



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

October 7, 2022

Denise Sabo
Northeast Site Solutions
54 Main Street, Unit 3
Sturbridge, MA 01566-1359
denise@northeastsitesolutions.com

RE: EM-VER-062-220627 – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 890 Evergreen Avenue, Hamden, Connecticut.

Dear Ms. Sabo:

The Connecticut Siting Council (Council) is in receipt of your correspondence of September 28, 2022 submitted in response to the Council's September 2, 2022 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/MP/emr

From: Deborah Chase <deborah@northeastsitesolutions.com>
Sent: Wednesday, September 28, 2022 4:25 PM
To: CSC-DL Siting Council <Siting.Council@ct.gov>; Bachman, Melanie <Melanie.Bachman@ct.gov>; Fontaine, Lisa <Lisa.Fontaine@ct.gov>; Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: Denise <denise@northeastsitesolutions.com>
Subject: RE: Council 3rd Incomplete Letter for EM-VER-062-220627 (890 Evergreen Avenue, Hamden)-800529-CROWN VERIZON

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Siting Council

Please see attached updated application which contains the Structural Analysis that includes correct DISH and Verizon equipment.

I have sent a hard copy- see attached postal scan.

Please let us know if this renders the application complete for further review.

Thank you very much

Deborah Chase

Senior Project Coordinator & Analyst

Mobile: 860-490-8839

🌳 Save a tree. Refuse. Reduce. Reuse. Recycle.



Date: **September 16, 2022**



GPD Engineering and Architecture
Professional Corporation

520 South Main Street Suite 2531
Akron, Ohio 44311
(216) 927-8663

Subject: **Structural Analysis Report**

Carrier Designation: **Verizon Wireless Co-Locate**
Site Number: 469224
Site Name: Hamden North CT

Crown Castle Designation: **BU Number:** 800529
Site Name: CT HAMDEN NORTH CAC
JDE Job Number: 723449
Work Order Number: 2158702
Order Number: 623990 Rev. 0

Engineering Firm Designation: **GPD Project Number:** 2022777.800529.15

Site Data: **890 Evergreen Avenue, Hamden, New Haven County, CT 06518**
Latitude 41° 24' 23.9", Longitude -72° 54' 16.32"
100 Foot – Stealth Self Support Tower

We are 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 – 52.6%

This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2018 Connecticut Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Krisli Mocka

Respectfully submitted by:

Christopher J. Scheks, P.E.
Connecticut # 0030026

 9/16/2022


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1) INTRODUCTION

This tower is a 100 ft self support tower designed by Stealth Network Technologies Inc. in December of 2000.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	119 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.0 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)
95.0	98.0	3	Samsung Telecommunications	RFV01U-D2A	6 2	1-5/8 1-1/4
	95.0	3	Antel	BXA-80080/4CF		
		6	Commscope	JAHH-65B-R3B		
		3	Samsung Telecommunications	MT6407-77A		
		3	Commscope	CBC78TDS-43-2X		
		2	RFS Celwave	DB-T1-6Z-8AB-0Z		
		3	Samsung Telecommunications	RFV01U-D1A		
		3	Samsung Telecommunications	RFV01U-D2A		

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)
100.0	104.0	3	RFS/Celwave	APXVAA4L18_43-U-NA20_TMO	6	1-5/8
		3	Ericsson	AIR6449 B41_T-MOBILE		
		3	Ericsson	RADIO 4415 B66A_CCIV3		
		6	Ericsson	RADIO 2212 B2		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
	100.0	3	Site Pro 1	USF-2U Standoff Frame		
		3	Site Pro 1	P360 Horizontal Pipe		
		6	Site Pro 1	P272 Mount Pipe		
85.0	87.0	3	Ericsson	AIR 6419 B77G_CCIV3	14 5 3	7/8 13/16 3/8
	85.0	3	CCI Antennas	DMP65R-BU6D		
		3	CCI Antennas	TPA65R-BU6DA-K		
		3	Ericsson	RADIO 4415 B30		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 4426 B66		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 4478 B14_CCIV2		
	83.0	2	Raycap	DC6-48-60-18-8F		
	1	Raycap	DC9-48-60-24-8C-EV			
75.0	75.0	2	CSA Wireless	A-18A24N-U	11	1-1/4
		10	Decibel	DB844H90E-XY		
65.0	67.0	1	Raycap	RDIDC-9181-PF-48	1	1-3/8
	66.0	3	JMA Wireless	MX08FRO665-21		
		3	Fujitsu	TA08025-B605		
	65.0	3	Commscope	MTC3975083		
	64.0	3	Fujitsu	TA08025-B604		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Reports	6400183	CCISITES
Tower Foundation Drawings/Design/Specs	671923	CCISITES
Tower Manufacturer Drawings	605026	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0) and RISA-3D (Version 17.0.4), commercially available analysis software packages, 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.

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 or items in Table 3 are not valid or have been made in error. GPD should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	% Capacity	Pass / Fail
L1	100 - 90	Leg	HSS6x6x1/4	6.1	Pass
		Diagonal	2L2x2x3/16x1/2	7.4	Pass
		Top Girt	C6x10.5	0.5	Pass
L2	90 - 80	Leg	HSS6x6x1/4	7.7	Pass
		Diagonal	2L2x2x3/16x1/2	15.8	Pass
		Top Girt	C6x10.5	6.1	Pass
L3	80 - 70	Leg	HSS6x6x1/4	13.1	Pass
		Diagonal	2L2x2x3/16x1/2	23.6	Pass
		Top Girt	C6x10.5	6.2	Pass
L4	70 - 60	Leg	HSS6x6x1/4	28.8	Pass
		Diagonal	2L2x2x3/16x1/2	32.4	Pass
		Top Girt	C6x10.5	6.4	Pass
L5	60 - 40	Leg	HSS8x8x1/4	15.2	Pass
		Diagonal	2L4x4x3/8x1/2	14.9	Pass
		Top Girt	W16x45	49.3	Pass
		Inner Bracing	W10x33	52.6	Pass
L6	40 - 20	Leg	HSS8x8x1/4	29.9	Pass
		Diagonal	2L4x4x3/8x1/2	22.0	Pass
		Top Girt	W6x12	15.8	Pass
L7	20 - 0	Leg	HSS8x8x1/4	39.8	Pass
		Diagonal	2L4x4x3/8x1/2	31.2	Pass
		Top Girt	W6x12	27.8	Pass
				Summary	
			Leg	39.8	Pass
			Diagonal	32.4	Pass
			Top Girt	49.4	Pass
			Inner Bracing	52.6	Pass
			Bolt Checks	49.4	Pass
			Rating =	52.6	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0.0	31.6	Pass
1	Base Foundation Reinforcement	0.0	12.4	Pass
1	Base Foundation Soil Interaction	0.0	35.7	Pass
Structure Rating (max from all components) =				52.6%

Notes:

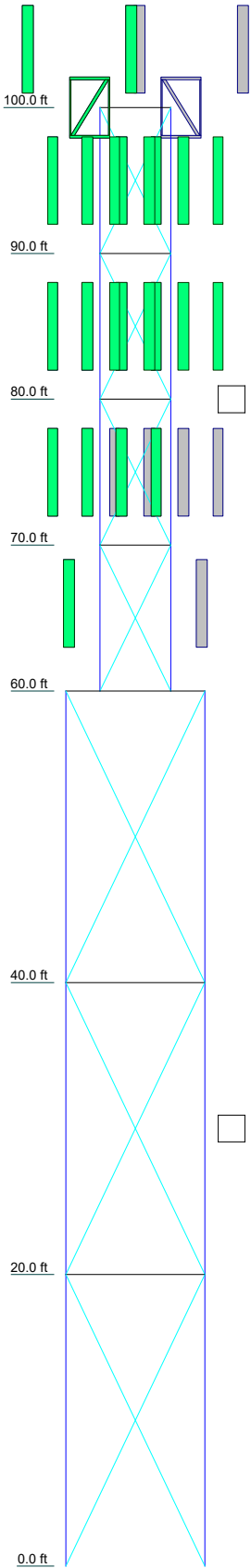
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX A
PROGRAM OUTPUT

Section	T3	T1	L4	L3	L2	L1
Legs	HSS8x8x1/4					
Leg Grade	A500-46					
Diagonals	2L4x4x3/8x1/2					
Diagonal Grade	A36					
Top Girts	W6x12	W16x45	C6x10.5			
Face Width (ft)	9.52083	4.83333				
# Panels @ (ft)	3 @ 20	4 @ 10				
Weight (lb)	5841.2	7164.7	1348.8	1348.8	1348.8	1348.8



TOWER DESIGN NOTES

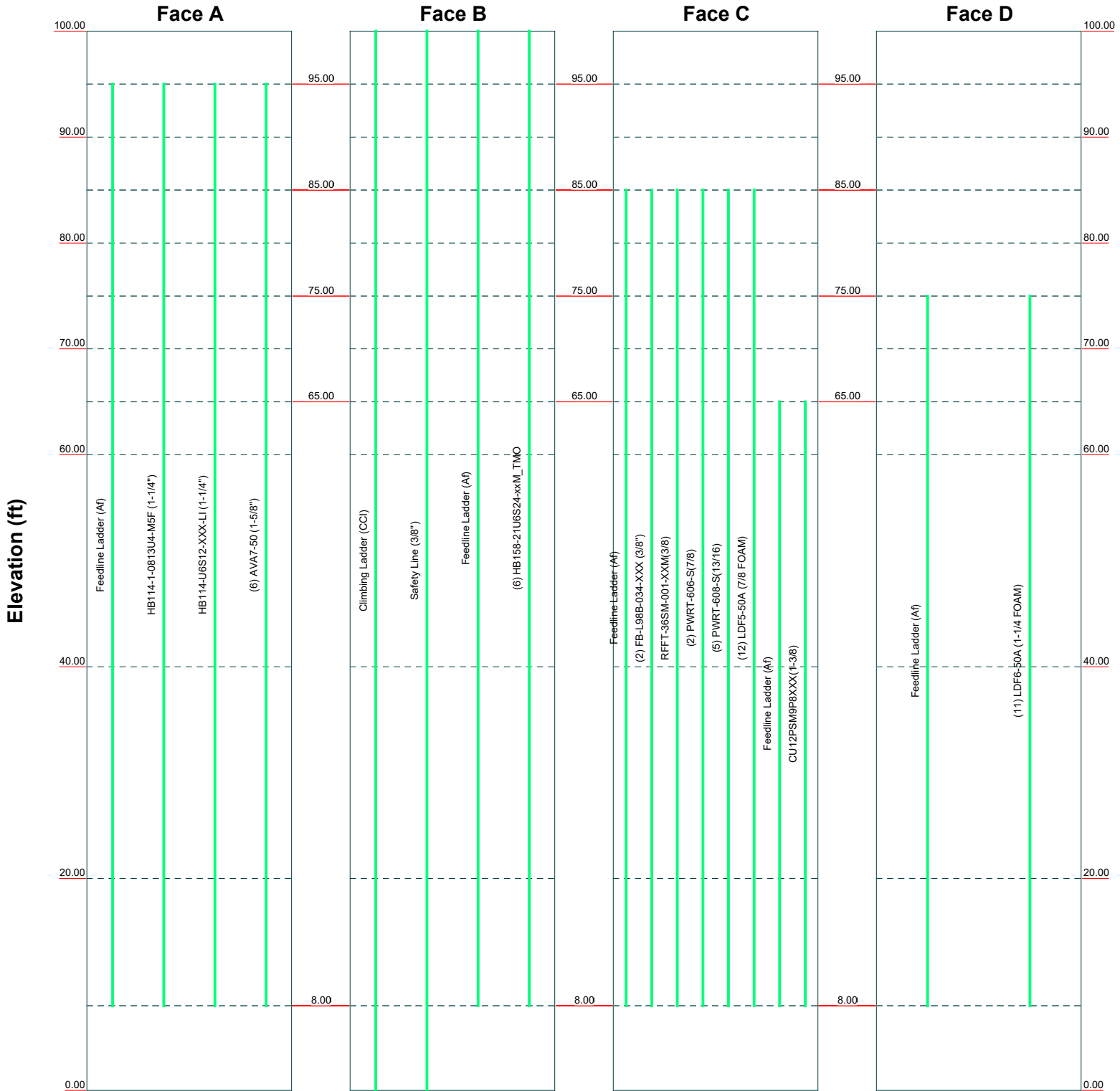
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft

GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (330) 572-2100
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Job: BU #: 800529, CT HAMDEN NORTH CASTLE		
Project: 2022777.800529.15		
Client: Crown Castle	Drawn by: kmocka	App'd:
Code: TIA-222-H	Date: 09/16/22	Scale: NTS
Path: T:\Crown\800529\15\5 Structural\00 Structure\00_Rev 0\03 Modeling\dwg\800529.dwg		Dwg No. E-1

Feed Line Distribution Chart 0' - 100'

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



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	Project: 2022777.800529.15		
	Client: Crown Castle	Drawn by: kmoocka	App'd:
	Code: TIA-222-H	Date: 09/16/22	Scale: NTS
	Path: T:\Crown\800529\156_Structural\00_Structure\00_Structure\003_Modeling\800529.dwg		Dwg No. E-7

<p>tnxTower</p> <p>GPD</p> <p>520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101</p>	<p>Job</p> <p>BU #: 800529, CT HAMDEN NORTH CAC</p>	<p>Page</p> <p>1 of 16</p>
	<p>Project</p> <p>2022777.800529.15</p>	<p>Date</p> <p>09:57:25 09/16/22</p>
	<p>Client</p> <p>Crown Castle</p>	<p>Designed by</p> <p>kmocka</p>

Tower Input Data

The main tower is a 4x free standing tower with an overall height of 100.00 ft above the ground line.

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

The face width of the tower is 9.52 ft at the top and 9.52 ft at the base.

An index plate is provided at the 4 sided -tower connection.

There is a 4 sided latticed pole with a face width of 4.83 ft.

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

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Tower base elevation above sea level: 199.00 ft.

Basic wind speed of 119 mph.

Risk Category II.

Exposure Category C.

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

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.0000 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 latticed pole member design is 1.

Stress ratio used in tower member design is 1.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.

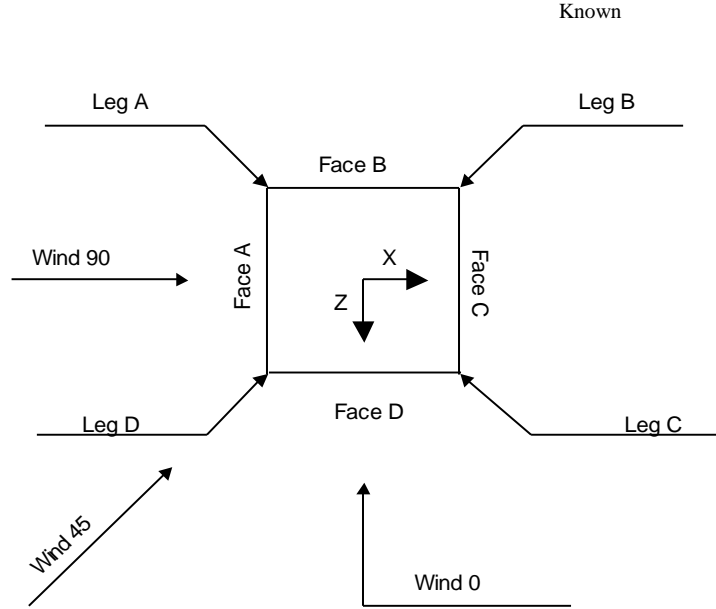
Maximum demand-capacity ratio is: 1.05.

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

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	Client Crown Castle	Designed by kmocka



Square Tower

4 Sided Latticed Pole Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
L1	100.00-90.00			4.83	1	10.00
L2	90.00-80.00			4.83	1	10.00
L3	80.00-70.00			4.83	1	10.00
L4	70.00-60.00			4.83	1	10.00

4 Sided Latticed Pole Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
L1	100.00-90.00	10.00	X Brace	No	Yes	0.0000	0.0000
L2	90.00-80.00	10.00	X Brace	No	Yes	0.0000	0.0000
L3	80.00-70.00	10.00	X Brace	No	Yes	0.0000	0.0000
L4	70.00-60.00	10.00	X Brace	No	Yes	0.0000	0.0000

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	Client Crown Castle	Designed by kmocka

4 Sided Latticed Pole Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
L1 100.00-90.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)
L2 90.00-80.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)
L3 80.00-70.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)
L4 70.00-60.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)

4 Sided Latticed Pole Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
L1 100.00-90.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
L2 90.00-80.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
L3 80.00-70.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
L4 70.00-60.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

4 Sided Latticed Pole Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 100.00-90.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000
L2 90.00-80.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000
L3 80.00-70.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000
L4 70.00-60.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000

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	Client Crown Castle	Designed by kmocka

4 Sided Latticed Pole Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
L1 100.00-90.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
L2 90.00-80.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
L3 80.00-70.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
L4 70.00-60.00	Flange	0.8750 A325N	4	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	60.00-40.00			9.52	1	20.00
T2	40.00-20.00			9.52	1	20.00
T3	20.00-0.00			9.52	1	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	60.00-40.00	20.00	X Brace	No	Yes	0.0000	0.0000
T2	40.00-20.00	20.00	X Brace	No	Yes	0.0000	0.0000
T3	20.00-0.00	20.00	X Brace	No	Yes	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 60.00-40.00	Tube	HSS8x8x1/4	A500-46 (46 ksi)	Double Equal Angle	2L4x4x3/8x1/2	A36 (36 ksi)
T2 40.00-20.00	Tube	HSS8x8x1/4	A500-46 (46 ksi)	Double Equal Angle	2L4x4x3/8x1/2	A36 (36 ksi)
T3 20.00-0.00	Tube	HSS8x8x1/4	A500-46 (46 ksi)	Double Equal Angle	2L4x4x3/8x1/2	A36 (36 ksi)

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	Client Crown Castle	Designed by kmocka

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 60.00-40.00	Wide Flange	W16x45	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T2 40.00-20.00	Wide Flange	W6x12	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T3 20.00-0.00	Wide Flange	W6x12	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 60.00-40.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000
T2 40.00-20.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000
T3 20.00-0.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹							
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace	
				X Y	X Y	X Y	X Y	X Y	X Y	X Y	
T1 60.00-40.00	Yes	No	1	1	1	1	1	1	1	1	1
T2 40.00-20.00	Yes	No	1	1	1	1	1	1	1	1	1
T3 20.00-0.00	Yes	No	1	1	1	1	1	1	1	1	1

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

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Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 60.00-40.00	Flange	0.7500	0	0.8750	2	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2 40.00-20.00	Flange	0.7500	0	0.8750	2	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3 20.00-0.00	Flange	0.7500	0	0.8750	2	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	C _A A _A	Weight plf
Climbing Ladder (CCI)	B	No	No	CaAa (Out Of Face)	100.00 - 0.00	0.0000	0.45	1	No	4.81
									Ice	6.97
									1/2" Ice	9.48
Safety Line (3/8")	B	No	No	CaAa (Out Of Face)	100.00 - 0.00	0.0000	0.45	1	No	0.22
									Ice	0.75
									1/2" Ice	1.28

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	CAAA	Weight	
									ft ² /ft	plf	
Feedline Ladder (Af)	B	No	No	CaAa (Out Of Face)	100.00 - 8.00	0.0000	0	1	Ice		
									1" Ice		
									No	0.00	8.40
HB158-21U6S 24-xxM_TMO	B	No	No	CaAa (Out Of Face)	100.00 - 8.00	0.0000	0	6	Ice		
									1/2"	0.00	13.50
									1/2"	0.00	18.60
Feedline Ladder (Af)	A	No	No	CaAa (Out Of Face)	95.00 - 8.00	0.0000	0	1	Ice		
									1" Ice		
									No	0.00	1.90
HB114-1-081 3U4-M5F (1-1/4")	A	No	No	CaAa (Out Of Face)	95.00 - 8.00	0.0000	0	1	Ice		
									1/2"	0.00	3.42
									1/2"	0.00	5.55
HB114-U6S12 -XXX-LI (1-1/4")	A	No	No	CaAa (Out Of Face)	95.00 - 8.00	0.0000	0	1	Ice		
									1" Ice		
									No	0.00	8.40
AVA7-50 (1-5/8")	A	No	No	CaAa (Out Of Face)	95.00 - 8.00	0.0000	0	6	Ice		
									1/2"	0.00	13.50
									1/2"	0.00	18.60
Feedline Ladder (Af)	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	1	Ice		
									1" Ice		
									No	0.00	1.20
FB-L98B-034-XXX (3/8")	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	2	Ice		
									1/2"	0.00	2.45
									1/2"	0.00	4.30
RFFT-36SM-0 01-XXM(3/8)	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	1	Ice		
									1" Ice		
									No	0.00	1.20
PWRT-606-S(7/8)	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	2	Ice		
									1/2"	0.00	2.45
									1/2"	0.00	4.30
PWRT-608-S(13/16)	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	5	Ice		
									1" Ice		
									No	0.00	0.70
LDF5-50A (7/8 FOAM)	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	12	Ice		
									1/2"	0.00	2.23
									1/2"	0.00	4.38

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	C _{AA} ft ² /ft	Weight plf	
Feedline Ladder (Af)	C	No	No	CaAa (Out Of Face)	65.00 - 8.00	0.0000	0.45	1	Ice		
									1" Ice		
									No	0.00	8.40
CU12PSM9P8 XXX(1-3/8)	C	No	No	CaAa (Out Of Face)	65.00 - 8.00	0.0000	0.45	1	Ice		
									1/2"	0.00	13.50
									1/2"	0.00	18.60
Feedline Ladder (Af)	D	No	No	CaAa (Out Of Face)	75.00 - 8.00	0.0000	0	1	Ice		
									1" Ice		
									No	0.00	8.40
LDF6-50A (1-1/4 FOAM)	D	No	No	CaAa (Out Of Face)	75.00 - 8.00	0.0000	0	11	Ice		
									1/2"	0.00	13.50
									1/2"	0.00	18.60
									Ice		
									1" Ice		
									No	0.00	0.66
									Ice		
									1/2"	0.00	1.91
									1/2"	0.00	3.78
									Ice		
									1" Ice		

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
L1	100.00-90.00	A	0.000	0.000	0.000	0.000	75.00
		B	0.000	0.000	0.000	0.000	248.30
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	0.00
L2	90.00-80.00	A	0.000	0.000	0.000	0.000	150.00
		B	0.000	0.000	0.000	0.000	248.30
		C	0.000	0.000	0.000	0.000	87.22
		D	0.000	0.000	0.000	0.000	0.00
L3	80.00-70.00	A	0.000	0.000	0.000	0.000	150.00
		B	0.000	0.000	0.000	0.000	248.30
		C	0.000	0.000	0.000	0.000	174.45
		D	0.000	0.000	0.000	0.000	78.30
L4	70.00-60.00	A	0.000	0.000	0.000	0.000	150.00
		B	0.000	0.000	0.000	0.000	248.30
		C	0.000	0.000	0.000	0.000	224.75
		D	0.000	0.000	0.000	0.000	156.60
T1	60.00-40.00	A	0.000	0.000	0.000	0.000	300.00
		B	0.000	0.000	0.000	0.000	496.60
		C	0.000	0.000	0.000	0.000	550.10
		D	0.000	0.000	0.000	0.000	313.20
T2	40.00-20.00	A	0.000	0.000	0.000	0.000	300.00
		B	0.000	0.000	0.000	0.000	496.60
		C	0.000	0.000	0.000	0.000	550.10
		D	0.000	0.000	0.000	0.000	313.20
T3	20.00-0.00	A	0.000	0.000	0.000	0.000	180.00
		B	0.000	0.000	0.000	0.000	338.20
		C	0.000	0.000	0.000	0.000	330.06
		D	0.000	0.000	0.000	0.000	187.92

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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 _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight lb
L1	100.00-90.00	A	0.945	0.000	0.000	0.000	0.000	255.39
		B		0.000	0.000	0.000	0.000	603.71
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	0.00
L2	90.00-80.00	A	0.934	0.000	0.000	0.000	0.000	506.24
		B		0.000	0.000	0.000	0.000	599.33
		C		0.000	0.000	0.000	0.000	371.37
		D		0.000	0.000	0.000	0.000	0.00
L3	80.00-70.00	A	0.923	0.000	0.000	0.000	0.000	501.21
		B		0.000	0.000	0.000	0.000	594.47
		C		0.000	0.000	0.000	0.000	734.00
		D		0.000	0.000	0.000	0.000	280.87
L4	70.00-60.00	A	0.910	0.000	0.000	0.000	0.000	495.52
		B		0.000	0.000	0.000	0.000	588.98
		C		0.000	0.000	0.000	0.000	833.95
		D		0.000	0.000	0.000	0.000	555.03
T1	60.00-40.00	A	0.886	0.000	0.000	0.000	0.000	970.62
		B		0.000	0.000	0.000	0.000	1158.24
		C		0.000	0.000	0.000	0.000	1845.61
		D		0.000	0.000	0.000	0.000	1085.94
T2	40.00-20.00	A	0.842	0.000	0.000	0.000	0.000	932.35
		B		0.000	0.000	0.000	0.000	1121.29
		C		0.000	0.000	0.000	0.000	1767.10
		D		0.000	0.000	0.000	0.000	1040.77
T3	20.00-0.00	A	0.754	0.000	0.000	0.000	0.000	513.84
		B		0.000	0.000	0.000	0.000	702.93
		C		0.000	0.000	0.000	0.000	966.75
		D		0.000	0.000	0.000	0.000	570.65

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	100.00-90.00	0.0000	0.0000	0.0000	0.0000
L2	90.00-80.00	0.0000	0.0000	0.0000	0.0000
L3	80.00-70.00	0.0000	0.0000	0.0000	0.0000
L4	70.00-60.00	0.0000	0.0000	0.0000	0.0000
T1	60.00-40.00	0.0000	0.0000	0.0000	0.0000
T2	40.00-20.00	0.0000	0.0000	0.0000	0.0000
T3	20.00-0.00	0.0000	0.0000	0.0000	0.0000

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Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	lb
APXVAA4L18_43-U-NA20_ TMO w/ Mount Pipe	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	156.85
			0.00			1/2" Ice	0.00	0.00	261.21
			4.00			1" Ice	0.00	0.00	374.41
APXVAA4L18_43-U-NA20_ TMO w/ Mount Pipe	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	156.85
			0.00			1/2" Ice	0.00	0.00	261.21
			4.00			1" Ice	0.00	0.00	374.41
APXVAA4L18_43-U-NA20_ TMO w/ Mount Pipe	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	156.85
			0.00			1/2" Ice	0.00	0.00	261.21
			4.00			1" Ice	0.00	0.00	374.41
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	136.53
			0.00			1/2" Ice	0.00	0.00	191.31
			4.00			1" Ice	0.00	0.00	251.99
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	136.53
			0.00			1/2" Ice	0.00	0.00	191.31
			4.00			1" Ice	0.00	0.00	251.99
AIR6449 B41_T-MOBILE w/ Mount Pipe	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	136.53
			0.00			1/2" Ice	0.00	0.00	191.31
			4.00			1" Ice	0.00	0.00	251.99
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	73.21
			0.00			1/2" Ice	0.00	0.00	92.97
			4.00			1" Ice	0.00	0.00	115.64
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	73.21
			0.00			1/2" Ice	0.00	0.00	92.97
			4.00			1" Ice	0.00	0.00	115.64
RADIO 4449 B71 B85A_T-MOBILE	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	73.21
			0.00			1/2" Ice	0.00	0.00	92.97
			4.00			1" Ice	0.00	0.00	115.64
RADIO 4415 B66A_CCIV3	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	46.30
			0.00			1/2" Ice	0.00	0.00	58.71
			4.00			1" Ice	0.00	0.00	73.48
RADIO 4415 B66A_CCIV3	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	46.30
			0.00			1/2" Ice	0.00	0.00	58.71
			4.00			1" Ice	0.00	0.00	73.48
RADIO 4415 B66A_CCIV3	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	46.30
			0.00			1/2" Ice	0.00	0.00	58.71
			4.00			1" Ice	0.00	0.00	73.48
(2) RADIO 2212 B2	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	40.80
			0.00			1/2" Ice	0.00	0.00	55.35
			4.00			1" Ice	0.00	0.00	72.44
(2) RADIO 2212 B2	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	40.80
			0.00			1/2" Ice	0.00	0.00	55.35
			4.00			1" Ice	0.00	0.00	72.44
(2) RADIO 2212 B2	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	40.80
			0.00			1/2" Ice	0.00	0.00	55.35
			4.00			1" Ice	0.00	0.00	72.44
Site Pro 1 P360 Horizontal	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	38.00
			0.00			1/2" Ice	0.00	0.00	47.60
			0.00			1" Ice	0.00	0.00	62.00
Site Pro 1 P360 Horizontal	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	38.00
			0.00			1/2" Ice	0.00	0.00	47.60
			0.00			1" Ice	0.00	0.00	62.00
Site Pro 1 P360 Horizontal	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	38.00
			0.00			1/2" Ice	0.00	0.00	47.60
			0.00			1" Ice	0.00	0.00	62.00

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
Site Pro 1 USF-2U Standoff Frame	A	From Leg	1.00	0.0000	100.00	No Ice	0.00	0.00	128.25
			0.00			1/2" Ice	0.00	0.00	160.30
			0.00			1" Ice	0.00	0.00	192.35
Site Pro 1 USF-2U Standoff Frame	B	From Leg	1.00	0.0000	100.00	No Ice	0.00	0.00	128.25
			0.00			1/2" Ice	0.00	0.00	160.30
			0.00			1" Ice	0.00	0.00	192.35
Site Pro 1 USF-2U Standoff Frame	D	From Leg	1.00	0.0000	100.00	No Ice	0.00	0.00	128.25
			0.00			1/2" Ice	0.00	0.00	160.30
			0.00			1" Ice	0.00	0.00	192.35
BXA-80080/4CF w/ Mount Pipe	A	From	3.00	0.0000	95.00	No Ice	0.00	0.00	39.85
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.34
		g	0.00			1" Ice	0.00	0.00	145.14
BXA-80080/4CF w/ Mount Pipe	C	From	3.00	0.0000	95.00	No Ice	0.00	0.00	39.85
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.34
		g	0.00			1" Ice	0.00	0.00	145.14
BXA-80080/4CF w/ Mount Pipe	D	From	3.00	0.0000	95.00	No Ice	0.00	0.00	39.85
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.34
		g	0.00			1" Ice	0.00	0.00	145.14
(2) JAHH-65B-R3B w/ Mount Pipe	A	From	3.00	0.0000	95.00	No Ice	0.00	0.00	86.15
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	162.72
		g	0.00			1" Ice	0.00	0.00	247.46
(2) JAHH-65B-R3B w/ Mount Pipe	C	From	3.00	0.0000	95.00	No Ice	0.00	0.00	86.15
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	162.72
		g	0.00			1" Ice	0.00	0.00	247.46
(2) JAHH-65B-R3B w/ Mount Pipe	D	From	3.00	0.0000	95.00	No Ice	0.00	0.00	86.15
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	162.72
		g	0.00			1" Ice	0.00	0.00	247.46
MT6407-77A w/ Mount Pipe	A	From	3.00	0.0000	95.00	No Ice	0.00	0.00	95.88
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	135.60
		g	0.00			1" Ice	0.00	0.00	180.44
MT6407-77A w/ Mount Pipe	C	From	3.00	0.0000	95.00	No Ice	0.00	0.00	95.88
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	135.60
		g	0.00			1" Ice	0.00	0.00	180.44
MT6407-77A w/ Mount Pipe	D	From	3.00	0.0000	95.00	No Ice	0.00	0.00	95.88
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	135.60
		g	0.00			1" Ice	0.00	0.00	180.44
CBC78T-DS-43-2X	A	From	3.00	0.0000	95.00	No Ice	0.00	0.00	20.70
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	25.88
		g	0.00			1" Ice	0.00	0.00	31.05
CBC78T-DS-43-2X	C	From	3.00	0.0000	95.00	No Ice	0.00	0.00	20.70
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	25.88
		g	0.00			1" Ice	0.00	0.00	31.05
CBC78T-DS-43-2X	D	From	3.00	0.0000	95.00	No Ice	0.00	0.00	20.70
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	25.88
		g	0.00			1" Ice	0.00	0.00	31.05
RFV01U-D1A	A	From	3.00	0.0000	95.00	No Ice	0.00	0.00	84.40
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	105.50
		g	0.00			1" Ice	0.00	0.00	126.60
RFV01U-D1A	C	From	3.00	0.0000	95.00	No Ice	0.00	0.00	84.40
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	105.50
		g	0.00			1" Ice	0.00	0.00	126.60
RFV01U-D1A	D	From	3.00	0.0000	95.00	No Ice	0.00	0.00	84.40
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	105.50
		g	0.00			1" Ice	0.00	0.00	126.60
RFV01U-D2A	A	From	3.00	0.0000	95.00	No Ice	0.00	0.00	73.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.43
		g	0.00			1" Ice	0.00	0.00	108.53

tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job	BU #: 800529, CT HAMDEN NORTH CAC	Page	13 of 16
	Project	2022777.800529.15	Date	09:57:25 09/16/22
	Client	Crown Castle	Designed by	kmocka

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz Lateral	Vert					
RFV01U-D2A	C	From	3.00	0.0000	95.00	No Ice	0.00	0.00	73.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.43
		g	0.00			1" Ice	0.00	0.00	108.53
RFV01U-D2A	D	From	3.00	0.0000	95.00	No Ice	0.00	0.00	73.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.43
		g	0.00			1" Ice	0.00	0.00	108.53
RFV01U-D2A	A	From	3.00	0.0000	95.00	No Ice	0.00	0.00	73.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.43
		g	3.00			1" Ice	0.00	0.00	108.53
RFV01U-D2A	C	From	3.00	0.0000	95.00	No Ice	0.00	0.00	73.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.43
		g	3.00			1" Ice	0.00	0.00	108.53
RFV01U-D2A	D	From	3.00	0.0000	95.00	No Ice	0.00	0.00	73.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.43
		g	3.00			1" Ice	0.00	0.00	108.53
DB-T1-6Z-8AB-0Z	A	From	3.00	0.0000	95.00	No Ice	0.00	0.00	44.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	80.13
		g	0.00			1" Ice	0.00	0.00	120.22
DB-T1-6Z-8AB-0Z	C	From	3.00	0.0000	95.00	No Ice	0.00	0.00	44.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	80.13
		g	0.00			1" Ice	0.00	0.00	120.22
DMP65R-BU6D w/ Mount Pipe	A	From	3.00	0.0000	85.00	No Ice	0.00	0.00	104.71
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	196.98
		g	0.00			1" Ice	0.00	0.00	297.77
DMP65R-BU6D w/ Mount Pipe	C	From	3.00	0.0000	85.00	No Ice	0.00	0.00	104.71
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	196.98
		g	0.00			1" Ice	0.00	0.00	297.77
DMP65R-BU6D w/ Mount Pipe	D	From	3.00	0.0000	85.00	No Ice	0.00	0.00	104.71
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	196.98
		g	0.00			1" Ice	0.00	0.00	297.77
TPA65R-BU6DA-K w/ Mount Pipe	A	From	3.00	0.0000	85.00	No Ice	0.00	0.00	93.61
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	185.88
		g	0.00			1" Ice	0.00	0.00	286.67
TPA65R-BU6DA-K w/ Mount Pipe	C	From	3.00	0.0000	85.00	No Ice	0.00	0.00	93.61
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	185.88
		g	0.00			1" Ice	0.00	0.00	286.67
TPA65R-BU6DA-K w/ Mount Pipe	D	From	3.00	0.0000	85.00	No Ice	0.00	0.00	93.61
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	185.88
		g	0.00			1" Ice	0.00	0.00	286.67
AIR 6419 B77G_CCIV3 w/ Mount Pipe	A	From	3.00	0.0000	85.00	No Ice	0.00	0.00	57.11
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	95.91
		g	2.00			1" Ice	0.00	0.00	139.63
AIR 6419 B77G_CCIV3 w/ Mount Pipe	C	From	3.00	0.0000	85.00	No Ice	0.00	0.00	57.11
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	95.91
		g	2.00			1" Ice	0.00	0.00	139.63
AIR 6419 B77G_CCIV3 w/ Mount Pipe	D	From	3.00	0.0000	85.00	No Ice	0.00	0.00	57.11
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	95.91
		g	2.00			1" Ice	0.00	0.00	139.63
AIR 6449 B77D_CCIV2 w/ Mount Pipe	A	From	3.00	0.0000	85.00	No Ice	0.00	0.00	94.49
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	133.47
		g	-2.00			1" Ice	0.00	0.00	177.35
AIR 6449 B77D_CCIV2 w/ Mount Pipe	C	From	3.00	0.0000	85.00	No Ice	0.00	0.00	94.49
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	133.47
		g	-2.00			1" Ice	0.00	0.00	177.35
AIR 6449 B77D_CCIV2 w/ Mount Pipe	D	From	3.00	0.0000	85.00	No Ice	0.00	0.00	94.49
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	133.47
		g	-2.00			1" Ice	0.00	0.00	177.35

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Client	Crown Castle	Designed by	kmocka

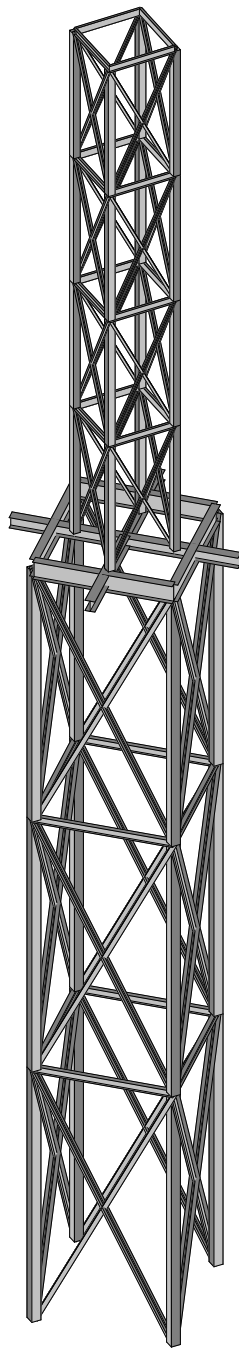
Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	lb
RADIO 4415 B30	A	From	3.00	0.0000	85.00	No Ice	0.00	0.00	42.90
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	54.99
		g	0.00			1" Ice	0.00	0.00	69.43
RADIO 4415 B30	C	From	3.00	0.0000	85.00	No Ice	0.00	0.00	42.90
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	54.99
		g	0.00			1" Ice	0.00	0.00	69.43
RADIO 4415 B30	D	From	3.00	0.0000	85.00	No Ice	0.00	0.00	42.90
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	54.99
		g	0.00			1" Ice	0.00	0.00	69.43
RRUS 32 B2	A	From	3.00	0.0000	85.00	No Ice	0.00	0.00	52.90
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	73.96
		g	0.00			1" Ice	0.00	0.00	98.21
RRUS 32 B2	C	From	3.00	0.0000	85.00	No Ice	0.00	0.00	52.90
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	73.96
		g	0.00			1" Ice	0.00	0.00	98.21
RRUS 32 B2	D	From	3.00	0.0000	85.00	No Ice	0.00	0.00	52.90
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	73.96
		g	0.00			1" Ice	0.00	0.00	98.21
RRUS 4426 B66	A	From	3.00	0.0000	85.00	No Ice	0.00	0.00	48.40
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	61.22
		g	0.00			1" Ice	0.00	0.00	76.43
RRUS 4426 B66	C	From	3.00	0.0000	85.00	No Ice	0.00	0.00	48.40
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	61.22
		g	0.00			1" Ice	0.00	0.00	76.43
RRUS 4426 B66	D	From	3.00	0.0000	85.00	No Ice	0.00	0.00	48.40
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	61.22
		g	0.00			1" Ice	0.00	0.00	76.43
RRUS 4449 B5/B12	A	From	3.00	0.0000	85.00	No Ice	0.00	0.00	71.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.51
		g	0.00			1" Ice	0.00	0.00	110.84
RRUS 4449 B5/B12	C	From	3.00	0.0000	85.00	No Ice	0.00	0.00	71.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.51
		g	0.00			1" Ice	0.00	0.00	110.84
RRUS 4449 B5/B12	D	From	3.00	0.0000	85.00	No Ice	0.00	0.00	71.00
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	89.51
		g	0.00			1" Ice	0.00	0.00	110.84
RRUS 4478 B14_CCIV2	A	From	3.00	0.0000	85.00	No Ice	0.00	0.00	59.40
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	77.01
		g	0.00			1" Ice	0.00	0.00	97.40
RRUS 4478 B14_CCIV2	C	From	3.00	0.0000	85.00	No Ice	0.00	0.00	59.40
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	77.01
		g	0.00			1" Ice	0.00	0.00	97.40
RRUS 4478 B14_CCIV2	D	From	3.00	0.0000	85.00	No Ice	0.00	0.00	59.40
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	77.01
		g	0.00			1" Ice	0.00	0.00	97.40
(2) DC6-48-60-18-8F Surge Suppression Unit	A	From	3.00	0.0000	85.00	No Ice	0.00	0.00	18.90
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	36.62
		g	0.00			1" Ice	0.00	0.00	56.82
DC9-48-60-24-8C-EV	D	From	3.00	0.0000	85.00	No Ice	0.00	0.00	26.20
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	63.27
		g	0.00			1" Ice	0.00	0.00	104.42
A-18A24N-U w/ Mount pipe	A	From	3.00	0.0000	75.00	No Ice	0.00	0.00	43.55
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	88.76
		g	0.00			1" Ice	0.00	0.00	139.53
A-18A24N-U w/ Mount pipe	D	From	3.00	0.0000	75.00	No Ice	0.00	0.00	43.55
		Centroid-Le	0.00			1/2" Ice	0.00	0.00	88.76
		g	0.00			1" Ice	0.00	0.00	139.53

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Project	2022777.800529.15	Date	09:57:25 09/16/22
Client	Crown Castle	Designed by	kmocka

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA		Weight
			Horz	Vert			Front	Side	
			ft	ft	°	ft	ft ²	ft ²	lb
(3) DB844H90E-XY w/ Mount Pipe	A	From Centroid-Le g	3.00	0.00	0.0000	75.00	No Ice	0.00	43.20
			0.00	0.00			1/2" Ice	0.00	90.60
			0.00	0.00			1" Ice	0.00	144.32
(4) DB844H90E-XY w/ Mount Pipe	B	From Centroid-Le g	3.00	0.00	0.0000	75.00	No Ice	0.00	43.20
			0.00	0.00			1/2" Ice	0.00	90.60
			0.00	0.00			1" Ice	0.00	144.32
(3) DB844H90E-XY w/ Mount Pipe	D	From Centroid-Le g	3.00	0.00	0.0000	75.00	No Ice	0.00	43.20
			0.00	0.00			1/2" Ice	0.00	90.60
			0.00	0.00			1" Ice	0.00	144.32
MX08FRO665-21 w/ Mount Pipe	A	From Leg	3.00	0.00	0.0000	65.00	No Ice	0.00	86.40
			0.00	0.00			1/2" Ice	0.00	176.08
			1.00	0.00			1" Ice	0.00	274.11
MX08FRO665-21 w/ Mount Pipe	B	From Leg	3.00	0.00	0.0000	65.00	No Ice	0.00	86.40
			0.00	0.00			1/2" Ice	0.00	176.08
			1.00	0.00			1" Ice	0.00	274.11
MX08FRO665-21 w/ Mount Pipe	D	From Leg	3.00	0.00	0.0000	65.00	No Ice	0.00	86.40
			0.00	0.00			1/2" Ice	0.00	176.08
			1.00	0.00			1" Ice	0.00	274.11
TA08025-B604	A	From Leg	3.00	0.00	0.0000	65.00	No Ice	0.00	63.90
			0.00	0.00			1/2" Ice	0.00	80.65
			-1.00	0.00			1" Ice	0.00	100.10
TA08025-B604	B	From Leg	3.00	0.00	0.0000	65.00	No Ice	0.00	63.90
			0.00	0.00			1/2" Ice	0.00	80.65
			-1.00	0.00			1" Ice	0.00	100.10
TA08025-B604	D	From Leg	3.00	0.00	0.0000	65.00	No Ice	0.00	63.90
			0.00	0.00			1/2" Ice	0.00	80.65
			-1.00	0.00			1" Ice	0.00	100.10
TA08025-B605	A	From Leg	3.00	0.00	0.0000	65.00	No Ice	0.00	75.00
			0.00	0.00			1/2" Ice	0.00	92.97
			1.00	0.00			1" Ice	0.00	113.72
TA08025-B605	B	From Leg	3.00	0.00	0.0000	65.00	No Ice	0.00	75.00
			0.00	0.00			1/2" Ice	0.00	92.97
			1.00	0.00			1" Ice	0.00	113.72
TA08025-B605	D	From Leg	3.00	0.00	0.0000	65.00	No Ice	0.00	75.00
			0.00	0.00			1/2" Ice	0.00	92.97
			1.00	0.00			1" Ice	0.00	113.72
RDIDC-9181-PF-48	A	From Leg	3.00	0.00	0.0000	65.00	No Ice	0.00	21.85
			0.00	0.00			1/2" Ice	0.00	42.90
			2.00	0.00			1" Ice	0.00	66.97
(3) Commscope MTC3975083	C	None			0.0000	65.00	No Ice	0.00	1056.00
							1/2" Ice	0.00	1320.00
							1" Ice	0.00	1650.00
Top Cap	C	None			0.0000	103.40	No Ice	50.27	116.00
							1/2" Ice	50.27	145.00
							1" Ice	50.27	174.00
Tower Silo 90' - 100'	C	None			0.0000	95.00	No Ice	80.00	146.70
							1/2" Ice	80.00	183.38
							1" Ice	80.00	220.06
Tower Silo 80' - 90'	C	None			0.0000	85.00	No Ice	80.00	146.70
							1/2" Ice	80.00	183.38
							1" Ice	80.00	220.06
Tower Silo 70' - 80'	C	None			0.0000	75.00	No Ice	80.00	146.70
							1/2" Ice	80.00	183.38
							1" Ice	80.00	220.06
Tower Silo 60' - 70'	C	None			0.0000	65.00	No Ice	80.00	146.70
							1/2" Ice	80.00	183.38
							1" Ice	80.00	220.06

<p>tnxTower</p> <p>GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101</p>	Job	BU #: 800529, CT HAMDEN NORTH CAC	Page	16 of 16
	Project	2022777.800529.15	Date	09:57:25 09/16/22
	Client	Crown Castle	Designed by	kmocka

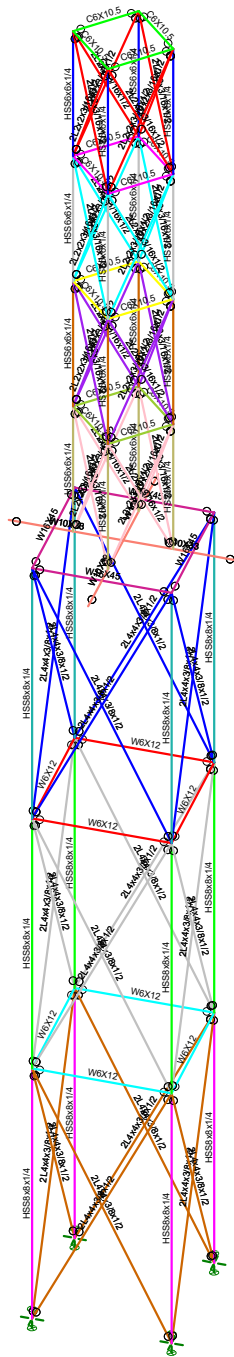
<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight lb</i>
Tower Silo 40' - 60'	C	None		0.0000	50.00	No Ice 160.00 1/2" Ice 160.00 1" Ice 160.00	160.00 160.00 160.00	293.40 366.75 440.10
Tower Silo 20' - 40'	C	None		0.0000	30.00	No Ice 160.00 1/2" Ice 160.00 1" Ice 160.00	160.00 160.00 160.00	293.40 366.75 440.10
Tower Silo 0' - 20'	C	None		0.0000	10.00	No Ice 160.00 1/2" Ice 160.00 1" Ice 160.00	160.00 160.00 160.00	293.40 366.75 440.10



GPD	BU #: 800529, CT HAMDEN NORTH CAC 100' Stealth Self Support Tower	SK - 1
KM		
2022777.800529.15		800529.15.rt3



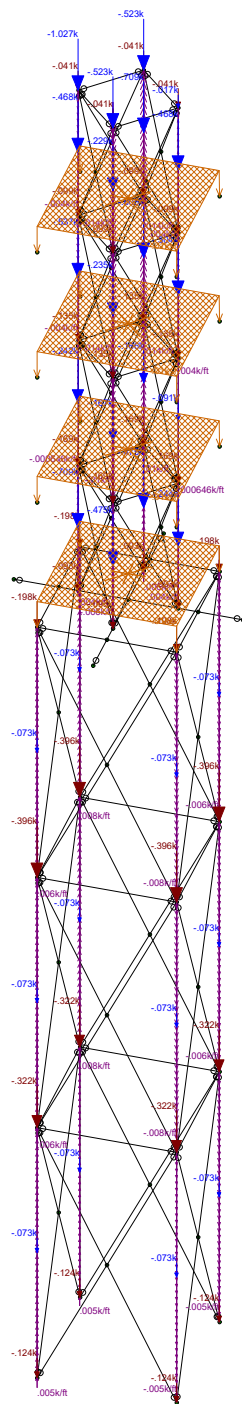
- Section Sets
- TWR_LEG_L1
 - TWR_TOP_GIRT_L1
 - TWR_DIAG_L1
 - TWR_LEG_L2
 - TWR_TOP_GIRT_L2
 - TWR_DIAG_L2
 - TWR_LEG_L3
 - TWR_TOP_GIRT_L3
 - TWR_DIAG_L3
 - TWR_LEG_L4
 - TWR_TOP_GIRT_L4
 - TWR_DIAG_L4
 - TWR_LEG_T1
 - TWR_TOP_GIRT_T1
 - TWR_DIAG_T1
 - TWR_LEG_T2
 - TWR_TOP_GIRT_T2
 - TWR_DIAG_T2
 - TWR_LEG_T3
 - TWR_TOP_GIRT_T3
 - TWR_DIAG_T3



GPD
 KM
 2022777.800529.15

BU #: 800529, CT HAMDEN NORTH CAC
 Members

SK - 2
 800529.15.rt3

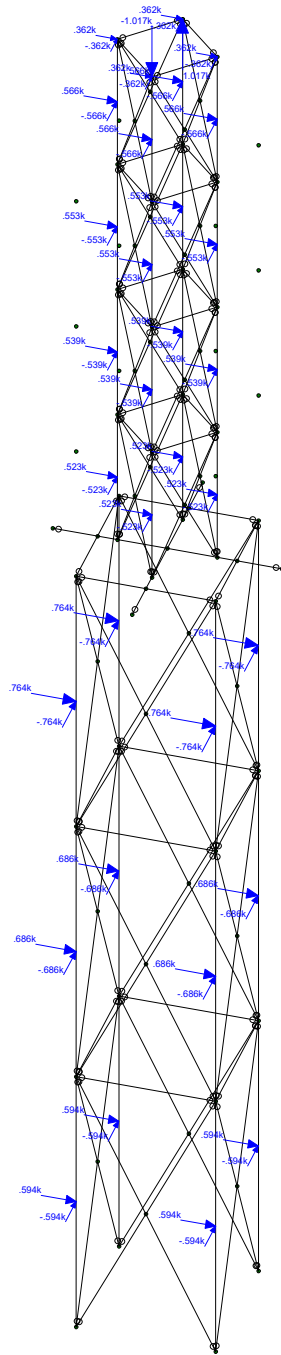


Loads: BLC 1, Dead

GPD
KM
2022777.800529.15

BU #: 800529, CT HAMDEN NORTH CAC
Dead Loads

SK - 3
800529.15.rt3

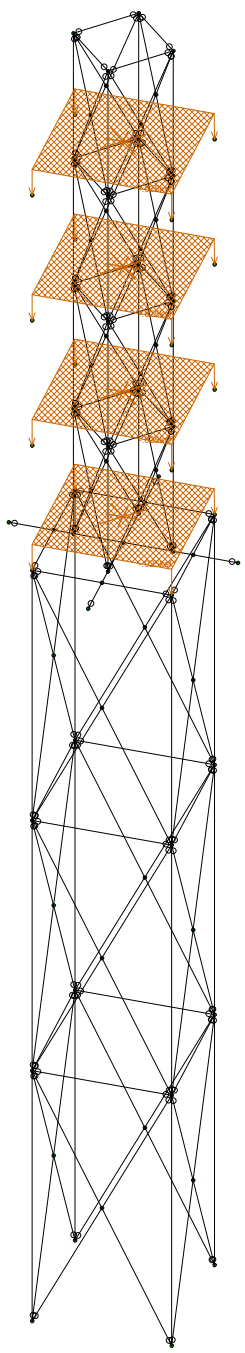


Loads: BLC 3, No Ice Wind 45°

GPD
KM
2022777.800529.15

BU #: 800529, CT HAMDEN NORTH CAC
Example Wind Loading (BLC #3 - Wind @ 45 deg.)

SK - 4
800529.15.rt3



Loads: BLC 19, Live

GPD
KM
2022777.800529.15

BU #: 800529, CT HAMDEN NORTH CAC
Platform Live Loads

SK - 5
800529.15.rt3



Ó[{ }æ^ K ÓÚÖ
 Ô•á}^! K ST
 RáÁ~{ à^! K GGGÍÍÈ ÉÉÍ GJÉÍ
 T[á^Áæ^ K ÓWÁÁ ÉÉ G ÉÖVÁP CEF ÖÖPÁPUÜVP ÁÓÖÖ

Ô@&^áÁÓ'K''''

fj `cVUŁA cXY`GYHjbj gž7 cbHjbi YX

U^a{ aÁ[á^	P[]^
U^a{ aÁOæ^ÁO ^c aá } ÁGd	P[cÁ] c^!^á
OááÁOæ^AY^á @N	Y^•
ÓcY	ÉEG
ÓcZ	ÉEG
VAYAG^&D	P[cÁ] c^!^á
VAZAG^&D	P[cÁ] c^!^á
UAY	H
UAZ	H

<chFc`YX`GhYY`DfcdYfHjYg

	Sæá\	ÓÅ•ă	ÔĂ•ă	P`	V@{ (ÁÉÈ Ö) •ă Ž ĐáHá	YaláŽ•ă	U`	Ø Ž•ă	Uc	
F	ÓÉ ÉÉÍ Í	GJÉÉÉ	FFGÉÉ	ÉJÍ	ÉÍ	ÉJ	ÍÍ	FÉÉ	ÍÍ	FÉÉ
G	ÓÉÍ	GJÉÉÉ	FFGÉÉ	ÉJÍ	ÉÍ	ÉJ	HÍ	FÉÉ	ÍÍ	FÉÉ
H	ÓÉJGÉÉ É	GJÉÉÉ	FFGÉÉ	ÉJÍ	ÉÍ	ÉJ	ÍÉ	FÉÉ	ÍÍ	FÉÉ

<chFc`YX`GhYY`GYWjcb`GYjg

	Sæá\	Ucá^	V]^	Ô•á}Áæc	Tæ!æš	Ô•á} ÉÉÉ Gá Q`Áž ÉÉ: Áž ÉÉVá l á
F	VY U' SOO' SF	PUUI cI cFD	Ó[{}	P[]^	ÓÉ ÉÉÍ Í	V]æš í Éí G Éí G Éí l í Éí
G	VY U' VUU' ÖUV' SF	ÓI YFÉÉ	Óæ	P[]^	ÓÉÍ	V]æš HÉÍ ÉÍ FÍÉÉ ÉÉí
H	VY U' ÖÖÖ' SF	GSGcGcHFI cFEG	Ó[{}	P[]^	ÓÉÍ	V]æš FÉH FÉÉ ÉÍÍ ÉÉÍ
I	VY U' SOO' SG	PUUI cI cFD	Ó[{}	P[]^	ÓÉ ÉÉÍ Í	V]æš í Éí G Éí G Éí l í Éí
Í	VY U' VUU' ÖUV' SG	ÓI YFÉÉ	Óæ	P[]^	ÓÉÍ	V]æš HÉÍ ÉÍ FÍÉÉ ÉÉí
Ī	VY U' ÖÖÖ' SG	GSGcGcHFI cFEG	Ó[{}	P[]^	ÓÉÍ	V]æš FÉH FÉÉ ÉÍÍ ÉÉÍ
İ	VY U' SOO' SH	PUUI cI cFD	Ó[{}	P[]^	ÓÉ ÉÉÍ Í	V]æš í Éí G Éí G Éí l í Éí
İ̇	VY U' VUU' ÖUV' SH	ÓI YFÉÉ	Óæ	P[]^	ÓÉÍ	V]æš HÉÍ ÉÍ FÍÉÉ ÉÉí
J	VY U' ÖÖÖ' SH	GSGcGcHFI cFEG	Ó[{}	P[]^	ÓÉÍ	V]æš FÉH FÉÉ ÉÍÍ ÉÉÍ
F€	VY U' SOO' ŠI	PUUI cI cFD	Ó[{}	P[]^	ÓÉ ÉÉÍ Í	V]æš í Éí G Éí G Éí l í Éí
FF	VY U' VUU' ÖUV' ŠI	ÓI YFÉÉ	Óæ	P[]^	ÓÉÍ	V]æš HÉÍ ÉÍ FÍÉÉ ÉÉí
FG	VY U' ÖÖÖ' ŠI	GSGcGcHFI cFEG	Ó[{}	P[]^	ÓÉÍ	V]æš FÉH FÉÉ ÉÍÍ ÉÉÍ
FH	VY U' SOO' VF	PUUI cI cFD	Ó[{}	P[]^	ÓÉ ÉÉÍ Í	V]æš í Éí í Éí í Éí FFF
FI	VY U' VUU' ÖUV' VF	Y FÍ YÍ	Óæ	P[]^	ÓÉJGÉÉ É	V]æš FHÉH HGÉ ÍÍÍ FÉÉF
FÍ	VY U' ÖÖÖ' VF	Y FÉYHH	Óæ	P[]^	ÓÉJGÉÉ É	V]æš JÉF HÍÉ FÍF ÉÍH
FĪ	VY U' SOO' VG	PUUI cI cFD	Ó[{}	P[]^	ÓÉ ÉÉÍ Í	V]æš í Éí í Éí í Éí FFF
Fİ	VY U' VUU' ÖUV' VG	Y Í YFG	Óæ	P[]^	ÓÉJGÉÉ É	V]æš HÉÍ GÉJ GGF ÉÉJ
FJ	VY U' ÖÖÖ' VG	GSI cI cHD cFEG	Ó[{}	P[]^	ÓÉÍ	V]æš í Éí FJ FJÉÍ í Éí Fí Éí í
G€	VY U' SOO' VH	PUUI cI cFD	Ó[{}	P[]^	ÓÉ ÉÉÍ Í	V]æš í Éí í Éí í Éí FFF
GF	VY U' VUU' ÖUV' VH	Y Í YFG	Óæ	P[]^	ÓÉJGÉÉ É	V]æš HÉÍ GÉJ GGF ÉÉJ
GG	VY U' ÖÖÖ' VH	GSI cI cHD cFEG	Ó[{}	P[]^	ÓÉÍ	V]æš í Éí FJ FJÉÍ í Éí Fí Éí í

A Ya Vyf`Df`ja Ufm8 UU

	Sæá\	ÓRÍ á c	RÁÍ á c	SÁÍ á c	ÚÍ cæ G ÉÉ	U^&á} Úcá^	V]^	Ô•á}ÁæÉ	Tæ!æš	Ô•á}ÁÉ
F	TJ	PG	PH			VY U' ÖÖÖ' SF	Ó[{}	P[]^	ÓÉÍ	V]æš
G	T€	PI	PF			VY U' ÖÖÖ' SF	Ó[{}	P[]^	ÓÉÍ	V]æš
H	TF	PI	PI			VY U' ÖÖÖ' SF	Ó[{}	P[]^	ÓÉÍ	V]æš
I	TFG	PI	PH			VY U' ÖÖÖ' SF	Ó[{}	P[]^	ÓÉÍ	V]æš
Í	TFH	PI	PI			VY U' ÖÖÖ' SF	Ó[{}	P[]^	ÓÉÍ	V]æš

UÖÖHÖÁ^•á} ÁÍ ÉÉ ÁÁÁÁÁÁÁÁÁÁÁÁ Á Uđ`&c`!æÉÉ Uđ`&c`!æÉÉ Uđ`&c`!æÉÉ T[á^!á * á ÉÉÍ GJÉÍ ÉdÁUæ^AG

A Ya Vy' Df ja Ufm8 UU'f7 cbh7bi YXL

Šæ^ \	Q[ã c	R[ã c	S[ã c	U[çæ] GæÈ	Ú^&ç] ÒÚç^	V'] ^	Ô•ã) ÁçÈÈ	T æ] æ	Ô•ã) ÁÈÈ
íì	TG	PI	PH	FH	VY Û' ŠÓÓ' ŠF	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íJ	TH	PÍ	PÍ	GG	VY Û' ŠÓÓ' ŠF	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
í€	TI	PÌ	PÌ	HFI	VY Û' ŠÓÓ' ŠF	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íF	TFI	PFH	PG	II	VY Û' ŠÓÓ' ŠG	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íG	TFI	PF	PI	FH	VY Û' ŠÓÓ' ŠG	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íH	TFJ	PFÍ	PÍ	GG	VY Û' ŠÓÓ' ŠG	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íI	TGE	PFÍ	PÌ	HFI	VY Û' ŠÓÓ' ŠG	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íÍ	THH	PGF	PFH	II	VY Û' ŠÓÓ' ŠH	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íÎ	TH	PGG	PF	FH	VY Û' ŠÓÓ' ŠH	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íï	THÍ	PGH	PFÍ	GG	VY Û' ŠÓÓ' ŠH	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íî	THÌ	PG	PFÍ	HFI	VY Û' ŠÓÓ' ŠH	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íJ	TIJ	PGJ	PGF	II	VY Û' ŠÓÓ' ŠI	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
í€	TÍ€	PH€	PGG	FH	VY Û' ŠÓÓ' ŠI	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íF	TÍF	PHF	PGH	GG	VY Û' ŠÓÓ' ŠI	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íG	TÍG	PHG	PG	HFI	VY Û' ŠÓÓ' ŠI	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íH	TÍI	PH	PH	II	VY Û' ŠÓÓ' VF	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íI	TÍI	PI€	PHJ	FH	VY Û' ŠÓÓ' VF	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íï	TÍI	PIG	PIF	GG	VY Û' ŠÓÓ' VF	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íî	TÍI	PII	PIH	HFI	VY Û' ŠÓÓ' VF	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íJ	TÍF	PIJ	PH	II	VY Û' ŠÓÓ' VG	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íI	TÍG	PI€	PI€	FH	VY Û' ŠÓÓ' VG	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íJ	TÍH	PIF	PIG	GG	VY Û' ŠÓÓ' VG	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
í€	TÍI	PIG	PII	HFI	VY Û' ŠÓÓ' VG	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íF	TJÍ	PIÍ	PIJ	II	VY Û' ŠÓÓ' VH	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íG	TJÌ	PIÌ	PI€	FH	VY Û' ŠÓÓ' VH	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íH	TJJ	PIJ	PIF	GG	VY Û' ŠÓÓ' VH	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íI	TF€€	PI€	PIG	HFI	VY Û' ŠÓÓ' VH	Ó[] ^	P] ^	ÓÈ ÈÈ Í	V'] Áæ
íÍ	TÍ	PF	PH	FÍ€	VY Û' VUÚ' ÓQV' ŠF	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
íÎ	TÍ	PH	PÍ	FÍ€	VY Û' VUÚ' ÓQV' ŠF	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
íï	TÍ	PÍ	PÌ	FÍ€	VY Û' VUÚ' ÓQV' ŠF	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
íî	TÍ	PÌ	PF	FÍ€	VY Û' VUÚ' ÓQV' ŠF	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
íJ	TGF	PG	PI	FÍ€	VY Û' VUÚ' ÓQV' ŠG	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
J€	TGG	PI	PÍ	FÍ€	VY Û' VUÚ' ÓQV' ŠG	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
JF	TGH	PÍ	PÌ	FÍ€	VY Û' VUÚ' ÓQV' ŠG	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
JG	TG	PÌ	PG	FÍ€	VY Û' VUÚ' ÓQV' ŠG	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
JH	THÍ	PFH	PF	FÍ€	VY Û' VUÚ' ÓQV' ŠH	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
JI	THÌ	PF	PFÍ	FÍ€	VY Û' VUÚ' ÓQV' ŠH	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
JÍ	THJ	PFÍ	PFÍ	FÍ€	VY Û' VUÚ' ÓQV' ŠH	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
JÌ	TÍ€	PFÍ	PFH	FÍ€	VY Û' VUÚ' ÓQV' ŠH	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
Jï	TÍH	PGF	PGG	FÍ€	VY Û' VUÚ' ÓQV' ŠI	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
Jî	TÍI	PGG	PGH	FÍ€	VY Û' VUÚ' ÓQV' ŠI	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
JJ	TÍI	PGH	PG	FÍ€	VY Û' VUÚ' ÓQV' ŠI	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
F€€	TÍI	PG	PGF	FÍ€	VY Û' VUÚ' ÓQV' ŠI	Ó•æ	P] ^	ÓÈÍ	V'] Áæ
F€F	TÍJ	PH	PHJ		VY Û' VUÚ' ÓQV' VF	Ó•æ	P] ^	ÓEJGÈ €	V'] Áæ
F€G	TÍ€	PHJ	PIF		VY Û' VUÚ' ÓQV' VF	Ó•æ	P] ^	ÓEJGÈ €	V'] Áæ
F€H	TÍF	PIF	PIH		VY Û' VUÚ' ÓQV' VF	Ó•æ	P] ^	ÓEJGÈ €	V'] Áæ
F€I	TÍG	PIH	PH		VY Û' VUÚ' ÓQV' VF	Ó•æ	P] ^	ÓEJGÈ €	V'] Áæ
F€Í	TÍI	PH	PI€	HÍ€	VY Û' VUÚ' ÓQV' VG	Ó•æ	P] ^	ÓEJGÈ €	V'] Áæ
F€Î	TÍI	PI€	PIG	HÍ€	VY Û' VUÚ' ÓQV' VG	Ó•æ	P] ^	ÓEJGÈ €	V'] Áæ
F€ï	TÍI	PIG	PII	HÍ€	VY Û' VUÚ' ÓQV' VG	Ó•æ	P] ^	ÓEJGÈ €	V'] Áæ
F€î	TÍI	PII	PH	HÍ€	VY Û' VUÚ' ÓQV' VG	Ó•æ	P] ^	ÓEJGÈ €	V'] Áæ
F€J	TF€F	PIJ	PI€		VY Û' VUÚ' ÓQV' VH	Ó•æ	P] ^	ÓEJGÈ €	V'] Áæ



Ó{]æ^ K ÓÚÖ
 Ô•ã)ˆ! K ST
 RãÀ~{ àˆ! K ƒGGİİİÈ ƒÍ GJÈÍ
 T[àˆ/Àæˆ^ K ÓVÁVÁ ƒÍ GJ ÈÖVÁP ƒÍ ÈÖPÁPU ÚVP ÁÖÖĐ

Ô@&ˆáÁÖK''''

A Ya Vy'DfJa Ufm8 UU'f7'cbHbi YXL

Sää\	Qñ ãc Rñ ãc Sñ ãc Ú cæ ãÈ	Ú^&ã) Ò cæ^	V']^	Ô•ã) ÁãÈ	Tæ ãÈ	Ô•ã) ÁÈ
FF€	T F€G	þ € þ F	VY Ü' VUÜ' ÖQV' VH	Ô•æ þ }^	ƒEJGÈ €	V'] ææ
FFF	T F€H	þ F þ G	VY Ü' VUÜ' ÖQV' VH	Ô•æ þ }^	ƒEJGÈ €	V'] ææ
FFG	T F€I	þ G þ J	VY Ü' VUÜ' ÖQV' VH	Ô•æ þ }^	ƒEJGÈ €	V'] ææ
FFH	T FFH	þ Ï þ Í	VY Ü' ƒPÖÜ' ÖÜƒÖ' VF	Ô•æ þ }^	ƒEJGÈ €	V'] ææ
FFI	T FFI	þ Ï þ Í	VY Ü' ƒPÖÜ' ÖÜƒÖ' VF	Ô•æ þ }^	ƒEJGÈ €	V'] ææ
FFÍ	T FFÍ	þ Ï þ Í	VY Ü' ƒPÖÜ' ÖÜƒÖ' VF	Ô•æ þ }^	ƒEJGÈ €	V'] ææ
FFİ	T FFİ	þ Ï þ Í	VY Ü' ƒPÖÜ' ÖÜƒÖ' VF	Ô•æ þ }^	ƒEJGÈ €	V'] ææ

A Ya Vy'5Xj UbWX'8 UHU

Sää\	Qñ ãc Rñ ãc Sñ ãc Ú cæ ãÈ	Ú^&ã) Ò cæ^	V']^	Ô•ã) ÁãÈ	Tæ ãÈ	Ô•ã) ÁÈ
F	T J	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
G	T F€	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
H	T FF	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
I	T FG	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
Í	T FH	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
Ï	T FI	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
Í	T FÍ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
İ	T Fİ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
J	T G	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
F€	T G	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
FF	T G	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
FG	T G	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
FH	T GJ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
FI	T H€	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
FÍ	T HF	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
Fİ	T HG	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
FÏ	T IF	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
FÌ	T IG	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
FJ	T IH	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
G€	T II	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
GF	T IÍ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
GG	T IÏ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
GH	T Iİ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
G	T IÌ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
G	T IÏ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
G	T Iİ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
G	T IÍ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
G	T I€	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
GJ	T IF	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
H€	T IG	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
HF	T IH	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
HG	T II	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
HH	T IÌ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
HI	T IÏ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
HÍ	T IÍ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
Hİ	T IÏ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
H	T IÌ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
H	T IÏ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
H	T Iİ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
H	T IÍ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
HJ	T IJ	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^
I€	T I€	Ô•} Úƒ	Y^	ÈÁP ƒÁÈ		þ } ^



Ó{ }æ^ K ÓÚÓ
 Ó•ã}^! K ST
 R àÁ~{ à^! K ÖGGÍÍË ÉÍ GJÉÍ
 T[á^!Áæ^ K ÓWÁÁ ÉÍ GJÉÓVÁPEF ÖÖPÁPUÚVP ÁÓÖ

Ó@&^áÁÓ'K''''

A Ya Vyf'5Xj UbWX'8 UuF7'cbHbi YXl

	Sææ^	Á^!Áæ^	RÚ^!Áæ^	Á^!Áæ^ á	RÁ^!Áæ^ á	VEÓÁU}r	Ú@•ææ Ö^!Áæ^ÁU	áÉÉÓæp•á ÁÉÉ	Qæ&æ^	Úã{ æÉÉ
I F	T I J	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I G	T J €	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I H	T J F	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I I	T J G	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Í	T J H	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Î	T J I	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Ï	T J Í	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Ë	T J Î	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I L	T F É	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I €	T F É	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I F	T F É	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I G	T F É	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I H	T F É	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I I	T F F É	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Í	T F F F	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Î	T F F G	Ó } Ú	Ó } Ú				Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Ï	T F						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I J	T G						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I J	T H						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I €	T I						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I F	T Í						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I G	T Í						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I H	T F J						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I I	T G É						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Í	T H H						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Î	T H I						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Ï	T H Í						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Ë	T H Î						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I J	T I J	Ó } Ú					Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I €	T Í €	Ó } Ú					Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I F	T Í F	Ó } Ú					Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I G	T Í G	Ó } Ú					Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I H	T Í Í						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I I	T Í Í						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Î	T Í Í						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Ï	T Í Í						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I J	T Í F						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I J	T Í G						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I J	T Í H						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I €	T Í I						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I F	T J Í						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I G	T J Í						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I H	T J J						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I I	T F É É						Ý^.	ÉÁÓÓÁÉÉ		P[] ^
I Í	T Í	Ó } Ú	Ó } Ú				Ý^.			P[] ^
I Î	T Í	Ó } Ú	Ó } Ú				Ý^.			P[] ^
I Ï	T Í	Ó } Ú	Ó } Ú				Ý^.			P[] ^
I J	T Í	Ó } Ú	Ó } Ú				Ý^.			P[] ^
I J	T G F	Ó } Ú	Ó } Ú				Ý^.			P[] ^
J €	T G G	Ó } Ú	Ó } Ú				Ý^.			P[] ^
J F	T G H	Ó } Ú	Ó } Ú				Ý^.			P[] ^
J G	T G I	Ó } Ú	Ó } Ú				Ý^.			P[] ^

A Ya Vyf 5 Xj Ub WX 8 Uu f7 cbhbi YXL

Sää^	Á\^æ^	RÜ\^æ^	Á→^çá	ÁU→^çá	VEÓÁU}	Ú@•æá	Ö\ÁæáÁU	caEEÇáç•áÁÈÈ	Qæçá^	Ú^á{ æÈÈ
JH	THİ	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
Jl	THİ	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
JÍ	THJ	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
Jİ	Tİ€	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
JĪ	TÍH	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
Jì	TÌI	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
JJ	TÍÍ	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
F€€	TÍÍ	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
F€F	TÍJ	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
F€G	Tİ€	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
F€H	TİF	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
F€I	TİG	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
F€Í	TİÍ	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
F€Ī	TĪH	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
F€ì	TÌI	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
F€J	TÍJ	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
FF€	TFG	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
FFF	TFH	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
FFG	TFI	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
FFH	TFH	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
FFI	TFI	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
FFĪ	TFFÍ	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^
FFì	TFFÌ	Ó}ÚØ	Ó}ÚØ			Ÿ^.				P[]^

<chFc`YX`GhYY`8 Yg|| b`DUfUa Yhfg

Sää^	Úçá^	Š)*çá	Šá^^Zá	Šá::Zá	Š&{ }Á	ŠcaŠ&{ }Á	čcaŠ&{ }Á	Š~ÈS^	S::	Óa	Ø}ÈÈ
F	TJ	VY Ü' ÖÖÖ' ŠF	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
G	T€	VY Ü' ÖÖÖ' ŠF	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
H	TF	VY Ü' ÖÖÖ' ŠF	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
I	TFG	VY Ü' ÖÖÖ' ŠF	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
Í	TFH	VY Ü' ÖÖÖ' ŠF	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
İ	TFI	VY Ü' ÖÖÖ' ŠF	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
Ī	TFÍ	VY Ü' ÖÖÖ' ŠF	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
ì	TFÌ	VY Ü' ÖÖÖ' ŠF	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
J	TG	VY Ü' ÖÖÖ' ŠG	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
F€	TG	VY Ü' ÖÖÖ' ŠG	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
FF	TG	VY Ü' ÖÖÖ' ŠG	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
FG	TG	VY Ü' ÖÖÖ' ŠG	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
FH	TGJ	VY Ü' ÖÖÖ' ŠG	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
FI	THE	VY Ü' ÖÖÖ' ŠG	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
FÍ	TFH	VY Ü' ÖÖÖ' ŠG	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
FĪ	TFH	VY Ü' ÖÖÖ' ŠG	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
Fì	TFI	VY Ü' ÖÖÖ' ŠH	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
Fİ	TIG	VY Ü' ÖÖÖ' ŠH	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
FJ	TIH	VY Ü' ÖÖÖ' ŠH	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
G€	TI	VY Ü' ÖÖÖ' ŠH	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
GF	TI	VY Ü' ÖÖÖ' ŠH	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
GG	TI	VY Ü' ÖÖÖ' ŠH	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ
GH	TI	VY Ü' ÖÖÖ' ŠH	FFÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	I ÈÈ	FÈÈ	F	Šää^ÈÈ

<chFc`YX'GhY'8 Ygll b'DU'Ua Yhfg'f' cbh}bi YXL

	Šaa\]	Ù@q^	Š\)* cǎcá	Šà˘˘ Žcá	Šà:: Žcá	Š&[] Á]	ŽcaŠ&[] Á]	cžcaŠ&[] Á]	cžcaŠ&[] Á]	Š::	Óa	Ø } ÈÈ
G	Tll	VY Û' ÖÓÖ' ŠH	FFÉÍ	I È	I È	I È	I È	I È	I È	F ÈI	F	Šaa˘ ÈÈ
Ğ	Tll	VY Û' ÖÓÖ' ŠI	FFÉÍ	I È	I È	I È	I È	I È	I È	F ÈI	F	Šaa˘ ÈÈ
Ġ	Tll	VY Û' ÖÓÖ' ŠI	FFÉÍ	I È	I È	I È	I È	I È	I È	F ÈI	F	Šaa˘ ÈÈ
Ģ	TlJ	VY Û' ÖÓÖ' ŠI	FFÉÍ	I È	I È	I È	I È	I È	I È	F ÈI	F	Šaa˘ ÈÈ
Ĥ	Tl€	VY Û' ÖÓÖ' ŠI	FFÉÍ	I È	I È	I È	I È	I È	I È	F ÈI	F	Šaa˘ ÈÈ
Ķ	TlF	VY Û' ÖÓÖ' ŠI	FFÉÍ	I È	I È	I È	I È	I È	I È	F ÈI	F	Šaa˘ ÈÈ
Ħ	TlG	VY Û' ÖÓÖ' ŠI	FFÉÍ	I È	I È	I È	I È	I È	I È	F ÈI	F	Šaa˘ ÈÈ
HF	TlH	VY Û' ÖÓÖ' ŠI	FFÉÍ	I È	I È	I È	I È	I È	I È	F ÈI	F	Šaa˘ ÈÈ
HG	Tll	VY Û' ÖÓÖ' ŠI	FFÉÍ	I È	I È	I È	I È	I È	I È	F ÈI	F	Šaa˘ ÈÈ
HH	TlH	VY Û' ÖÓÖ' VF	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
HI	Tll	VY Û' ÖÓÖ' VF	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
Hl	Tll	VY Û' ÖÓÖ' VF	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
Hġ	Tll	VY Û' ÖÓÖ' VF	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
HĢ	Tll	VY Û' ÖÓÖ' VF	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
HĤ	Tll	VY Û' ÖÓÖ' VF	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
HĦ	Tll	VY Û' ÖÓÖ' VF	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
HJ	TlJ	VY Û' ÖÓÖ' VF	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
I€	Tl€	VY Û' ÖÓÖ' VF	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
lF	TlJ	VY Û' ÖÓÖ' VG	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
lG	TJ€	VY Û' ÖÓÖ' VG	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
lH	TJF	VY Û' ÖÓÖ' VG	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TJG	VY Û' ÖÓÖ' VG	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TJH	VY Û' ÖÓÖ' VG	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TJl	VY Û' ÖÓÖ' VG	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TJl	VY Û' ÖÓÖ' VG	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TJl	VY Û' ÖÓÖ' VG	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TJl	VY Û' ÖÓÖ' VG	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
lJ	TJ€	VY Û' ÖÓÖ' VH	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
l€	TJ€	VY Û' ÖÓÖ' VH	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
lF	TJ€	VY Û' ÖÓÖ' VH	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
lG	TJ€	VY Û' ÖÓÖ' VH	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
lH	TJ€	VY Û' ÖÓÖ' VH	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TFF€	VY Û' ÖÓÖ' VH	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TFF€	VY Û' ÖÓÖ' VH	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TFF€	VY Û' ÖÓÖ' VH	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TFFG	VY Û' ÖÓÖ' VH	GGH F	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈEG	FÈI	F	Šaa˘ ÈÈ
ll	TF	VY Û' ŠOO' ŠF	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
ll	TG	VY Û' ŠOO' ŠF	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
ll	TH	VY Û' ŠOO' ŠF	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
l€	TI	VY Û' ŠOO' ŠF	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
lF	TFl	VY Û' ŠOO' ŠG	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
lG	TFl	VY Û' ŠOO' ŠG	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
lH	TFJ	VY Û' ŠOO' ŠG	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
ll	TG€	VY Û' ŠOO' ŠG	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
ll	THH	VY Û' ŠOO' ŠH	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
ll	TH	VY Û' ŠOO' ŠH	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
ll	Th	VY Û' ŠOO' ŠH	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
ll	Th	VY Û' ŠOO' ŠH	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
lJ	TlJ	VY Û' ŠOO' ŠI	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
l€	Tl€	VY Û' ŠOO' ŠI	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
lF	TlF	VY Û' ŠOO' ŠI	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
lG	TlG	VY Û' ŠOO' ŠI	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	FÈ	Šaa˘ ÈÈ
lH	Tll	VY Û' ŠOO' VF	GÈ	GÈ	GÈ	GÈ	GÈ	GÈ	GÈ	GÈ	FÈ	Šaa˘ ÈÈ
ll	Tll	VY Û' ŠOO' VF	GÈ	GÈ	GÈ	GÈ	GÈ	GÈ	GÈ	GÈ	FÈ	Šaa˘ ÈÈ
ll	Tll	VY Û' ŠOO' VF	GÈ	GÈ	GÈ	GÈ	GÈ	GÈ	GÈ	GÈ	FÈ	Šaa˘ ÈÈ

ÙÓÓÈ ÓÁ˘•ǎ] Á] È È ÁÁÁÁ/ÁÁÁÁ F l á 'Ud˘ &ć]áá€€ Ud˘ &ć]áá€€ Ü˘q'€áH T [ǎ˘/Áǎǎ * á eéI GJEÍ Èd˘ÁUá˘^Á

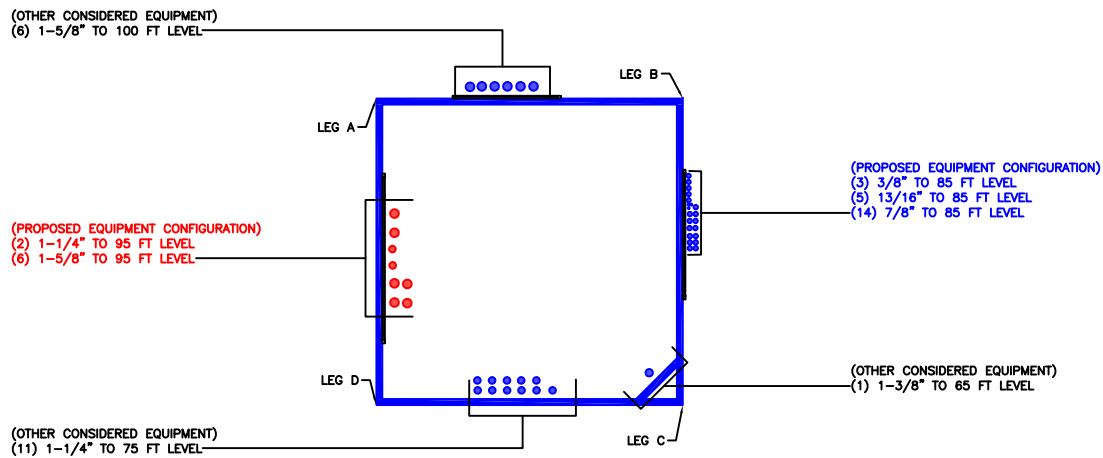
<chFc`YX'GhY'8 YgJ| b'DU'Ua Yhfg'f' cbh|bi YXL

Šaa^	Ú@á^	Š) * cZca	Ša^ Zca	Ša: : Zca	Š&[] Á	ZcaŠ&[] Á	cZcaŠ&[] Á	ŠÈS^	S: :	Ôa	Ø } ÈÈ
İİ	Tİİ	VY Ü' ŠÖÖ' VF	GE	GE	GE	GE	GE	GE	F	F	Šaa^ ÈÈ
İİ	TİF	VY Ü' ŠÖÖ' VG	GE	GE	GE	GE	GE	GE	F	F	Šaa^ ÈÈ
İİ	TİG	VY Ü' ŠÖÖ' VG	GE	GE	GE	GE	GE	GE	F	F	Šaa^ ÈÈ
İJ	TİH	VY Ü' ŠÖÖ' VG	GE	GE	GE	GE	GE	GE	F	F	Šaa^ ÈÈ
İ€	TİI	VY Ü' ŠÖÖ' VG	GE	GE	GE	GE	GE	GE	F	F	Šaa^ ÈÈ
İF	TJİ	VY Ü' ŠÖÖ' VH	GE	GE	GE	GE	GE	GE	F	F	Šaa^ ÈÈ
İG	TJİ	VY Ü' ŠÖÖ' VH	GE	GE	GE	GE	GE	GE	F	F	Šaa^ ÈÈ
İH	TJJ	VY Ü' ŠÖÖ' VH	GE	GE	GE	GE	GE	GE	F	F	Šaa^ ÈÈ
İI	TFE€	VY Ü' ŠÖÖ' VH	GE	GE	GE	GE	GE	GE	F	F	Šaa^ ÈÈ
İÍ	TÍ	VY Ü' VUÜ' ÖÜV' ŠF	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
İÎ	TÎ	VY Ü' VUÜ' ÖÜV' ŠF	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
İÏ	TÏ	VY Ü' VUÜ' ÖÜV' ŠF	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
İÌ	TÌ	VY Ü' VUÜ' ÖÜV' ŠF	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
İJ	TGF	VY Ü' VUÜ' ÖÜV' ŠG	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
J€	TGG	VY Ü' VUÜ' ÖÜV' ŠG	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
JF	TGH	VY Ü' VUÜ' ÖÜV' ŠG	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
JG	TG	VY Ü' VUÜ' ÖÜV' ŠG	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
JH	TH	VY Ü' VUÜ' ÖÜV' ŠH	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
JI	TH	VY Ü' VUÜ' ÖÜV' ŠH	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
JÍ	THJ	VY Ü' VUÜ' ÖÜV' ŠH	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
JÎ	TI€	VY Ü' VUÜ' ÖÜV' ŠH	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
JÏ	TİH	VY Ü' VUÜ' ÖÜV' Š	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
JÌ	TÌI	VY Ü' VUÜ' ÖÜV' Š	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
JJ	TÌI	VY Ü' VUÜ' ÖÜV' Š	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
F€€	TİI	VY Ü' VUÜ' ÖÜV' Š	İÈH	İÈH	İÈH	İÈH	İÈH	İÈH	F	F	Šaa^ ÈÈ
F€F	TİJ	VY Ü' VUÜ' ÖÜV' VF	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
F€G	Tİ€	VY Ü' VUÜ' ÖÜV' VF	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
F€H	TİF	VY Ü' VUÜ' ÖÜV' VF	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
F€I	TİG	VY Ü' VUÜ' ÖÜV' VF	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
F€I	TII	VY Ü' VUÜ' ÖÜV' VG	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
F€I	TII	VY Ü' VUÜ' ÖÜV' VG	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
F€I	TII	VY Ü' VUÜ' ÖÜV' VG	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
F€I	TII	VY Ü' VUÜ' ÖÜV' VG	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
F€J	T€F	VY Ü' VUÜ' ÖÜV' VH	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
F€€	T€G	VY Ü' VUÜ' ÖÜV' VH	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
FFF	T€H	VY Ü' VUÜ' ÖÜV' VH	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
FFG	T€I	VY Ü' VUÜ' ÖÜV' VH	JÈG	İÈI	İÈI	İÈI	İÈI	İÈI	F	F	Šaa^ ÈÈ
FFH	TFFH	VY Ü' ÖPÖÜ' ÖÜÖÖ' VF	İÈFH	İÈFH	İÈFH	İÈFH	İÈFH	İÈFH	GÈ	GÈ	Šaa^ ÈÈ
FFI	TFFI	VY Ü' ÖPÖÜ' ÖÜÖÖ' VF	İÈFH	İÈFH	İÈFH	İÈFH	İÈFH	İÈFH	GÈ	GÈ	Šaa^ ÈÈ
FFI	TFFI	VY Ü' ÖPÖÜ' ÖÜÖÖ' VF	İÈFH	İÈFH	İÈFH	İÈFH	İÈFH	İÈFH	GÈ	GÈ	Šaa^ ÈÈ
FFI	TFFI	VY Ü' ÖPÖÜ' ÖÜÖÖ' VF	İÈFH	İÈFH	İÈFH	İÈFH	İÈFH	İÈFH	GÈ	GÈ	Šaa^ ÈÈ

6 Ug|W@ UX'7 UgYg

	ÓŠÖÁÖ•&áç)	Ôæ*[] ^	YÁÖIæááÁÖIæááÁÖIæáá	Rãc	Ú[ãc	ÔãdãÈÈÖIæáç ÈÈÈ' IæáçÚIæáç ÈÈÈ	
F	ÖIæá	ÖS	È	İİ	Hİ	G	I
G	P[ÁÖÁYãáÁ€»	P[] ^			Hİ		
H	P[ÁÖÁYãáÁI»	P[] ^			Hİ		
I	P[ÁÖÁYãáÁI€»	P[] ^			Hİ		
Í	P[ÁÖÁYãáÁFH»	P[] ^			Hİ		
Î	P[ÁÖÁYãáÁI€»	P[] ^			Hİ		

APPENDIX B
BASE LEVEL DRAWING



CROWN REGION ADDRESS

USA

5 4 3 2 1 0

28/04/20	UPDATED PER WORK ORDER 1862625
27/04/20	UPDATED PER WORK ORDER 1862117
31/04/20	UPDATED PER WORK ORDER 1862464
18/11/20	UPDATED PER WORK ORDER 1868333
19/02/21	UPDATED PER WORK ORDER 1928070
19/03/21	UPDATED PER WORK ORDER 1928007
12/06/21	UPDATED PER WORK ORDER 2014452
07/04/22	UPDATED PER WORK ORDER 2082644

DRAWN BY: AAM
CHECKED BY:
DRAWING DATE: 19/05/06

SITE NUMBER:

SITE NAME:

CT HAMDEN NORTH CAC

BUSINESS UNIT NUMBER:

800529

SITE ADDRESS:

890 EVERGREEN AVENUE
HAMDEN, CT 06518
NEW HAVEN COUNTY
USA

SHEET TITLE:

BASE LEVEL DRAWING

SHEET NUMBER:

N.T.S.

A1-0

APPENDIX C
ADDITIONAL CALCULATIONS

Bolt Checks

Section #	Elevation	Component Type	Bolt Grade	Bolt Size (in)	# of Bolts	Maximum Load (k)	Maximum Load per Bolt (k)	Allowable Load per Bolt (k)	Ratio	Allowable Ratio	% Capacity	Criteria
L1	100	Diagonal	A325N	0.875	2	2.197	1.098	15.588	0.070	1.000	6.7%	1.05
L2	90	Diagonal	A325N	0.875	2	4.7	2.35	15.588	0.151	1.000	14.4%	1.05
L3	80	Diagonal	A325N	0.875	2	6.886	3.443	15.588	0.221	1.000	21.0%	1.05
L4	70	Leg	A325N	0.875	4	43.11	21.555	41.556	0.519	1.000	49.4%	1.05
		Diagonal	A325N	0.875	2	9.143	4.572	15.588	0.293	1.000	27.9%	1.05
T1	60	Diagonal	A325N	0.875	2	16.688	8.344	41.372	0.202	1.000	19.2%	1.05
T2	40	Top Girt	A325N	0.875	2	13.747	6.874	24.354	0.282	1.000	26.9%	1.05
		Diagonal	A325N	0.875	2	23.566	11.783	41.372	0.285	1.000	27.1%	1.05
T3	20	Top Girt	A325N	0.875	2	21.676	10.838	24.354	0.445	1.000	42.4%	1.05
		Diagonal	A325N	0.875	2	33.82	16.91	41.372	0.409	1.000	38.9%	1.05
											Maximum Capacity	49.4%

Self Support Anchor Rod Capacity



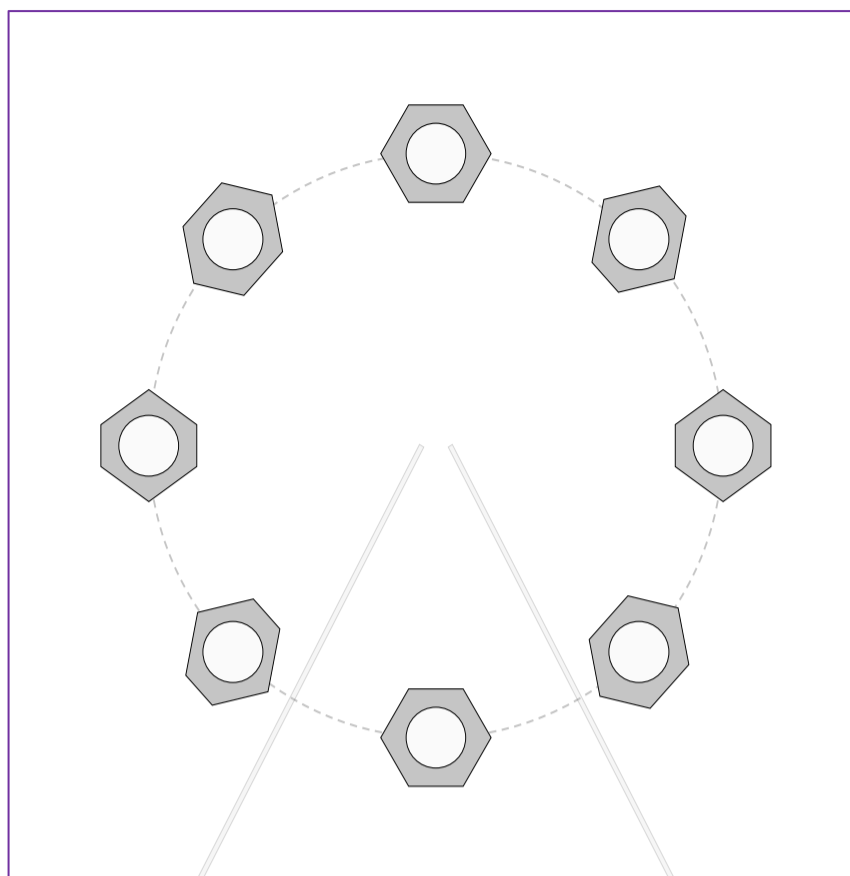
Site Info	
BU #	800529
Site Name	T HAMDEN NORTH CA
Order #	623990 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	0

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	132.61	106.66
Shear Force (kips)	20.63	11.66

Considered Eccentricity	
Leg Mod Eccentricity (in)	0.000
Anchor Rod N.A Shift (in)	0.000
Total Eccentricity (in)	0.000

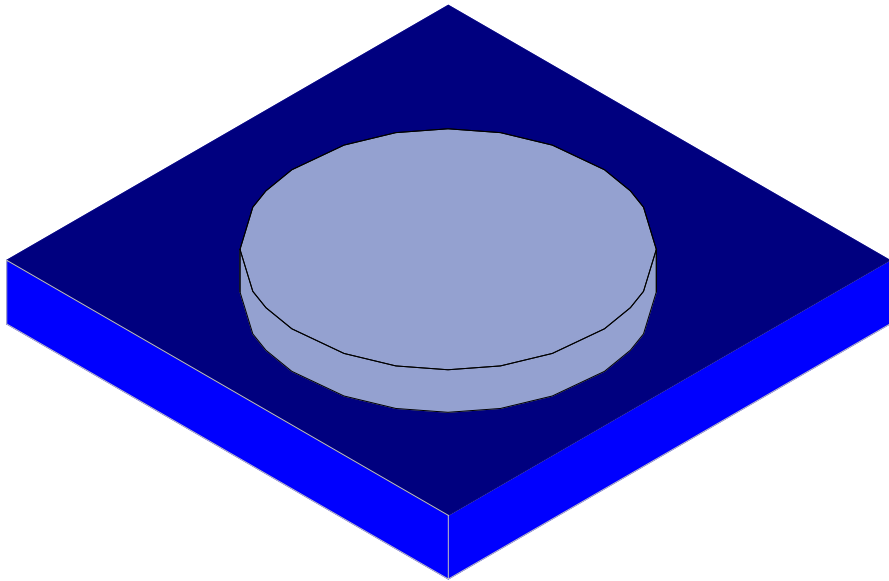
*Anchor Rod Eccentricity Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data	
(8) 1-1/4" ϕ bolts (A36 N; Fy=36 ksi, Fu=58 ksi)	
l_{ar} (in):	0

Anchor Rod Summary			<i>(units of kips, kip-in)</i>
$Pu_t = 13.33$	$\phi Pn_t = 42.15$	Stress Rating	
$Vu = 1.46$	$\phi Vn = 26.69$	31.6%	
$Mu = n/a$	$\phi Mn = n/a$	Pass	



Results for LC 1, 1.4 D

GPD

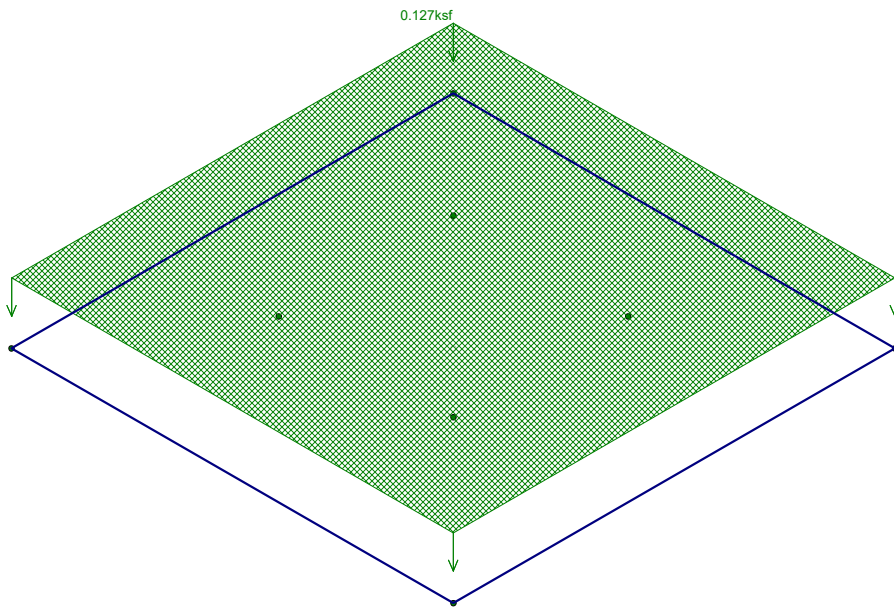
KM

2022777.800529.15

CT HAMDEN NORTH CAC
Tower Foundation

SK - 1

800529.fnd



Loads: DL - Dead Load
Results for LC 1, 1.4 D

GPD

KM

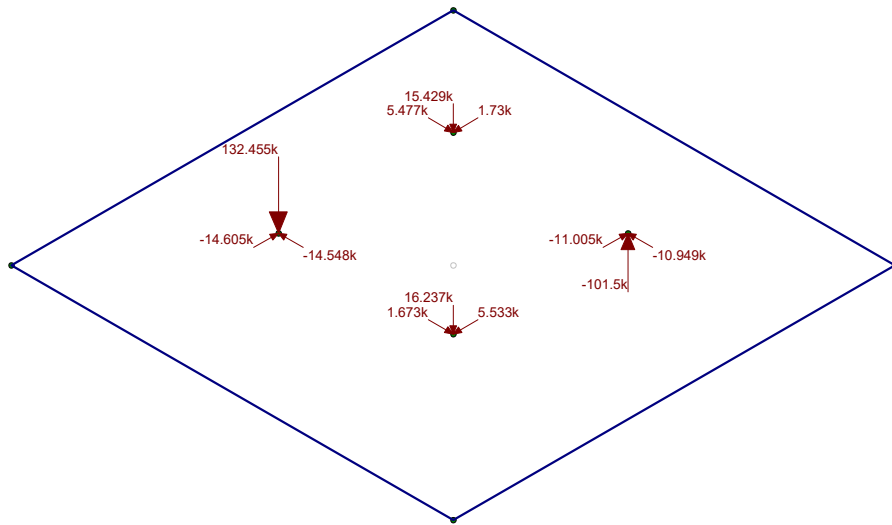
2022777.800529.15

CT HAMDEN NORTH CAC

Soil Dead Load

SK - 2

800529.fnd



Loads: OL9 - Other Load 9
Results for LC 1, 1.4 D

GPD

KM

2022777.800529.15

CT HAMDEN NORTH CAC
Tower Leg Forces

SK - 3

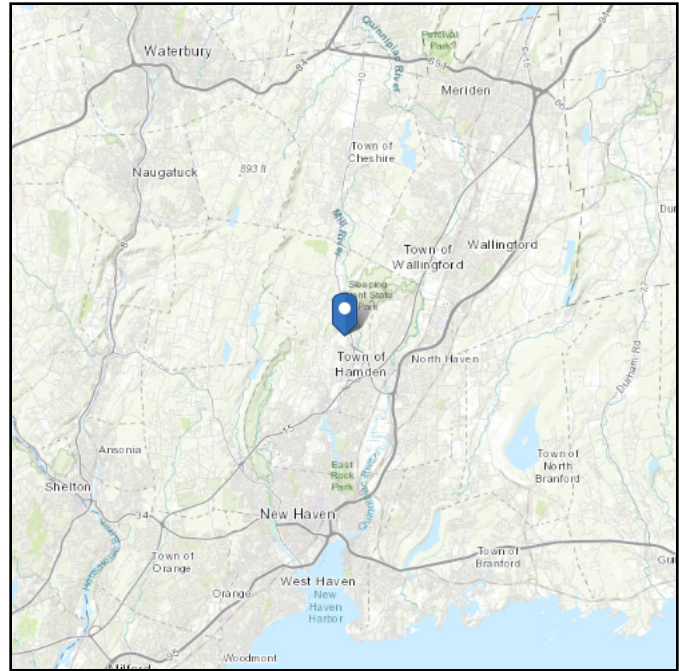
800529.fnd

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 205.84 ft (NAVD 88)
Latitude: 41.406639
Longitude: -72.904533



Wind

Results:

Wind Speed:	119 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Fri Sep 10 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 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

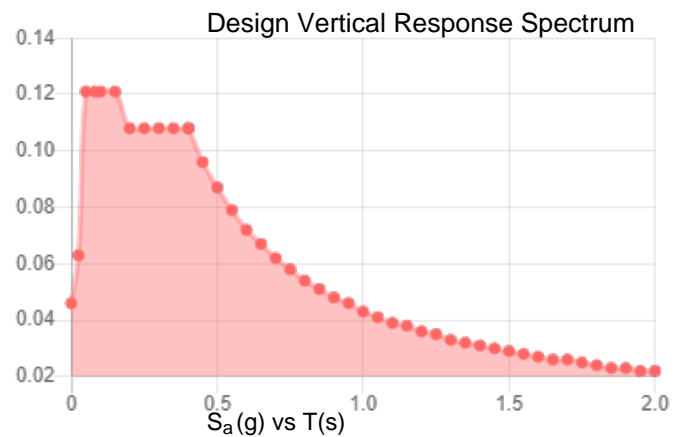
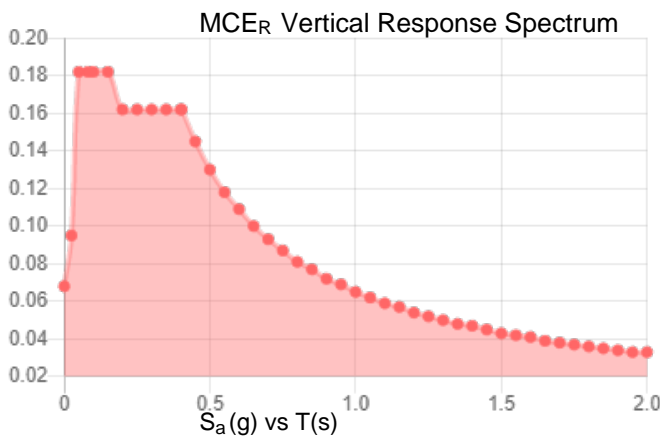
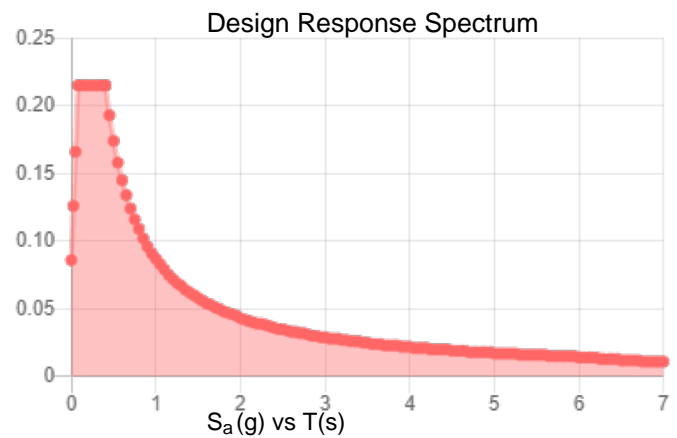
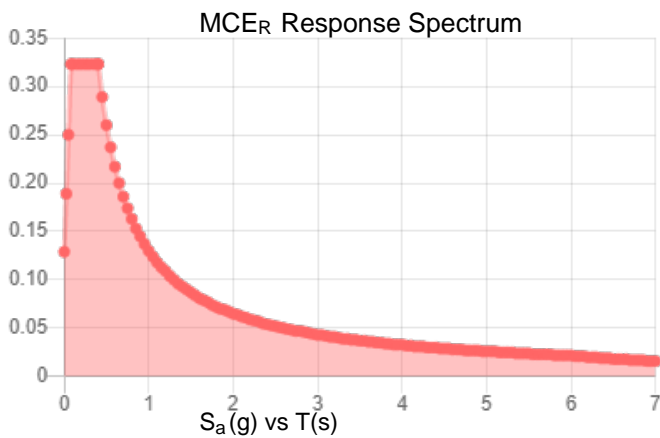
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

Results:

S_s :	0.202	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA _M :	0.178
S_{MS} :	0.323	F_{PGA} :	1.575
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.215	C_v :	0.704

Seismic Design Category B



Data Accessed:

Fri Sep 10 2021

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Fri Sep 10 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 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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