1692		min		-.114	45	-6.328	47	.196	25	-.616	23	.35	25
1693	P424	max	T	9.005	47	.146	17	4.514	46	2.157	26	9.017	46
1694		min		.786	22	-.284	26	.442	22	1.658	21	.839	22
1695		max	B	.828	22	-.253	25	3.02	47	2.342	24	6.27	47
1696		min		-.455	45	-6.477	47	.188	25	-.785	23	.332	25
1697	P425	max	T	6.283	47	.008	31	3.152	47	2.339	28	6.293	47
1698		min		.299	23	-.312	26	.177	23	-.777	9	.33	23
1699		max	B	.641	22	-.574	23	3.053	47	.595	27	6.026	47
1700		min		-.028	226	-5.942	47	.36	25	-.266	22	.696	25
1701	P426	max	T	6.694	47	.014	32	3.359	47	2.343	9	6.706	47
1702		min		.169	23	-.344	26	.127	23	-.689	26	.223	23

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1703		max	B	.602	22	-.642	23	3.393	47	.545	27	6.762	47
1704		min		-.034	246	-6.738	47	.422	24	-.305	22	.78	24
1705	P427	max	T	7.163	47	.054	32	3.596	47	2.322	9	7.178	47
1706		min		.08	23	-.393	26	.125	23	-.732	26	.221	23
1707		max	B	.566	22	-.723	23	3.72	47	.502	28	7.51	47
1708		min		-.157	45	-7.578	47	.454	24	-.341	22	.866	24
1709	P428	max	T	7.736	47	.193	17	3.837	47	2.335	26	7.705	47
1710		min		.052	23	-.452	26	.149	23	-.698	25	.276	23
1711		max	B	.548	22	-.777	23	3.86	47	.447	28	8	47
1712		min		-.55	46	-8.253	47	.457	24	-.399	22	.9	24
1713	P429	max	T	6.241	48	.019	47	3.111	48	2.306	28	6.232	48
1714		min		-.003	23	-.264	26	.024	23	-.771	27	.05	23
1715		max	B	.429	22	-.696	23	3.335	47	.619	27	6.653	46
1716		min		-.019	243	-6.641	46	.428	23	-.182	22	.788	23
1717	P430	max	T	5.98	48	.006	32	2.995	48	2.328	27	5.984	48
1718		min		-.01	23	-.419	24	.077	7	-.773	10	.147	7
1719		max	B	.314	22	-.847	22	3.763	46	.55	27	7.527	46
1720		min		-.011	25	-7.528	46	.497	23	-.15	22	.951	23
1721	P431	max	T	6.029	47	.006	32	3.036	47	2.323	27	6.05	47
1722		min		-.03	7	-.736	23	.084	7	-.731	10	.185	7
1723		max	B	.261	22	-.991	22	4.333	46	.515	27	8.693	46
1724		min		-.057	44	-8.719	46	.609	23	-.104	22	1.144	22
1725	P432	max	T	6.471	47	.141	16	3.188	47	2.279	27	6.425	47
1726		min		-.079	23	-1.131	23	.218	144	-.727	10	.421	144
1727		max	B	.208	22	-1.247	22	5.14	46	.428	28	10.453	46
1728		min		-.339	45	-10.618	46	.727	22	-.104	22	1.363	22
1729	P433	max	T	2.555	34	.014	13	1.437	34	2.338	211	2.729	34
1730		min		.022	24	-.521	268	.046	24	-.707	29	.084	24
1731		max	B	.471	268	-.761	23	2.126	49	.771	27	4.08	49
1732		min		.021	29	-3.886	48	.412	24	.2	20	.801	24
1733	P434	max	T	3.616	48	.012	8	1.891	49	2.355	29	3.701	49
1734		min		.154	23	-.37	268	.079	23	-.775	9	.156	23
1735		max	B	.429	269	-.583	24	2.369	49	.718	27	4.587	48
1736		min		.011	29	-4.423	48	.323	24	.128	21	.617	24
1737	P435	max	T	4.623	47	-.004	88	2.367	47	2.349	24	4.68	47
1738		min		.349	23	-.281	268	.179	23	-.781	11	.353	23
1739		max	B	.382	21	-.325	24	2.433	48	.706	27	4.74	48
1740		min		-.002	26	-4.605	47	.197	25	-.01	22	.38	24
1741	P436	max	T	5.293	47	-.017	23	2.703	47	2.334	27	5.35	47
1742		min		.527	23	-.211	268	.272	23	-.779	26	.536	23
1743		max	B	.374	22	-.126	25	2.334	48	.675	26	4.572	48
1744		min		-.002	10	-4.469	47	.082	25	-.328	23	.148	25
1745	P437	max	T	3.357	34	.042	8	1.806	34	2.355	221	3.492	34
1746		min		.325	23	-.541	268	.145	23	-.784	234	.309	23
1747		max	B	.856	269	-.547	25	2.205	34	.758	27	4.075	34
1748		min		.046	29	-3.632	49	.336	26	.124	22	.623	25
1749	P438	max	T	4.154	49	.017	7	2.146	49	2.355	218	4.224	49
1750		min		.39	23	-.398	19	.187	23	-.784	226	.383	23
1751		max	B	.729	270	-.489	25	2.372	34	.71	27	4.46	49
1752		min		.024	29	-4.125	48	.31	25	.002	22	.566	25
1753	P439	max	T	4.873	47	-.009	7	2.487	48	2.343	211	4.923	48
1754		min		.423	23	-.338	19	.217	23	-.762	29	.429	23

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1755		max	B	.595	270	-.439	24	2.509	49	.677	27	4.802	48
1756		min		.007	26	-4.562	47	.281	25	-.098	22	.514	25
1757	P440	max	T	5.59	47	-.018	76	2.837	47	2.355	11	5.633	47
1758		min		.477	23	-.275	20	.254	23	-.77	28	.493	23
1759		max	B	.566	22	-.367	24	2.619	48	.632	27	5.09	48
1760		min		-.014	26	-4.933	47	.239	25	-.239	23	.436	25
1761	P441	max	T	4.185	49	.058	8	2.164	34	2.355	198	4.257	34
1762		min		.737	23	-.498	19	.344	23	-.783	197	.714	23
1763		max	B	1.048	270	-.2	26	2.059	35	.852	27	3.727	34
1764		min		.045	29	-3.143	34	.138	26	-.017	23	.247	26
1765	P442	max	T	4.724	49	.022	7	2.406	49	2.355	221	4.769	49
1766		min		.643	23	-.412	19	.311	23	-.785	234	.633	23
1767		max	B	.812	270	-.329	25	2.192	34	.794	27	4.075	34
1768		min		.026	29	-3.685	49	.196	26	-.097	23	.375	26
1769	P443	max	T	5.211	48	-.002	14	2.634	48	2.354	207	5.24	48
1770		min		.504	23	-.357	20	.255	23	-.784	215	.507	23
1771		max	B	.647	22	-.432	24	2.406	49	.739	27	4.604	48
1772		min		0	211	-4.378	47	.278	25	-.143	22	.506	25
1773	P444	max	T	5.749	47	-.003	31	2.888	47	2.353	12	5.763	47
1774		min		.396	23	-.302	20	.213	23	-.743	11	.412	23
1775		max	B	.643	22	-.512	24	2.725	48	.666	27	5.316	47
1776		min		-.021	210	-5.175	47	.316	25	-.2	22	.596	25
1777	P445	max	T	5.302	49	.046	8	2.685	34	2.354	222	5.335	49
1778		min		1.244	24	-.379	19	.604	24	-.785	234	1.227	24
1779		max	B	.926	271	.032	10	1.55	35	2.091	26	2.785	34
1780		min		.02	30	-2.303	34	.058	11	-.544	10	.102	11
1781	P446	max	T	5.295	48	.012	8	2.684	49	2.351	212	5.331	49
1782		min		.887	24	-.307	20	.44	24	-.762	12	.883	24
1783		max	B	.629	22	-.07	25	1.708	34	1.155	26	3.216	34
1784		min		.009	30	-2.983	48	.099	25	-.303	23	.175	25
1785	P447	max	T	5.493	48	-.007	8	2.786	48	2.341	212	5.532	48
1786		min		.601	23	-.302	20	.307	24	-.776	12	.608	23
1787		max	B	.575	22	-.257	24	2.071	48	.875	27	4.026	47
1788		min		.002	10	-3.9	47	.164	25	-.189	22	.316	25
1789	P448	max	T	6.071	48	.013	31	3.04	48	2.34	9	6.075	48
1790		min		.305	23	-.277	21	.161	23	-.784	11	.314	23
1791		max	B	.541	22	-.452	23	2.731	47	.74	27	5.4	47
1792		min		-.022	220	-5.335	47	.305	24	-.183	22	.574	24
1793	P449	max	T	1.745	34	-.378	20	2.131	280	2.058	23	3.716	279
1794		min		-.453	25	-2.735	262	.062	24	.653	26	.458	24
1795		max	B	1.25	32	-.518	28	1.531	37	1.674	28	2.99	38
1796		min		-.474	12	-2.946	39	.042	12	-.771	29	.449	28
1797	P450	max	T	1.223	34	-.233	146	1.407	267	1.917	21	2.464	267
1798		min		.02	23	-1.779	279	.212	23	.768	26	.384	163
1799		max	B	1.016	267	-.623	30	1.977	35	.956	26	3.638	36
1800		min		.016	28	-3.281	39	.419	29	.093	32	.785	30
1801	P451	max	T	1.474	34	.005	212	1.236	34	2.133	211	2.153	34
1802		min		.006	24	-1.231	267	.061	212	.643	26	.125	212
1803		max	B	.738	268	-.735	31	1.992	35	.936	27	3.726	35
1804		min		.009	29	-3.445	39	.443	30	.228	18	.843	30
1805	P452	max	T	1.833	34	.007	212	1.229	34	2.354	214	2.213	34
1806		min		.015	24	-.848	268	.03	29	-.785	210	.058	29

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1807		max	B	.605	268	-.895	22	1.976	34	.875	27	3.729	34
1808		min		.024	28	-3.459	49	.507	74	.254	19	.967	72
1809	P453	max	T	1.674	35	-.004	206	1.185	35	2.256	24	2.109	35
1810		min		-.023	25	-.953	267	.084	9	-.425	25	.173	9
1811		max	B	.808	268	-.256	215	1.329	36	2.197	29	2.381	36
1812		min		-.183	11	-1.936	37	.058	215	-.691	13	.222	215
1813	P454	max	T	2.036	35	.131	230	1.432	35	2.334	224	2.553	35
1814		min		.191	13	-1.234	267	.061	230	-.769	203	.208	9
1815		max	B	1.313	267	-.176	29	1.808	35	1.009	27	3.199	35
1816		min		-.039	28	-2.468	36	.081	29	-.074	30	.169	29
1817	P455	max	T	2.372	35	.074	13	1.513	35	2.293	195	2.758	35
1818		min		.229	29	-1.008	267	.083	13	-.77	219	.213	13
1819		max	B	1.202	268	-.495	28	1.944	35	.899	27	3.473	35
1820		min		.031	28	-2.793	35	.263	28	.189	251	.511	28
1821	P456	max	T	2.761	34	.052	8	1.596	34	2.331	196	3	34
1822		min		.283	24	-.752	268	.136	23	-.761	220	.28	24
1823		max	B	1	268	-.598	26	2.051	35	.831	27	3.727	34
1824		min		.051	29	-3.187	34	.334	26	.192	20	.636	26
1825	P457	max	T	2.454	37	.269	247	1.266	37	2.355	235	2.493	37
1826		min		.349	31	-.561	19	.166	14	-.774	8	.37	14
1827		max	B	1.47	37	.057	26	1.33	36	2.271	27	2.307	36
1828		min		.289	32	-1.193	36	.189	207	-.755	12	.365	206
1829	P458	max	T	2.892	37	.199	14	1.568	36	2.354	23	3.019	36
1830		min		.208	30	-.655	19	.027	30	-.754	188	.187	30
1831		max	B	1.57	36	.062	26	1.588	35	2.343	28	2.75	35
1832		min		.215	215	-1.61	35	.141	212	-.723	29	.257	212
1833	P459	max	T	3.309	36	.071	234	1.829	35	2.351	23	3.496	35
1834		min		.549	30	-.675	268	.239	30	-.783	188	.517	30
1835		max	B	1.446	269	.053	26	1.714	35	2.19	28	2.983	35
1836		min		.072	29	-2.007	35	.041	29	-.433	26	.078	29
1837	P460	max	T	3.706	34	.068	8	1.977	34	2.351	201	3.836	34
1838		min		.838	24	-.586	19	.398	24	-.784	200	.818	24
1839		max	B	1.25	270	-.03	26	1.888	35	1.057	27	3.34	35
1840		min		.041	29	-2.57	34	.065	26	.058	23	.118	26
1841	P461	max	T	4.226	39	.125	44	2.092	39	2.353	161	4.205	39
1842		min		.226	31	-.522	19	.115	31	-.785	55	.229	31
1843		max	B	2.663	42	.065	10	1.492	39	.303	18	2.824	41
1844		min		.216	32	-.938	19	.194	31	-.759	29	.348	31
1845	P462	max	T	4.201	39	.078	14	2.137	38	2.356	182	4.234	39
1846		min		.455	31	-.52	19	.268	31	-.784	179	.5	31
1847		max	B	2.131	41	.036	26	1.376	37	.256	18	2.472	37
1848		min		.229	31	-.949	3	.223	31	-.784	28	.386	31
1849	P463	max	T	4.366	39	.035	30	2.264	38	2.351	7	4.444	38
1850		min		.765	31	-.52	19	.406	30	-.779	236	.826	31
1851		max	B	1.703	38	.026	10	1.326	35	2.332	29	2.321	36
1852		min		.18	30	-1.022	3	.12	30	-.716	26	.217	30
1853	P464	max	T	4.874	38	.047	219	2.514	35	2.349	244	4.949	34
1854		min		1.245	31	-.484	19	.619	30	-.772	188	1.252	30
1855		max	B	1.345	271	.041	11	1.437	35	2.349	26	2.492	35
1856		min		.032	213	-1.567	34	.069	13	-.764	11	.136	13
1857	P465	max	T	1.369	21	.036	33	.989	13	2.341	6	1.835	13
1858		min		.058	76	-1.648	13	.036	33	-.779	2	.096	33

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1859		max	B	.385	5	-.086	32	1.317	38	2.228	30	2.514	38
1860		min		-.052	263	-2.375	38	.023	16	-.672	31	.082	16
1861	P466	max	T	.756	20	.043	33	.7	12	2.341	19	1.376	12
1862		min		-.014	26	-1.351	12	.055	17	-.724	18	.12	32
1863		max	B	.258	20	-.055	32	1.118	39	2.279	31	2.228	40
1864		min		-.074	263	-2.222	40	.061	16	-.184	32	.113	31
1865	P467	max	T	.618	20	-.076	33	.74	42	2.346	2	1.445	42
1866		min		-.064	264	-1.413	43	.047	16	-.69	18	.1	16
1867		max	B	.332	19	.037	32	1.114	41	1.956	31	2.175	41
1868		min		.031	24	-2.118	41	.035	16	-.396	32	.064	16
1869	P468	max	T	1.9	264	.387	18	1.375	46	1.716	22	2.383	46
1870		min		-.39	26	-1.785	8	.282	19	.516	32	.58	68
1871		max	B	.993	21	-.36	67	.914	13	2.341	96	2.026	263
1872		min		-1.229	35	-2.223	263	.031	67	-.773	91	.333	67
1873	P469	max	T	1.299	5	.055	33	.953	6	2.349	19	1.681	6
1874		min		.114	87	-.662	29	.04	87	-.769	2	.102	87
1875		max	B	.701	29	-.051	16	.903	5	2.355	15	1.579	5
1876		min		-.005	252	-1.119	5	.033	251	-.752	31	.068	251
1877	P470	max	T	1.187	5	.044	33	.781	6	2.329	2	1.407	5
1878		min		.026	26	-.695	29	.006	187	-.785	18	.04	193
1879		max	B	.54	4	-.068	261	.748	5	2.232	30	1.313	5
1880		min		.012	89	-.962	5	.058	188	-.565	31	.106	260
1881	P471	max	T	.939	5	.221	17	.67	6	2.226	18	1.181	6
1882		min		.009	26	-.558	29	.038	190	.047	17	.104	191
1883		max	B	.639	5	-.138	78	.713	5	2.022	30	1.238	5
1884		min		-.114	45	-.835	37	.032	89	-.74	31	.124	89
1885	P472	max	T	1.225	36	.038	33	.804	37	1.98	22	1.453	37
1886		min		-.159	26	-.664	29	.077	26	.637	212	.259	192
1887		max	B	.743	5	-.153	201	.85	5	2.321	243	1.475	5
1888		min		-.146	201	-1.224	37	.003	201	-.78	247	.149	202
1889	P473	max	T	2.293	38	.131	243	1.254	38	2.356	24	2.408	38
1890		min		.286	32	-.558	6	.136	33	-.784	106	.294	33
1891		max	B	1.117	13	.144	9	.962	5	2.339	26	1.666	5
1892		min		.219	32	-.994	21	.093	25	-.752	230	.224	78
1893	P474	max	T	2.273	38	.111	263	1.208	38	2.356	128	2.348	38
1894		min		.229	32	-.417	6	.091	33	-.785	154	.22	33
1895		max	B	1.082	12	.087	25	.864	5	2.339	11	1.496	5
1896		min		.251	32	-.887	20	.157	77	-.766	26	.306	32
1897	P475	max	T	2.19	38	.176	16	1.107	38	2.356	40	2.202	38
1898		min		.198	32	-.37	21	.034	16	-.785	65	.18	33
1899		max	B	1.222	37	.075	25	.861	4	2.344	26	1.509	36
1900		min		.256	32	-.857	4	.192	77	-.77	14	.363	32
1901	P476	max	T	2.238	38	.253	249	1.116	38	2.313	24	2.235	38
1902		min		.291	32	-.442	21	.098	15	-.758	9	.277	15
1903		max	B	1.318	37	.05	25	1.049	36	2.336	26	1.835	36
1904		min		.25	32	-.967	4	.212	31	-.784	213	.371	31
1905	P477	max	T	3.661	38	.07	262	1.862	38	.275	30	3.692	38
1906		min		.379	32	-.367	21	.184	32	-.768	19	.374	32
1907		max	B	2.304	43	.069	44	1.121	42	.494	19	2.271	42
1908		min		.279	33	-.79	20	.175	32	-.707	30	.343	33
1909	P478	max	T	3.566	39	.049	262	1.806	39	2.345	4	3.589	39
1910		min		.219	32	-.315	21	.101	32	-.785	2	.211	32

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1911		max	B	2.47	43	.031	25	1.252	42	.44	18	2.487	42
1912		min		.238	33	-.734	20	.154	32	-.707	30	.293	32
1913	P479	max	T	3.625	40	.06	262	1.824	39	2.344	17	3.635	39
1914		min		.086	32	-.356	20	.021	32	-.769	22	.075	32
1915		max	B	2.678	42	.038	25	1.373	42	.427	18	2.713	42
1916		min		.216	32	-.718	20	.144	32	-.694	30	.26	32
1917	P480	max	T	3.962	40	.147	45	1.947	39	2.352	120	3.925	39
1918		min		.131	31	-.457	19	.043	31	-.785	112	.115	31
1919		max	B	2.893	42	.062	25	1.518	41	.378	18	2.961	41
1920		min		.202	32	-.828	19	.176	32	-.711	29	.307	32

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

	Member	Shape	Code Ch...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [l...	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	M19	HSS3X3X4	.486	0	37	.231	0	y	34	98393.432	101016	8556	8556	2....	H1-1b
2	M20	HSS3X3X4	.482	0	42	.230	0	y	39	98393.432	101016	8556	8556	2....	H1-1b
3	M21	HSS3X3X4	.480	0	48	.232	0	y	45	98393.432	101016	8556	8556	2....	H1-1b
4	M94A	L2.5x2.5x3	.368	0	6	.056	18.94	z	6	26913.322	29192.4	872.574	1971.83	2.2	H2-1
5	M95A	L2.5x2.5x3	.356	0	11	.054	18.94	z	11	26913.322	29192.4	872.574	1971.83	2....	H2-1
6	M96A	L2.5x2.5x3	.338	0	17	.051	18.94	z	17	26913.322	29192.4	872.574	1971.83	2....	H2-1
7	M6	C5X9	.319	46.083	13	.247	46.083	y	46	42540.952	85536	1909.122	11853	1....	H1-1b
8	M4	C5X9	.314	46.083	39	.247	46.083	y	36	42540.952	85536	1909.122	11853	1....	H1-1b
9	MP6	PIPE_2.5	.312	56	5	.093	56		5	30038.461	50715	3596.25	3596.25	1....	H1-1b
10	M5	C5X9	.309	46.083	45	.246	46.083	y	41	42540.952	85536	1909.122	11853	1....	H1-1b
11	MP2	PIPE_2.5	.298	56	2	.094	56		10	30038.461	50715	3596.25	3596.25	2....	H1-1b
12	H3	C5X9	.291	57.396	13	.146	15.104	z	9	6704.84	85536	1909.122	11853	1....	H1-1b
13	MP10	PIPE_2.5	.289	56	14	.088	56		14	30038.461	50715	3596.25	3596.25	1....	H1-1b
14	H2	C5X9	.283	89.115	4	.156	15.104	z	14	6704.84	85536	1909.122	11853	1....	H1-1b
15	H1	C5X9	.273	89.115	10	.147	15.104	z	3	6704.84	85536	1909.122	11853	1....	H1-1b
16	M87A	PIPE_2.0	.253	97.095	14	.151	121.7...		6	7318.446	32130	1871.625	1871.625	2....	H1-1b
17	M88A	PIPE_2.0	.236	97.095	3	.161	121.7...		13	7318.446	32130	1871.625	1871.625	2....	H1-1b
18	M89A	PIPE_2.0	.232	97.095	9	.159	121.7...		2	7318.446	32130	1871.625	1871.625	2....	H1-1b
19	MP4	PIPE_2.0	.196	55.469	165	.057	55.469		11	21116.67	32130	1871.625	1871.625	1....	H1-1b
20	MP8	PIPE_2.0	.196	55.469	95	.056	55.469		6	21116.67	32130	1871.625	1871.625	1....	H1-1b
21	MP12	PIPE_2.0	.196	55.469	219	.054	55.469		16	21116.67	32130	1871.625	1871.625	1....	H1-1b
22	MP7	PIPE_2.0	.189	55.469	7	.076	55.469		6	21116.67	32130	1871.625	1871.625	1....	H1-1b
23	MP3	PIPE_2.0	.189	55.469	13	.076	55.469		11	21116.67	32130	1871.625	1871.625	1....	H1-1b
24	MP11	PIPE_2.0	.181	55.469	2	.073	55.469		15	21116.67	32130	1871.625	1871.625	1.7	H1-1b
25	MP9	PIPE_2.5	.159	55.469	13	.058	55.469		14	38082.043	50715	3596.25	3596.25	1....	H1-1b
26	MP5	PIPE_2.5	.143	55.469	2	.057	55.469		4	38082.043	50715	3596.25	3596.25	1....	H1-1b
27	MP1	PIPE_2.5	.140	55.469	7	.055	55.469		9	38082.043	50715	3596.25	3596.25	1....	H1-1b

APPENDIX D

ADDITIONAL CALCUATIONS

Trylon

Standoff Weld Check

Known/Assumptions:

$F_{exx} := 70\ ksi$ (assumed weld electrode str.)
$b := 3\ in$ (width of weld)
$d := 3\ in$ (depth of weld)
$a := .25\ in$ (assumed design weld size - *based off the tube thk.*)
$L_w := 2 \cdot b + 2\ d = 12\ in$ (length of weld)
$\phi := 0.75$ (applicable reduction factor)

Joint Reactions per RISA 3D (LC 37 Member 19):

$F_x := 128.162\ lbf$ $M_x := 3757.941\ lbf \cdot ft$
$F_y := 3109.445\ lbf$ $M_y := 149.116\ lbf \cdot ft$
$F_z := 6060.41\ lbf$ $M_z := 740.333\ lbf \cdot ft$

Weld Property Calculations per AISC 14th ED., Fig. 8-6:

$c_x := 0.5 \cdot b = 1.5\ in$ (radial distance from CG to point on weld remote from CG, x-x Direction)
$c_y := 0.5 \cdot d = 1.5\ in$ (radial distance from CG to point on weld remote from CG, y-y Direction)

$S := b \cdot d + \frac{d^2}{3} = 12\ \frac{1}{in}\ in^3$ (section modulus of weld)

$I_p := \frac{(b+d)^3}{6} = 36\ \frac{1}{in} \cdot in^4$ (polar moment of inertia about CG of weld)

Weld Strength Calculations and Results (Eccentric Elastic Method per AISC 14th Ed., Part 8):

$R_f := \frac{\sqrt{F_x^{\ 2} + F_y^{\ 2}}}{L_w} = 259.34\ \frac{lbf}{in}$

$R_{fz} := \frac{F_z}{L_w} = 505.034\ \frac{lbf}{in}$

$R_{mx} := \frac{(M_z \cdot c_x)}{I_p} = 979.077\ \frac{lbf}{in}$

$R_{my} := \frac{(M_z \cdot c_y)}{I_p} = 979.077\ \frac{lbf}{in}$

$$R_m := \sqrt{R_{mx}{}^2 + R_{my}{}^2}$$

$$R_{mz1} := \frac{M_x}{S} = \left(3.758 \cdot 10^3\right) \frac{lbf}{in}$$

$$R_{mz2} := \frac{M_y}{S} = 149.116 \frac{lbf}{in}$$

$$R_{mz} := \sqrt{R_{mz1}{}^2 + R_{mz2}{}^2} = \left(3.761 \cdot 10^3\right) \frac{lbf}{in}$$

(Demand)

$$R_u := \sqrt{\left(R_f + R_m\right)^2 + \left(R_{fz} + R_{mz}\right)^2} = 4571.739 \frac{lbf}{in}$$

(Capacity of weld)

$$\phi R_{nw} := \phi \cdot 0.60 \cdot F_{exx} \cdot \frac{\sqrt{2}}{2} \cdot a = 5568.466 \frac{lbf}{in}$$

(Demand to capacity ratio)

$$\therefore DCR := \frac{R_u}{\phi R_{nw}} = 82.1\%$$

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11961A

CT961/ Indian Ledge Prk
Indian Ledge Park Road
Trumbull, Connecticut 06611

September 1, 2021

EBI Project Number: 6221004838

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**25.64%**

September 1, 2021

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11961A - CT961/ Indian Ledge Prk

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **Indian Ledge Park Road** in **Trumbull, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at Indian Ledge Park Road in Trumbull, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

13) The antennas used in this modeling are the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector A, the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector B, the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated

transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

14) The antenna mounting height centerline of the proposed antennas is 145 feet above ground level (AGL).

15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

16) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd
Height (AGL):	145 feet	Height (AGL):	145 feet	Height (AGL):	145 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,059.02	ERP (W):	4,059.02	ERP (W):	4,059.02
Antenna A1 MPE %:	**1.80%**	Antenna B1 MPE %:	**1.80%**	Antenna C1 MPE %:	**1.80%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	145 feet	Height (AGL):	145 feet	Height (AGL):	145 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	**6.76%**	Antenna B2 MPE %:	**6.76%**	Antenna C2 MPE %:	**6.76%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz / 2100 MHz
Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd
Height (AGL):	145 feet	Height (AGL):	145 feet	Height (AGL):	145 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts
ERP (W):	11,671.35	ERP (W):	11,671.35	ERP (W):	11,671.35
Antenna A3 MPE %:	**2.17%**	Antenna B3 MPE %:	**2.17%**	Antenna C3 MPE %:	**2.17%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	10.74%
Town	4.8%
AT&T	5.01%
Sprint	2.07%
Clearwire	0.07%
Verizon	2.95%
Site Total MPE % :	25.64%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	10.74%
T-Mobile Sector B Total:	10.74%
T-Mobile Sector C Total:	10.74%
Site Total MPE % :	25.64%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	145.0	2.20	600 MHz LTE	400	0.55%
T-Mobile 600 MHz NR	1	1577.94	145.0	2.94	600 MHz NR	400	0.73%
T-Mobile 700 MHz LTE	2	648.82	145.0	2.41	700 MHz LTE	467	0.52%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	145.0	20.55	2500 MHz LTE 1C & 2C Traffic	1000	2.06%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	145.0	2.00	2500 MHz LTE 1C & 2C Broadcast	1000	0.20%
T-Mobile 2500 MHz NR Traffic	1	22089.26	145.0	41.10	2500 MHz NR Traffic	1000	4.11%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	145.0	4.00	2500 MHz NR Broadcast	1000	0.40%
T-Mobile 1900 MHz LTE	2	2334.27	145.0	8.69	1900 MHz LTE	1000	0.87%
T-Mobile 2100 MHz UMTS	2	1167.14	145.0	4.34	2100 MHz UMTS	1000	0.43%
T-Mobile 2100 MHz LTE	2	2334.27	145.0	8.69	2100 MHz LTE	1000	0.87%
						Total:	**10.74%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	10.74%
Sector B:	10.74%
Sector C:	10.74%
T-Mobile Maximum MPE % (Sector A):	10.74%
Site Total:	25.64%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **25.64%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

T-Mobile

T-MOBILE SITE NUMBER: CT11961A
T-MOBILE SITE NAME: CT961/ INDIAN LEDGE PRK
SITE TYPE: MONOPOLE
TOWER HEIGHT: 195'-0"

BUSINESS UNIT #: 881535
SITE ADDRESS: 425 INDIAN LEDGE PARK RD TRUMBULL, CT 06611
COUNTY: FAIRFIELD
JURISDICTION: CONNECTICUT SITING COUNCIL

T-MOBILE ANCHOR SITE CONFIGURATION: 67D5A998E OUTDOOR

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	TRUMBULL TOWER
SITE ADDRESS:	425 INDIAN LEDGE PARK RD TRUMBULL, CT 06611
COUNTY:	FAIRFIELD
MAP/PARCEL #:	F05-96
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.27324000
LONGITUDE:	-73.21311000
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	314'
CURRENT ZONING:	AA
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	TOWN OF TRUMBULL 5866 MAIN STREET TRUMBULL, CT 06611
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	THE UNITED ILLUMINATING COMPANY
TELCO PROVIDER:	AT&T

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

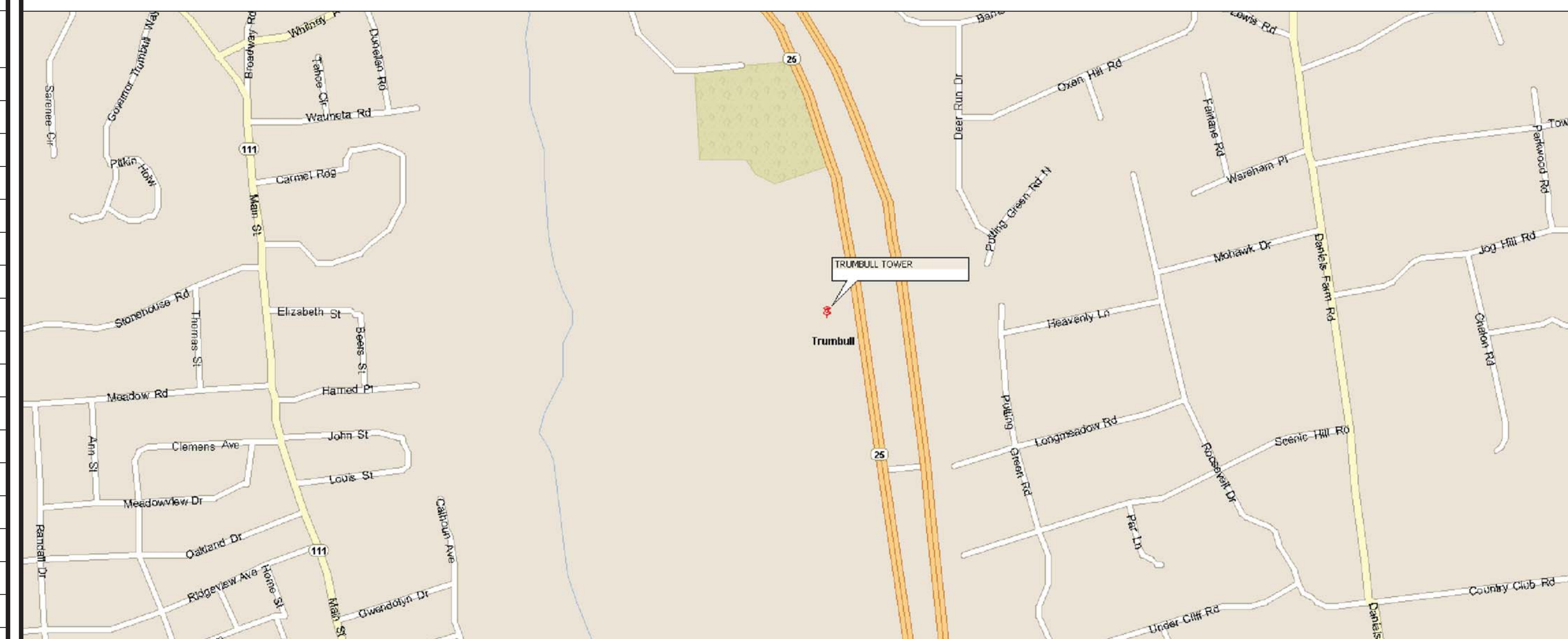
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (3) ANTENNAS
- REMOVE (3) TMAS
- REMOVE (12) COAX CABLES (1-5/8")
- REMOVE (1) HYBRID CABLE (9X18)
- INSTALL (6) ANTENNAS
- INSTALL (3) RADIOS
- INSTALL (2) HYBRID CABLES (6X24)

GROUND SCOPE OF WORK:
- REMOVE (1) NORTEL CABINET
- REMOVE (6) RADIO RU22
- INSTALL (1) 6160 CABINET
- INSTALL (1) B160 CABINET
- INSTALL (1) BB 6648, (1) CSR IXRE V2 TRANSPORT SYSTEM, (1) PSU 4813 VOLTAGE BOOSTER IN RBS 6601 CABINET

NOTE:
THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2015 IBC W/AMENDMENTS
MECHANICAL	2015 IMC W/AMENDMENTS
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	BLACK & VEATCH CORP.
DATED:	7/29/21
MOUNT ANALYSIS:	TRYLON
DATED:	7/21/21
AC ELECTRICAL POWER DESIGN:	BY OTHERS
DATED:	
RFDS REVISION:	7
DATED:	6/23/2021
ORDER ID:	575117
REVISION:	0

CALL CONNECTICUT ONE CALL (800) 922-4455 CBYD.COM CALL 2 WORKING DAYS BEFORE YOU DIG! 811

APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.		
LAND USE PLANNER		
T-MOBILE		
OPERATIONS		
RF		
NETWORK		
BACKHAUL		
CONSTRUCTION MANAGER		

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

STATE OF CONNECTICUT PROFESSIONAL ENGINEER No. 23924 LICENSED 9/23/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:	REVISION:
T-1	2

136595.003.01_TRUMBULL TOWER 9.9.21.dwg - Sheet:T-1 - User: jackie.weeter - Sep 23, 2021 - 3:14pm

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T–MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER.......................40 ksi
   #5 BARS AND LARGER.......................60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.......................3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER.......................2"
   #5 BARS AND SMALLER.......................1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS.......................3/4"
   BEAMS AND COLUMNS.......................1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

T··Mobile···
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

No. 23924
9/23/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER:	REVISION:
T-2	2

SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.

1 OVERALL SITE PLAN

SCALE: 200' 100' 0 200' 1" = 200'-0" (FULL SIZE) 1" = 400'-0" (11x17)

N

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

STATE OF CONNECTICUT PROFESSIONAL ENGINEER No. 23924 LICENSED 9/23/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

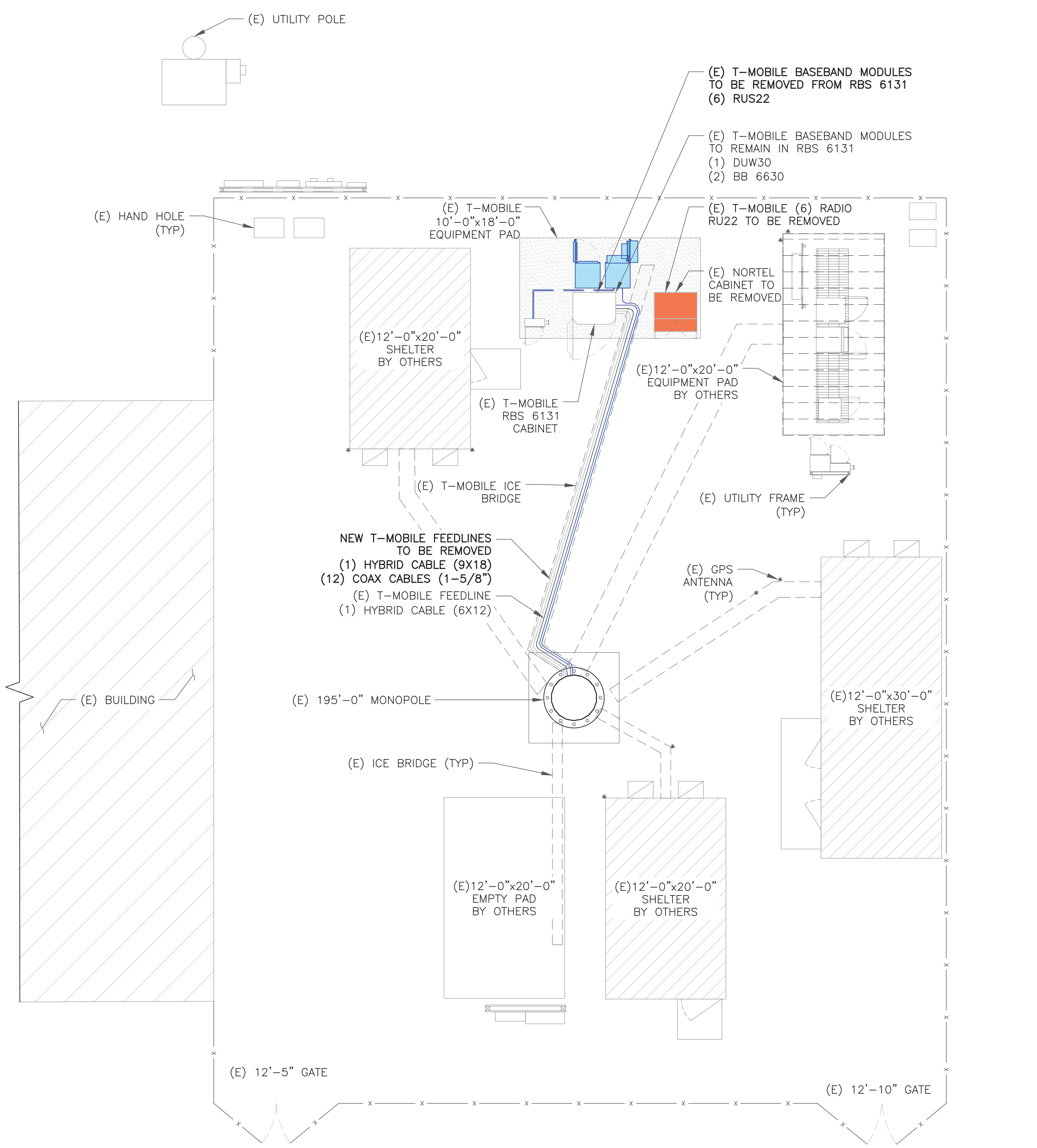
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-1.1

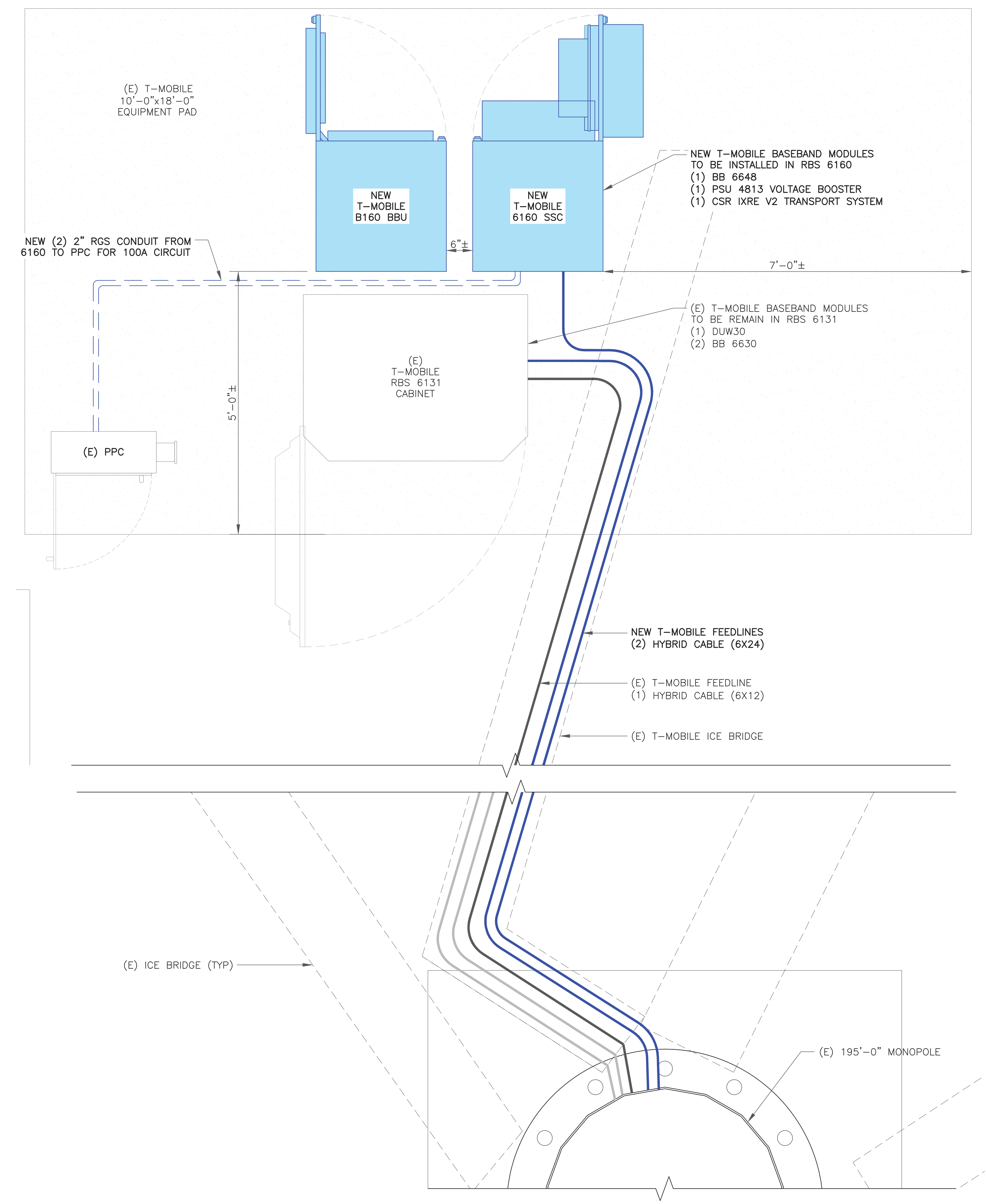
REVISION: 2

NOTES:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



1 SITE PLAN
SCALE: 8' 6' 4' 2' 0 8' 1/8"=1'-0" (FULL SIZE) 1/16"=1'-0" (11x17)



2 ENLARGED SITE PLAN
SCALE: 1' 6" 0 1' 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

ISSUED FOR:

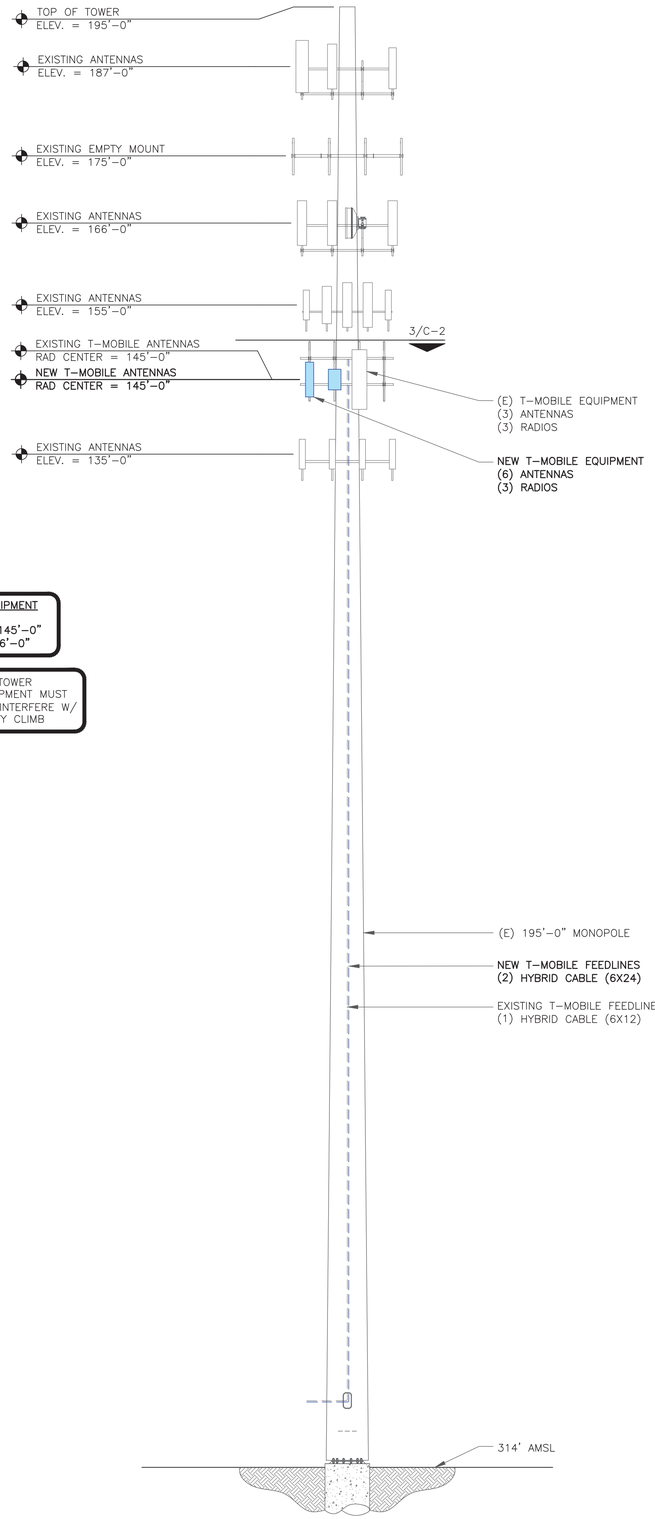
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

9/23/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-1.2
REVISION: 2

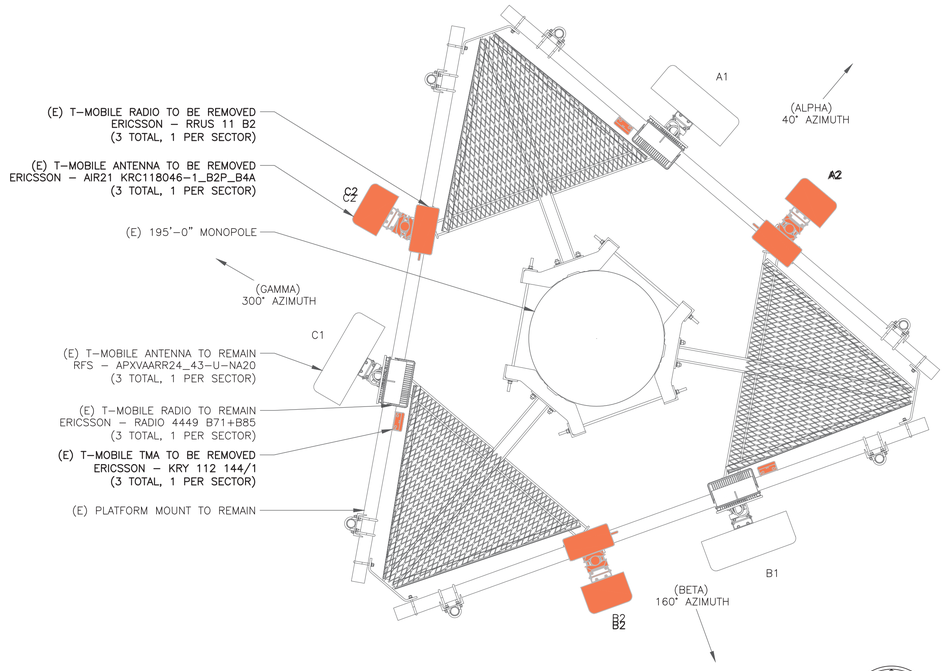


T-MOBILE EQUIPMENT

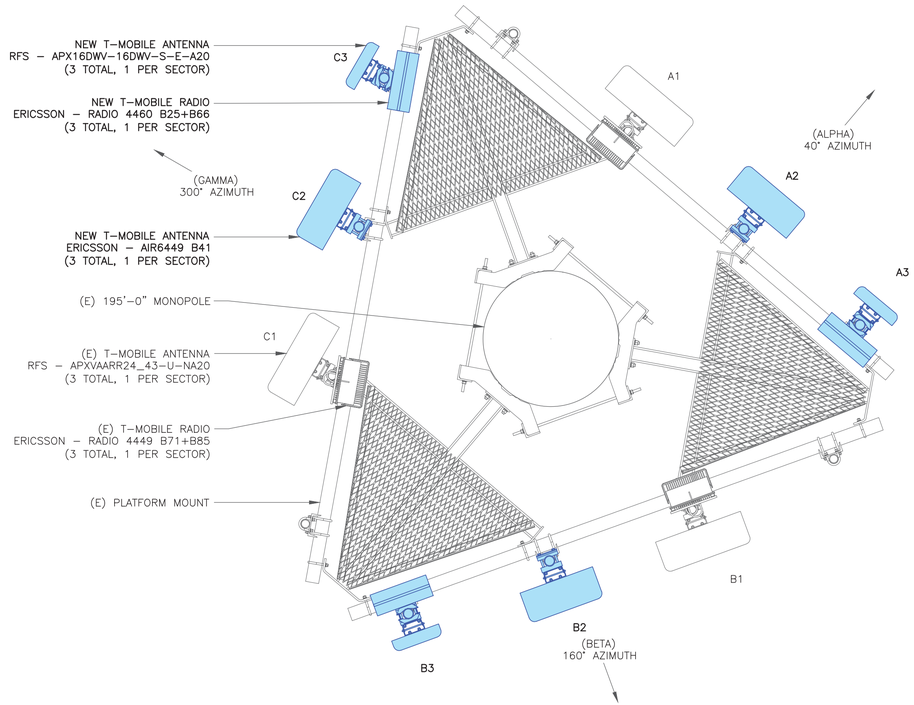
ANTENNA CL: 145'-0"
MOUNT CL: 146'-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: C-2

REVISION: 2

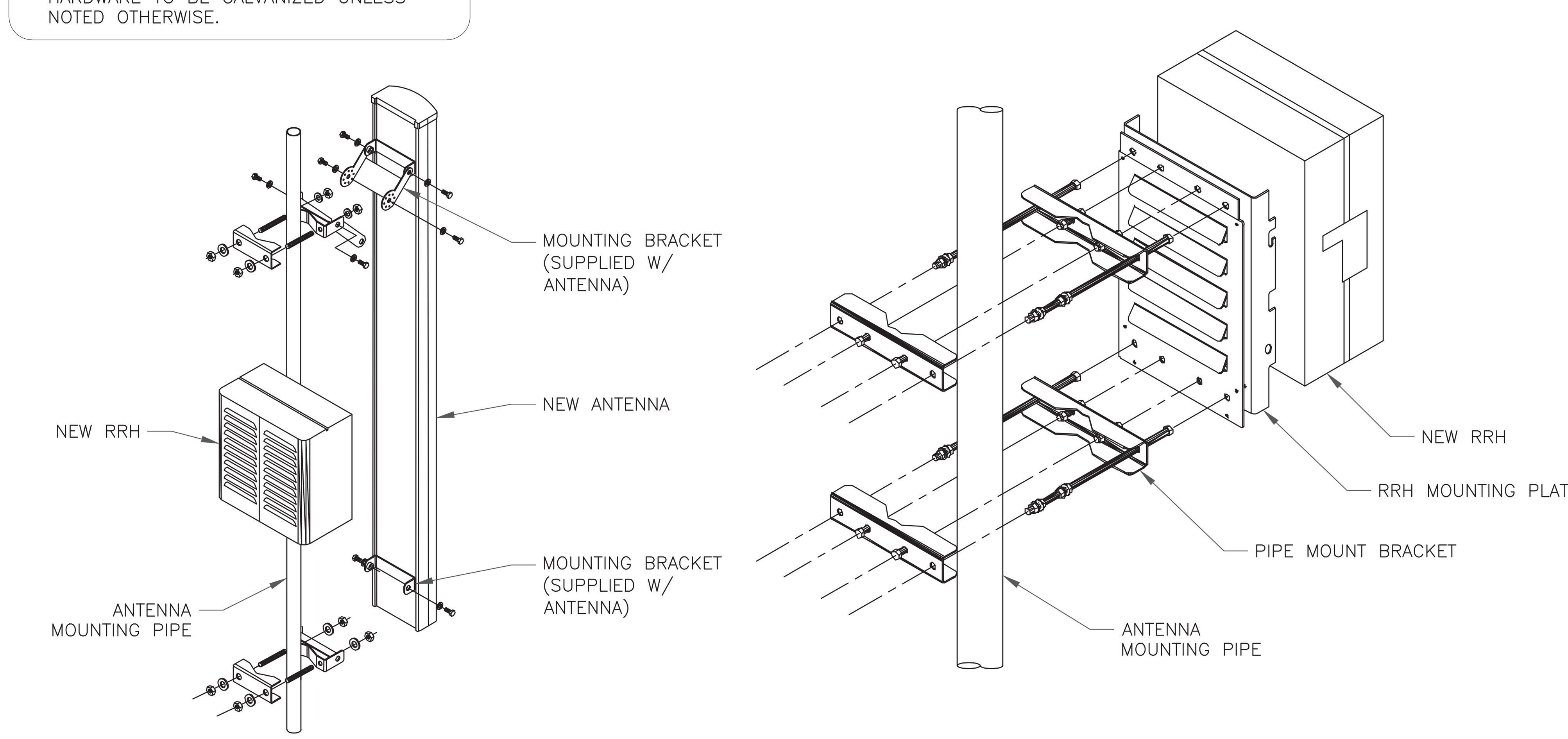
RF SYSTEM SCHEDULE

SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	–	–	–	–	–	–	–	–	(1) RAYCAP – RDIDC-9181-PF-48	(1) HYBRID CABLE (6X12)
	A1	L700/L600/N600	RFS	APXVAARR24_43-U-NA20	40°	0°	–	145'-0"	(1) ERICSSON – RADIO 4449 B71+B85	
	A2	L2500/N2500	ERICSSON	AIR6449 B41	40°	0°	–	145'-0"	–	
	A3	U2100/L2100/L1900	RFS	APX16DWV-16DWV-S-E-A20	40°	0°	–	145'-0"	(1) ERICSSON – RADIO 4460 B25+B66	
BETA	–	–	–	–	–	–	–	–	–	(1) HYBRID CABLE (6X24)
	B1	L700/L600/N600	RFS	APXVAARR24_43-U-NA20	160°	0°	–	145'-0"	(1) ERICSSON – RADIO 4449 B71+B85	
	B2	L2500/N2500	ERICSSON	AIR6449 B41	160°	0°	–	145'-0"	–	
	B3	U2100/L2100/L1900	RFS	APX16DWV-16DWV-S-E-A20	160°	0°	–	145'-0"	(1) ERICSSON – RADIO 4460 B25+B66	
GAMMA	–	–	–	–	–	–	–	–	–	(1) HYBRID CABLE (6X24)
	C1	L700/L600/N600	RFS	APXVAARR24_43-U-NA20	300°	0°	–	145'-0"	(1) ERICSSON – RADIO 4449 B71+B85	
	C2	L2500/N2500	ERICSSON	AIR6449 B41	300°	0°	–	145'-0"	–	
	C3	U2100/L2100/L1900	RFS	APX16DWV-16DWV-S-E-A20	300°	0°	–	145'-0"	(1) ERICSSON – RADIO 4460 B25+B66	

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

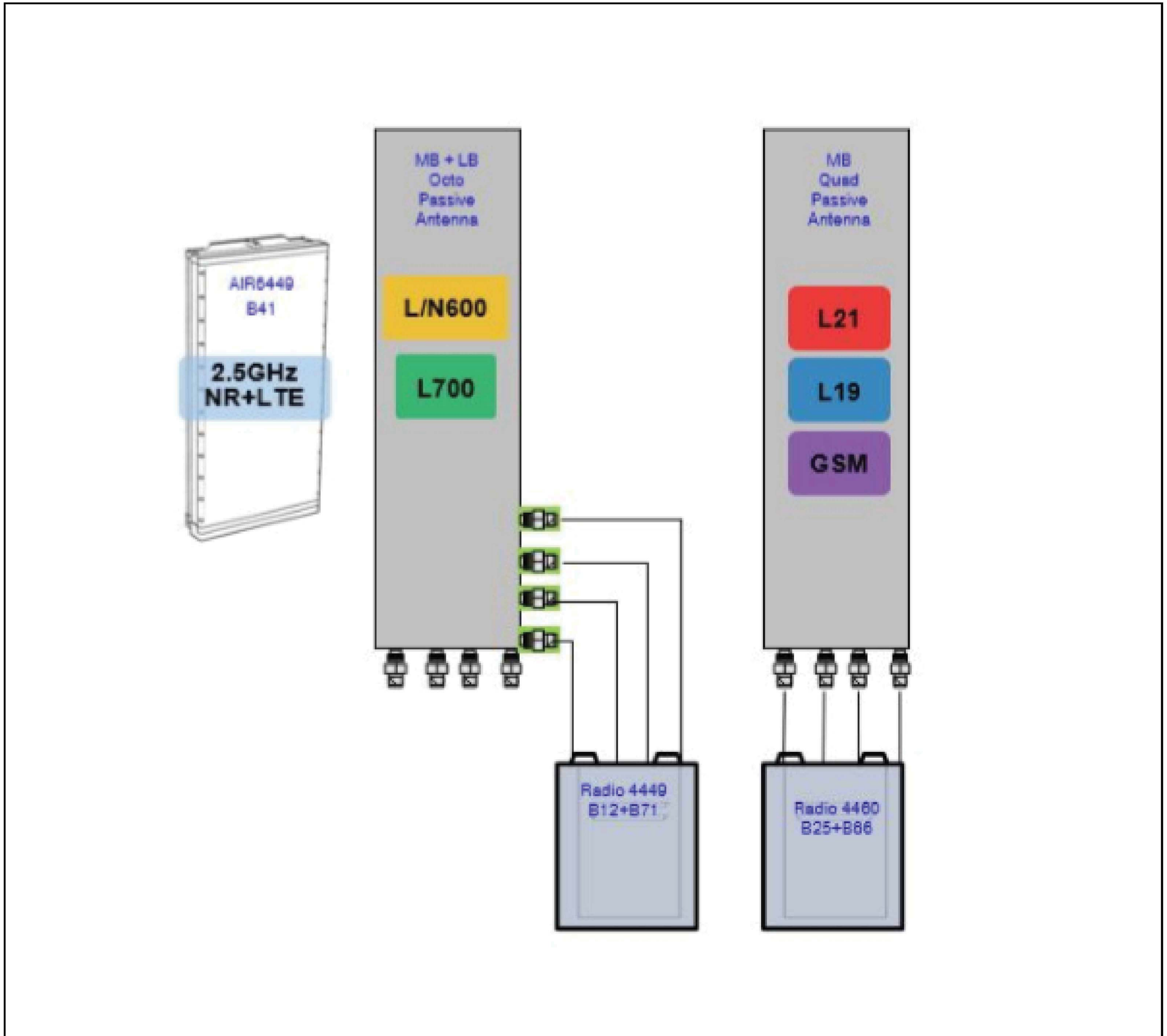
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-3
REVISION: 2



Notes:

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

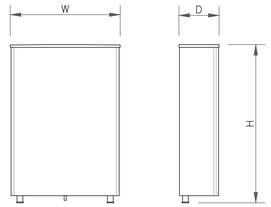
9/23/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: C-4

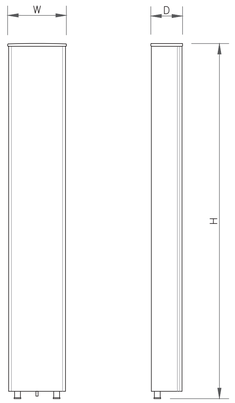
REVISION: 2

136595.003.01_TRUMBULL TOWER 9.9.21.dwg — Sheet:C-4 — User: jackie.weeter — Sep 23, 2021 — 3:14pm



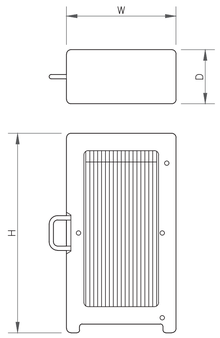
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



ANTENNA SPECS	
MANUFACTURER	RFS/CELWAVE
MODEL #	APX16DWV-S-E-A20
WIDTH	13.00"
DEPTH	3.15"
HEIGHT	55.90"
WEIGHT	41.80 LBS

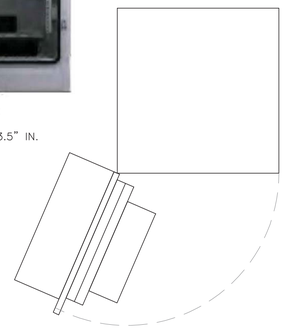
2 ANTENNA SPECS
SCALE: NOT TO SCALE



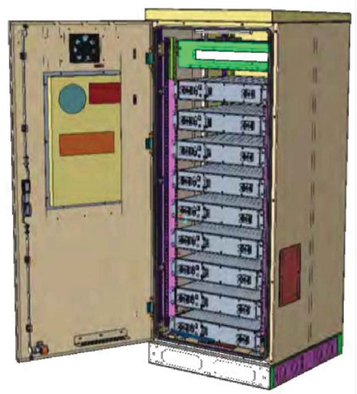
RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4460 B25+B66
WIDTH	15.10"
DEPTH	11.90"
HEIGHT	17.00"
WEIGHT	109.00 LBS

3 RRU SPECS
SCALE: NOT TO SCALE

ERICSSON 6160 SSC
WEIGHT: 60.0 LBS
SIZE (HxWxD): 63"x25.6"x33.5" IN.

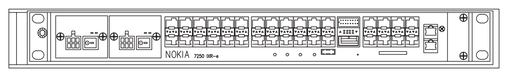


4 ERICSSON 6160 SSC
SCALE: NOT TO SCALE



BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	

5 ERICSSON B160 BATTERY CABINET
SCALE: NOT TO SCALE



NOKIA CSR IXRE V1 ROUTER
WEIGHT: 11.2 LBS.
SIZE (HxWxD): 1.75x17.25x10.0 IN.

6 NOKIA CSR IXRE V2 TRANSPORT SYSTEM
SCALE: NOT TO SCALE

2 General Product Overview

Figure 1

A	Mounting bracket	Bracket for 19" rack installations. Bracket can be reversed.
B	DC input terminals	Covered interface for connecting power cables from the power distribution.
C	External alarm port	Interface for connecting alarm cable to site external alarms.
D	Power switches	For switching on/off the corresponding DC output.
E	Fuse connectors	Covered fuse terminals for corresponding DC output.
F	DC power outputs	Covered terminals for connecting power cables to remote loads.
H	Ground connector	Grounds chassis

T··Mobile·

Ericsson PSU 48 13 Voltage Booster Design Specification

The general specifications for the PSU 48 13 are as follows:

Electrical Operating Limits	
Input Voltage	-38.0 – -58.5 VDC
Input Voltage, nominal	-48 VDC
Input Current, max	169 A; 30 A total for all four -48V inputs
Output Voltage, fixed	-58 VDC
Output Power, max.	2000 watts each
Environmental Operating Limits	
Temperature, operation	-40 – +60 °C
Temperature, storage	-40 – +55 °C
Temperature, trasport	-40 – +70 °C
Humidity, operation and storage	5% – 95%
Altitude, operation and storage	0 – 4000 m
Cooling	Internal fans
Vibration	ETS300019-2
Shock	ETS300019-2
Drop	ETS300019-2
EMC	FCC Part 15
Safety	UL 62368-1
Noise	< 6.8 bel sound power
Lightning Protection	4 kA; 10/350 µs; 20 kA, 8/20 µs
Fuse Options	30 A, 40 A, 50 A
Mechanical Specification	
Weight	< 7.8 kg (17.2 lb)
Dimensions (H x W x D)	44 x 483 x 363 mm (1.7" x 19.0" x 14.3") (include brackets, cover)

PSU Unit Kit: SKU 34132

UTPSU4813DCBoostSMU

	Part Number	Part Description	Qty	Comments
1	BMR 911 93/1	D.C. CONVERTER/PSU 48 13	1	
2	SNG 818 12/1	CABLE LUG/Power dual lug 6 awg Right angled	6	3 DC ports, facing hybrid cable
3	SNG 818 13/1	CABLE LUG/Power dual lug 4 awg Right angled	6	3 DC ports, facing hybrid cable
4.1	NFN95021/30	FUSE HOLDER/30A, 80V, UL	1	3 fuses in each kit
4.2	NFN95021/40	FUSE HOLDER/40A, 80V, UL	1	3 fuses in each kit
4.3	NFN95021/50	FUSE HOLDER/50A, 80V, UL	1	3 fuses in each kit

PSU 4813 VOLTAGE BOOSTER
WEIGHT : 17.2 LBS.
SIZE (HxWxD): 1.7x19.0x14.4 IN.

7 PSU 4813 VOLTAGE BOOSTER SPECS
SCALE: NOT TO SCALE

8 NOT USED
SCALE: NOT TO SCALE

T··Mobile···
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

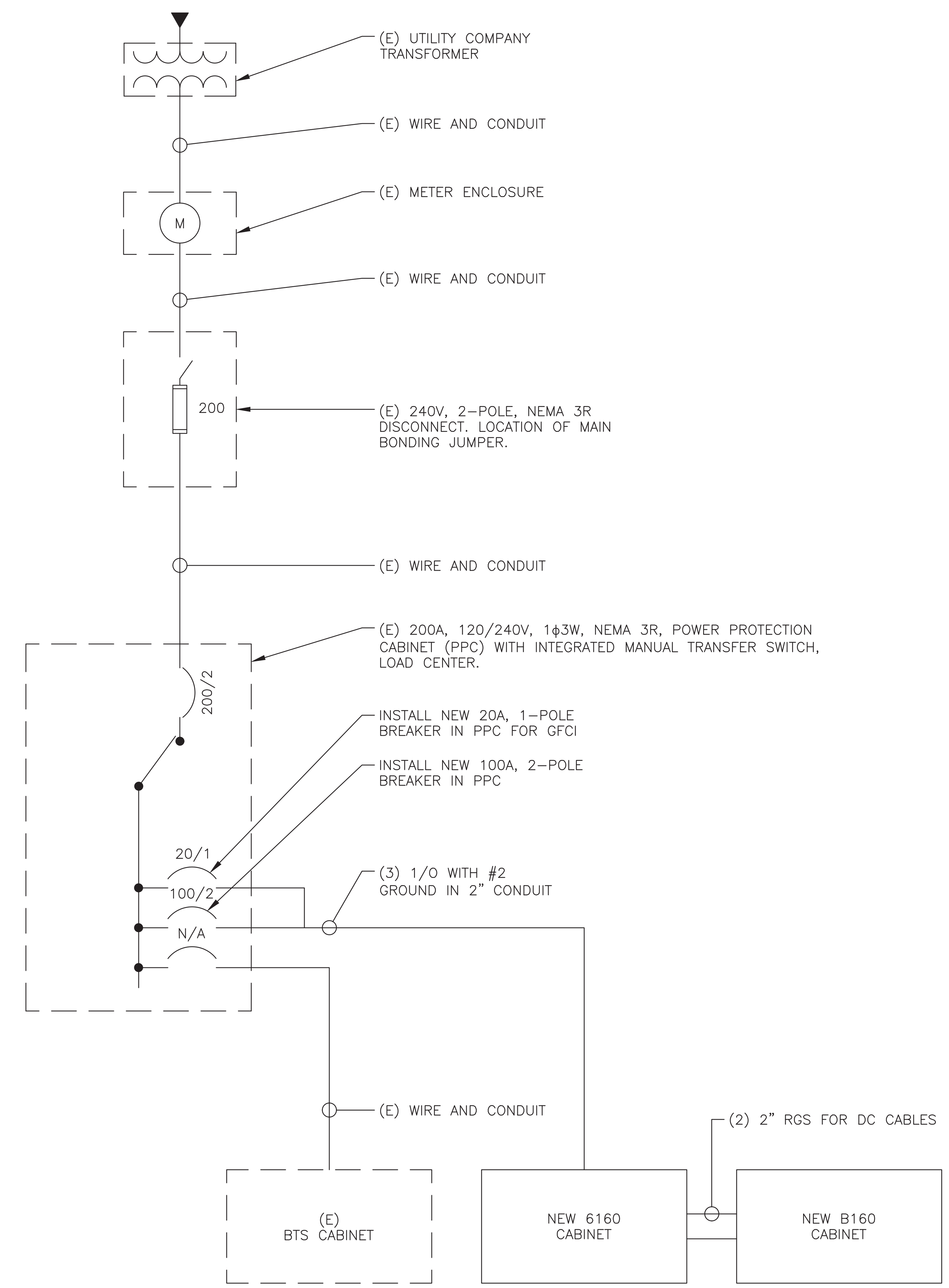
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: C-5

REVISION: 2

PANEL INFORMATION UNAVAILABLE AT TIME OF ISSUE

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE



NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE–LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

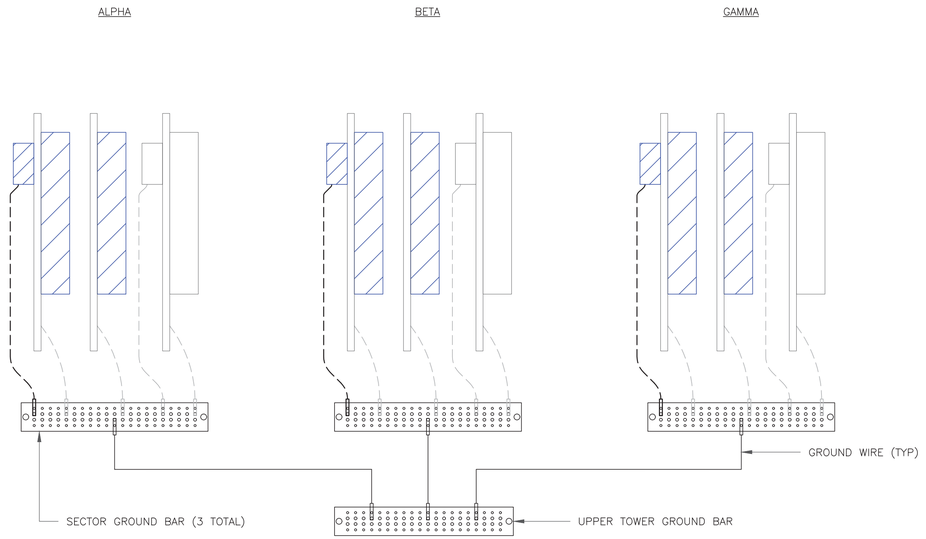
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: E-1

REVISION: 2



NOTE:

ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

ISSUED FOR:

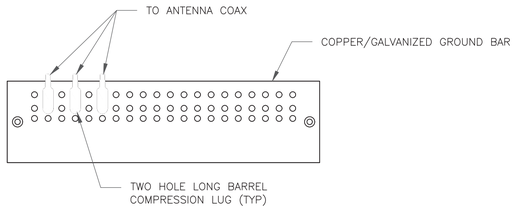
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

STATE OF CONNECTICUT
JOHN H. WEETER
No. 23024
LICENSED
PROFESSIONAL ENGINEER
9/23/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: G-1

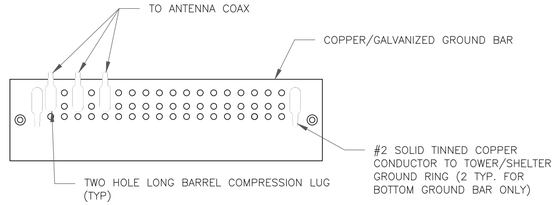
REVISION: 2



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

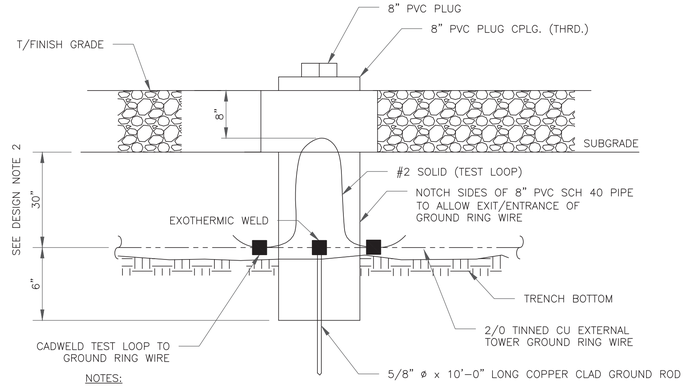
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

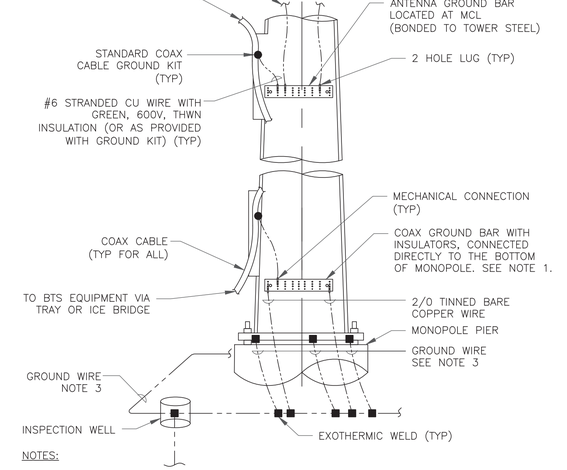
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

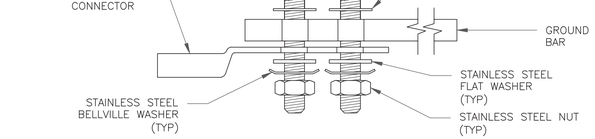
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



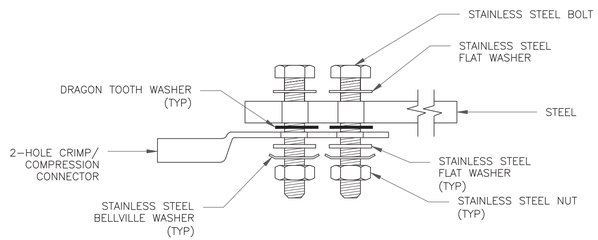
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

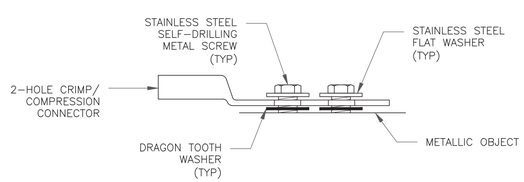
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

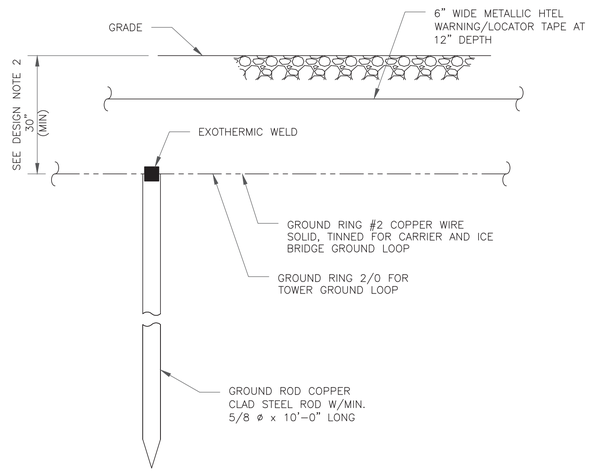


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

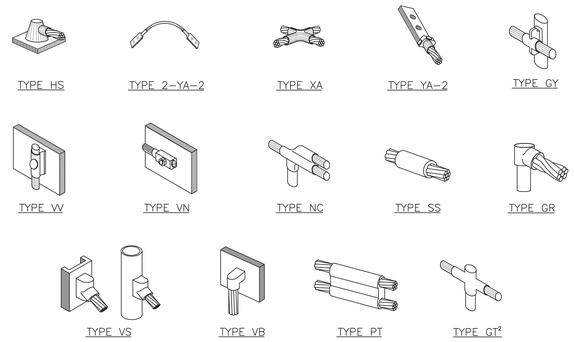
EXISTING
195'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: G-2
REVISION: 2

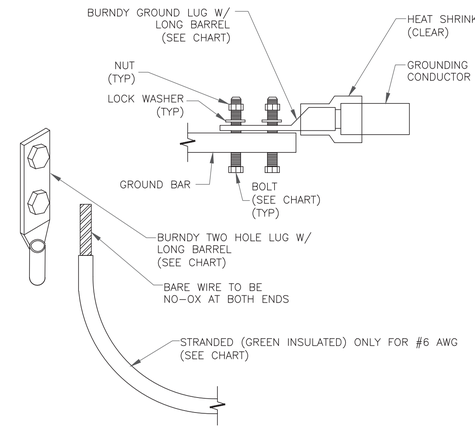


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

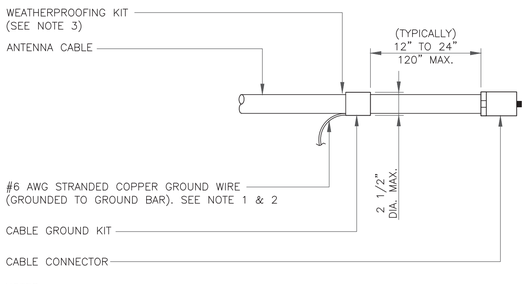
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

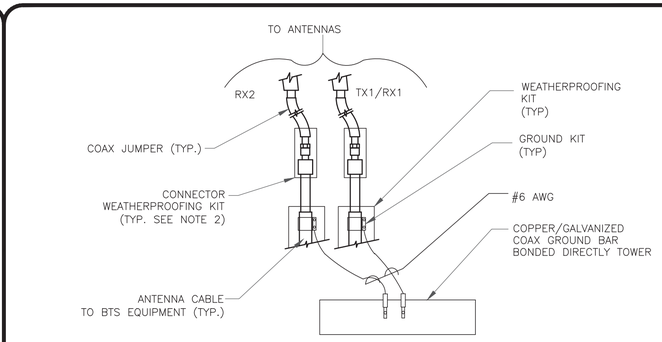
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

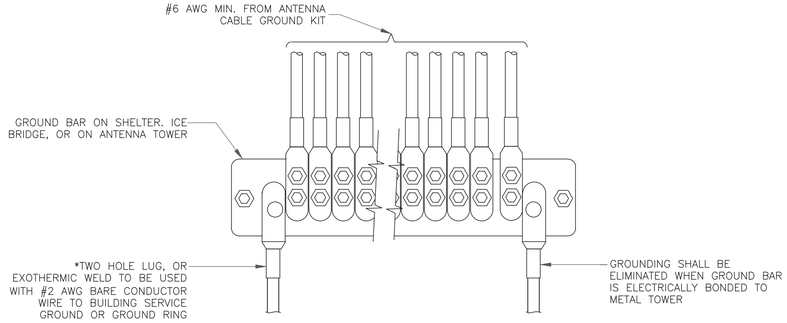
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



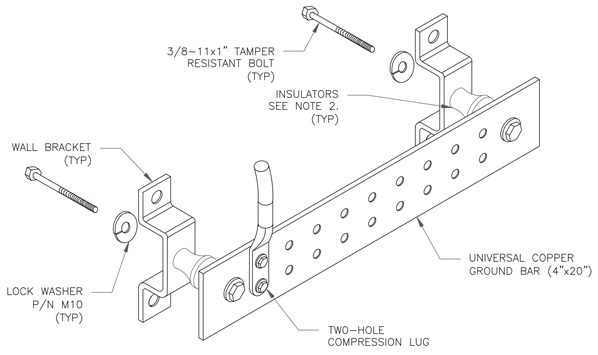
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



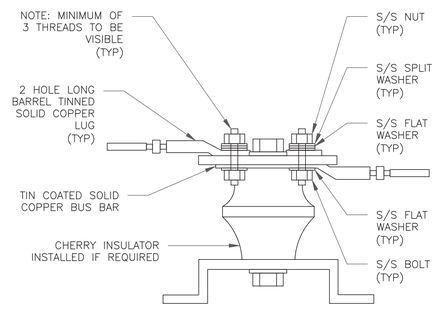
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



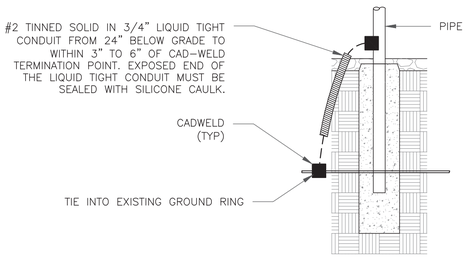
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11961A

BU #: **881535**
TRUMBULL TOWER

425 INDIAN LEDGE PARK RD
TRUMBULL, CT 06611

EXISTING
195'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/5/21	AN/SA	CONSTRUCTION	JHW
1	9/9/21	JHW	CONSTRUCTION	JHW
2	9/23/21	JHW	CONSTRUCTION	JHW

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: G-3
REVISION: 2