



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

January 29, 2020

Kristina Cottone
Real Estate Specialist
Smartlink, LLC
85 Rangeway Road, Building 3 Suite 102
North Billerica, MA 01862

RE: **EM-AT&T-143-191223** – AT&T Mobility, LLC notice of intent to modify an existing telecommunications facility located at 1210 Highland Avenue, Torrington, Connecticut.

Dear Ms. Cottone:

The Connecticut Siting Council (Council) is in receipt of your correspondence of January 24, 2020 submitted in response to the Council's January 8, 2020 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/IN/emr



Robidoux, Evan

From: Kristina Cottone <kristina.cottone@smartlinkllc.com>
Sent: Friday, January 24, 2020 11:50 AM
To: Robidoux, Evan
Cc: CSC-DL Siting Council
Subject: RE: Council Incomplete Letter for EM-AT&T-143-191223 (1210 Highland Avenue, Torrington)
Attachments: 10071282_DE113_200124_CTL01253.pdf

Good morning,

Please see attached new revised Structural Analysis that accounts for the mount, per the letter. Please let me know if you need anything further to approve of this application.

Thank you,



Kristina Cottone | Real Estate Specialist
Smartlink

85 Rangeway Road – Building 3 Suite 102
North Billerica MA, 01862
(m) 978.551.8627
Kristina.cottone@Smartlinkllc.com

contents (including any attachments) by persons other than the intended recipient(s) is strictly prohibited. If you have received this message in error, please notify us immediately by reply email that we may correct our internal records. Please then delete the original message (including any attachments) in its entirety. Thank you.

From: Robidoux, Evan <Evan.Robidoux@ct.gov>
Sent: Thursday, January 9, 2020 4:32 PM
To: Kristina Cottone <kristina.cottone@smartlinkllc.com>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: Council Incomplete Letter for EM-AT&T-143-191223 (1210 Highland Avenue, Torrington)

Warning: This message was sent from outside the company and could contain attachments. Please do not open unless you recognize the source of this email and know the content is safe.

Please see the attached correspondence.

Evan Robidoux
Clerk Typist
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Post-Mod Structural Analysis Report

Existing 260 ft Pirod Guyed Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT02303-A-3

Customer Site Name: Torrington 2 CT

Carrier Name: AT&T (App#: 92475-4)

Carrier Site ID / Name: CT1253 / Torrington Highland Avenue

Site Location: 1210 Highland Ave

Torrington, Connecticut

Litchfield County

Latitude: 41.802597

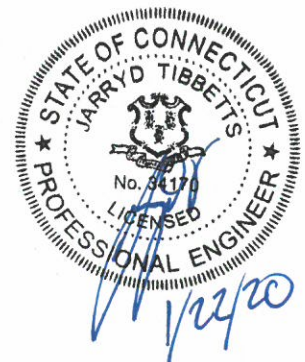
Longitude: -73.164664

Analysis Result:

Max Structural Usage: 97.9% [Pass]

Max Foundation Usage: 81.8% [Pass]

Report Prepared By : Tawfeeq Alajaj





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Latitude: 41.802597

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Analysis Result:

Max Structural Usage: 97.9% [Pass]

Max Foundation Usage: 81.8% [Pass]

Report Prepared By : Tawfeeq Alajaj

Introduction

The purpose of this report is to summarize the analysis results on the 260 ft Pirod Guyed Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	All-point Technology Cororation, P.C, Job # CT122160, Dated 01/21/02
Foundation Drawing	All-point Technology Cororation, P.C, Job # CT122160, Dated 01/21/02
Geotechnical Report	FDH Engineering, Inc. (Project No. 12-08779E G1) Geotechnical Evaluation of Subsurface Conditions, Dated 10/08/12
Existing Modification	FDH Engineering, Inc. (Project No. 05-0827E) Modification Drawings for a 260' Guyed Tower, Dated 08/29/05
Proposed Modification	TES Job # 73511

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G. In accordance with this standard, the structure was analyzed using **TESTowers**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 120.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 93.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	40 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_s = 0.182$, $S_1 = 0.065$

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	282.0	1	4" x 20' (8 Element) Dipole	(3) Standoff (8') at 263'	(1) 7/8"	Building 1
2		1	3" x 20' (16 Element) Dipole		(1) 1 1/4"	
3	275.0	1	2" x 15' Omni		(1) 7/8"	
4	257.0	1	2" x 18' Omnis		(1) 7/8"	
5	266.0	1	TWR 38" x 18"Ø Light	Direct Mount	(1) 0.59"	SBA
6	253.0	1	24" x 24" x 10" Box	Direct Mount	(1) 1/2"	Building 1
-	243.0	1	Kathrein 80010764V01 Panel	(3) T-Frames	(12) 1 5/8" (1) 2- 1/4" Flex	AT&T
-		1	14" x 14" x 3" TMA			
-		2	58" x 11" x 4" Panel			
-		2	KMW 68" x 12" x 6" Panel			
-		2	14" x 14" x 3" TMA			
-		4	58" x 11" x 4" Panel			
-		1	Raycap DC6-48-60-18-8F Squid			
-	242.5	2	Powerwave 18" x 10" x 2-1/2" TMA			
-		1	Ericsson 17" x 16" x 6" Radio			
-		4	Powerwave 18" x 10" x 2-1/2" TMA			
-		2	Ericsson 17" x 16" x 6" Radio			
25	233.0	1	2' Ø x 18' Omni	(1) Standoff (36")	(1) 1 5/8"	Building 1
26	222.5	1	2' x 8' Omni	(3) Standoff (8') at 218.5'	(1) 1 1/4"	Building 1
27		1	3" x 15' Omni		(1) 7/8"	
28	210.0	1	3" x 15' Omni		(1) 1 1/4"	
29		1	3" x 15' Omni		(1) 7/8"	
30	222.5	1	2' Ø x 18' Omni		(1) 1 1/4"	Unknown
31	201.0	6	RFS 6" x 4" x 1" TMAs	(3) 10' T-Frames	(12) 1 5/8"	ITRON
32	200.0	3	Amphenal BXA-171063-8BF-EDIN-X - Panel			
33		3	Amphenal BXA-70063-6CF-EDIN-^ - Panel			
34		3	Amphenal BXA-80063-6CF-EDIN-5 - Panel			
35	180.0	4	Bay Broadcast antenna	(1) Standoff (41")	(1) 1 5/8"	Unknown
36	178.0	1	8'x1" Omni		(1) 1 1/4"	
37	177.0	1	Andrew 10' x 2" Ø Omni	(1) Standoff (2')	(1) 7/8"	Building 1
38	173.0	1	21" x 4" x 7" Box	Direct Mount		
39	166.5	1	Andrew 14' x 3" Ø Omni	(1) Standoff (14")		
40	118.0	3	3' x 2' Bay Broadcast antenna	(1) Standoff 20"	(1) 1 5/8"	Unknown
41	83.8	1	3' x 2' Bay Broadcast antenna	(1) Standoff 20"	(1) 7/8"	WAPJ

Proposed Carrier’s Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier’s final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
7	245.0	3	Powerwave - 7770 - Panel	(3) Sector Frames	(12) 1 5/8" (3) 3" Flex (Housing (6) 3/4" DC power & (2) 7/16" Fiber cables)	AT&T
8		2	KMW - AM-X-CD-16-65-00T-RET - Panel			
9		1	Kathrein - 800 10764 - Panel			
10		3	KMW - EPBQ-654L8H6-L2 - Panel			
11		2	CCI - DMP65R-BU6DA - Panel			
12		1	CCI - DMP65R-BU4DA - Panel			
13		12	Powerwave LGP21401 TMA			
14		3	RRUS 4478 B14			
15		3	RRUS 32 B30			
16		3	RRUS 4449 B5/B12			
17		3	RRUS 8843 B2 B66A			
18		3	Raycap DC6-48-60-18-8F - OVP			
19		3	Andrew ABT-DFDM-ADBH			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

Tower Component	Legs	Diagonals	Horizontals	Guy Wires
Max. Usage:	97.9%	92.8%	74.9%	87.9%
Pass/Fail	Pass	Pass	Pass	Pass

Foundations

Reactions (kips)	Base Reactions		Inner Anchors	
	Axial	Shear	Uplift	Shear
Analysis Reactions	185.2	1.9	43.6	55.3

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2018 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the design ANSI/TIA/EIA 222-G standards under a basic wind speed of 93 mph no ice and 50 mph with 3/4" radial ice after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 73511

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed AT&T equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-322 considering a construction period of no more than 6 months.

The tower and foundations passed, so the Carrier can proceed and install their proposed loading prior to the mods completion. Please be aware that this approval is being provided and is based on the method outlined in TIA-322. This approval is not a blanket approval and there is still a risk that the tower will experience a wind event that cannot be predicted by TIA-322 or our Engineers. In the event of an unforeseen wind event, Tower Engineering Solutions will not be liable nor responsible for damage to the tower or the Carriers equipment. Additionally, the tower cannot go beyond the 6 month construction period without the modifications being completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Structure: CT02303-A-3-SBA

Site Name: Torrington 2 CT
Type: Guyed
Height: 260.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: Triangle
Base Width: 0.00
Top Width: 3.00

Code: EIA/TIA-222-G
Basic WS: 93.00
Basic Ice WS: 50.00
Operational WS: 60.00

1/22/2020
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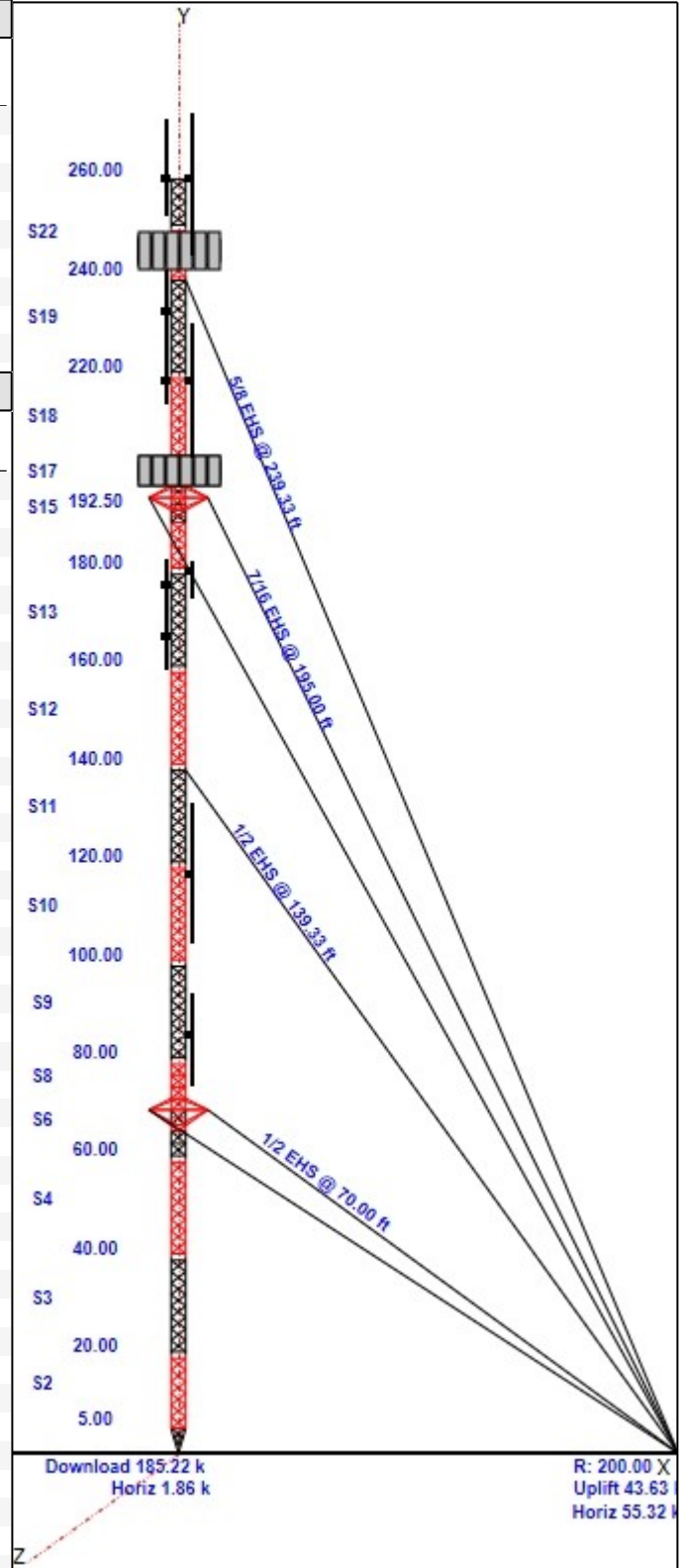


Section Properties

Sect	Leg Members	Diagonal Members	Horizontal Members
1	MOD 1.5"SR+2x2x.375L	SOL 5/8" SOLID	SOL 3/4" SOLID
2-5	SOL 1 3/4" SOLID	SOL 5/8" SOLID	SOL 3/4" SOLID
6	SOL 1 3/4" SOLID	SOL 5/8" SOLID	PLT 3" x 1/2"
7-9	SOL 1 3/4" SOLID	SOL 5/8" SOLID	SOL 3/4" SOLID
10-15	SOL 1 1/2" SOLID	SOL 9/16" SOLID	SOL 3/4" SOLID
16	SOL 1 1/2" SOLID	SOL 9/16" SOLID	CHN C3 x 6
17-20	SOL 1 1/2" SOLID	SOL 9/16" SOLID	SOL 3/4" SOLID
21	SOL 1 1/2" SOLID	SOL 9/16" SOLID	CHN C3 x 6
22-23	SOL 1 1/2" SOLID	SOL 9/16" SOLID	SOL 3/4" SOLID

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
260.00	263.00	1	2" x 15' Omni
260.00	262.00	1	4" x 20' (8 Element) Dipole
260.00	260.00	3	Stand-Off
260.00	263.00	1	3" x 20' (16 Element) Dipole
260.00	260.00	1	38" x 18"Ø Light
257.00	253.00	1	2"x 18' Omnis
253.00	253.00	1	24" x 24" x 10" Box
245.00	245.00	3	T- Frame
245.00	245.00	3	7770
245.00	245.00	2	AM-X-CD-16-65-00T-RET
245.00	245.00	1	800 10764
245.00	245.00	3	EPBQ-654L8H6-L2
245.00	245.00	2	DMP65R-BU6DA
245.00	245.00	1	DMP65R-BU4DA
245.00	245.00	12	Powerwave LGP21401 TMA
245.00	245.00	3	RRUS 4478 B14
245.00	245.00	3	RRUS 32 B30
245.00	245.00	3	RRUS 4449 B5/B12
245.00	245.00	3	RRUS 8843 B2 B66A
245.00	245.00	3	Raycap DC6-48-60-18-8F
245.00	245.00	3	ABT-DFDM-ADBH
233.00	233.00	1	3' Standoff
223.00	232.00	1	2' Ø x 18' Omni
218.50	222.50	1	2" x 18' Omni
218.50	218.50	3	Stand-Off
218.50	210.00	1	3" x15' Omni
218.50	222.50	1	3" x15' Omni
218.50	210.00	1	3" x15' Omni
218.50	222.50	1	2' x 8' Omni
201.00	201.00	6	RFS 6" x 4" x 1" TMAs
200.00	200.00	3	10' T-Frames
200.00	200.00	3	Amphenal BXA-171063-8BF-EDIN-X
200.00	200.00	3	Amphenal BXA-70063-6CF-EDIN-^
200.00	200.00	3	Amphenal BXA-80063-6CF-EDIN-5
180.00	180.00	1	Standoff (41")
180.00	180.00	4	Bay Broadcast antenna
178.00	178.00	1	8'x1" Omni
177.00	177.00	1	Andrew 10' x 2" Omni
177.00	177.00	1	Standoff (2')
173.00	173.00	1	21" x 4" x 7" Box



Structure: CT02303-A-3-SBA

Site Name: Torrington 2 CT	Code: EIA/TIA-222-G	1/22/2020
Type: Guyed	Base Shape: Triangle	Basic WS: 93.00
Height: 260.00 (ft)	Base Width: 0.00	Basic Ice WS: 50.00
Base Elev: 0.00 (ft)	Top Width: 3.00	Operational WS: 60.00



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166.50	166.50	1	Standoff (17")
166.50	166.50	1	Andrew 14' x 3" Omni
118.00	118.00	1	Standoff 20"
118.00	118.00	3	Bay Broadcast antenna
85.00	85.00	1	Standoff 20"
83.80	83.80	1	Bay Broadcast Antenna

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	260.00	1	1 1/4"
0.00	260.00	1	7/8"
0.00	260.00	1	7/8"
0.00	260.00	1	7/8"
0.00	260.00	1	Safety Climb
0.00	253.00	1	1/2"
0.00	245.00	12	1 5/8" Coax
0.00	245.00	1	3" Flex Conduit
0.00	245.00	6	3/4" DC Power
0.00	245.00	2	7/16" Fiber
0.00	233.00	1	1 5/8"
0.00	222.50	1	1-1/4"
0.00	222.50	1	1-1/4"
0.00	210.00	1	1-1/4"
0.00	210.00	1	7/8"
0.00	200.00	6	1 5/8"
0.00	200.00	6	1 5/8"
0.00	180.00	1	1 5/8"
0.00	178.00	1	1 1/4"
0.00	177.00	1	7/8"
0.00	166.50	1	7/8"
0.00	118.00	1	1 5/8"
0.00	83.80	1	7/8"

Max Guy Wire

87.86% @ 239.333 ft - 5/8 EHS

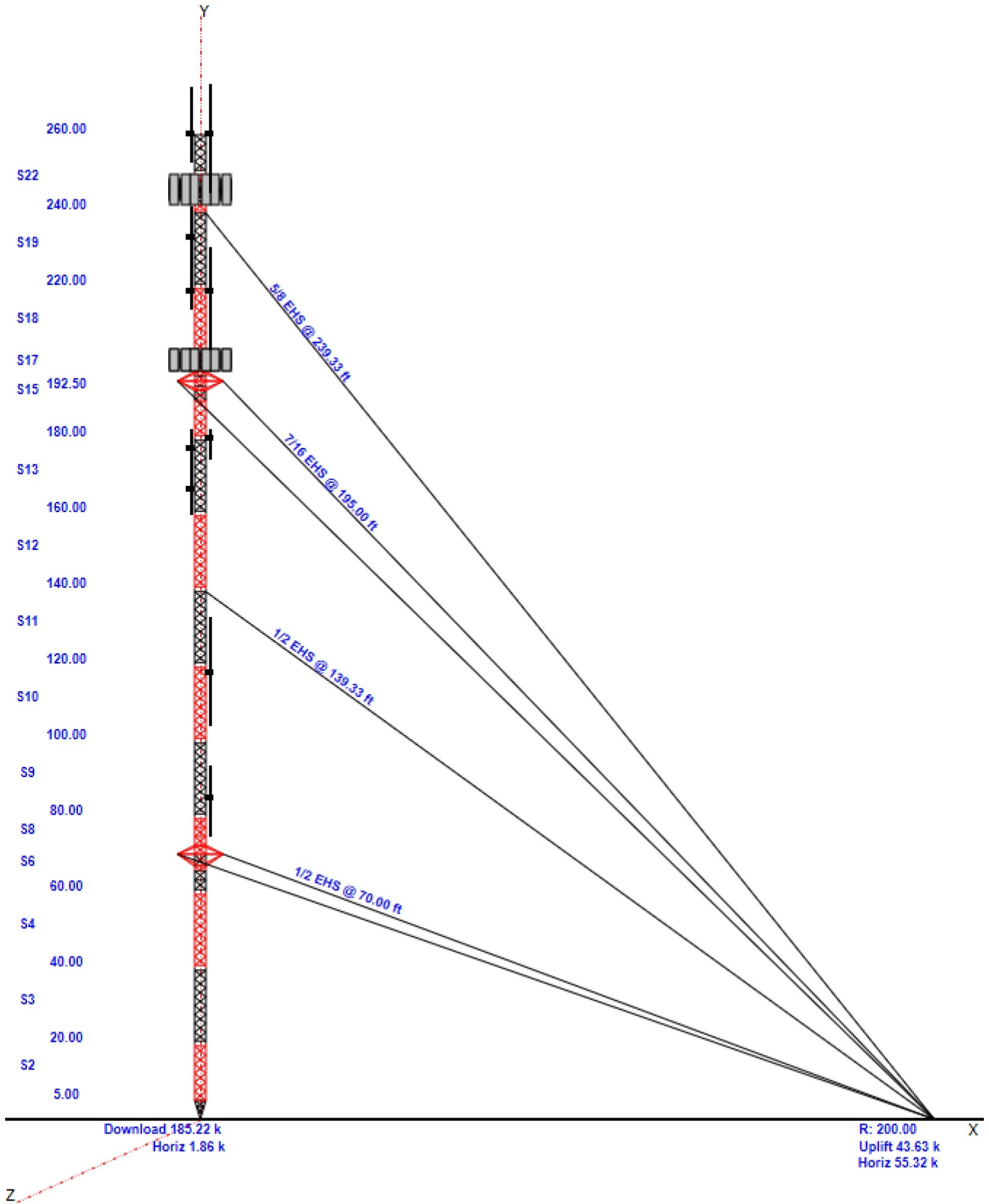
Structure: CT02303-A-3-SBA

Site Name: Torrington 2 CT
Type: Guyed
Height: 260.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: Triangle
Base Width: 0.00
Top Width: 3.00

Code: EIA/TIA-222-G
Basic WS: 93.00
Basic Ice WS: 50.00
Operational WS: 60.00

1/22/2020
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Anchor Drops with Guy Radius - Structure: CT02303-A-3-SBA

Site Name: Torrington 2 CT

Code: EIA/TIA-222-G

1/22/2020

Type: Guyed

Base Shape: Triangle

Basic WS: 93.00

Height: 260.00 (ft)

Base Width: 0.00

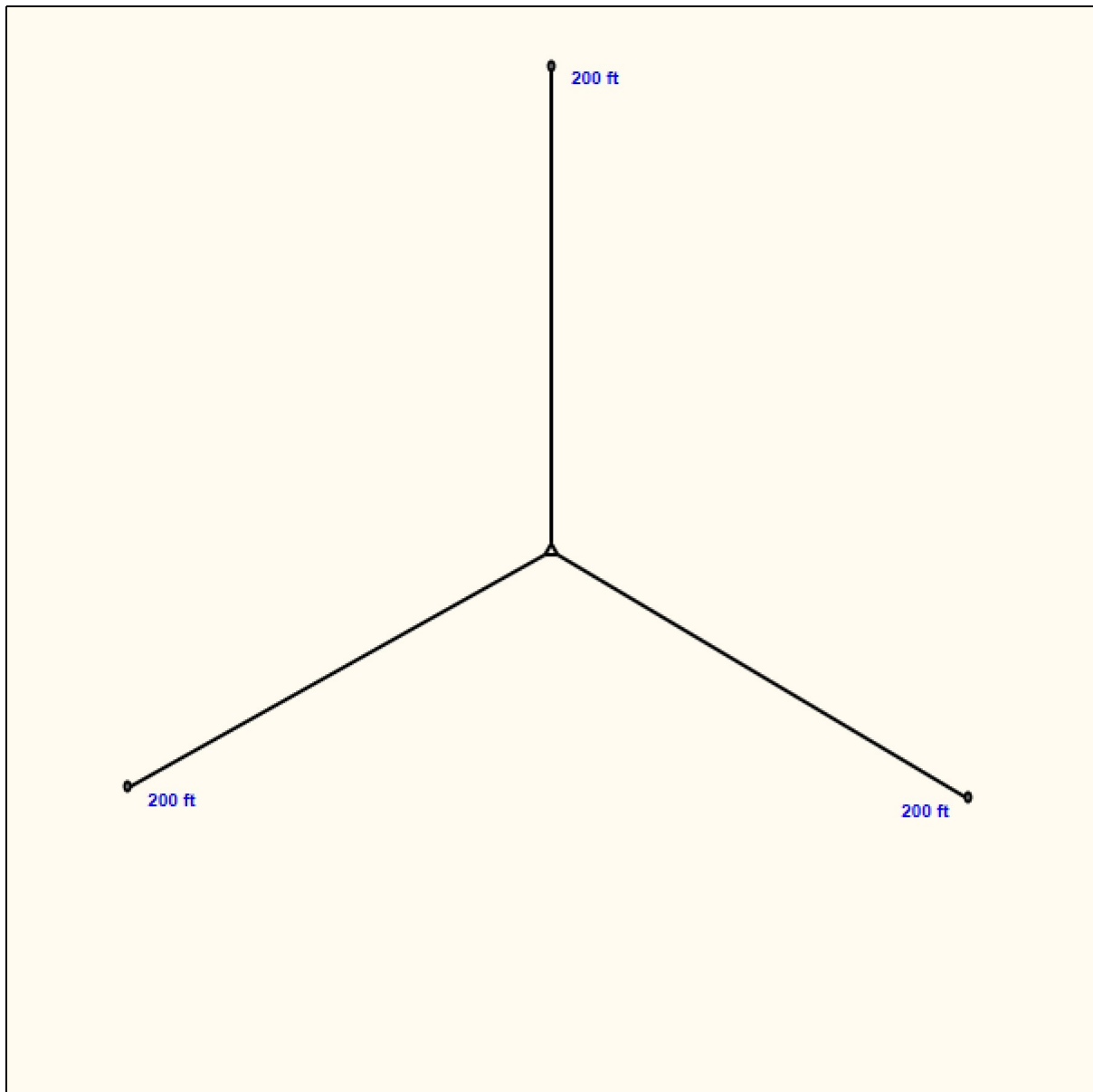
Basic Ice WS: 50.00

Base Elev: 0.00 (ft)

Top Width: 3.00

Operational WS: 60.00

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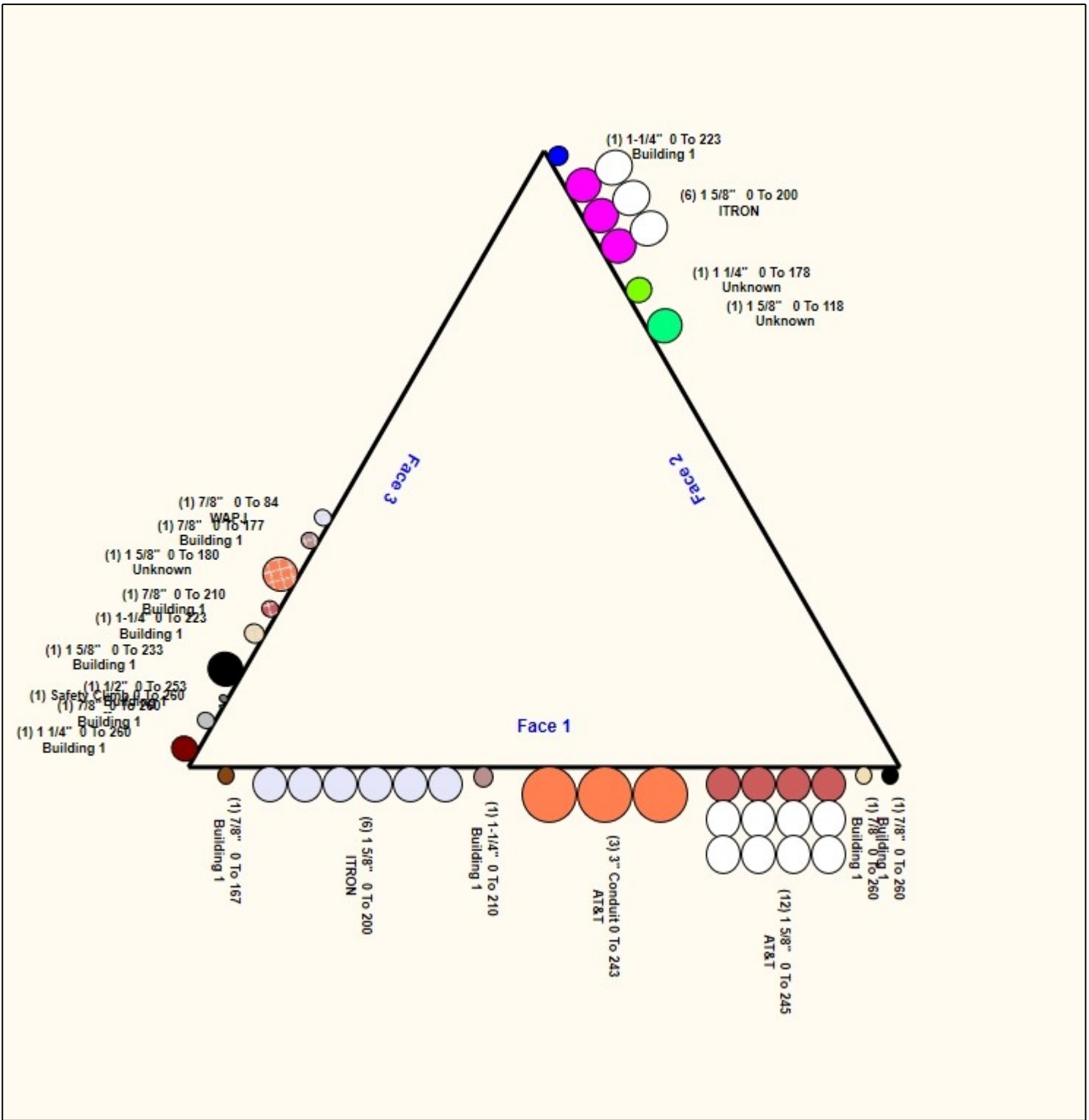
Structure: CT02303-A-3-SBA - Coax Line Placement

Type: Guyed
Site Name: Torrington 2 CT
Height: 260.00 (ft)

01/22/2020



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Loading Summary

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice		Ice		Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
			Weight (lb)	CaAa (sf)	Weight (lb)	CaAa (sf)						
260.00	2" x 15' Omni	1	40.00	4.500	159.55	10.145	180.000	3.000	3.000	1.00	1.00	3.000
260.00	4" x 20' (8 Element) Dipole	1	60.00	7.520	293.82	20.053	240.000	3.000	3.000	1.00	1.00	2.000
260.00	Stand-Off	3	400.00	10.000	694.45	19.202	0.000	0.000	0.000	0.75	0.75	0.000
260.00	3" x 20' (16 Element) Dipole	1	60.00	7.520	293.82	20.053	240.000	3.000	3.000	1.00	1.00	3.000
260.00	38" x 18"Ø Light	1	5.00	6.000	27.08	28.084	72.000	1.000	1.000	1.00	1.00	0.000
257.00	2"x 18' Omnis	1	55.00	5.400	198.16	12.150	216.000	3.000	3.000	1.00	1.00	-4.000
253.00	24" x 24" x 10" Box	1	20.00	5.600	141.31	7.352	24.000	24.000	10.000	1.00	1.00	0.000
245.00	T- Frame	3	500.00	17.500	1232.81	36.736	0.000	0.000	0.000	0.75	0.75	0.000
245.00	7770	3	35.00	5.500	178.51	6.622	55.000	11.000	5.000	0.80	0.76	0.000
245.00	AM-X-CD-16-65-00T-RET	2	48.50	8.020	218.85	10.953	72.000	11.800	5.900	0.80	0.90	0.000
245.00	800 10764	1	40.80	5.880	174.66	8.129	55.200	11.800	6.000	0.80	1.00	0.000
245.00	EPBQ-654L8H6-L2	3	98.10	13.240	534.54	14.666	96.000	21.000	6.300	0.80	0.69	0.000
245.00	DMP65R-BU6DA	2	63.30	12.710	367.26	14.276	71.200	20.700	7.700	0.80	0.86	0.000
245.00	DMP65R-BU4DA	1	34.00	8.280	205.67	7.180	48.000	14.800	7.400	0.80	1.00	0.000
245.00	Powerwave LGP21401 TMA	12	14.10	1.290	40.34	2.167	14.400	9.200	2.600	0.80	0.67	0.000
245.00	RRUS 4478 B14	3	59.90	1.650	109.24	2.146	16.500	13.400	7.700	0.80	0.67	0.000
245.00	RRUS 32 B30	3	60.00	2.740	153.49	3.508	27.200	12.100	7.000	0.80	0.67	0.000
245.00	RRUS 4449 B5/B12	3	71.00	1.650	127.04	2.131	17.900	13.200	9.400	0.80	0.67	0.000
245.00	RRUS 8843 B2 B66A	3	72.00	1.640	121.17	2.162	14.900	13.200	10.900	0.80	0.67	0.000
245.00	Raycap DC6-48-60-18-8F	3	31.80	0.920	96.70	1.380	24.000	11.000	11.000	0.80	1.00	0.000
245.00	ABT-DFDM-ADBH	3	1.10	0.050	3.44	0.252	3.200	1.700	1.600	0.80	1.00	0.000
233.00	3' Standoff	1	40.00	2.630	123.79	8.859	0.000	0.000	0.000	1.00	1.00	0.000
223.00	2' Ø x 18' Omni	1	55.00	5.400	196.69	12.080	216.000	3.000	3.000	1.00	1.00	9.000
218.50	2" x 18' Omni	1	55.00	5.400	195.41	12.020	216.000	3.000	3.000	1.00	1.00	4.000
218.50	Stand-Off	3	350.00	10.000	891.48	23.668	0.000	0.000	0.000	0.75	0.75	0.000
218.50	3" x15' Omni	1	40.00	4.500	157.25	10.036	180.000	3.000	3.000	1.00	1.00	-8.500
218.50	3" x15' Omni	1	40.00	4.500	157.25	10.036	180.000	3.000	3.000	1.00	1.00	4.000
218.50	3" x15' Omni	1	40.00	4.500	157.25	10.036	180.000	3.000	3.000	1.00	1.00	-8.500
218.50	2' x 8' Omni	1	25.00	2.400	88.21	5.247	96.000	3.000	3.000	1.00	1.00	4.000
201.00	RFS 6" x 4" x 1" TMAs	6	8.40	0.360	27.48	0.653	6.000	4.000	1.000	0.80	0.67	0.000
200.00	10' T-Frames	3	450.00	15.500	811.88	23.513	0.000	0.000	0.000	0.75	0.75	0.000
200.00	Amphenal BXA-171063-8BF-EDIN-X	3	10.50	2.940	96.98	3.836	48.500	6.100	4.100	0.80	0.84	0.000
200.00	Amphenal BXA-70063-6CF-EDIN-^	3	17.00	7.570	197.25	8.869	71.000	11.200	5.200	0.80	0.73	0.000
200.00	Amphenal BXA-80063-6CF-EDIN-5	3	17.00	7.570	197.25	8.869	71.000	11.200	5.200	0.80	0.73	0.000
180.00	Standoff (41")	1	40.00	3.200	121.29	10.554	0.000	0.000	0.000	1.00	1.00	0.000
180.00	Bay Broadcast antenna	4	162.00	1.080	476.80	2.694	13.000	10.000	0.000	1.00	1.00	0.000
178.00	8'x1" Omni	1	25.00	2.400	86.89	5.187	96.000	3.000	3.000	1.00	1.00	0.000
177.00	Andrew 10' x 2" Omni	1	25.00	3.000	102.01	6.652	120.000	3.000	3.000	1.00	1.00	0.000
177.00	Standoff (2')	1	40.00	2.200	121.29	7.256	0.000	0.000	0.000	1.00	1.00	0.000
173.00	21" x 4" x 7" Box	1	15.00	1.250	71.70	1.884	21.000	7.000	4.000	1.00	1.00	0.000
166.50	Standoff (17")	1	40.00	2.200	121.29	7.256	0.000	0.000	0.000	1.00	1.00	0.000
166.50	Andrew 14' x 3" Omni	1	40.00	4.200	147.22	9.265	168.000	3.000	3.000	1.00	1.00	0.000
118.00	Standoff 20"	1	40.00	2.200	117.83	7.040	0.000	0.000	0.000	1.00	1.00	0.000
118.00	Bay Broadcast antenna	3	162.00	7.200	463.39	17.501	348.000	36.000	2.500	1.00	1.00	0.000
85.00	Standoff 20"	1	40.00	2.200	116.28	6.944	0.000	0.000	0.000	1.00	1.00	0.000
83.80	Bay Broadcast Antenna	1	105.00	7.200	243.60	20.439	228.000	12.000	12.000	1.00	1.00	0.000
Totals:		99	9,117.20		25,276.66					Number of Appurtenances :	46	

Loading Summary

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



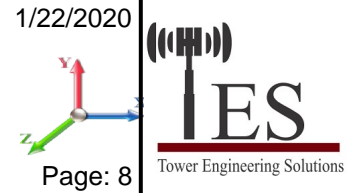
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Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	260.00	1 1/4"	1	1.55	0.66	100.00	3	Individual NR		N	1.00	1.00	
0.00	260.00	7/8"	1	1.11	0.52	100.00	1	Individual NR		N	1.00	1.00	
0.00	260.00	7/8"	1	1.11	0.52	100.00	1	Individual NR		N	1.00	1.00	
0.00	260.00	7/8"	1	1.11	0.52	100.00	3	Individual IR		N	1.00	1.00	
0.00	260.00	Safety Climb	1	0.38	0.27	100.00	3	Individual NR		N	1.00	1.00	
0.00	253.00	1/2"	1	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	
0.00	245.00	1 5/8" Coax	12	1.98	1.04	33.30	1	Block		Y	0.50	1.00	
0.00	245.00	3" Flex Conduit	1	3.02	1.78	100.00	1	Individual NR		N	1.00	1.00	
0.00	245.00	3/4" DC Power	6	0.75	0.40	50.00	1	Block		N	1.00	1.00	
0.00	245.00	7/16" Fiber	2	0.44	0.10	50.00	1	Block		N	1.00	1.00	
0.00	233.00	1 5/8"	1	1.98	1.04	100.00	3	Individual NR		N	1.00	1.00	
0.00	222.50	1-1/4"	1	1.25	0.95	100.00	3	Individual NR		N	1.00	1.00	
0.00	222.50	1-1/4"	1	1.25	0.95	100.00	2	Individual NR		N	1.00	1.00	
0.00	210.00	1-1/4"	1	1.25	0.95	100.00	1	Individual IR		N	1.00	1.00	
0.00	210.00	7/8"	1	1.11	0.52	100.00	3	Individual NR		N	1.00	1.00	
0.00	200.00	1 5/8"	6	1.98	1.04	50.00	2	Block		N	0.50	1.00	
0.00	200.00	1 5/8"	6	1.98	1.04	100.00	1	Individual IR		N	0.50	1.00	
0.00	180.00	1 5/8"	1	1.98	1.04	100.00	3	Individual NR		N	1.00	1.00	
0.00	178.00	1 1/4"	1	1.55	0.66	100.00	2	Individual NR		N	1.00	1.00	
0.00	177.00	7/8"	1	1.11	0.52	100.00	3	Individual NR		N	1.00	1.00	
0.00	166.50	7/8"	1	1.11	0.52	100.00	1	Individual NR		N	1.00	1.00	
0.00	118.00	1 5/8"	1	1.98	1.04	100.00	2	Individual NR		N	1.00	1.00	
0.00	83.80	7/8"	1	1.11	0.52	100.00	3	Individual NR		N	1.00	1.00	

Section Forces

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II

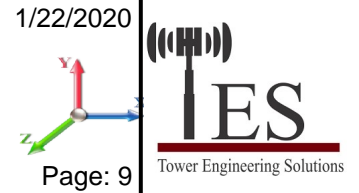


Load Case: 1.2D + 1.6W Normal Wind	1.2D + 1.6W 93 mph Wind at Normal To Face
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	16.00	0.000	3.75	0.00	0.42	2.02	1.00	1.00	0.00	2.50	24.08	0.00	519.0	0.0	109.82	389.46	406.11
2	12.5	16.00	0.000	7.02	0.00	0.15	2.78	1.00	1.00	0.00	4.06	72.23	0.00	1,380.3	0.0	244.90	1213.70	1,458.61
3	30.0	18.49	0.000	9.24	0.00	0.15	2.78	1.00	1.00	0.00	5.32	96.31	0.00	1,827.5	0.0	372.13	1870.06	2,242.19
4	50.0	20.59	0.000	9.24	0.00	0.15	2.78	1.00	1.00	0.00	5.32	96.31	0.00	1,827.5	0.0	414.38	2082.38	2,496.76
5	62.8	21.60	0.000	2.97	0.00	0.17	2.71	1.00	1.00	0.00	1.72	27.29	0.00	551.3	0.0	137.36	619.12	756.48
6	66.3	21.84	0.000	0.54	0.00	0.14	2.80	1.00	1.00	0.00	0.31	5.82	0.00	136.6	0.0	26.05	133.46	159.52
7	68.5	21.99	0.750	1.36	0.00	0.21	2.56	1.00	1.00	0.00	1.54	15.25	0.00	335.9	0.0	118.10	352.29	470.40
8	75.0	22.42	0.000	4.96	0.00	0.16	2.74	1.00	1.00	0.00	2.87	47.95	0.00	942.7	0.0	239.83	1129.27	1,369.10
9	90.0	23.30	0.000	9.24	0.00	0.15	2.78	1.00	1.00	0.00	5.32	94.81	0.00	1,817.4	0.0	468.97	2322.50	2,791.47
10	110.0	24.30	0.000	8.12	0.00	0.13	2.85	1.00	1.00	0.00	4.65	94.13	0.00	1,612.7	0.0	437.78	2406.50	2,844.28
11	130.0	25.17	0.000	8.16	0.00	0.13	2.84	1.00	1.00	0.00	4.67	91.16	0.00	1,596.1	0.0	454.83	2419.44	2,874.26
12	150.0	25.94	0.000	8.12	0.00	0.13	2.85	1.00	1.00	0.00	4.65	91.16	0.00	1,590.2	0.0	467.32	2493.44	2,960.75
13	170.0	26.63	0.000	8.12	0.00	0.13	2.85	1.00	1.00	0.00	4.65	89.37	0.00	1,578.4	0.0	479.79	2513.47	2,993.26
14	185.0	27.11	0.000	4.24	0.00	0.14	2.83	1.00	1.00	0.00	2.43	40.79	0.00	778.5	0.0	253.58	1175.78	1,429.36
15	191.3	27.30	0.000	1.23	0.00	0.16	2.74	1.00	1.00	0.00	0.71	10.20	0.00	216.0	0.0	71.87	296.01	367.88
16	195.0	27.41	0.383	2.46	0.00	0.18	2.66	1.00	1.00	0.00	1.80	20.39	0.00	496.8	0.0	178.52	594.44	772.96
17	198.8	27.53	0.000	1.41	0.00	0.18	2.66	1.00	1.00	0.00	0.82	10.20	0.00	232.2	0.0	81.34	298.42	379.76
18	210.0	27.85	0.000	8.12	0.00	0.13	2.85	1.00	1.00	0.00	4.65	48.24	0.00	1,207.3	0.0	501.62	1427.42	1,929.04
19	230.0	28.38	0.000	8.12	0.00	0.13	2.85	1.00	1.00	0.00	4.65	41.47	0.00	1,140.8	0.0	511.24	1266.92	1,778.17
20	241.3	28.67	0.000	1.16	0.00	0.15	2.78	1.00	1.00	0.00	0.67	4.85	0.00	152.7	0.0	72.40	150.61	223.01
21	243.8	28.73	0.767	0.98	0.00	0.22	2.52	1.00	1.00	0.00	1.34	4.85	0.00	266.0	0.0	131.96	150.94	282.89
22	247.5	28.83	0.000	2.10	0.00	0.13	2.83	1.00	1.00	0.00	1.21	2.46	0.00	185.4	0.0	133.82	69.45	203.27
23	255.0	29.01	0.000	4.24	0.00	0.14	2.83	1.00	1.00	0.00	2.43	4.54	0.00	372.0	0.0	271.30	129.00	400.31
													20,763.2	0.0			31,589.83	

Section Forces

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



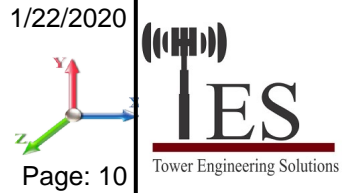
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Load Case: 1.2D + 1.6W 60° Wind	1.2D + 1.6W 93 mph Wind at 60° From Face
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	16.00	0.000	3.75	0.00	0.42	2.02	0.80	1.00	0.00	2.50	24.08	0.00	519.0	0.0	109.82	389.46	499.28
2	12.5	16.00	0.000	7.02	0.00	0.15	2.78	0.80	1.00	0.00	4.06	72.23	0.00	1,380.3	0.0	244.90	1213.70	1,458.61
3	30.0	18.49	0.000	9.24	0.00	0.15	2.78	0.80	1.00	0.00	5.32	96.31	0.00	1,827.5	0.0	372.13	1870.06	2,242.19
4	50.0	20.59	0.000	9.24	0.00	0.15	2.78	0.80	1.00	0.00	5.32	96.31	0.00	1,827.5	0.0	414.38	2082.38	2,496.76
5	62.8	21.60	0.000	2.97	0.00	0.17	2.71	0.80	1.00	0.00	1.72	27.29	0.00	551.3	0.0	137.36	619.12	756.48
6	66.3	21.84	0.000	0.54	0.00	0.14	2.80	0.80	1.00	0.00	0.31	5.82	0.00	136.6	0.0	26.05	133.46	159.52
7	68.5	21.99	0.750	1.36	0.00	0.21	2.56	0.80	1.00	0.00	1.39	15.25	0.00	335.9	0.0	106.64	352.29	458.93
8	75.0	22.42	0.000	4.96	0.00	0.16	2.74	0.80	1.00	0.00	2.87	47.95	0.00	942.7	0.0	239.83	1129.27	1,369.10
9	90.0	23.30	0.000	9.24	0.00	0.15	2.78	0.80	1.00	0.00	5.32	94.81	0.00	1,817.4	0.0	468.97	2322.50	2,791.47
10	110.0	24.30	0.000	8.12	0.00	0.13	2.85	0.80	1.00	0.00	4.65	94.13	0.00	1,612.7	0.0	437.78	2406.50	2,844.28
11	130.0	25.17	0.000	8.16	0.00	0.13	2.84	0.80	1.00	0.00	4.67	91.16	0.00	1,596.1	0.0	454.83	2419.44	2,874.26
12	150.0	25.94	0.000	8.12	0.00	0.13	2.85	0.80	1.00	0.00	4.65	91.16	0.00	1,590.2	0.0	467.32	2493.44	2,960.75
13	170.0	26.63	0.000	8.12	0.00	0.13	2.85	0.80	1.00	0.00	4.65	89.37	0.00	1,578.4	0.0	479.79	2513.47	2,993.26
14	185.0	27.11	0.000	4.24	0.00	0.14	2.83	0.80	1.00	0.00	2.43	40.79	0.00	778.5	0.0	253.58	1175.78	1,429.36
15	191.3	27.30	0.000	1.23	0.00	0.16	2.74	0.80	1.00	0.00	0.71	10.20	0.00	216.0	0.0	71.87	296.01	367.88
16	195.0	27.41	0.383	2.46	0.00	0.18	2.66	0.80	1.00	0.00	1.72	20.39	0.00	496.8	0.0	170.92	594.44	765.37
17	198.8	27.53	0.000	1.41	0.00	0.18	2.66	0.80	1.00	0.00	0.82	10.20	0.00	232.2	0.0	81.34	298.42	379.76
18	210.0	27.85	0.000	8.12	0.00	0.13	2.85	0.80	1.00	0.00	4.65	48.24	0.00	1,207.3	0.0	501.62	1427.42	1,929.04
19	230.0	28.38	0.000	8.12	0.00	0.13	2.85	0.80	1.00	0.00	4.65	41.47	0.00	1,140.8	0.0	511.24	1266.92	1,778.17
20	241.3	28.67	0.000	1.16	0.00	0.15	2.78	0.80	1.00	0.00	0.67	4.85	0.00	152.7	0.0	72.40	150.61	223.01
21	243.8	28.73	0.767	0.98	0.00	0.22	2.52	0.80	1.00	0.00	1.19	4.85	0.00	266.0	0.0	116.86	150.94	267.80
22	247.5	28.83	0.000	2.10	0.00	0.13	2.83	0.80	1.00	0.00	1.21	2.46	0.00	185.4	0.0	133.82	69.45	203.27
23	255.0	29.01	0.000	4.24	0.00	0.14	2.83	0.80	1.00	0.00	2.43	4.54	0.00	372.0	0.0	271.30	129.00	400.31
													20,763.2	0.0			31,648.84	

Section Forces

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II

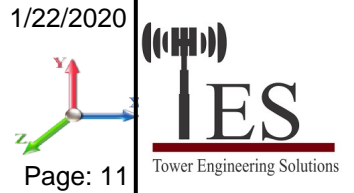


Load Case: 1.2D + 1.6W 90° Wind	1.2D + 1.6W 93 mph Wind at 90° From Face
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	16.00	0.000	3.75	0.00	0.42	2.02	0.85	1.00	0.00	2.50	24.08	0.00	519.0	0.0	109.82	389.46	499.28
2	12.5	16.00	0.000	7.02	0.00	0.15	2.78	0.85	1.00	0.00	4.06	72.23	0.00	1,380.3	0.0	244.90	1213.70	1,458.61
3	30.0	18.49	0.000	9.24	0.00	0.15	2.78	0.85	1.00	0.00	5.32	96.31	0.00	1,827.5	0.0	372.13	1870.06	2,242.19
4	50.0	20.59	0.000	9.24	0.00	0.15	2.78	0.85	1.00	0.00	5.32	96.31	0.00	1,827.5	0.0	414.38	2082.38	2,496.76
5	62.8	21.60	0.000	2.97	0.00	0.17	2.71	0.85	1.00	0.00	1.72	27.29	0.00	551.3	0.0	137.36	619.12	756.48
6	66.3	21.84	0.000	0.54	0.00	0.14	2.80	0.85	1.00	0.00	0.31	5.82	0.00	136.6	0.0	26.05	133.46	159.52
7	68.5	21.99	0.750	1.36	0.00	0.21	2.56	0.85	1.00	0.00	1.43	15.25	0.00	335.9	0.0	109.50	352.29	461.80
8	75.0	22.42	0.000	4.96	0.00	0.16	2.74	0.85	1.00	0.00	2.87	47.95	0.00	942.7	0.0	239.83	1129.27	1,369.10
9	90.0	23.30	0.000	9.24	0.00	0.15	2.78	0.85	1.00	0.00	5.32	94.81	0.00	1,817.4	0.0	468.97	2322.50	2,791.47
10	110.0	24.30	0.000	8.12	0.00	0.13	2.85	0.85	1.00	0.00	4.65	94.13	0.00	1,612.7	0.0	437.78	2406.50	2,844.28
11	130.0	25.17	0.000	8.16	0.00	0.13	2.84	0.85	1.00	0.00	4.67	91.16	0.00	1,596.1	0.0	454.83	2419.44	2,874.26
12	150.0	25.94	0.000	8.12	0.00	0.13	2.85	0.85	1.00	0.00	4.65	91.16	0.00	1,590.2	0.0	467.32	2493.44	2,960.75
13	170.0	26.63	0.000	8.12	0.00	0.13	2.85	0.85	1.00	0.00	4.65	89.37	0.00	1,578.4	0.0	479.79	2513.47	2,993.26
14	185.0	27.11	0.000	4.24	0.00	0.14	2.83	0.85	1.00	0.00	2.43	40.79	0.00	778.5	0.0	253.58	1175.78	1,429.36
15	191.3	27.30	0.000	1.23	0.00	0.16	2.74	0.85	1.00	0.00	0.71	10.20	0.00	216.0	0.0	71.87	296.01	367.88
16	195.0	27.41	0.383	2.46	0.00	0.18	2.66	0.85	1.00	0.00	1.74	20.39	0.00	496.8	0.0	172.82	594.44	767.26
17	198.8	27.53	0.000	1.41	0.00	0.18	2.66	0.85	1.00	0.00	0.82	10.20	0.00	232.2	0.0	81.34	298.42	379.76
18	210.0	27.85	0.000	8.12	0.00	0.13	2.85	0.85	1.00	0.00	4.65	48.24	0.00	1,207.3	0.0	501.62	1427.42	1,929.04
19	230.0	28.38	0.000	8.12	0.00	0.13	2.85	0.85	1.00	0.00	4.65	41.47	0.00	1,140.8	0.0	511.24	1266.92	1,778.17
20	241.3	28.67	0.000	1.16	0.00	0.15	2.78	0.85	1.00	0.00	0.67	4.85	0.00	152.7	0.0	72.40	150.61	223.01
21	243.8	28.73	0.767	0.98	0.00	0.22	2.52	0.85	1.00	0.00	1.23	4.85	0.00	266.0	0.0	120.64	150.94	271.57
22	247.5	28.83	0.000	2.10	0.00	0.13	2.83	0.85	1.00	0.00	1.21	2.46	0.00	185.4	0.0	133.82	69.45	203.27
23	255.0	29.01	0.000	4.24	0.00	0.14	2.83	0.85	1.00	0.00	2.43	4.54	0.00	372.0	0.0	271.30	129.00	400.31
20,763.2													0.0	31,657.38				

Section Forces

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



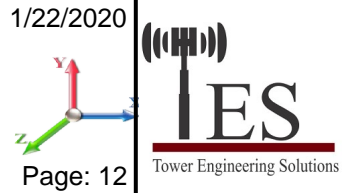
Page: 11

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 1.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	4.62	0.000	9.00	5.24	0.91	1.94	1.00	1.00	1.16	8.89	29.84	17.38	1,438.2	919.2	67.90	21.40	89.30
2	12.5	4.62	0.000	25.63	18.61	0.51	1.89	1.00	1.00	1.36	17.73	92.06	61.26	4,644.8	3264.5	131.85	392.43	524.28
3	30.0	5.34	0.000	35.68	26.45	0.53	1.87	1.00	1.00	1.49	25.05	124.82	89.15	6,690.7	4863.3	212.62	607.18	819.80
4	50.0	5.95	0.000	37.07	27.84	0.54	1.85	1.00	1.00	1.56	26.41	126.12	93.82	7,041.2	5213.7	247.02	667.38	914.40
5	62.8	6.24	0.000	12.56	9.59	0.65	1.78	1.00	1.00	1.60	9.79	35.91	27.20	2,155.3	1604.0	92.56	154.46	247.03
6	66.3	6.31	0.000	2.22	1.68	0.54	1.85	1.00	1.00	1.61	1.58	7.66	5.83	513.2	376.6	15.71	43.90	59.61
7	68.5	6.36	0.750	5.41	4.05	0.57	1.83	1.00	1.00	1.61	4.69	20.10	15.33	1,277.0	941.1	46.23	108.32	154.55
8	75.0	6.48	0.000	21.05	16.09	0.62	1.79	1.00	1.00	1.63	15.97	63.33	48.65	3,774.4	2831.6	157.78	309.49	467.27
9	90.0	6.73	0.000	38.76	29.52	0.57	1.83	1.00	1.00	1.66	28.12	126.20	95.02	7,381.4	5564.0	294.33	723.65	1,017.98
10	110.0	7.02	0.000	38.23	30.12	0.56	1.83	1.00	1.00	1.69	27.60	126.08	95.31	7,242.6	5629.9	302.10	764.76	1,066.86
11	130.0	7.28	0.000	38.78	30.63	0.57	1.83	1.00	1.00	1.72	28.16	123.58	91.76	7,221.8	5625.7	318.14	760.09	1,078.23
12	150.0	7.50	0.000	39.18	31.07	0.57	1.82	1.00	1.00	1.75	28.58	124.00	93.08	7,327.9	5737.6	332.00	779.90	1,111.90
13	170.0	7.70	0.000	39.57	31.46	0.58	1.82	1.00	1.00	1.77	28.99	122.58	88.80	7,301.4	5723.0	344.98	772.59	1,117.57
14	185.0	7.84	0.000	20.99	16.75	0.61	1.80	1.00	1.00	1.78	15.84	57.51	35.64	3,502.7	2724.3	189.52	322.16	511.68
15	191.3	7.89	0.000	5.05	3.82	0.59	1.81	1.00	1.00	1.79	3.73	14.39	8.94	933.4	717.3	45.30	86.21	131.52
16	195.0	7.92	0.383	11.00	8.55	0.67	1.78	1.00	1.00	1.79	9.06	28.80	17.92	2,022.8	1526.0	108.51	141.41	249.92
17	198.8	7.96	0.000	6.14	4.73	0.72	1.78	1.00	1.00	1.80	5.07	14.41	8.98	1,003.7	771.5	60.97	60.05	121.02
18	210.0	8.05	0.000	40.25	32.13	0.59	1.81	1.00	1.00	1.80	29.69	65.87	66.18	5,385.3	4178.1	368.19	482.53	850.71
19	230.0	8.20	0.000	40.55	32.42	0.59	1.81	1.00	1.00	1.82	30.01	59.27	47.96	4,924.1	3783.3	378.73	402.44	781.16
20	241.3	8.29	0.000	5.98	4.82	0.70	1.78	1.00	1.00	1.83	4.86	7.09	5.34	653.1	500.4	60.76	35.11	95.86
21	243.8	8.31	0.767	6.72	5.74	0.87	1.89	1.00	1.00	1.83	7.12	7.09	5.34	898.1	632.0	94.96	14.74	109.70
22	247.5	8.33	0.000	10.60	8.50	0.62	1.79	1.00	1.00	1.83	8.03	2.46	9.17	787.5	602.0	102.04	37.77	139.80
23	255.0	8.38	0.000	21.54	17.30	0.63	1.79	1.00	1.00	1.84	16.45	4.54	16.26	1,555.9	1183.9	209.78	66.24	276.02
													85,676.4	64913.2				11,936.18

Section Forces

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 12

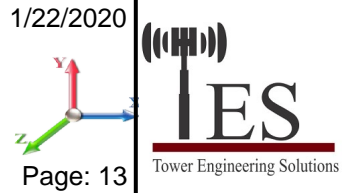


Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 1.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	4.62	0.000	9.00	5.24	0.91	1.94	0.80	1.00	1.16	8.89	29.84	17.38	1,438.2	919.2	67.90	21.40	89.30
2	12.5	4.62	0.000	25.63	18.61	0.51	1.89	0.80	1.00	1.36	17.73	92.06	61.26	4,644.8	3264.5	131.85	392.43	524.28
3	30.0	5.34	0.000	35.68	26.45	0.53	1.87	0.80	1.00	1.49	25.05	124.82	89.15	6,690.7	4863.3	212.62	607.18	819.80
4	50.0	5.95	0.000	37.07	27.84	0.54	1.85	0.80	1.00	1.56	26.41	126.12	93.82	7,041.2	5213.7	247.02	667.38	914.40
5	62.8	6.24	0.000	12.56	9.59	0.65	1.78	0.80	1.00	1.60	9.79	35.91	27.20	2,155.3	1604.0	92.56	154.46	247.03
6	66.3	6.31	0.000	2.22	1.68	0.54	1.85	0.80	1.00	1.61	1.58	7.66	5.83	513.2	376.6	15.71	43.90	59.61
7	68.5	6.36	0.750	5.41	4.05	0.57	1.83	0.80	1.00	1.61	4.54	20.10	15.33	1,277.0	941.1	44.75	108.32	153.07
8	75.0	6.48	0.000	21.05	16.09	0.62	1.79	0.80	1.00	1.63	15.97	63.33	48.65	3,774.4	2831.6	157.78	309.49	467.27
9	90.0	6.73	0.000	38.76	29.52	0.57	1.83	0.80	1.00	1.66	28.12	126.20	95.02	7,381.4	5564.0	294.33	723.65	1,017.98
10	110.0	7.02	0.000	38.23	30.12	0.56	1.83	0.80	1.00	1.69	27.60	126.08	95.31	7,242.6	5629.9	302.10	764.76	1,066.86
11	130.0	7.28	0.000	38.78	30.63	0.57	1.83	0.80	1.00	1.72	28.16	123.58	91.76	7,221.8	5625.7	318.14	760.09	1,078.23
12	150.0	7.50	0.000	39.18	31.07	0.57	1.82	0.80	1.00	1.75	28.58	124.00	93.08	7,327.9	5737.6	332.00	779.90	1,111.90
13	170.0	7.70	0.000	39.57	31.46	0.58	1.82	0.80	1.00	1.77	28.99	122.58	88.80	7,301.4	5723.0	344.98	772.59	1,117.57
14	185.0	7.84	0.000	20.99	16.75	0.61	1.80	0.80	1.00	1.78	15.84	57.51	35.64	3,502.7	2724.3	189.52	322.16	511.68
15	191.3	7.89	0.000	5.05	3.82	0.59	1.81	0.80	1.00	1.79	3.73	14.39	8.94	933.4	717.3	45.30	86.21	131.52
16	195.0	7.92	0.383	11.00	8.55	0.67	1.78	0.80	1.00	1.79	8.98	28.80	17.92	2,022.8	1526.0	107.59	141.41	249.00
17	198.8	7.96	0.000	6.14	4.73	0.72	1.78	0.80	1.00	1.80	5.07	14.41	8.98	1,003.7	771.5	60.97	60.05	121.02
18	210.0	8.05	0.000	40.25	32.13	0.59	1.81	0.80	1.00	1.80	29.69	65.87	66.18	5,385.3	4178.1	368.19	482.53	850.71
19	230.0	8.20	0.000	40.55	32.42	0.59	1.81	0.80	1.00	1.82	30.01	59.27	47.96	4,924.1	3783.3	378.73	402.44	781.16
20	241.3	8.29	0.000	5.98	4.82	0.70	1.78	0.80	1.00	1.83	4.86	7.09	5.34	653.1	500.4	60.76	35.11	95.86
21	243.8	8.31	0.767	6.72	5.74	0.87	1.89	0.80	1.00	1.83	6.97	7.09	5.34	898.1	632.0	92.92	14.74	107.66
22	247.5	8.33	0.000	10.60	8.50	0.62	1.79	0.80	1.00	1.83	8.03	2.46	9.17	787.5	602.0	102.04	37.77	139.80
23	255.0	8.38	0.000	21.54	17.30	0.63	1.79	0.80	1.00	1.84	16.45	4.54	16.26	1,555.9	1183.9	209.78	66.24	276.02
													85,676.4	64913.2				11,931.74

Section Forces

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II

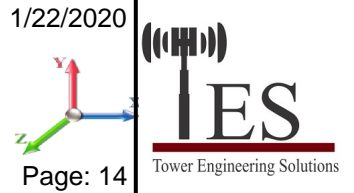


Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 1.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	4.62	0.000	9.00	5.24	0.91	1.94	0.85	1.00	1.16	8.89	29.84	17.38	1,438.2	919.2	67.90	21.40	89.30
2	12.5	4.62	0.000	25.63	18.61	0.51	1.89	0.85	1.00	1.36	17.73	92.06	61.26	4,644.8	3264.5	131.85	392.43	524.28
3	30.0	5.34	0.000	35.68	26.45	0.53	1.87	0.85	1.00	1.49	25.05	124.82	89.15	6,690.7	4863.3	212.62	607.18	819.80
4	50.0	5.95	0.000	37.07	27.84	0.54	1.85	0.85	1.00	1.56	26.41	126.12	93.82	7,041.2	5213.7	247.02	667.38	914.40
5	62.8	6.24	0.000	12.56	9.59	0.65	1.78	0.85	1.00	1.60	9.79	35.91	27.20	2,155.3	1604.0	92.56	154.46	247.03
6	66.3	6.31	0.000	2.22	1.68	0.54	1.85	0.85	1.00	1.61	1.58	7.66	5.83	513.2	376.6	15.71	43.90	59.61
7	68.5	6.36	0.750	5.41	4.05	0.57	1.83	0.85	1.00	1.61	4.57	20.10	15.33	1,277.0	941.1	45.12	108.32	153.44
8	75.0	6.48	0.000	21.05	16.09	0.62	1.79	0.85	1.00	1.63	15.97	63.33	48.65	3,774.4	2831.6	157.78	309.49	467.27
9	90.0	6.73	0.000	38.76	29.52	0.57	1.83	0.85	1.00	1.66	28.12	126.20	95.02	7,381.4	5564.0	294.33	723.65	1,017.98
10	110.0	7.02	0.000	38.23	30.12	0.56	1.83	0.85	1.00	1.69	27.60	126.08	95.31	7,242.6	5629.9	302.10	764.76	1,066.86
11	130.0	7.28	0.000	38.78	30.63	0.57	1.83	0.85	1.00	1.72	28.16	123.58	91.76	7,221.8	5625.7	318.14	760.09	1,078.23
12	150.0	7.50	0.000	39.18	31.07	0.57	1.82	0.85	1.00	1.75	28.58	124.00	93.08	7,327.9	5737.6	332.00	779.90	1,111.90
13	170.0	7.70	0.000	39.57	31.46	0.58	1.82	0.85	1.00	1.77	28.99	122.58	88.80	7,301.4	5723.0	344.98	772.59	1,117.57
14	185.0	7.84	0.000	20.99	16.75	0.61	1.80	0.85	1.00	1.78	15.84	57.51	35.64	3,502.7	2724.3	189.52	322.16	511.68
15	191.3	7.89	0.000	5.05	3.82	0.59	1.81	0.85	1.00	1.79	3.73	14.39	8.94	933.4	717.3	45.30	86.21	131.52
16	195.0	7.92	0.383	11.00	8.55	0.67	1.78	0.85	1.00	1.79	9.00	28.80	17.92	2,022.8	1526.0	107.82	141.41	249.23
17	198.8	7.96	0.000	6.14	4.73	0.72	1.78	0.85	1.00	1.80	5.07	14.41	8.98	1,003.7	771.5	60.97	60.05	121.02
18	210.0	8.05	0.000	40.25	32.13	0.59	1.81	0.85	1.00	1.80	29.69	65.87	66.18	5,385.3	4178.1	368.19	482.53	850.71
19	230.0	8.20	0.000	40.55	32.42	0.59	1.81	0.85	1.00	1.82	30.01	59.27	47.96	4,924.1	3783.3	378.73	402.44	781.16
20	241.3	8.29	0.000	5.98	4.82	0.70	1.78	0.85	1.00	1.83	4.86	7.09	5.34	653.1	500.4	60.76	35.11	95.86
21	243.8	8.31	0.767	6.72	5.74	0.87	1.89	0.85	1.00	1.83	7.01	7.09	5.34	898.1	632.0	93.43	14.74	108.17
22	247.5	8.33	0.000	10.60	8.50	0.62	1.79	0.85	1.00	1.83	8.03	2.46	9.17	787.5	602.0	102.04	37.77	139.80
23	255.0	8.38	0.000	21.54	17.30	0.63	1.79	0.85	1.00	1.84	16.45	4.54	16.26	1,555.9	1183.9	209.78	66.24	276.02
													85,676.4	64913.2				11,932.85

Section Forces

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II

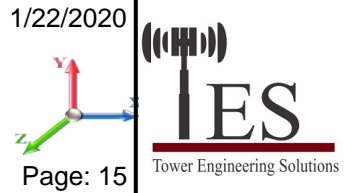


Load Case: 1.0D + 1.0W Normal Wind	1.0D + 1.0W 60 mph Wind at Normal To Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.00	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	6.66	0.000	3.75	0.00	0.42	2.02	1.00	1.00	0.00	2.50	24.08	0.00	432.5	0.0	28.57	101.32	129.89
2	12.5	6.66	0.000	7.02	0.00	0.15	2.78	1.00	1.00	0.00	4.06	72.23	0.00	1,150.2	0.0	63.71	315.74	379.45
3	30.0	7.69	0.000	9.24	0.00	0.15	2.78	1.00	1.00	0.00	5.32	96.31	0.00	1,522.9	0.0	96.81	486.49	583.30
4	50.0	8.57	0.000	9.24	0.00	0.15	2.78	1.00	1.00	0.00	5.32	96.31	0.00	1,522.9	0.0	107.80	541.72	649.52
5	62.8	8.99	0.000	2.97	0.00	0.17	2.71	1.00	1.00	0.00	1.72	27.29	0.00	459.4	0.0	35.73	161.06	196.79
6	66.3	9.09	0.000	0.54	0.00	0.14	2.80	1.00	1.00	0.00	0.31	5.82	0.00	113.9	0.0	6.78	34.72	41.50
7	68.5	9.15	0.750	1.36	0.00	0.21	2.56	1.00	1.00	0.00	1.54	15.25	0.00	279.9	0.0	30.72	91.65	122.37
8	75.0	9.33	0.000	4.96	0.00	0.16	2.74	1.00	1.00	0.00	2.87	47.95	0.00	785.6	0.0	62.39	293.78	356.17
9	90.0	9.70	0.000	9.24	0.00	0.15	2.78	1.00	1.00	0.00	5.32	94.81	0.00	1,514.5	0.0	122.00	604.19	726.19
10	110.0	10.12	0.000	8.12	0.00	0.13	2.85	1.00	1.00	0.00	4.65	94.13	0.00	1,343.9	0.0	113.89	626.04	739.93
11	130.0	10.48	0.000	8.16	0.00	0.13	2.84	1.00	1.00	0.00	4.67	91.16	0.00	1,330.1	0.0	118.32	629.41	747.73
12	150.0	10.80	0.000	8.12	0.00	0.13	2.85	1.00	1.00	0.00	4.65	91.16	0.00	1,325.2	0.0	121.57	648.66	770.23
13	170.0	11.09	0.000	8.12	0.00	0.13	2.85	1.00	1.00	0.00	4.65	89.37	0.00	1,315.3	0.0	124.82	653.87	778.68
14	185.0	11.29	0.000	4.24	0.00	0.14	2.83	1.00	1.00	0.00	2.43	40.79	0.00	648.7	0.0	65.97	305.87	371.84
15	191.3	11.36	0.000	1.23	0.00	0.16	2.74	1.00	1.00	0.00	0.71	10.20	0.00	180.0	0.0	18.70	77.01	95.70
16	195.0	11.41	0.383	2.46	0.00	0.18	2.66	1.00	1.00	0.00	1.80	20.39	0.00	414.0	0.0	46.44	154.64	201.08
17	198.8	11.46	0.000	1.41	0.00	0.18	2.66	1.00	1.00	0.00	0.82	10.20	0.00	193.5	0.0	21.16	77.63	98.79
18	210.0	11.59	0.000	8.12	0.00	0.13	2.85	1.00	1.00	0.00	4.65	48.24	0.00	1,006.1	0.0	130.49	371.34	501.83
19	230.0	11.81	0.000	8.12	0.00	0.13	2.85	1.00	1.00	0.00	4.65	41.47	0.00	950.6	0.0	133.00	329.58	462.58
20	241.3	11.93	0.000	1.16	0.00	0.15	2.78	1.00	1.00	0.00	0.67	4.85	0.00	127.2	0.0	18.84	39.18	58.02
21	243.8	11.96	0.767	0.98	0.00	0.22	2.52	1.00	1.00	0.00	1.34	4.85	0.00	221.7	0.0	34.33	39.27	73.59
22	247.5	12.00	0.000	2.10	0.00	0.13	2.83	1.00	1.00	0.00	1.21	2.46	0.00	154.5	0.0	34.81	18.07	52.88
23	255.0	12.07	0.000	4.24	0.00	0.14	2.83	1.00	1.00	0.00	2.43	4.54	0.00	310.0	0.0	70.58	33.56	104.14
												17,302.7	0.0	8,242.20				

Section Forces

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II

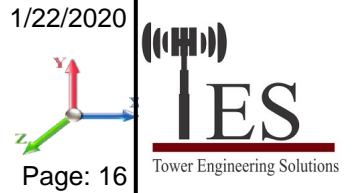


Load Case: 1.0D + 1.0W 60° Wind	1.0D + 1.0W 60 mph Wind at 60° From Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.00	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	6.66	0.000	3.75	0.00	0.42	2.02	0.80	1.00	0.00	2.50	24.08	0.00	432.5	0.0	28.57	101.32	129.89
2	12.5	6.66	0.000	7.02	0.00	0.15	2.78	0.80	1.00	0.00	4.06	72.23	0.00	1,150.2	0.0	63.71	315.74	379.45
3	30.0	7.69	0.000	9.24	0.00	0.15	2.78	0.80	1.00	0.00	5.32	96.31	0.00	1,522.9	0.0	96.81	486.49	583.30
4	50.0	8.57	0.000	9.24	0.00	0.15	2.78	0.80	1.00	0.00	5.32	96.31	0.00	1,522.9	0.0	107.80	541.72	649.52
5	62.8	8.99	0.000	2.97	0.00	0.17	2.71	0.80	1.00	0.00	1.72	27.29	0.00	459.4	0.0	35.73	161.06	196.79
6	66.3	9.09	0.000	0.54	0.00	0.14	2.80	0.80	1.00	0.00	0.31	5.82	0.00	113.9	0.0	6.78	34.72	41.50
7	68.5	9.15	0.750	1.36	0.00	0.21	2.56	0.80	1.00	0.00	1.39	15.25	0.00	279.9	0.0	27.74	91.65	119.39
8	75.0	9.33	0.000	4.96	0.00	0.16	2.74	0.80	1.00	0.00	2.87	47.95	0.00	785.6	0.0	62.39	293.78	356.17
9	90.0	9.70	0.000	9.24	0.00	0.15	2.78	0.80	1.00	0.00	5.32	94.81	0.00	1,514.5	0.0	122.00	604.19	726.19
10	110.0	10.12	0.000	8.12	0.00	0.13	2.85	0.80	1.00	0.00	4.65	94.13	0.00	1,343.9	0.0	113.89	626.04	739.93
11	130.0	10.48	0.000	8.16	0.00	0.13	2.84	0.80	1.00	0.00	4.67	91.16	0.00	1,330.1	0.0	118.32	629.41	747.73
12	150.0	10.80	0.000	8.12	0.00	0.13	2.85	0.80	1.00	0.00	4.65	91.16	0.00	1,325.2	0.0	121.57	648.66	770.23
13	170.0	11.09	0.000	8.12	0.00	0.13	2.85	0.80	1.00	0.00	4.65	89.37	0.00	1,315.3	0.0	124.82	653.87	778.68
14	185.0	11.29	0.000	4.24	0.00	0.14	2.83	0.80	1.00	0.00	2.43	40.79	0.00	648.7	0.0	65.97	305.87	371.84
15	191.3	11.36	0.000	1.23	0.00	0.16	2.74	0.80	1.00	0.00	0.71	10.20	0.00	180.0	0.0	18.70	77.01	95.70
16	195.0	11.41	0.383	2.46	0.00	0.18	2.66	0.80	1.00	0.00	1.72	20.39	0.00	414.0	0.0	44.46	154.64	199.11
17	198.8	11.46	0.000	1.41	0.00	0.18	2.66	0.80	1.00	0.00	0.82	10.20	0.00	193.5	0.0	21.16	77.63	98.79
18	210.0	11.59	0.000	8.12	0.00	0.13	2.85	0.80	1.00	0.00	4.65	48.24	0.00	1,006.1	0.0	130.49	371.34	501.83
19	230.0	11.81	0.000	8.12	0.00	0.13	2.85	0.80	1.00	0.00	4.65	41.47	0.00	950.6	0.0	133.00	329.58	462.58
20	241.3	11.93	0.000	1.16	0.00	0.15	2.78	0.80	1.00	0.00	0.67	4.85	0.00	127.2	0.0	18.84	39.18	58.02
21	243.8	11.96	0.767	0.98	0.00	0.22	2.52	0.80	1.00	0.00	1.19	4.85	0.00	221.7	0.0	30.40	39.27	69.67
22	247.5	12.00	0.000	2.10	0.00	0.13	2.83	0.80	1.00	0.00	1.21	2.46	0.00	154.5	0.0	34.81	18.07	52.88
23	255.0	12.07	0.000	4.24	0.00	0.14	2.83	0.80	1.00	0.00	2.43	4.54	0.00	310.0	0.0	70.58	33.56	104.14
												17,302.7	0.0	8,233.31				

Section Forces

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



Load Case: 1.0D + 1.0W 90° Wind	1.0D + 1.0W 60 mph Wind at 90° From Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.00	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

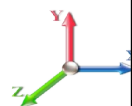
Sect Seq	Wind Height (ft)	Total Flat Area (psf)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	6.66	0.000	3.75	0.00	0.42	2.02	0.85	1.00	0.00	2.50	24.08	0.00	432.5	0.0	28.57	101.32	129.89
2	12.5	6.66	0.000	7.02	0.00	0.15	2.78	0.85	1.00	0.00	4.06	72.23	0.00	1,150.2	0.0	63.71	315.74	379.45
3	30.0	7.69	0.000	9.24	0.00	0.15	2.78	0.85	1.00	0.00	5.32	96.31	0.00	1,522.9	0.0	96.81	486.49	583.30
4	50.0	8.57	0.000	9.24	0.00	0.15	2.78	0.85	1.00	0.00	5.32	96.31	0.00	1,522.9	0.0	107.80	541.72	649.52
5	62.8	8.99	0.000	2.97	0.00	0.17	2.71	0.85	1.00	0.00	1.72	27.29	0.00	459.4	0.0	35.73	161.06	196.79
6	66.3	9.09	0.000	0.54	0.00	0.14	2.80	0.85	1.00	0.00	0.31	5.82	0.00	113.9	0.0	6.78	34.72	41.50
7	68.5	9.15	0.750	1.36	0.00	0.21	2.56	0.85	1.00	0.00	1.43	15.25	0.00	279.9	0.0	28.49	91.65	120.13
8	75.0	9.33	0.000	4.96	0.00	0.16	2.74	0.85	1.00	0.00	2.87	47.95	0.00	785.6	0.0	62.39	293.78	356.17
9	90.0	9.70	0.000	9.24	0.00	0.15	2.78	0.85	1.00	0.00	5.32	94.81	0.00	1,514.5	0.0	122.00	604.19	726.19
10	110.0	10.12	0.000	8.12	0.00	0.13	2.85	0.85	1.00	0.00	4.65	94.13	0.00	1,343.9	0.0	113.89	626.04	739.93
11	130.0	10.48	0.000	8.16	0.00	0.13	2.84	0.85	1.00	0.00	4.67	91.16	0.00	1,330.1	0.0	118.32	629.41	747.73
12	150.0	10.80	0.000	8.12	0.00	0.13	2.85	0.85	1.00	0.00	4.65	91.16	0.00	1,325.2	0.0	121.57	648.66	770.23
13	170.0	11.09	0.000	8.12	0.00	0.13	2.85	0.85	1.00	0.00	4.65	89.37	0.00	1,315.3	0.0	124.82	653.87	778.68
14	185.0	11.29	0.000	4.24	0.00	0.14	2.83	0.85	1.00	0.00	2.43	40.79	0.00	648.7	0.0	65.97	305.87	371.84
15	191.3	11.36	0.000	1.23	0.00	0.16	2.74	0.85	1.00	0.00	0.71	10.20	0.00	180.0	0.0	18.70	77.01	95.70
16	195.0	11.41	0.383	2.46	0.00	0.18	2.66	0.85	1.00	0.00	1.74	20.39	0.00	414.0	0.0	44.96	154.64	199.60
17	198.8	11.46	0.000	1.41	0.00	0.18	2.66	0.85	1.00	0.00	0.82	10.20	0.00	193.5	0.0	21.16	77.63	98.79
18	210.0	11.59	0.000	8.12	0.00	0.13	2.85	0.85	1.00	0.00	4.65	48.24	0.00	1,006.1	0.0	130.49	371.34	501.83
19	230.0	11.81	0.000	8.12	0.00	0.13	2.85	0.85	1.00	0.00	4.65	41.47	0.00	950.6	0.0	133.00	329.58	462.58
20	241.3	11.93	0.000	1.16	0.00	0.15	2.78	0.85	1.00	0.00	0.67	4.85	0.00	127.2	0.0	18.84	39.18	58.02
21	243.8	11.96	0.767	0.98	0.00	0.22	2.52	0.85	1.00	0.00	1.23	4.85	0.00	221.7	0.0	31.38	39.27	70.65
22	247.5	12.00	0.000	2.10	0.00	0.13	2.83	0.85	1.00	0.00	1.21	2.46	0.00	154.5	0.0	34.81	18.07	52.88
23	255.0	12.07	0.000	4.24	0.00	0.14	2.83	0.85	1.00	0.00	2.43	4.54	0.00	310.0	0.0	70.58	33.56	104.14
												17,302.7	0.0			8,235.53		

Force/Stress Compression Summary

Structure: CT02303-A-3-SBA
Site Name: Torrington 2 CT
Height: 260.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

1/22/2020

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LEG MEMBERS

Sect	Top Elev	Member	Force		Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls	
			(kips)	Load Case		X	Y	Z					
1	5	MOD - 1.5"SR+2x2x.375L	-66.94	1.2D + 1.0Di + 1.0Wi 60° Wind	1.76	100	100	100	41.28	50.00	124.16	53.9	Member X
2	20	SOL - 1 3/4" SOLID	-65.12	1.2D + 1.0Di + 1.0Wi 60° Wind	2.39	100	100	100	65.52	50.00	79.08	82.4	Member X
3	40	SOL - 1 3/4" SOLID	-64.90	1.2D + 1.0Di + 1.0Wi 60° Wind	2.33	100	100	100	64.00	50.00	80.23	80.9	Member X
4	60	SOL - 1 3/4" SOLID	-60.34	1.2D + 1.0Di + 1.0Wi Normal	2.33	100	100	100	64.00	50.00	80.23	75.2	Member X
5	65.66	SOL - 1 3/4" SOLID	-66.81	1.2D + 1.6W Normal Wind	2.50	100	100	100	68.57	50.00	76.75	87.0	Member X
6	66.87	SOL - 1 3/4" SOLID	-66.80	1.2D + 1.6W Normal Wind	1.21	100	100	100	33.13	50.00	99.89	66.9	Member X
7	70.04	SOL - 1 3/4" SOLID	-63.91	1.2D + 1.6W Normal Wind	3.17	50	50	50	43.43	50.00	94.29	67.8	Member X
8	80	SOL - 1 3/4" SOLID	-67.97	1.2D + 1.6W Normal Wind	2.32	100	100	100	63.71	50.00	80.44	84.5	Member X
9	100	SOL - 1 3/4" SOLID	-51.95	1.2D + 1.0Di + 1.0Wi Normal	2.33	100	100	100	64.00	50.00	80.23	64.7	Member X
10	120	SOL - 1 1/2" SOLID	-51.80	1.2D + 1.0Di + 1.0Wi 60° Wind	2.33	100	100	100	74.66	50.00	52.90	97.9	Member X
11	140	SOL - 1 1/2" SOLID	-48.07	1.2D + 1.0Di + 1.0Wi 60° Wind	2.33	100	100	100	74.66	50.00	52.90	90.9	Member X
12	160	SOL - 1 1/2" SOLID	-37.72	1.2D + 1.0Di + 1.0Wi 60° Wind	2.33	100	100	100	74.66	50.00	52.90	71.3	Member X
13	180	SOL - 1 1/2" SOLID	-38.11	1.2D + 1.0Di + 1.0Wi 60° Wind	2.33	100	100	100	74.66	50.00	52.90	72.0	Member X
14	190	SOL - 1 1/2" SOLID	-35.66	1.2D + 1.6W Normal Wind	2.33	100	100	100	74.66	50.00	52.90	67.4	Member X
15	192.5	SOL - 1 1/2" SOLID	-41.92	1.2D + 1.6W Normal Wind	2.50	50	50	50	40.00	50.00	70.74	59.3	Member X
16	197.5	SOL - 1 1/2" SOLID	-49.38	1.2D + 1.6W Normal Wind	2.50	50	50	50	40.00	50.00	70.74	69.8	Member X
17	200	SOL - 1 1/2" SOLID	-48.56	1.2D + 1.6W Normal Wind	2.50	65	65	65	52.00	50.00	65.25	74.4	Member X
18	220	SOL - 1 1/2" SOLID	-40.37	1.2D + 1.6W Normal Wind	2.33	100	100	100	74.66	50.00	52.90	76.3	Member X
19	240	SOL - 1 1/2" SOLID	-33.45	1.2D + 1.6W Normal Wind	2.33	100	100	100	74.66	50.00	52.90	63.2	Member X
20	242.5	SOL - 1 1/2" SOLID	-32.89	1.2D + 1.6W Normal Wind	2.50	100	100	100	80.00	50.00	49.80	66.1	Member X
21	245	SOL - 1 1/2" SOLID	-23.62	1.2D + 1.6W Normal Wind	2.50	100	100	100	80.00	50.00	49.80	47.4	Member X
22	250	SOL - 1 1/2" SOLID	-13.71	1.2D + 1.6W Normal Wind	2.17	100	100	100	69.33	50.00	55.96	24.5	Member X
23	260	SOL - 1 1/2" SOLID	-7.93	1.2D + 1.6W Normal Wind	2.33	100	100	100	74.66	50.00	52.90	15.0	Member X

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force		Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
			(kips)	Load Case		X	Y	Z								
1	5								0.00	0	0					
2	20	SOL - 3/4" SOLID	-0.14	1.2D + 1.6W 60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		3	Member X
3	40	SOL - 3/4" SOLID	-0.36	1.2D + 1.6W Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		7	Member X
4	60	SOL - 3/4" SOLID	-1.29	1.2D + 1.6W Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		23	Member X
5	65.6	SOL - 3/4" SOLID	-4.14	1.2D + 1.6W 90° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		75	Member X
6	66.8	PLT - 3" x 1/2"	-0.01	1.2D + 1.6W 90° Wind	1.50	100	100	100	87.50	36.00	32.48	0	0		0	Member Y
7	70.0								0.00	0	0					
8	80	SOL - 3/4" SOLID	-3.61	1.2D + 1.6W Normal Wind	3.00	100	100	100	134.40	36.00	5.53	0	0		65	Member X
9	100	SOL - 3/4" SOLID	-1.59	1.2D + 1.6W Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		29	Member X
10	120	SOL - 3/4" SOLID	-0.52	1.2D + 1.6W Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		9	Member X
11	140	SOL - 3/4" SOLID	-0.67	1.2D + 1.6W 60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		12	Member X
12	160	SOL - 3/4" SOLID	-1.16	1.2D + 1.6W Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		21	Member X
13	180	SOL - 3/4" SOLID	-0.80	1.2D + 1.6W Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		15	Member X
14	190	SOL - 3/4" SOLID	-1.30	1.2D + 1.6W Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		24	Member X
15	192.5								0.00	0	0					
16	197.5	CHN - C3 x 6	-3.36	1.2D + 1.6W Normal Wind	3.00	100	100	100	87.17	36.00	38.22	0	0		9	Member Y
17	200	SOL - 3/4" SOLID	-2.23	1.2D + 1.6W Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		40	Member X
18	220	SOL - 3/4" SOLID	-0.65	1.2D + 1.6W Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		12	Member X
19	240	SOL - 3/4" SOLID	-0.17	1.2D + 1.6W 90° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		3	Member X
20	242.5	SOL - 3/4" SOLID	-3.06	1.2D + 1.6W 60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		55	Member X
21	245	CHN - C3 x 6	-5.79	1.2D + 1.6W 90° Wind	3.00	100	100	100	87.17	36.00	38.22	0	0		15	Member Y
22	250	SOL - 3/4" SOLID	-0.68	1.2D + 1.6W 60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		12	Member X
23	260	SOL - 3/4" SOLID	-0.71	1.2D + 1.6W 90° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0		13	Member X

Force/Stress Compression Summary

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Shear Bear		Controls
						X	Y	Z				KL/R	Num Holes	
1	5	SOL - 5/8" SOLID	-3.07	1.2D + 1.0Di + 1.0Wi Normal	2.26	50	50	50	78.26	50.00	8.82	0	0	35 Member X
2	20	SOL - 5/8" SOLID	-0.79	1.2D + 1.6W 90° Wind	3.83	50	50	50	132.75	50.00	3.93	0	0	20 Member X
3	40	SOL - 5/8" SOLID	-1.28	1.2D + 1.6W 90° Wind	3.80	50	50	50	131.56	50.00	4.00	0	0	32 Member X
4	60	SOL - 5/8" SOLID	-2.84	1.2D + 1.6W 90° Wind	3.80	50	50	50	131.56	50.00	4.00	0	0	71 Member X
5	65.6	SOL - 5/8" SOLID	-0.69	1.2D + 1.6W Normal Wind	3.91	50	50	50	135.18	50.00	3.79	0	0	T-Only
6	66.8	SOL - 5/8" SOLID	-0.02	1.2D + 1.6W 90° Wind	1.93	100	100	100	103.70	50.00	6.29	0	0	0 Member X
7	70.0	SOL - 5/8" SOLID	-2.18	1.2D + 1.6W Normal Wind	4.36	50	50	50	151.00	50.00	3.04	0	0	T-Only
8	80	SOL - 5/8" SOLID	-0.73	1.2D + 1.6W Normal Wind	3.79	50	50	50	131.33	50.00	4.02	0	0	T-Only
9	100	SOL - 5/8" SOLID	-3.72	1.2D + 1.6W Normal Wind	3.80	50	50	50	131.56	50.00	4.00	0	0	93 Member X
10	120	SOL - 9/16" SOLID	-1.57	1.2D + 1.6W Normal Wind	3.80	50	50	50	145.97	50.00	2.63	0	0	60 Member X
11	140	SOL - 9/16" SOLID	-1.89	1.2D + 1.6W 90° Wind	3.80	50	50	50	145.97	50.00	2.63	0	0	72 Member X
12	160	SOL - 9/16" SOLID	-2.42	1.2D + 1.6W Normal Wind	3.80	50	50	50	145.97	50.00	2.63	0	0	92 Member X
13	180	SOL - 9/16" SOLID	-1.79	1.2D + 1.6W Normal Wind	3.80	50	50	50	145.97	50.00	2.63	0	0	68 Member X
14	190	SOL - 9/16" SOLID	-1.95	1.2D + 1.6W Normal Wind	3.80	50	50	50	145.97	50.00	2.63	0	0	74 Member X
15	192.	SOL - 9/16" SOLID	-1.11	1.2D + 1.6W Normal Wind	3.91	50	50	50	149.98	50.00	2.50	0	0	T-Only
16	197.	SOL - 9/16" SOLID	-0.54	1.2D + 1.6W Normal Wind	3.91	50	50	50	149.98	50.00	2.50	0	0	T-Only
17	200	SOL - 9/16" SOLID	-1.00	1.2D + 1.6W 60° Wind	3.91	50	50	50	149.98	50.00	2.50	0	0	T-Only
18	220	SOL - 9/16" SOLID	-1.45	1.2D + 1.6W Normal Wind	3.80	50	50	50	145.97	50.00	2.63	0	0	55 Member X
19	240	SOL - 9/16" SOLID	-1.15	1.2D + 1.6W 60° Wind	3.80	50	50	50	145.97	50.00	2.63	0	0	43 Member X
20	242.	SOL - 9/16" SOLID	-0.63	1.2D + 1.6W 60° Wind	3.91	50	50	50	149.98	50.00	2.50	0	0	T-Only
21	245	SOL - 9/16" SOLID	-0.69	1.2D + 1.6W 60° Wind	3.91	50	50	50	149.98	50.00	2.50	0	0	T-Only
22	250	SOL - 9/16" SOLID	-1.51	1.2D + 1.6W 90° Wind	3.70	50	50	50	142.12	50.00	2.78	0	0	54 Member X
23	260	SOL - 9/16" SOLID	-1.56	1.2D + 1.6W 90° Wind	3.80	50	50	50	145.97	50.00	2.63	0	0	59 Member X

Force/Stress Tension Summary

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	5				0	0.00		
2	20				0	0.00		
3	40				0	0.00		
4	60				0	0.00		
5	65.667				0	0.00		
6	66.875				0	0.00		
7	70.042	SOL - 1 3/4" SOLID	6.10	1.2D + 1.6W 60° Wind	50	108.24	5.6	Member
8	80	SOL - 1 3/4" SOLID	8.01	1.2D + 1.6W 60° Wind	50	108.24	7.4	Member
9	100				0	0.00		
10	120				0	0.00		
11	140				0	0.00		
12	160				0	0.00		
13	180				0	0.00		
14	190				0	0.00		
15	192.5				0	0.00		
16	197.5	SOL - 1 1/2" SOLID	9.15	1.2D + 1.6W 60° Wind	50	79.52	11.5	Member
17	200	SOL - 1 1/2" SOLID	15.26	1.2D + 1.6W 60° Wind	50	79.52	19.2	Member
18	220	SOL - 1 1/2" SOLID	12.86	1.2D + 1.6W 60° Wind	50	79.52	16.2	Member
19	240	SOL - 1 1/2" SOLID	27.66	1.2D + 1.6W 60° Wind	50	79.52	34.8	Member
20	242.5	SOL - 1 1/2" SOLID	18.45	1.2D + 1.6W 60° Wind	50	79.52	23.2	Member
21	245	SOL - 1 1/2" SOLID	11.30	1.2D + 1.6W 60° Wind	50	79.52	14.2	Member
22	250	SOL - 1 1/2" SOLID	11.54	1.2D + 1.6W 60° Wind	50	79.52	14.5	Member
23	260	SOL - 1 1/2" SOLID	7.36	1.2D + 1.6W 60° Wind	50	79.52	9.3	Member

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	5	SOL - 3/4" SOLID	6.29	1.2D + 1.0Di + 1.0Wi Nc	50	19.88	0	0				31.7	Member
2	20	SOL - 3/4" SOLID	6.29	1.2D + 1.0Di + 1.0Wi Nc	50	19.88	0	0				31.7	Member
3	40	SOL - 3/4" SOLID	0.60	1.2D + 1.6W 60° Wind	50	19.88	0	0				3.0	Member
4	60	SOL - 3/4" SOLID	1.44	1.2D + 1.6W 60° Wind	50	19.88	0	0				7.2	Member
5	65.667	SOL - 3/4" SOLID	3.16	1.2D + 1.0Di + 1.0Wi 6C	50	19.88	0	0				15.9	Member
6	66.875	PLT - 3" x 1/2"	0.04	1.2D + 1.6W Normal Wi	36	48.60	0	0				0.1	Member
7	70.042	SOL - 3/4" SOLID			36	0.00	0	0					
8	80	SOL - 3/4" SOLID	2.68	1.2D + 1.0Di + 1.0Wi 6C	36	14.31	0	0				18.7	Member
9	100	SOL - 3/4" SOLID	1.64	1.2D + 1.6W 60° Wind	50	19.88	0	0				8.2	Member
10	120	SOL - 3/4" SOLID	0.65	1.2D + 1.6W 60° Wind	50	19.88	0	0				3.2	Member
11	140	SOL - 3/4" SOLID	0.79	1.2D + 1.6W Normal Wi	50	19.88	0	0				4.0	Member
12	160	SOL - 3/4" SOLID	1.29	1.2D + 1.6W 60° Wind	50	19.88	0	0				6.5	Member
13	180	SOL - 3/4" SOLID	0.89	1.2D + 1.6W 60° Wind	50	19.88	0	0				4.5	Member
14	190	SOL - 3/4" SOLID	1.15	1.2D + 1.6W Normal Wi	50	19.88	0	0				5.8	Member
15	192.5	SOL - 3/4" SOLID			50	0.00	0	0					
16	197.5	CHN - C3 x 6	2.24	1.2D + 1.6W 60° Wind	36	57.02	0	0				3.9	Member
17	200	SOL - 3/4" SOLID	0.91	1.2D + 1.6W Normal Wi	50	19.88	0	0				4.6	Member
18	220	SOL - 3/4" SOLID	0.70	1.2D + 1.6W 60° Wind	50	19.88	0	0				3.5	Member
19	240	SOL - 3/4" SOLID	0.25	1.2D + 1.6W Normal Wi	50	19.88	0	0				1.3	Member
20	242.5	SOL - 3/4" SOLID	1.81	1.2D + 1.6W 60° Wind	50	19.88	0	0				9.1	Member
21	245	CHN - C3 x 6	0.81	1.2D + 1.6W Normal Wi	36	57.02	0	0				1.4	Member
22	250	SOL - 3/4" SOLID	0.73	1.2D + 1.6W Normal Wi	50	19.88	0	0				3.7	Member
23	260	SOL - 3/4" SOLID	0.77	1.2D + 1.6W 60° Wind	50	19.88	0	0				3.9	Member

Force/Stress Tension Summary

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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DIAGONAL MEMBERS

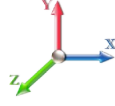
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	5	SOL - 5/8" SOLID	0.00		50	0.00	0	0					
2	20	SOL - 5/8" SOLID	0.87	1.2D + 1.6W 90° Wind	50	13.81	0	0				6.3	Member
3	40	SOL - 5/8" SOLID	0.85	1.2D + 1.6W 90° Wind	50	13.81	0	0				6.2	Member
4	60	SOL - 5/8" SOLID	2.50	1.2D + 1.6W 90° Wind	50	13.81	0	0				18.1	Member
5	65.667	SOL - 5/8" SOLID	5.61	1.2D + 1.6W 90° Wind	50	13.81	0	0				40.6	Member
6	66.875	SOL - 5/8" SOLID	0.08	1.2D + 1.0Di + 1.0Wi 9C	50	13.81	0	0				0.6	Member
7	70.042	SOL - 5/8" SOLID	0.00	1.2D + 1.0Di + 1.0Wi Nc	50	13.81	0	0					Member
8	80	SOL - 5/8" SOLID	7.21	1.2D + 1.6W 90° Wind	50	13.81	0	0				52.2	Member
9	100	SOL - 5/8" SOLID	3.17	1.2D + 1.6W 90° Wind	50	13.81	0	0				23.0	Member
10	120	SOL - 9/16" SOLID	1.09	1.2D + 1.6W 90° Wind	50	11.18	0	0				9.7	Member
11	140	SOL - 9/16" SOLID	1.93	1.2D + 1.6W 90° Wind	50	11.18	0	0				17.3	Member
12	160	SOL - 9/16" SOLID	2.26	1.2D + 1.6W 60° Wind	50	11.18	0	0				20.2	Member
13	180	SOL - 9/16" SOLID	1.43	1.2D + 1.6W 60° Wind	50	11.18	0	0				12.8	Member
14	190	SOL - 9/16" SOLID	2.20	1.2D + 1.6W Normal Wi	50	11.18	0	0				19.7	Member
15	192.5	SOL - 9/16" SOLID	3.72	1.2D + 1.6W Normal Wi	50	11.18	0	0				33.2	Member
16	197.5	SOL - 9/16" SOLID	3.50	1.2D + 1.6W 90° Wind	50	11.18	0	0				31.3	Member
17	200	SOL - 9/16" SOLID	4.83	1.2D + 1.6W 90° Wind	50	11.18	0	0				43.2	Member
18	220	SOL - 9/16" SOLID	1.24	1.2D + 1.6W 60° Wind	50	11.18	0	0				11.1	Member
19	240	SOL - 9/16" SOLID	0.92	1.2D + 1.6W 60° Wind	50	11.18	0	0				8.3	Member
20	242.5	SOL - 9/16" SOLID	8.35	1.2D + 1.6W 90° Wind	50	11.18	0	0				74.7	Member
21	245	SOL - 9/16" SOLID	6.58	1.2D + 1.6W 90° Wind	50	11.18	0	0				58.9	Member
22	250	SOL - 9/16" SOLID	1.58	1.2D + 1.6W 90° Wind	50	11.18	0	0				14.1	Member
23	260	SOL - 9/16" SOLID	1.47	1.2D + 1.6W 60° Wind	50	11.18	0	0				13.1	Member

Support Forces Summary

Structure: CT02303-A-3-SBA
Site Name: Torrington 2 CT
Height: 260.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

1/22/2020

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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
<hr/>					
1.2D + 1.6W Normal Wind	1	0.00	110.04	-1.16	
	A1	0.00	-1.30	1.27	
	A1b	-39.96	-37.16	-24.65	
	A1a	39.96	-37.18	-24.63	
<hr/>					
1.2D + 1.6W 60° Wind	1	-1.60	89.43	-0.94	
	A1	-1.05	-6.65	8.73	
	A1b	-47.02	-42.37	-27.15	
	A1a	7.02	-6.66	-5.26	
<hr/>					
1.2D + 1.6W 90° Wind	1	-1.46	103.07	-0.29	
	A1	-1.48	-23.04	28.97	
	A1b	-48.28	-43.63	-27.00	
	A1a	2.00	-2.33	-1.70	
<hr/>					
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	185.22	-0.16	
	A1	0.00	-8.24	16.31	
	A1b	-30.81	-23.04	-19.42	
	A1a	30.81	-23.06	-19.41	
<hr/>					
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.18	184.45	-0.11	
	A1	-1.38	-13.19	22.55	
	A1b	-36.93	-28.05	-21.32	
	A1a	18.84	-13.20	-12.46	
<hr/>					
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.20	184.64	0.00	
	A1	-1.74	-18.03	29.36	
	A1b	-35.83	-26.61	-19.92	
	A1a	15.11	-9.54	-9.45	
<hr/>					
1.0D + 1.0W Normal Wind	1	0.00	54.81	-0.57	
	A1	0.00	-2.54	4.71	
	A1b	-14.03	-11.69	-8.42	
	A1a	14.03	-11.70	-8.42	
<hr/>					
1.0D + 1.0W 60° Wind	1	-0.49	55.56	-0.29	
	A1	-0.27	-5.89	8.79	
	A1b	-17.71	-15.06	-10.22	
	A1a	7.48	-5.90	-4.63	
<hr/>					
1.0D + 1.0W 90° Wind	1	-0.57	55.26	0.00	
	A1	-0.34	-8.80	12.56	
	A1b	-16.81	-14.12	-9.56	
	A1a	5.02	-3.55	-3.04	
<hr/>					

Max Reactions (kips)	Base	Anchor 1
Vertical	185.22	43.63
Horizontal	1.86	55.32

Cable Forces Summary

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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Load Case	Elevation (ft)	Cable	Node 1	Node 2	Allow Tension (kips)	Applied Tension (kips)	Use %	
1.2D + 1.6W Normal	70.04	1/2 EHS	A1	T1	16.02	0.32	2	
			A1b	T1b	16.02	6.92	43	
			A1a	T1a	16.02	7.11	44	
			A1a	T1	16.02	6.81	43	
			A1b	T1a	16.02	7.02	44	
			A1	T1b	16.02	0.32	2	
	139.33			A1	70	16.02	0.14	1
				A1a	70a	16.02	10.86	68
				A1b	70b	16.02	10.87	68
				A1	T3	12.48	0.42	3
	195.00	7/16 EHS		A1b	T3b	12.48	8.86	71
				A1a	T3a	12.48	8.90	71
				A1a	T3	12.48	8.78	70
				A1b	T3a	12.48	8.81	71
				A1	T3b	12.48	0.42	3
				A1	T3b	12.48	0.42	3
	239.33	5/8 EHS		A1	119	25.44	0.82	3
				A1a	119a	25.44	19.17	75
				A1b	119b	25.44	19.14	75
				A1	T1	16.02	1.83	11
1.2D + 1.6W 60° Wind	70.04	1/2 EHS	A1b	T1b	16.02	8.35	52	
			A1a	T1a	16.02	1.76	11	
			A1a	T1	16.02	1.81	11	
			A1b	T1a	16.02	8.33	52	
			A1	T1b	16.02	1.77	11	
			A1	70	16.02	1.71	11	
	139.33			A1a	70a	16.02	1.68	11
				A1b	70b	16.02	12.98	81
				A1	T3	12.48	1.82	15
				A1b	T3b	12.48	9.92	79
	195.00	7/16 EHS		A1a	T3a	12.48	1.74	14
				A1a	T3	12.48	1.80	14
				A1b	T3a	12.48	9.82	79
				A1	T3b	12.48	1.72	14
				A1	T3b	12.48	1.72	14
				A1	119	25.44	2.98	12
	239.33	5/8 EHS		A1a	119a	25.44	3.02	12
				A1b	119b	25.44	21.41	84
				A1	T1	16.02	4.39	27
				A1b	T1b	16.02	8.28	52
1.2D + 1.6W 90° Wind	70.04	1/2 EHS	A1a	T1a	16.02	0.49	3	
			A1a	T1	16.02	0.55	3	
			A1b	T1a	16.02	8.11	51	
			A1	T1b	16.02	4.53	28	
			A1	70	16.02	6.41	40	
			A1a	70a	16.02	0.51	3	
	139.33			A1b	70b	16.02	13.12	82
				A1	T3	12.48	5.71	46
				A1b	T3b	12.48	10.32	83
				A1a	T3a	12.48	0.66	5
	195.00	7/16 EHS		A1a	T3	12.48	0.71	6
				A1b	T3a	12.48	10.21	82
				A1	T3b	12.48	5.62	45
				A1	T3b	12.48	5.62	45
				A1	119	25.44	11.68	46
				A1a	119a	25.44	1.22	5

1.2D + 1.6W 90° Wind	239.33	5/8 EHS	A1b	119b	25.44	22.35	88
1.2D + 1.0Di + 1.0Wi	70.04	1/2 EHS	A1	T1	16.02	4.40	27
			A1b	T1b	16.02	7.17	45
			A1a	T1a	16.02	7.19	45
			A1a	T1	16.02	7.12	44
			A1b	T1a	16.02	7.16	45
			A1	T1b	16.02	4.38	27
	139.33		A1	70	16.02	3.76	23
			A1a	70a	16.02	8.21	51
			A1b	70b	16.02	8.21	51
	195.00	7/16 EHS	A1	T3	12.48	3.29	26
			A1b	T3b	12.48	7.29	58
			A1a	T3a	12.48	7.22	58
			A1a	T3	12.48	7.28	58
			A1b	T3a	12.48	7.19	58
			A1	T3b	12.48	3.28	26
	239.33	5/8 EHS	A1	119	25.44	3.99	16
			A1a	119a	25.44	11.49	45
			A1b	119b	25.44	11.47	45
1.2D + 1.0Di + 1.0Wi	70.04	1/2 EHS	A1	T1	16.02	5.20	32
			A1b	T1b	16.02	7.87	49
			A1a	T1a	16.02	5.18	32
			A1a	T1	16.02	5.20	32
			A1b	T1a	16.02	7.87	49
			A1	T1b	16.02	5.18	32
	139.33		A1	70	16.02	4.99	31
			A1a	70a	16.02	4.97	31
			A1b	70b	16.02	9.79	61
	195.00	7/16 EHS	A1	T3	12.48	4.76	38
			A1b	T3b	12.48	8.39	67
			A1a	T3a	12.48	4.62	37
			A1a	T3	12.48	4.74	38
			A1b	T3a	12.48	8.36	67
			A1	T3b	12.48	4.60	37
	239.33	5/8 EHS	A1	119	25.44	6.49	26
			A1a	119a	25.44	6.52	26
			A1b	119b	25.44	14.30	56
1.2D + 1.0Di + 1.0Wi	70.04	1/2 EHS	A1	T1	16.02	6.18	39
			A1b	T1b	16.02	7.72	48
			A1a	T1a	16.02	4.57	29
			A1a	T1	16.02	4.56	28
			A1b	T1a	16.02	7.69	48
			A1	T1b	16.02	6.17	39
	139.33		A1	70	16.02	6.52	41
			A1a	70a	16.02	4.02	25
			A1b	70b	16.02	9.37	58
	195.00	7/16 EHS	A1	T3	12.48	6.08	49
			A1b	T3b	12.48	8.08	65
			A1a	T3a	12.48	3.62	29
			A1a	T3	12.48	3.66	29
			A1b	T3a	12.48	8.05	65
			A1	T3b	12.48	5.91	47
	239.33	5/8 EHS	A1	119	25.44	8.88	35
			A1a	119a	25.44	4.70	18
			A1b	119b	25.44	13.46	53
1.0D + 1.0W Normal	70.04	1/2 EHS	A1	T1	16.02	1.57	10
			A1b	T1b	16.02	3.27	20
			A1a	T1a	16.02	3.29	21
			A1a	T1	16.02	3.24	20
			A1b	T1a	16.02	3.28	20
			A1	T1b	16.02	1.55	10
	139.33		A1	70	16.02	0.88	5
			A1a	70a	16.02	3.60	22
			A1b	70b	16.02	3.60	22
	195.00	7/16 EHS	A1	T3	12.48	0.52	4
			A1b	T3b	12.48	2.72	22
			A1a	T3a	12.48	2.69	22

1.0D + 1.0W Normal	195.00	7/16 EHS	A1a	T3	12.48	2.71	22			
			A1b	T3a	12.48	2.67	21			
			A1	T3b	12.48	0.51	4			
	239.33	5/8 EHS	A1	119	25.44	0.94	4			
			A1a	119a	25.44	5.56	22			
			A1b	119b	25.44	5.54	22			
1.0D + 1.0W 60° Wind	70.04	1/2 EHS	A1	T1	16.02	2.11	13			
			A1b	T1b	16.02	3.80	24			
			A1a	T1a	16.02	2.11	13			
			A1a	T1	16.02	2.11	13			
			A1b	T1a	16.02	3.80	24			
			A1	T1b	16.02	2.11	13			
			139.33			A1	70	16.02	1.71	11
						A1a	70a	16.02	1.70	11
						A1b	70b	16.02	4.61	29
			195.00	7/16 EHS	A1	T3	12.48	1.44	12	
					A1b	T3b	12.48	3.48	28	
					A1a	T3a	12.48	1.38	11	
					A1a	T3	12.48	1.42	11	
					A1b	T3a	12.48	3.46	28	
					A1	T3b	12.48	1.37	11	
239.33	5/8 EHS	A1			119	25.44	2.61	10		
		A1a			119a	25.44	2.63	10		
		A1b			119b	25.44	7.33	29		
1.0D + 1.0W 90° Wind	70.04	1/2 EHS	A1	T1	16.02	2.67	17			
			A1b	T1b	16.02	3.67	23			
			A1a	T1a	16.02	1.70	11			
			A1a	T1	16.02	1.70	11			
			A1b	T1a	16.02	3.65	23			
			A1	T1b	16.02	2.69	17			
			139.33			A1	70	16.02	2.63	16
						A1a	70a	16.02	1.05	7
						A1b	70b	16.02	4.34	27
			195.00	7/16 EHS	A1	T3	12.48	2.10	17	
					A1b	T3b	12.48	3.26	26	
					A1a	T3a	12.48	0.79	6	
					A1a	T3	12.48	0.83	7	
					A1b	T3a	12.48	3.25	26	
					A1	T3b	12.48	2.03	16	
239.33	5/8 EHS	A1			119	25.44	4.08	16		
		A1a			119a	25.44	1.46	6		
		A1b			119b	25.44	6.84	27		

Analysis Summary

Structure: CT02303-A-3-SBA	Code: EIA/TIA-222-G	1/22/2020
Site Name: Torrington 2 CT	Exposure: C	
Height: 260.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 25



Max Reactions

Base:	185.22 (Vertical)	1.86 (Horizontal)
Anchor 1:	43.63 (Vertical)	55.32 (Horizontal)

Max Usages

Max Leg: 97.9% (1.2D + 1.0Di + 1.0Wi 60° Wind - Sect 10)
 Max Diag: 92.8% (1.2D + 1.6W Normal Wind - Sect 9)
 Max Horiz: 74.9% (1.2D + 1.6W 90° Wind - Sect 5)
 Max Cable: 87.9% (1.2D + 1.6W 90° Wind) - Elev: 239 ft

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
1.0D + 1.0W 60 mph Wind at 60° From Face	83.00	0.1106	0.0016	0.0870
	85.33	0.1159	0.0016	0.1366
	117.00	0.1773	0.0061	0.0930
	165.33	0.2313	0.0077	0.0518
	172.33	0.2365	0.0078	0.0385
	177.00	0.2391	0.0086	0.0633
	180.00	0.2370	0.0095	0.1729
	200.00	0.2470	0.0155	0.1415
	200.67	0.2487	0.0150	0.1418
	219.33	0.2811	0.0156	0.2003
	223.00	0.2879	0.0156	0.1825
	232.33	0.3085	0.0072	0.1381
	245.00	0.3477	0.0007	0.1960
	253.00	0.3783	0.0065	0.1718
1.0D + 1.0W 60 mph Wind at 90° From Face	257.67	0.3944	-0.0037	0.2757
	260.00	0.4025	0.0127	0.1983
	83.00	0.1106	-0.0026	0.0870
	85.33	0.1159	-0.0024	0.1370
	117.00	0.1776	-0.0012	0.0922
	165.33	0.2245	0.0051	0.0424
	172.33	0.2284	0.0088	0.0287
	177.00	0.2301	0.0117	0.0539
	180.00	0.2272	0.0137	0.1869
	200.00	0.2351	0.0244	0.1406
	200.67	0.2369	0.0239	0.1387
	219.33	0.2685	0.0135	0.2347
	223.00	0.2760	0.0104	0.0798
	232.33	0.2964	0.0103	0.1393
245.00	0.3357	0.0123	0.1968	
253.00	0.3663	0.0105	0.1749	
257.67	0.3819	0.0101	0.3176	
260.00	0.3903	0.0100	0.0723	

1.0D + 1.0W 60 mph Wind at Normal To Face	83.00	0.1151	0.0120	0.0864
	85.33	0.1202	0.0117	0.1381
	117.00	0.1828	0.0234	0.0879
	165.33	0.2128	0.0200	0.0176
	172.33	0.2151	0.0155	0.0063
	177.00	0.2151	0.0140	0.0397
	180.00	0.2123	0.0131	0.2553
	200.00	0.2127	0.0163	0.1279
	200.67	0.2144	0.0160	0.1328
	219.33	0.2439	0.0101	0.1299
	223.00	0.2493	0.0097	0.3278
	232.33	0.2704	0.0115	0.1373
	245.00	0.3109	0.0158	0.2018
	253.00	0.3425	0.0137	0.1736
	257.67	0.3591	0.0131	0.0823
	260.00	0.3676	0.0131	0.3959

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	83.00	0.2636	0.0060	0.1982
	85.33	0.2759	0.0069	0.3074
	117.00	0.4200	0.0279	0.2431
	165.33	0.5511	0.0406	0.1146
	172.33	0.5630	0.0408	0.0887
	177.00	0.5690	0.0405	0.1541
	180.00	0.5645	0.0406	0.4136
	200.00	0.5844	0.0442	0.2634
	200.67	0.5877	0.0454	0.2631
	219.33	0.6474	0.0811	0.3555
	223.00	0.6607	0.0823	0.2971
	232.33	0.6981	0.0544	0.2498
	245.00	0.7659	0.0245	0.3425
	253.00	0.8208	0.0512	0.2987
	257.67	0.8491	0.0122	0.4658
	260.00	0.8635	0.0740	0.3652

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	83.00	0.2683	0.0037	0.1960
	85.33	0.2804	0.0046	0.3079
	117.00	0.4234	0.0240	0.2340
	165.33	0.5258	0.0604	0.0830
	172.33	0.5322	0.0684	0.0637
	177.00	0.5350	0.0731	0.1212
	180.00	0.5259	0.0753	0.4927
	200.00	0.5377	0.0928	0.2552
	200.67	0.5409	0.0930	0.2542
	219.33	0.5966	0.0986	0.4287
	223.00	0.6113	0.0907	0.1061
	232.33	0.6480	0.0939	0.2495
	245.00	0.7153	0.0987	0.3411
	253.00	0.7695	0.0991	0.3014
	257.67	0.7937	0.0994	0.5339
	260.00	0.8116	0.0993	0.1157

1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	83.00	0.2907	0.0380	0.1988
	85.33	0.3027	0.0403	0.3176
	117.00	0.4512	0.0914	0.2332
	165.33	0.5171	0.0874	0.0228
	172.33	0.5212	0.0737	0.0074
	177.00	0.5209	0.0650	0.0989
	180.00	0.5138	0.0585	0.6481
	200.00	0.5116	0.0390	0.2435
	200.67	0.5146	0.0387	0.2512
	219.33	0.5706	0.0313	0.2654
	223.00	0.5821	0.0279	0.5480
	232.33	0.6224	0.0249	0.2640
	245.00	0.6965	0.0221	0.3681
	253.00	0.7549	0.0223	0.3175
	257.67	0.7857	0.0217	0.1869
	260.00	0.8014	0.0226	0.7328

1.2D + 1.6W 93 mph Wind at 60° From Face	83.00	0.5105	0.0145	0.4182
	85.33	0.5345	0.0168	0.6215
	117.00	0.8309	0.0629	0.4856
	165.33	1.1305	0.0944	0.3085
	172.33	1.1632	0.0945	0.2536
	177.00	1.1817	0.0933	0.3760
	180.00	1.1773	0.0931	0.7018
	200.00	1.2508	0.1154	0.6697
	200.67	1.2591	0.1252	0.6716
	219.33	1.4219	0.4023	0.8607
	223.00	1.4561	0.4160	0.7359
	232.33	1.5553	0.2404	0.6549
	245.00	1.7407	0.0449	0.8984
	253.00	1.8765	0.1888	0.7827
	257.67	1.9477	-0.0285	1.1714
	260.00	1.9846	0.3083	0.8779

1.2D + 1.6W 93 mph Wind at 90° From Face	83.00	0.6667	-0.0485	0.5929
	85.33	0.6982	-0.0503	0.8219
	117.00	1.1252	-0.0821	0.7490
	165.33	1.6359	-0.0398	0.5743
	172.33	1.7007	-0.0223	0.5206
	177.00	1.7412	-0.0111	0.6568
	180.00	1.7547	0.0066	0.5762
	200.00	1.9263	0.0374	1.0531
	200.67	1.9386	0.0381	1.0435
	219.33	2.2044	-0.2003	1.3767
	223.00	2.2624	-0.2183	0.2764
	232.33	2.4148	-0.1530	0.9878
	245.00	2.6753	-0.1331	1.2254
	253.00	2.8560	-0.1847	1.1240
	257.67	2.9550	-0.0961	1.6677
	260.00	3.0041	-0.2276	0.7535

1.2D + 1.6W 93 mph Wind at Normal To Face	83.00	0.7661	0.1055	0.6577
	85.33	0.8003	0.1112	0.9041
	117.00	1.2767	0.2297	0.8420
	165.33	1.8442	0.2002	0.6519
	172.33	1.9255	0.1645	0.6087
	177.00	1.9732	0.1411	0.7739
	180.00	1.9905	0.1246	0.6074
	200.00	2.1940	0.0635	1.2187
	200.67	2.2079	0.0632	1.2097
	219.33	2.5211	0.0611	1.1167
	223.00	2.5806	0.0577	1.8834
	232.33	2.7625	0.0566	1.1482
	245.00	3.0651	0.0627	1.4330
	253.00	3.2752	0.0642	1.2964
	257.67	3.3907	0.0529	0.9496
	260.00	3.4491	0.0659	2.1539



Guyed Tower Base Design

Date
1/22/2020

Customer Name:	SBA Communications Corp	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	260
Site Nmber:	CT02303-A-3-SBA	Engineer Name:	T. Alajaj
Engr. Number:	91287	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations

Structure Type:

Guyed Tower

Analysis or Design?

Analysis

Base Reactions (Factored):

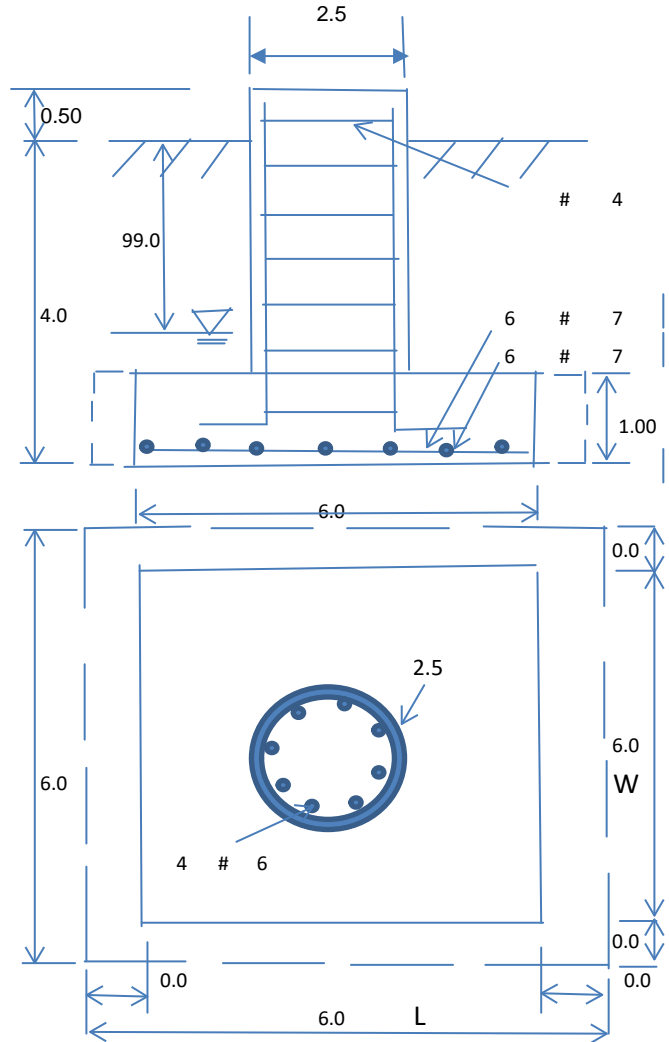
Axial Load (Kips):	185.2	Shear Force (Kips):	1.9
Uplift Force (Kips):	0.0	Moment (Kips-ft):	
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	2.5	Depth of Base BG (ft.):	4.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	1.00
Length of Pad (ft.):	6	Width of Pad (ft.):	6
Final Length of pad (ft)	6.0	Final width of pad (ft):	6.0

Material Properties and Reabr Info:

Concrete Strength (psi):	4500	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	6	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	4	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	7	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	6	Qty. of Rebar in Pad (W):	6	



Soil Design Parameters:

Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	30000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
					Angle from Bottm of Pad:	25

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.6
Total Dry Soil Volume (cu. Ft.):	93.27	Total Dry Soil Weight (Kips):	11.66
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	11.66	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	53.18	Total Dry Concrete Weight (Kips):	7.98
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	7.98	Total Vertical Load on Base (Kips):	204.86

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	5354.7	<	Allowable Factored Soil Bearing (psf):	18000	0.30	OK!
Calculated Foundation Allowable Axail Capacity (Kips):	648.0	>	Design Factored Axial Load (Kips):	187	0.29	OK!

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

Load/
Capacity
Ratio

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	0.44	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	92.1	> Design Factored Moment (Mu, Kips-Ft)	6.5	0.07	OK!
Calculated Shear Capacity (Kips):	167.1	> Design Factored Shear (Kips):	1.9	0.01	OK!
Calculated Tension Capacity (Tn, Kips):	95.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	1402.4	> Design Factored Axial Load (Pu Kips):	185.2	0.13	OK!
Moment & Axial Strength Combination(Pu/Pn+Mu/Mn):	0.20	OK!			
Pier Reinforcement Ratio:	0.002				

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Dir. Kips);	62.0	> One-Way Factored Shear (L-Dir Kips):	32.3	0.52	OK!
One-Way Design Shear Capacity (W-Dir. Kips):	62.0	> One-Way Factored Shear (W-Dir Kips)	32.3	0.52	OK!
Two-Way Design Shear Capacity (Kips):	208.8	> Two-Way Factored Shear (Kips):	144.1	0.69	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0058	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0058	OK!
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	132.2	> Moment at Bottom (L-Direct. K-Ft):	47.7	0.36	OK!
Lower Steel Pad Moment Capacity (W-Dir. Kips-ft):	132.2	> Moment at Bottom (W-Dir. Kips-Ft):	47.7	0.36	OK!



Guy Anchor Analysis and Design

Date

43852

Customer Name:	SBA Communications Corp	EIA/TIA Standard:	EA-222-G
Site Name:	0	Structure Height (Ft.):	260
Site Number:	CT02303-A-3- SBA	Engineer Name:	T. Alana
Engr. Number:	91287	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations

Number of Anchors:

1 Set

Soil Design Parameters:

Soil Unit Weight (pcf):	127.0	Soil Unit Weight:	6.6	cf	Cohesion of Soils (psf):	
Water Table Depth (ft):	99.0	Unit Weight of Water:	62.	pcf	Internal Angle of Friction (°)	
Ultimate Lateral Pressure (psf):	3000	Ultimate Sin Friction:	200	sf	Coefficient of Shear Friction:	0.30
Conical Failure Angle from Top:	30	Failure Angle from Bottom:	20			

Material Properties:

Concrete Strength (psi):	3000	Unit Weight of Concrete:	150.0	pcf	Horizontal Rebar Yield (psi):	60000
Shear Strength Reduction Factor:	0.75				Flexure Strength Reduction Factor:	0.9

A. Inner Anchors:

Radius (ft.): 200

1. Design Reactions (Factored):

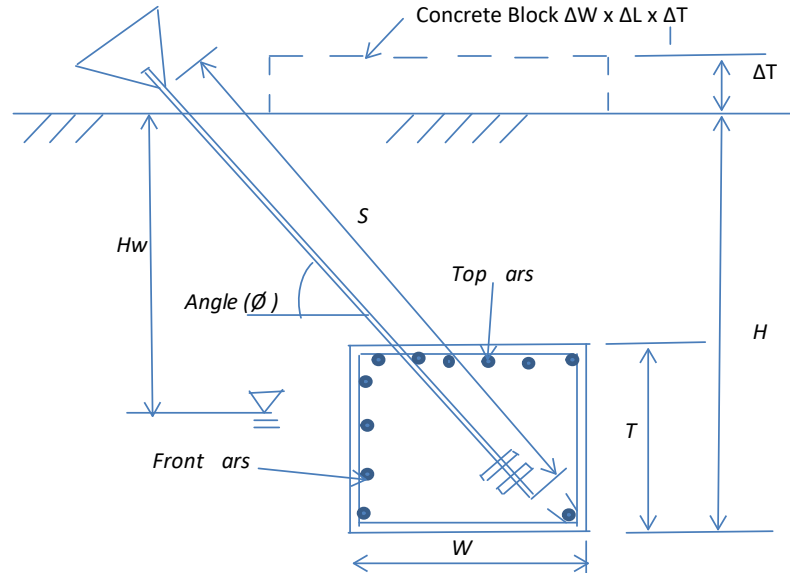
Uplift (ips): 3.6 Shear (ips): 55.3 Angle of force resultant (∅): 38.3

2. Foundation Geometries:

Anchor Depth (ft.):	8.0	Anchor with/without toe:	0	Water Table below grade (ft.):	99.00
Length of Anchor (ft.):	10.0	Width of Anchor (ft.):	5.5	Thickness of Anchor (ft.):	2.5
Concrete top of Anchor:	0				

(1). Inner Anchors:

Radius (ft.):	200
H (ft.):	8.0
L (ft.):	10.0
T (ft.):	2.5
S (ft.):	13.73
Top bars:	3 # 6
Front bars:	3 # 6
Concrete Volume (Cu. Ft.)/Each:	5.09



3. Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	610.18	Total Dry Soil Weight (Kips):	90.01
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	77.49	Weight of the Concrete Block at Top (Kips):	0.00
Total Dry Concrete Volume (cu. Ft.):	137.50	Total Dry Concrete Weight (Kip):	20.63
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	20.63	Weight Reduction Factor:	0.9
Uplift Strength Reduction Factor on Soil:	0.75	Shear Strength Reduction Factor on Soil:	0.75

4. Check Soil and Foundation Capacities:

Nominal Factored Uplift Resistance:	82.44	Kips > Design Uplift Force (Kips):	43.6	OK!
Ultimate Shear Friction Resistance at base:	9.63	Kips Ultimate Resistance Pressure:	3000.0	Psf
Factored Shear Resistance:	67.59	Kips > Design Shear Force (Kips):	55.3	OK!

5. Design Concrete Block:

Rebar Size (#):	6	Wind Load Factor on Concrete Design:	1.00	
Qty. of the Rebar at top of the block:	3	Qty. of the Rebar in the front of the block:	3	
Area of Single Rebar (sq. in.):	0.44	Factor for concrete compression zone:	0.85	
One Way Shear due to Shear Force (Kips):	27.7	One Way Shear Capacity for shear (kips):	152.8	OK!
One Way Shear due to Uplift (Kips):	21.8	One Way Shear Capacity for uplift (kips):	141.0	OK!
Moment due to Shear Load (Kips-ft):	69.1	Flexural Capacity for Shear Load (Kips-ft):	368.2	OK!
Moment due to uplift Load (Kips-ft):	54.5	Flexural Capacity for uplift Load (Kips-ft):	154.4	OK!
Ratio of Design Moment/Moment capacity:	0.35			
Max. Ratio of Shear Force/Shear capacity:	0.18	OK!		

