

From: [Mayo, Rachel](#)
To: [Bachman, Melanie](#); [CSC-DL Siting Council](#)
Cc: [Baldwin, Kenneth](#); [Bautista De Leon, Kamoya](#); [Arguello, Karina I.](#); [Mayo, Rachel](#)
Subject: RE: Exempt Modification - 940 Waterbury Road, Waterbury, CT
Date: Wednesday, August 16, 2023 3:20:41 PM
Attachments: [CT13070-A-01 Waterbury4CT Verizon 07072023 SA SBA13070 Job \(3\).pdf](#)

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.

Good afternoon, I discovered that the Structural Analysis in our 8/7/23 filing was not the one with the 2022 CT State Building Code reference.

Please see the SA that DOES have the 2022 CT State Building Code reference.

Sorry for the confusion.

Please let me know if anyone has any questions.

Rachel A. Mayo
Senior Land Use Analyst

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From: Arguello, Karina I. <KArguello@rc.com>
Sent: Monday, August 7, 2023 1:40 PM
To: Melanie.Bachman@ct.gov; Siting Council <siting.council@ct.gov>
Cc: Baldwin, Kenneth <KBALDWIN@RC.com>; Mayo, Rachel <rmayo@RC.com>; Bautista De Leon, Kamoya <kamoya.bautista@verizonwireless.com>
Subject: Exempt Modification - 940 Waterbury Road, Waterbury, CT

Hard copies and a check for the filing fee will be mailed to the Council today.

Files attached to this message

Filename	Size	Checksum (SHA256)
Exempt Modification - 940 Waterbury Road, Waterbury, CT.pdf	30 MB	a1b73ed7049e4ff99713272c8e45853b58fcf68978a22a63b4e3afb40424096f

Please click on the following link to download the attachments:

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The attachments are available until: **Wednesday, 6 September.**

Message ID: jAg1VK5ElajcfQ14AxQq7G

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Structural Analysis Report

Client: Verizon

Client Site ID / Name: 5000382125 / Waterbury East CT
Application #: 229460, v2

SBA Site ID / Name: CT13070-A-01 / Waterbury 4, CT

135 ft Monopole

940 Meriden Road
Waterbury, Connecticut 06705
Lat: 41.553278, Long: -72.993361

Project number: CT13070-VZW-061523

Analysis Results

Tower	82.2%	Pass
Foundation	82.0%	Pass

Change in tower stress due to mount modification / replacement	N/A
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Prepared by:

Jaffar Alqazzaz

July 7, 2023



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Introduction

The purpose of this report is to summarize the analysis results on the 135 ft Monopole to support the proposed antennas and transmissions lines in addition to those currently installed.

Table 1 List of Documents Used

Item	Document
Tower design/drawings	Sabre, Job # 07-03039, dated 3/14/2007
Foundation drawings	Sabre, Job # 07-03039 dated 4/23/2007
Geotechnical report	Gemini Geotechnical Associates, Site # 999-0096, dated 3/13/2007
Mount Analysis	Maser Consulting, Project # 21777081A, dated 6/23/2021
Modification drawings	TES, Job # 114884, dated 9/21/2021 FDH, Project # 01077E, dated 10/13/2009
Latest SA	TES, Project # 114884, dated 9/21/2021

Analysis Criteria

Table 2 Code Related Data

Jurisdiction (State/County/City)	Connecticut/New Haven/Waterbury
Governing Codes	ANSI/TIA/EIA 222-H, 2021 IBC, 2022 Connecticut State Building Code
Ultimate Wind Speed (3-Sec gust)	117.0 mph
Wind Speed with Ice (3-Sec gust)	50 mph
Service Wind Speed (3-Sec gust)	60 mph
Ice Thickness	1.00"
Risk Category	II
Exposure Category	C
Topographic Category	1
Crest Height	0 ft
Ground Elevation	609.69 ft.
Seismic Parameter S_s	0.194
Seismic Parameter S_1	0.054

This structural analysis is based upon the tower being classified as a risk category 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.

Appurtenance Loading

Existing Loading:

Table 3 Existing Appurtenances

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	129.0	3	TPA65R-BU8D - Panel	(3) Sector Frames [SitePro1 VFA12-M3-WLL]	(2) 0.4" Fiber (6) 1" DC	AT&T
2		3	AIR 6449 N77 - Panel			
3		3	Cci Antennas DMP65R-BU8DA-K - Panel			
4		3	RRUS 4478 B14			
5		3	Radio 4415 B30			
6		3	4449 B5/B12			
7		3	B2 B66A 8843			
8		3	DC9-48-60-24-8C-EV			
9		1	DC6-48-60-18-8C-EV			
10		3	RRUS 4415 B25			
11		3	Ericsson AIR 6419 B77G - Panel			
12		3	Ericsson Radio 2012 B29			
13	118.0	3	1900 MHz RRH	Low Profile Platform w/ Handrail [RMQP-4096- HK]	(3) 1-1/4" Fiber (1) 1.689" Fiber (2) 1/2"	T-Mobile Sprint
14		6	800 MHz RRH			
15		3	TD-RRH8x20-25			
16		3	Nokia - AAHC - Panel			
17		3	Commscope - NNVV-65B-R4 - Panel			
18	2	Andrew Microwaves - VHLP2.5-11 - Dish				
19	99.0	3	APX16DWV-16DWV-S-E-A20 - Panel	Low Profile Platform w/ Handrail [RMQP-4096- HK]	(12) 1 5/8" (2) 1 5/8" Fiber (2) 1-1/4" Hybrid	T-Mobile
20		3	RRUS 4415 B25			
21		3	4449 B71+ B85			
22		4	Ericsson - Air 32 KRD901146- 1_B66A_B2A - Panel			
23		3	KRY 112 489/2			
24		3	KRY 112 144/1			
25		3	AIR 6449 B41 - Panel			
26	3	RFS - APXVAARR24_43-U-NA20 - Panel				
-	87.0	3	Antel - BXA-80063/4CF - Panel	Low Profile Platform + (3) Support Rails [VZWSMART-PLK3]	(18) 1 5/8" (2) 1 5/8" Hybrid	Verizon
-		9	Andrew - SBNHH-1D65B - Panel			
-		3	1900 MHz 4X45 RRH			
-		3	RRH2X60-PCS			
-		3	RRH2X60-700			
-		2	DB-T1-6Z-8AB-OZ			

Note: AT&T loading includes FirstNET equipment

Proposed Loading:

Information pertaining to proposed antennas and transmission lines were based upon the Application #: 229460, v2 from Verizon and is listed in Table 4.

Table 4 Proposed Appurtenances

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
27	87.0	3	Antel BXA-171063-12CF-EDIN-X - Panel	Low Profile Platform + (3) Support Rails [VZWSMART-PLK3] + (3) Crossover Plate [VZWSMART-MSK2] + (12) [VZWSMART-MSK1]	(18) 1-5/8" (2) 1-5/8" Hybrid	Verizon
28		6	JMA MX06FR0660-03 - Panel			
29		3	Samsung MT6407-77A - Panel			
30		3	Samsung B2/B66A RRH-BR049 (RFV01U-D1A)			
31		3	Samsung B5/B13 RRH-BR04C (RFV01U-D2A)			
32		1	Raycap RVZDC-6627-PF-48			
33		4	Kaelus BSF0020F3V1-1			

Analysis Results

Tower

The results of the structural analysis are shown below in table 5. Additional information for the tower analysis is provided within the Appendix.

Table 5 Tower Analysis Summary

	Pole shafts	Anchor Bolts	Base Plate	Flange Plate
Max. Usage:	82.3%	66.8%	51.4%	41.5%
Pass/Fail	Pass	Pass	Pass	Pass

Foundation

The results of the foundation analysis are shown below in table 6. Additional information for the foundation analysis is provided within the Appendix.

Table 6 Foundation Analysis Summary

Structural Component	Max Usage (%)	Analysis Result
Foundation	82.0%	Pass

Conclusions

Based on the analysis results, the existing tower and foundation were found to be **sufficient** to safely support the equipment listed in this analysis. No modification to the tower and foundation is needed at this time.

Installation Requirements

This analysis was performed under the assumption that the carrier will place the proposed equipment and feed lines at the installation height listed in Table 4 and in accordance with the coax layout shown. TMAs and RRUs are to be installed on existing mounts behind tenant's antennas unless otherwise noted. No equipment is to be installed directly in the climbing path. All equipment is to be installed per mount manufacturer specifications. In case site conditions do not allow for the required installation parameters to be met the carrier must notify SBA Communications Corporation engineers for approval of an alternative placement.

Assumptions and Limitations

Assumptions

This analysis was completed based on the following assumptions:

- Tower and foundation were built in accordance to manufacturer specifications.
- Tower and foundation has been properly maintained in accordance with the manufacturer's specifications
- All existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion
- Welds and bolts are assumed able to carry their intended original design loads.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 3 and 4.
- This analysis may be affected if any assumptions are not valid or have been made in error. SBA should be notified to determine the effect on the structural integrity of the tower.

Limitations

The computer generated analysis performed by the tower software is limited to theoretical capacities of the towers structural members and does not account for any missing or damaged members or connections. The tower and foundation are assumed to have been properly designed, fabricated, installed and maintained, barring any conflicting findings from the most recent inspection.

SBA Communications Corporation has used its due diligence to verify the information provided to perform this analysis. It is unreasonable to perform a more detailed inspection of a tower and its components. This report is not a condition assessment of the tower or foundation.

Appendix

Usage Diagram - Max Ratio 82.32% at 0.0ft

Structure: CT13070-A-01
Site Name: Waterbury 4, CT
Height: 134.00 (ft)
Base Elev: 1.000 (ft)

Code: EIA/TIA-222-H
Exposure: C
Gh: 1.1

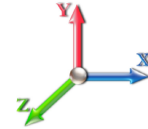
7/7/2023



Page: 1

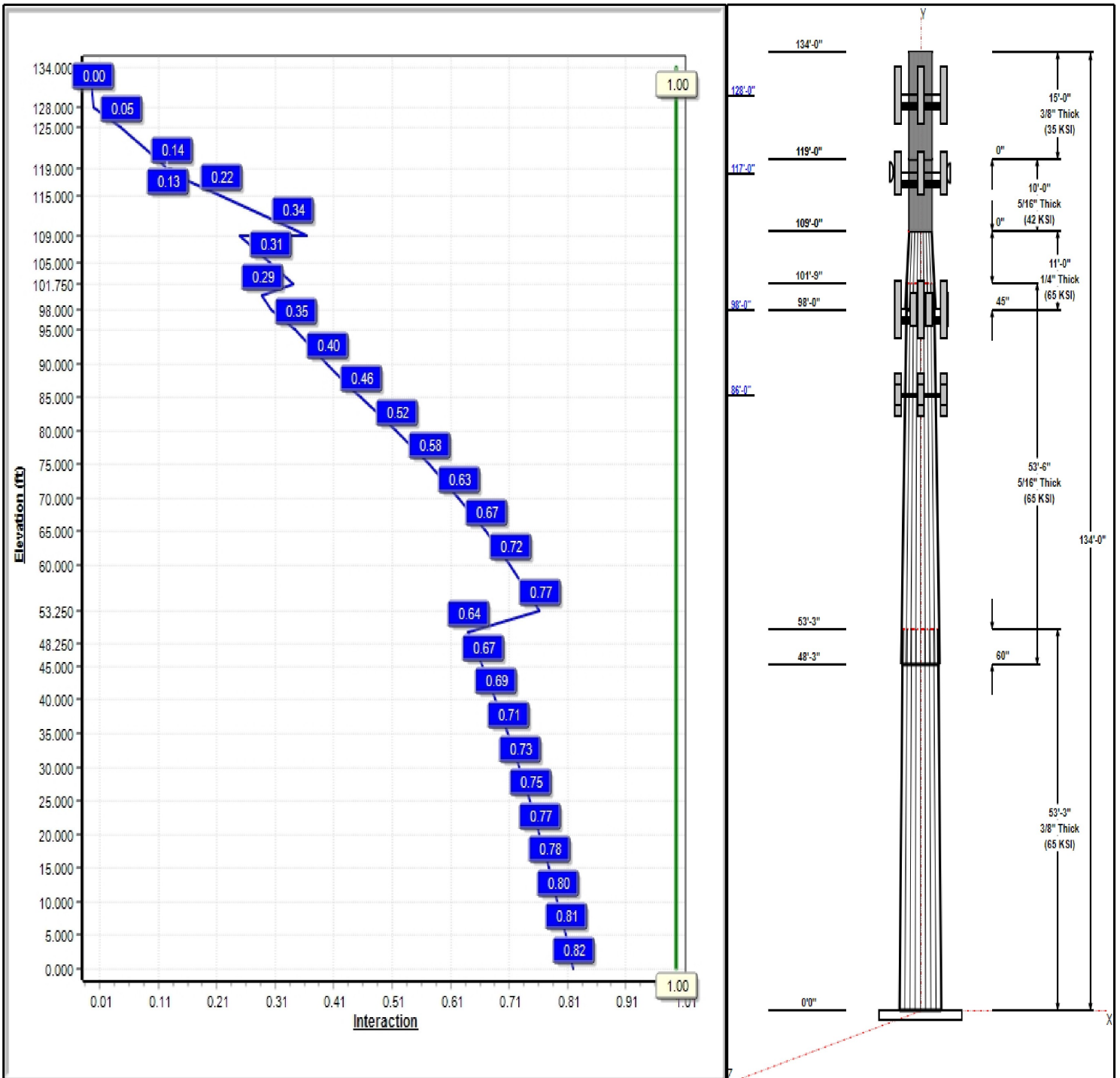
Dead Load Factor: 1.20
Wind Load Factor: 1.00

Load Case : 1.2D + 1.0W 117 mph Wind



Iterations: 25

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Structure: CT13070-A-01

Type: Custom
Site Name: Waterbury 4, CT
Height: 134.00 (ft)
Base Elev: 1.00 (ft)

Base Shape: 18 Sided
Taper: 0.21408

7/7/2023

Page: 2



Shaft Properties

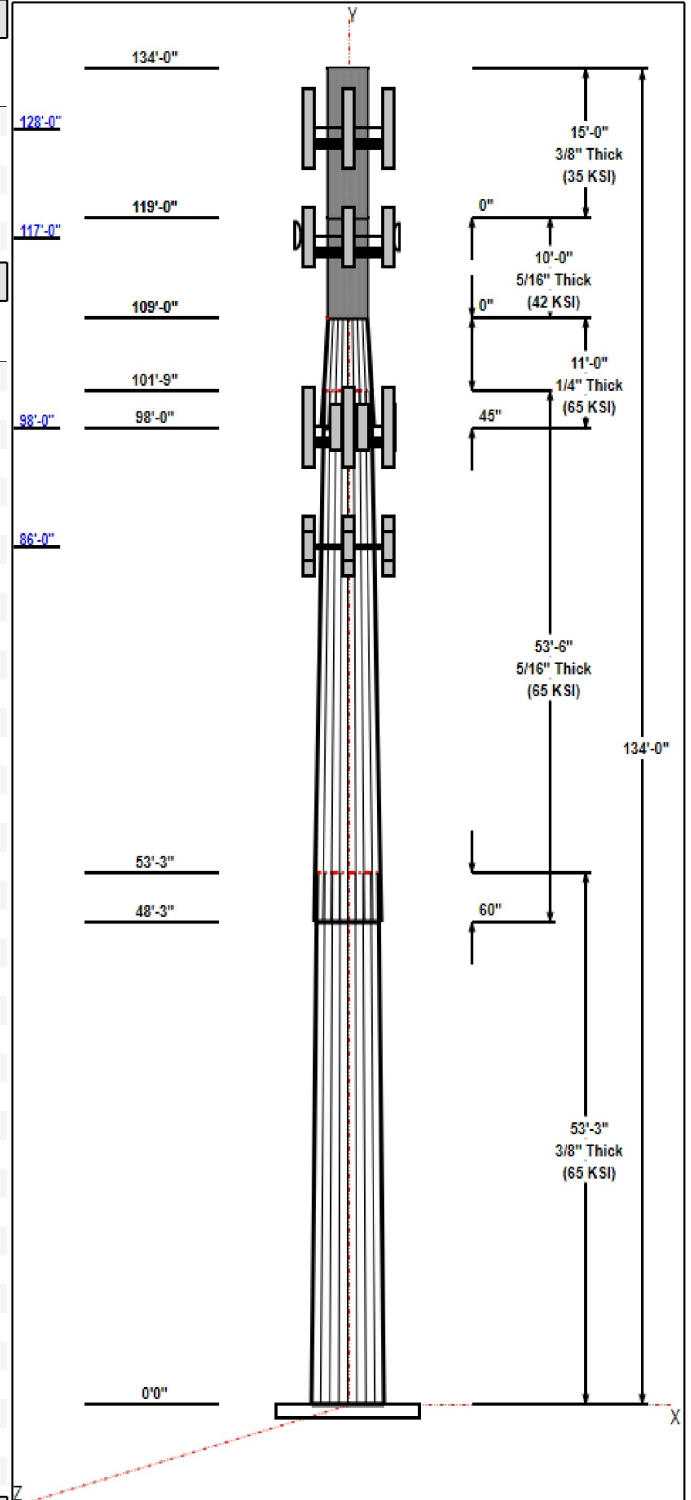
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	37.99	49.39	0.375		0.21408	65
2	53.50	28.23	39.69	0.313	Slip	0.21408	65
3	11.00	27.18	29.53	0.250	Slip	0.21408	65
4	10.00	26.00	26.00	0.312	Butt	0.00000	42
5	15.00	26.00	26.00	0.375	Butt	0.00000	35

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
134.00	134.00	1	Lightning rod	
128.00	128.00	3	TPA65R-BU8D	AT&T
128.00	128.00	3	AIR 6449 N77	AT&T
128.00	128.00	3	Cci Antennas	AT&T
128.00	128.00	3	RRUS 4478 B14	AT&T
128.00	128.00	3	Radio 4415 B30	AT&T
128.00	128.00	3	4449 B5/B12	AT&T
128.00	128.00	3	B2 B66A 8843	AT&T
128.00	128.00	3	DC9-48-60-24-8C-EV	AT&T
128.00	128.00	1	DC6-48-60-18-8C-EV	AT&T
128.00	128.00	3	RRUS 4415 B25	AT&T
128.00	128.00	3	Ericsson AIR 6419 B77G	AT&T
128.00	128.00	3	Ericsson Radio 2012 B29	AT&T
128.00	128.00	1	(3) SitePro	AT&T
117.00	117.00	3	1900 MHz RRH	T-Mobile Sprint
117.00	117.00	6	800 MHz RRH	T-Mobile Sprint
117.00	117.00	3	TD-RRH8x20-25	T-Mobile Sprint
117.00	117.00	3	AAHC	T-Mobile Sprint
117.00	117.00	3	NNVV-65B-R4	T-Mobile Sprint
117.00	117.00	1	LP Platform w/ Handrail	T-Mobile Sprint
117.00	117.00	2	VHLP2.5-11	T-Mobile Sprint
98.00	98.00	3	APX16DWV-16DWV-S-E-	T-Mobile
98.00	98.00	3	RRUS 4415 B25	T-Mobile
98.00	98.00	3	4449 B71+ B85	T-Mobile
98.00	98.00	4	Air 32	T-Mobile
98.00	98.00	3	KRY 112 489/2	T-Mobile
98.00	98.00	1	LP Platform w/ Handrail	T-Mobile
98.00	98.00	3	KRY 112 144/1	T-Mobile
98.00	98.00	3	AIR 6449 B41	T-Mobile
98.00	98.00	3	APXVAARR24_43-U-NA20	T-Mobile
86.00	86.00	1	Low Profile	Verizon
86.00	86.00	3	Antel	Verizon
86.00	86.00	6	JMA MX06FR0660-03	Verizon
86.00	86.00	3	Samsung MT6407-77A	Verizon
86.00	86.00	3	Samsung B2/B66A	Verizon
86.00	86.00	3	Samsung B5/B13	Verizon
86.00	86.00	1	Raycap	Verizon
86.00	86.00	1	HRK12 (Handrail Kit)	Verizon
86.00	86.00	4	Kaelus BSF0020F3V1-1	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	134.00	Outside	Safety Cable	
0.00	134.00	Outside	Step bolts (ladder)	



Structure: CT13070-A-01

Type: Custom	Base Shape: 18 Sided	7/7/2023
Site Name: Waterbury 4, CT	Taper: 0.00000	
Height: 134.00 (ft)		
Base Elev: 1.00 (ft)		Page: 3



0.00	128.00	Inside	0.4" Fiber	AT&T
0.00	128.00	Inside	1" DC	AT&T
0.00	117.00	Inside	1-1/4" Fiber	Sprint Nextel
0.00	117.00	Inside	1.689" Fiber	Sprint Nextel
0.00	117.00	Inside	1/2" Coax	Sprint Nextel
0.00	98.00	Inside	1 5/8" Coax	T-Mobile
0.00	98.00	Inside	1 5/8" Fiber	T-Mobile
0.00	98.00	Inside	1-1/4" Hybrid	T-Mobile
0.00	86.00	Inside	1 5/8" Coax	Verizon
0.00	86.00	Inside	1 5/8" Hybrid	Verizon

Anchor Bolts

Qty	Specifications	Grade	(ksi)	Arrangement
12	2.25" 18J	75.0		Cluster

Base Plate

Thickness	Specifications	Grade	Geometry
(in)	(in)	(ksi)	
3.0000	53.3	60.0	Clipped

Reactions

Load Case	Moment	Shear	Axial
	(FT-Kips)	(Kips)	(Kips)
1.2D + 1.0W 117 mph Wind	3250.4	33.0	47.3
0.9D + 1.0W 117 mph Wind	3205.7	32.9	35.4
1.2D + 1.0Di + 1.0Wi 50 mph Wind	869.5	8.8	66.4
1.2D + 1.0Ev + 1.0Eh	82.0	0.7	49.0
0.9D + 1.0Ev + 1.0Eh	81.0	0.7	37.1
1.0D + 1.0W 60 mph Wind	758.9	7.8	39.4

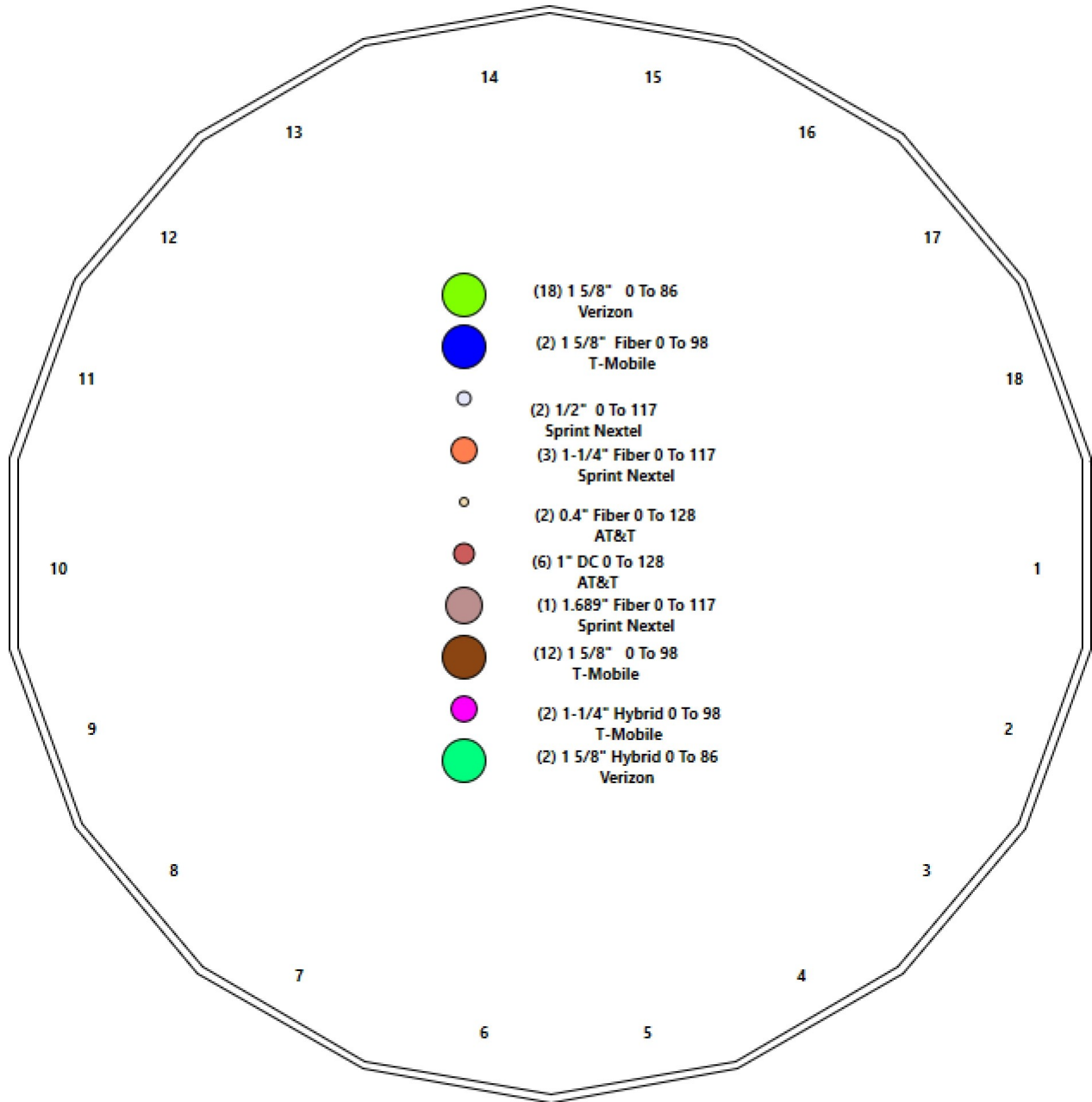
Structure: CT13070-A-01 - Coax Line Placement

Type: Monopole
Site Name: Waterbury 4, CT
Height: 134.00 (ft)

7/7/2023



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Safety Ca

Shaft Properties

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 5



Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.3750	65		0.00	9,341
2	18	53.500	0.3125	65	Slip	60.00	6,075
3	18	11.000	0.2500	65	Slip	45.00	835
4	R	10.000	0.3120	42	Flange	0.00	857
5	R	15.000	0.3750	35	Flange	0.00	1,541
Total Shaft Weight:							18,649

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	49.39	0.00	58.34	17707.72	21.81	131.71	37.99	53.25	44.77	8003.18	16.45	101.3	0.214083
2	39.69	48.25	39.05	7648.75	20.98	126.99	28.23	101.75	27.69	2727.23	14.52	90.34	0.214083
3	29.53	98.00	23.24	2517.77	19.42	118.14	27.18	109.00	21.37	1957.91	17.76	108.7	0.214083
4	26.00	109.0	25.18	2078.44	0.00	83.33	26.00	119.00	25.18	2078.44	0.00	83.33	0.000000
5	26.00	119.0	30.19	2479.79	0.00	69.33	26.00	134.00	30.19	2479.79	0.00	69.33	0.000000

Load Summary

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	134.00	Lightning rod	1	6.50	0.38	1.00	30.45	1.097	1.00	0.00	0.00
2	128.00	TPA65R-BU8D	3	145.00	17.87	0.72	602.72	19.050	0.72	0.00	0.00
3	128.00	AIR 6449 N77	3	101.60	4.13	0.85	186.27	4.680	0.85	0.00	0.00
4	128.00	Cci Antennas DMP65R-BU8DA-K	3	95.70	17.87	0.73	356.51	19.050	0.73	0.00	0.00
5	128.00	RRUS 4478 B14	3	59.40	1.65	0.67	86.63	1.990	0.67	0.00	0.00
6	128.00	Radio 4415 B30	3	46.00	1.86	0.67	82.20	2.216	0.67	0.00	0.00
7	128.00	4449 B5/B12	3	71.00	1.97	0.67	106.05	2.329	0.67	0.00	0.00
8	128.00	B2 B66A 8843	3	72.00	1.64	0.67	103.06	1.979	0.67	0.00	0.00
9	128.00	DC9-48-60-24-8C-EV	3	26.20	1.14	0.75	95.80	2.182	0.75	0.00	0.00
10	128.00	DC6-48-60-18-8C-EV	1	26.20	4.78	0.75	159.25	5.361	0.75	0.00	0.00
11	128.00	RRUS 4415 B25	3	46.00	1.64	0.67	72.99	1.978	0.67	0.00	0.00
12	128.00	Ericsson AIR 6419 B77G	3	44.00	4.17	0.83	116.46	4.724	0.85	0.00	0.00
13	128.00	Ericsson Radio 2012 B29	3	43.00	1.86	0.67	80.40	2.216	0.67	0.00	0.00
14	128.00	(3) SitePro VFA12-M3-WLL	1	2999.58	50.70	1.00	4924.69	92.536	1.00	0.00	0.00
15	117.00	1900 MHz RRH	3	60.00	2.77	0.67	114.30	3.596	0.67	0.00	0.00
16	117.00	800 MHz RRH	6	53.00	2.49	0.67	101.14	3.234	0.67	0.00	0.00
17	117.00	TD-RRH8x20-25	3	70.00	4.05	0.67	136.77	4.564	0.67	0.00	0.00
18	117.00	AAHC	3	103.70	4.21	0.75	172.44	4.738	0.75	0.00	0.00
19	117.00	NNVV-65B-R4	3	84.70	12.27	0.74	288.09	13.218	0.74	0.00	0.00
20	117.00	LP Platform w/ Handrail	1	2448.72	46.00	1.00	4117.61	68.154	1.00	0.00	0.00
21	117.00	VHLP2.5-11	2	48.00	8.43	1.00	161.34	9.541	1.00	0.50	0.00
22	98.00	APX16DWV-16DWV-S-E-A20	3	40.70	6.46	0.62	121.22	7.155	0.62	0.00	0.00
23	98.00	RRUS 4415 B25	3	46.00	1.64	0.67	72.29	1.970	0.67	0.00	0.00
24	98.00	4449 B71+ B85	3	70.00	1.65	0.67	109.71	1.980	0.67	0.00	0.00
25	98.00	Air 32 KRD901146-1_B66A_B2A	4	132.20	6.51	0.87	242.44	7.266	0.87	0.00	0.00
26	98.00	KRY 112 489/2	3	15.40	0.65	0.67	26.67	1.042	0.67	0.00	0.00
27	98.00	LP Platform w/ Handrail	1	2449.00	46.00	1.00	4089.03	66.537	1.00	0.00	0.00
28	98.00	KRY 112 144/1	3	11.02	0.41	0.67	17.93	0.714	0.67	0.00	0.00
29	98.00	AIR 6449 B41	3	133.20	6.53	0.70	231.64	7.205	0.70	0.00	0.00
30	98.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	383.14	21.439	0.70	0.00	0.00
31	86.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	2326.35	33.150	1.00	0.00	0.00
32	86.00	Antel BXA-171063-12CF-EDIN-X	3	15.00	4.79	0.88	82.81	5.533	0.89	0.00	0.00
33	86.00	JMA MX06FR0660-03	6	60.00	9.87	0.87	217.97	10.714	0.88	0.00	0.00
34	86.00	Samsung MT6407-77A	3	87.10	4.70	0.70	157.92	5.270	0.71	0.00	0.00
35	86.00	Samsung B2/B66A RRH-BR049	3	84.40	1.88	0.83	116.43	2.224	0.85	0.00	0.00
36	86.00	Samsung B5/B13 RRH-BR04C	3	70.30	1.88	0.77	100.66	2.224	0.79	0.00	0.00
37	86.00	Raycap RVZDC-6627-PF-48	1	32.00	4.06	1.00	103.93	4.579	1.00	0.00	0.00
38	86.00	HRK12 (Handrail Kit)	1	261.72	6.75	1.00	457.81	10.915	1.00	0.00	0.00
39	86.00	Kaelus BSF0020F3V1-1	4	17.60	0.96	0.65	32.35	1.211	0.69	0.00	0.00
Totals:			108	16,405.18			31,608.97				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	134.00	(1) Safety Cable	0.38	Outside
0.00	134.00	(1) Step bolts (ladder)	0.63	Outside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
0.00	128.00	(2) 0.4" Fiber		0.00		Inside					
0.00	128.00	(6) 1" DC		0.00		Inside					
0.00	117.00	(3) 1-1/4" Fiber		0.00		Inside					
0.00	117.00	(1) 1.689" Fiber		0.00		Inside					
0.00	117.00	(2) 1/2" Coax		0.00		Inside					
0.00	98.00	(12) 1 5/8" Coax		0.00		Inside					
0.00	98.00	(2) 1 5/8" Fiber		0.00		Inside					
0.00	98.00	(2) 1-1/4" Hybrid		0.00		Inside					
0.00	86.00	(18) 1 5/8" Coax		0.00		Inside					
0.00	86.00	(2) 1 5/8" Hybrid		0.00		Inside					

Shaft Section Properties

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	49.390	58.338	17707.7	21.81	131.71	75.7	706.2	0.0
5.00		0.3750	48.320	57.064	16572.7	21.31	128.85	76.3	675.5	981.7
10.00		0.3750	47.249	55.790	15487.3	20.81	126.00	76.9	645.6	960.0
15.00		0.3750	46.179	54.516	14450.4	20.30	123.14	77.5	616.3	938.4
20.00		0.3750	45.108	53.242	13460.8	19.80	120.29	78.1	587.8	916.7
25.00		0.3750	44.038	51.968	12517.4	19.30	117.43	78.7	559.8	895.0
30.00		0.3750	42.968	50.694	11619.2	18.79	114.58	79.3	532.6	873.3
35.00		0.3750	41.897	49.420	10765.0	18.29	111.73	79.9	506.1	851.7
40.00		0.3750	40.827	48.146	9953.7	17.79	108.87	80.5	480.2	830.0
45.00		0.3750	39.756	46.872	9184.3	17.28	106.02	81.1	455.0	808.3
48.25	Bot - Section 2	0.3750	39.061	46.044	8706.0	16.96	104.16	81.5	439.0	513.8
50.00		0.3750	38.686	45.598	8455.5	16.78	103.16	81.7	430.5	504.3
53.25	Top - Section 1	0.3125	38.615	37.990	7041.7	20.38	123.57	0.0	0.0	923.6
55.00		0.3125	38.240	37.618	6837.1	20.17	122.37	77.7	352.2	225.1
60.00		0.3125	37.170	36.557	6274.4	19.56	118.94	78.4	332.5	631.0
65.00		0.3125	36.100	35.495	5743.5	18.96	115.52	79.1	313.4	612.9
70.00		0.3125	35.029	34.433	5243.4	18.35	112.09	79.8	294.8	594.9
75.00		0.3125	33.959	33.372	4773.2	17.75	108.67	80.5	276.8	576.8
80.00		0.3125	32.888	32.310	4332.0	17.15	105.24	81.2	259.4	558.8
85.00		0.3125	31.818	31.248	3918.8	16.54	101.82	81.9	242.6	540.7
86.00		0.3125	31.604	31.036	3839.5	16.42	101.13	82.1	239.3	106.0
90.00		0.3125	30.748	30.187	3532.8	15.94	98.39	82.5	226.3	416.7
95.00		0.3125	29.677	29.125	3173.0	15.33	94.97	82.5	210.6	504.6
98.00	Bot - Section 3	0.3125	29.035	28.488	2969.3	14.97	92.91	82.5	201.4	294.1
100.00		0.3125	28.607	28.063	2838.5	14.73	91.54	82.5	195.4	349.4
101.75	Top - Section 2	0.2500	28.732	22.600	2316.3	18.85	114.93	0.0	0.0	301.5
105.00		0.2500	28.036	22.048	2150.7	18.36	112.15	79.8	151.1	246.9
109.00	Top - Section 3	0.2500	27.180	21.368	1957.9	17.76	108.72	80.5	141.9	295.5
109.00	Bot - Section 4	0.3120	26.000	25.179	2078.4	14.23	87.12	41.2	159.9	
110.00		0.3120	26.000	25.179	2078.4	0.00	83.33	41.2	159.9	85.7
115.00		0.3120	26.000	25.179	2078.4	0.00	83.33	41.2	159.9	428.4
117.00		0.3120	26.000	25.179	2078.4	0.00	83.33	41.2	159.9	171.4
119.00	Top - Section 4	0.3120	26.000	25.179	2078.4	0.00	83.33	41.2	159.9	171.4
119.00	Bot - Section 5	0.3750	26.000	30.189	2479.8	0.00	69.33	35.0	190.8	
120.00		0.3750	26.000	30.189	2479.8	0.00	69.33	35.0	190.8	102.7
125.00		0.3750	26.000	30.189	2479.8	0.00	69.33	35.0	190.8	513.6
128.00		0.3750	26.000	30.189	2479.8	0.00	69.33	35.0	190.8	308.2
130.00		0.3750	26.000	30.189	2479.8	0.00	69.33	35.0	190.8	205.5
134.00		0.3750	26.000	30.189	2479.8	0.00	69.33	35.0	190.8	410.9

18649.2

Wind Loading - Shaft

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 9

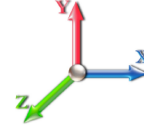


Load Case: 1.2D + 1.0W 117 mph Wind

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	27.680	30.45	445.87	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	27.680	30.45	436.21	0.730	0.000	5.00	20.670	15.09	459.4	0.0	1178.1
10.00		1.00	0.85	27.680	30.45	426.54	0.730	0.000	5.00	20.217	14.76	449.4	0.0	1152.1
15.00		1.00	0.86	28.022	30.82	419.45	0.730	0.000	5.00	19.764	14.43	444.7	0.0	1126.0
20.00		1.00	0.91	29.673	32.64	421.62	0.730	0.000	5.00	19.312	14.10	460.1	0.0	1100.0
25.00		1.00	0.95	31.038	34.14	420.98	0.730	0.000	5.00	18.859	13.77	470.0	0.0	1074.0
30.00		1.00	0.99	32.209	35.43	418.42	0.730	0.000	5.00	18.406	13.44	476.0	0.0	1048.0
35.00		1.00	1.02	33.239	36.56	414.47	0.730	0.000	5.00	17.953	13.11	479.2	0.0	1022.0
40.00		1.00	1.05	34.161	37.58	409.45	0.730	0.000	5.00	17.500	12.77	480.1	0.0	996.0
45.00		1.00	1.07	34.999	38.50	403.57	0.730	0.000	5.00	17.047	12.44	479.1	0.0	970.0
48.25	Bot - Section 2	1.00	1.09	35.506	39.06	399.37	0.730	0.000	3.25	10.838	7.91	309.0	0.0	616.5
50.00		1.00	1.10	35.768	39.34	396.99	0.730	0.000	1.75	5.849	4.27	168.0	0.0	605.2
53.25	Top - Section 1	1.00	1.11	36.236	39.86	392.40	0.730	0.000	3.25	10.715	7.82	311.8	0.0	1108.4
55.00		1.00	1.12	36.479	40.13	396.30	0.730	0.000	1.75	5.691	4.15	166.7	0.0	270.1
60.00		1.00	1.14	37.142	40.86	388.69	0.730	0.000	5.00	15.953	11.65	475.8	0.0	757.2
65.00		1.00	1.16	37.763	41.54	380.64	0.730	0.000	5.00	15.500	11.31	470.0	0.0	735.5
70.00		1.00	1.18	38.348	42.18	372.21	0.730	0.000	5.00	15.047	10.98	463.3	0.0	713.9
75.00		1.00	1.19	38.901	42.79	363.43	0.730	0.000	5.00	14.594	10.65	455.9	0.0	692.2
80.00		1.00	1.21	39.426	43.37	354.34	0.730	0.000	5.00	14.141	10.32	447.7	0.0	670.5
85.00		1.00	1.23	39.927	43.92	344.98	0.730	0.000	5.00	13.688	9.99	438.9	0.0	648.8
86.00	Appurtenance(s)	1.00	1.23	40.024	44.03	343.07	0.730	0.000	1.00	2.683	1.96	86.2	0.0	127.2
90.00		1.00	1.24	40.405	44.45	335.36	0.730	0.000	4.00	10.552	7.70	342.4	0.0	500.0
95.00		1.00	1.25	40.862	44.95	325.51	0.730	0.000	5.00	12.783	9.33	419.4	0.0	605.5
98.00	Bot - Section 3	1.00	1.26	41.128	45.24	319.50	0.730	0.000	3.00	7.452	5.44	246.1	0.0	352.9
100.00		1.00	1.27	41.301	45.43	315.45	0.730	0.000	2.00	4.962	3.62	164.6	0.0	419.3
101.75	Top - Section 2	1.00	1.27	41.451	45.60	311.89	0.730	0.000	1.75	4.282	3.13	142.5	0.0	361.8
105.00		1.00	1.28	41.724	45.90	310.74	0.730	0.000	3.25	7.806	5.70	261.5	0.0	296.3
109.00	Top - Section 3	1.00	1.29	42.050	46.26	302.43	0.730	0.000	4.00	9.345	6.82	315.5	0.0	354.6
110.00		1.00	1.29	42.130	46.34	285.17	0.600	0.000	1.00	2.167	1.30	60.2	0.0	102.8
115.00		1.00	1.31	42.523	46.78	286.50	0.600	0.000	5.00	10.833	6.50	304.0	0.0	514.1
117.00	Appurtenance(s)	1.00	1.31	42.676	46.94	287.01	0.600	0.000	2.00	4.333	2.60	122.1	0.0	205.6
119.00	Top - Section 4	1.00	1.32	42.828	47.11	287.52	0.600	0.000	2.00	4.333	2.60	122.5	0.0	205.6
120.00		1.00	1.32	42.902	47.19	287.77	0.600	0.000	1.00	2.167	1.30	61.4	0.0	123.3
125.00		1.00	1.33	43.270	47.60	289.00	0.600	0.000	5.00	10.833	6.50	309.4	0.0	616.4
128.00	Appurtenance(s)	1.00	1.34	43.485	47.83	289.72	0.600	0.000	3.00	6.500	3.90	186.5	0.0	369.8
130.00		1.00	1.34	43.626	47.99	290.19	0.600	0.000	2.00	4.333	2.60	124.8	0.0	246.5
134.00	Appurtenance(s)	1.00	1.35	43.903	48.29	291.11	0.600	0.000	4.00	8.667	5.20	251.1	0.0	493.1
Totals:									134.00			11,425.5		22,379.0

Discrete Appurtenance Forces

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0W 117 mph Wind	Iterations 25
Dead Load Factor 1.20	
Wind Load Factor 1.00	

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	134.00	Lightning rod	1	43.903	48.293	1.00	1.00	0.38	7.80	0.000	0.000	18.35	0.00	0.00
2	128.00	B2 B66A 8843	3	43.485	47.833	0.54	0.80	2.64	259.20	0.000	0.000	126.14	0.00	0.00
3	128.00	TPA65R-BU8D	3	43.485	47.833	0.58	0.80	30.88	522.00	0.000	0.000	1477.06	0.00	0.00
4	128.00	AIR 6449 N77	3	43.485	47.833	0.68	0.80	8.43	365.76	0.000	0.000	403.00	0.00	0.00
5	128.00	Cci Antennas	3	43.485	47.833	0.58	0.80	31.31	344.52	0.000	0.000	1497.57	0.00	0.00
6	128.00	RRUS 4478 B14	3	43.485	47.833	0.54	0.80	2.65	213.84	0.000	0.000	126.91	0.00	0.00
7	128.00	4449 B5/B12	3	43.485	47.833	0.54	0.80	3.17	255.60	0.000	0.000	151.52	0.00	0.00
8	128.00	Radio 4415 B30	3	43.485	47.833	0.54	0.80	2.99	165.60	0.000	0.000	143.06	0.00	0.00
9	128.00	Ericsson AIR 6419 B77G	3	43.485	47.833	0.66	0.80	8.29	158.40	0.000	0.000	396.38	0.00	0.00
10	128.00	(3) SitePro	1	43.485	47.833	0.75	0.75	38.03	3599.50	0.000	0.000	1818.85	0.00	0.00
11	128.00	Ericsson Radio 2012 B29	3	43.485	47.833	0.54	0.80	2.99	154.80	0.000	0.000	143.06	0.00	0.00
12	128.00	DC9-48-60-24-8C-EV	3	43.485	47.833	0.60	0.80	2.05	94.32	0.000	0.000	98.15	0.00	0.00
13	128.00	RRUS 4415 B25	3	43.485	47.833	0.54	0.80	2.64	165.60	0.000	0.000	126.14	0.00	0.00
14	128.00	DC6-48-60-18-8C-EV	1	43.485	47.833	0.60	0.80	2.87	31.44	0.000	0.000	137.19	0.00	0.00
15	117.00	VHLP2.5-11	2	42.676	46.944	1.00	1.00	16.86	115.20	1.583	0.000	791.48	1253.1	0.00
16	117.00	LP Platform w/ Handrail	1	42.676	46.944	1.00	1.00	46.00	2938.46	0.000	0.000	2159.42	0.00	0.00
17	117.00	NNVV-65B-R4	3	42.676	46.944	0.55	0.75	20.43	304.92	0.000	0.000	959.04	0.00	0.00
18	117.00	AAHC	3	42.676	46.944	0.56	0.75	7.10	373.32	0.000	0.000	333.51	0.00	0.00
19	117.00	TD-RRH8x20-25	3	42.676	46.944	0.50	0.75	6.11	252.00	0.000	0.000	286.61	0.00	0.00
20	117.00	800 MHz RRH	6	42.676	46.944	0.50	0.75	7.51	381.60	0.000	0.000	352.42	0.00	0.00
21	117.00	1900 MHz RRH	3	42.676	46.944	0.50	0.75	4.18	216.00	0.000	0.000	196.03	0.00	0.00
22	98.00	KRY 112 489/2	3	41.128	45.241	0.50	0.75	0.98	55.44	0.000	0.000	44.33	0.00	0.00
23	98.00	RRUS 4415 B25	3	41.128	45.241	0.50	0.75	2.47	165.60	0.000	0.000	111.85	0.00	0.00
24	98.00	4449 B71+ B85	3	41.128	45.241	0.50	0.75	2.49	252.00	0.000	0.000	112.53	0.00	0.00
25	98.00	Air 32	4	41.128	45.241	0.65	0.75	16.99	634.56	0.000	0.000	768.69	0.00	0.00
26	98.00	APX16DWV-16DWV-S-E-	3	41.128	45.241	0.46	0.75	9.01	146.52	0.000	0.000	407.69	0.00	0.00
27	98.00	KRY 112 144/1	3	41.128	45.241	0.50	0.75	0.62	39.67	0.000	0.000	27.96	0.00	0.00
28	98.00	AIR 6449 B41	3	41.128	45.241	0.52	0.75	10.28	479.52	0.000	0.000	465.29	0.00	0.00
29	98.00	APXVAARR24_43-U-NA2	3	41.128	45.241	0.52	0.75	31.88	460.80	0.000	0.000	1442.18	0.00	0.00
30	98.00	LP Platform w/ Handrail	1	41.128	45.241	1.00	1.00	46.00	2938.80	0.000	0.000	2081.06	0.00	0.00
31	86.00	Samsung MT6407-77A	3	40.024	44.026	0.52	0.75	7.40	313.56	0.000	0.000	325.91	0.00	0.00
32	86.00	Low Profile	1	40.024	44.026	1.00	1.00	22.00	1800.00	0.000	0.000	968.58	0.00	0.00
33	86.00	Antel	3	40.024	44.026	0.66	0.75	9.48	54.00	0.000	0.000	417.56	0.00	0.00
34	86.00	JMA MX06FR0660-03	6	40.024	44.026	0.65	0.75	38.64	432.00	0.000	0.000	1701.23	0.00	0.00
35	86.00	Raycap	1	40.024	44.026	0.75	0.75	3.04	38.40	0.000	0.000	134.06	0.00	0.00
36	86.00	Samsung B2/B66A	3	40.024	44.026	0.62	0.75	3.51	303.84	0.000	0.000	154.57	0.00	0.00
37	86.00	Samsung B5/B13	3	40.024	44.026	0.58	0.75	3.26	253.08	0.000	0.000	143.40	0.00	0.00
38	86.00	HRK12 (Handrail Kit)	1	40.024	44.026	1.00	1.00	6.75	314.06	0.000	0.000	297.18	0.00	0.00
39	86.00	Kaelus BSF0020F3V1-1	4	40.024	44.026	0.49	0.75	1.87	84.48	0.000	0.000	82.42	0.00	0.00

Totals: 19,686.22 21,428.39

Total Applied Force Summary

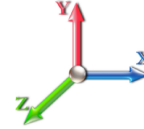
Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 11

Load Case: 1.2D + 1.0W 117 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		459.44	1450.36	0.00	0.00
10.00		449.37	1424.35	0.00	0.00
15.00		444.73	1398.34	0.00	0.00
20.00		460.15	1372.33	0.00	0.00
25.00		470.02	1346.32	0.00	0.00
30.00		476.04	1320.30	0.00	0.00
35.00		479.17	1294.29	0.00	0.00
40.00		480.05	1268.28	0.00	0.00
45.00		479.10	1242.27	0.00	0.00
48.25		309.00	793.53	0.00	0.00
50.00		167.99	700.46	0.00	0.00
53.25		311.79	1285.36	0.00	0.00
55.00		166.69	365.45	0.00	0.00
60.00		475.79	1029.50	0.00	0.00
65.00		470.01	1007.83	0.00	0.00
70.00		463.35	986.15	0.00	0.00
75.00		455.89	964.48	0.00	0.00
80.00		447.71	942.80	0.00	0.00
85.00		438.87	921.12	0.00	0.00
86.00	(25) attachments	4311.14	3775.05	0.00	0.00
90.00		342.37	617.41	0.00	0.00
95.00		419.43	752.25	0.00	0.00
98.00	(26) attachments	5707.70	5613.86	0.00	0.00
100.00		164.57	438.49	0.00	0.00
101.75		142.54	378.55	0.00	0.00
105.00		261.53	327.43	0.00	0.00
109.00		315.54	392.94	0.00	0.00
110.00		60.25	112.41	0.00	0.00
115.00		304.04	562.04	0.00	0.00
117.00	(21) attachments	5200.57	4806.32	1253.17	0.00
119.00		122.49	214.78	0.00	0.00
120.00		61.35	127.85	0.00	0.00
125.00		309.38	639.23	0.00	0.00
128.00	(35) attachments	6831.59	6714.11	0.00	0.00
130.00		124.77	249.69	0.00	0.00
134.00	(1) attachments	269.48	507.19	0.00	0.00
	Totals:	32,853.87	47,343.11	1,253.17	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

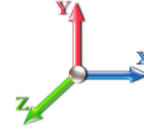


Load Case: 1.2D + 1.0W 117 mph Wind

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	27.680	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	27.680	0.00	6.24
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	27.680	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	27.680	0.00	6.24
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	28.022	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	28.022	0.00	6.24
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	29.673	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	29.673	0.00	6.24
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	31.038	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	31.038	0.00	6.24
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	32.209	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	32.209	0.00	6.24
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	33.239	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	33.239	0.00	6.24
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	34.161	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	34.161	0.00	6.24
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	34.999	0.00	1.64
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	34.999	0.00	6.24
48.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.025	0.000	35.506	0.00	1.06
48.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.025	0.000	35.506	0.00	4.06
50.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.026	0.000	35.768	0.00	0.57
50.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.026	0.000	35.768	0.00	2.18
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.026	0.000	36.236	0.00	1.06
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.026	0.000	36.236	0.00	4.06
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.026	0.000	36.479	0.00	0.57
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.026	0.000	36.479	0.00	2.18
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	37.142	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	37.142	0.00	6.24
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	37.763	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	37.763	0.00	6.24
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	38.348	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	38.348	0.00	6.24
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	38.901	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	38.901	0.00	6.24
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	39.426	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	39.426	0.00	6.24
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	39.927	0.00	1.64
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	39.927	0.00	6.24
86.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.031	0.000	40.024	0.00	0.33
86.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.031	0.000	40.024	0.00	1.25
90.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.032	0.000	40.405	0.00	1.31
90.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.032	0.000	40.405	0.00	4.99
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	40.862	0.00	1.64
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	40.862	0.00	6.24
98.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.034	0.000	41.128	0.00	0.98
98.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.034	0.000	41.128	0.00	3.74
100.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.035	0.000	41.301	0.00	0.66

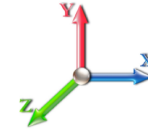
Linear Appurtenance Segment Forces (Factored)

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 13



Load Case: 1.2D + 1.0W 117 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.035	0.000	41.301	0.00	2.50
101.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.035	0.000	41.451	0.00	0.57
101.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.035	0.000	41.451	0.00	2.18
105.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.035	0.000	41.724	0.00	1.06
105.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.035	0.000	41.724	0.00	4.06
109.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.036	0.000	42.050	0.00	1.31
109.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.036	0.000	42.050	0.00	4.99
110.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.039	0.000	42.130	0.00	0.33
110.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.039	0.000	42.130	0.00	1.25
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.039	0.000	42.523	0.00	1.64
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.039	0.000	42.523	0.00	6.24
117.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.039	0.000	42.676	0.00	0.66
117.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.039	0.000	42.676	0.00	2.50
119.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.039	0.000	42.828	0.00	0.66
119.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.039	0.000	42.828	0.00	2.50
120.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.039	0.000	42.902	0.00	0.33
120.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.039	0.000	42.902	0.00	1.25
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.039	0.000	43.270	0.00	1.64
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.039	0.000	43.270	0.00	6.24
128.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.039	0.000	43.485	0.00	0.98
128.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.039	0.000	43.485	0.00	3.74
130.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.039	0.000	43.626	0.00	0.66
130.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.039	0.000	43.626	0.00	2.50
134.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.039	0.000	43.903	0.00	1.31
134.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.039	0.000	43.903	0.00	4.99
Totals:											0.0	211.1

Calculated Forces

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 14

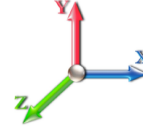


Load Case: 1.2D + 1.0W 117 mph Wind

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-47.27	-32.96	-1.23	-3250.3	-0.03	3250.36	3976.93	1023.83	4163.63	4011.62	0.00	0.000	0.000	0.823
5.00	-45.67	-32.70	-1.23	-3085.5	-0.03	3085.56	3920.48	1001.47	3983.76	3867.66	0.14	-0.254	0.000	0.811
10.00	-44.11	-32.44	-1.23	-2922.0	-0.03	2922.05	3862.67	979.11	3807.86	3724.90	0.54	-0.512	0.000	0.797
15.00	-42.57	-32.18	-1.23	-2759.8	-0.03	2759.83	3803.51	956.76	3635.94	3583.42	1.22	-0.773	0.000	0.783
20.00	-41.05	-31.89	-1.23	-2598.9	-0.03	2598.94	3742.99	934.40	3467.98	3443.32	2.17	-1.037	0.000	0.767
25.00	-39.57	-31.58	-1.23	-2439.5	-0.03	2439.50	3681.11	912.04	3304.00	3304.69	3.40	-1.303	-0.001	0.750
30.00	-38.12	-31.25	-1.23	-2281.6	-0.03	2281.63	3617.88	889.68	3143.99	3167.62	4.91	-1.572	-0.001	0.732
35.00	-36.69	-30.90	-1.23	-2125.4	-0.04	2125.40	3553.28	867.32	2987.95	3032.20	6.70	-1.841	-0.001	0.713
40.00	-35.30	-30.55	-1.23	-1970.9	-0.04	1970.90	3487.33	844.96	2835.88	2898.52	8.77	-2.112	-0.001	0.691
45.00	-33.96	-30.15	-1.23	-1818.1	-0.04	1818.18	3420.03	822.60	2687.78	2766.66	11.13	-2.383	-0.001	0.668
48.25	-33.11	-29.89	-1.23	-1720.1	-0.04	1720.19	3375.55	808.07	2593.65	2681.98	12.81	-2.561	-0.001	0.653
50.00	-32.34	-29.76	-1.23	-1667.8	-0.04	1667.89	3351.36	800.24	2543.66	2636.73	13.77	-2.658	-0.001	0.644
53.25	-31.00	-29.47	-1.23	-1571.1	-0.04	1571.16	2647.50	666.72	2118.80	2085.88	15.64	-2.835	-0.002	0.767
55.00	-30.54	-29.39	-1.23	-1519.6	-0.05	1519.60	2630.02	660.20	2077.55	2051.68	16.70	-2.931	-0.002	0.754
60.00	-29.39	-29.01	-1.24	-1372.6	-0.05	1372.67	2579.17	641.57	1961.94	1954.76	19.93	-3.232	-0.002	0.716
65.00	-28.27	-28.63	-1.24	-1227.6	-0.06	1227.62	2526.96	622.94	1849.64	1859.10	23.47	-3.527	-0.002	0.674
70.00	-27.17	-28.23	-1.24	-1084.4	-0.06	1084.49	2473.39	604.31	1740.65	1764.79	27.32	-3.813	-0.002	0.628
75.00	-26.11	-27.83	-1.24	-943.33	-0.06	943.33	2418.47	585.67	1634.96	1671.92	31.46	-4.088	-0.003	0.577
80.00	-25.09	-27.43	-1.24	-804.16	-0.07	804.16	2362.18	567.04	1532.59	1580.58	35.88	-4.348	-0.003	0.522
85.00	-24.14	-26.98	-1.24	-667.02	-0.07	667.02	2304.54	548.41	1433.52	1490.86	40.56	-4.590	-0.004	0.460
86.00	-20.68	-22.42	-1.24	-640.04	-0.08	640.04	2292.85	544.68	1414.11	1473.12	41.53	-4.637	-0.004	0.445
90.00	-20.02	-22.09	-1.24	-550.37	-0.08	550.37	2242.72	529.78	1337.77	1401.09	45.49	-4.814	-0.004	0.404
95.00	-19.25	-21.66	-1.24	-439.90	-0.09	439.90	2163.84	511.14	1245.33	1303.79	50.63	-5.013	-0.005	0.348
98.00	-14.13	-15.50	-1.25	-374.92	-0.09	374.92	2116.52	499.96	1191.45	1247.09	53.82	-5.123	-0.005	0.308
100.00	-13.70	-15.31	-1.25	-343.91	-0.09	343.91	2084.97	492.51	1156.19	1209.99	55.97	-5.192	-0.005	0.292
101.75	-13.31	-15.16	-1.25	-317.12	-0.09	317.12	1611.41	396.63	937.27	943.49	57.89	-5.250	-0.005	0.346
105.00	-12.98	-14.89	-1.25	-267.86	-0.10	267.86	1583.50	386.94	892.04	904.30	61.49	-5.349	-0.006	0.306
109.00	-12.60	-14.56	-1.25	-208.30	-0.10	208.30	1548.36	375.01	837.91	856.74	66.02	-5.475	-0.006	0.253
109.00	-12.60	-14.56	-1.25	-208.30	-0.10	208.30	933.38	285.53	41725.7	590.00	66.02	-5.475	-0.006	0.369
110.00	-12.47	-14.50	-1.25	-193.74	-0.10	193.74	933.38	285.53	41725.7	590.00	67.17	-5.504	-0.007	0.344
115.00	-11.93	-14.16	-1.25	-121.23	-0.11	121.23	933.38	285.53	41725.7	590.00	72.99	-5.612	-0.007	0.221
117.00	-7.65	-8.51	0.00	-92.92	0.01	92.92	933.38	285.53	41725.7	590.00	75.34	-5.641	-0.008	0.167
119.00	-7.45	-8.37	0.00	-75.89	0.01	75.89	933.38	285.53	41725.7	590.00	77.71	-5.664	-0.008	0.137
119.00	-7.45	-8.37	0.00	-75.89	0.01	75.89	950.95	285.28	54712.4	624.60	77.71	-5.664	-0.008	0.130
120.00	-7.32	-8.30	0.00	-67.52	0.01	67.52	950.95	285.28	54712.4	624.60	78.89	-5.674	-0.008	0.117
125.00	-6.72	-7.93	0.00	-26.01	0.00	26.01	950.95	285.28	54712.4	624.60	84.84	-5.701	-0.008	0.049
128.00	-0.71	-0.47	0.00	-2.21	0.00	2.21	950.95	285.28	54712.4	624.60	88.42	-5.706	-0.008	0.004
130.00	-0.48	-0.32	0.00	-1.27	0.00	1.27	950.95	285.28	54712.4	624.60	90.81	-5.706	-0.008	0.003
134.00	0.00	-0.27	0.00	0.00	0.00	0.00	950.95	285.28	54712.4	624.60	95.58	-5.706	-0.008	0.000

Wind Loading - Shaft

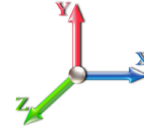
Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 15



Load Case: 0.9D + 1.0W 117 mph Wind

Iterations 25

Dead Load Factor 0.90
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	27.680	30.45	445.87	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	27.680	30.45	436.21	0.730	0.000	5.00	20.670	15.09	459.4	0.0	883.5
10.00		1.00	0.85	27.680	30.45	426.54	0.730	0.000	5.00	20.217	14.76	449.4	0.0	864.0
15.00		1.00	0.86	28.022	30.82	419.45	0.730	0.000	5.00	19.764	14.43	444.7	0.0	844.5
20.00		1.00	0.91	29.673	32.64	421.62	0.730	0.000	5.00	19.312	14.10	460.1	0.0	825.0
25.00		1.00	0.95	31.038	34.14	420.98	0.730	0.000	5.00	18.859	13.77	470.0	0.0	805.5
30.00		1.00	0.99	32.209	35.43	418.42	0.730	0.000	5.00	18.406	13.44	476.0	0.0	786.0
35.00		1.00	1.02	33.239	36.56	414.47	0.730	0.000	5.00	17.953	13.11	479.2	0.0	766.5
40.00		1.00	1.05	34.161	37.58	409.45	0.730	0.000	5.00	17.500	12.77	480.1	0.0	747.0
45.00		1.00	1.07	34.999	38.50	403.57	0.730	0.000	5.00	17.047	12.44	479.1	0.0	727.5
48.25	Bot - Section 2	1.00	1.09	35.506	39.06	399.37	0.730	0.000	3.25	10.838	7.91	309.0	0.0	462.4
50.00		1.00	1.10	35.768	39.34	396.99	0.730	0.000	1.75	5.849	4.27	168.0	0.0	453.9
53.25	Top - Section 1	1.00	1.11	36.236	39.86	392.40	0.730	0.000	3.25	10.715	7.82	311.8	0.0	831.3
55.00		1.00	1.12	36.479	40.13	396.30	0.730	0.000	1.75	5.691	4.15	166.7	0.0	202.6
60.00		1.00	1.14	37.142	40.86	388.69	0.730	0.000	5.00	15.953	11.65	475.8	0.0	567.9
65.00		1.00	1.16	37.763	41.54	380.64	0.730	0.000	5.00	15.500	11.31	470.0	0.0	551.6
70.00		1.00	1.18	38.348	42.18	372.21	0.730	0.000	5.00	15.047	10.98	463.3	0.0	535.4
75.00		1.00	1.19	38.901	42.79	363.43	0.730	0.000	5.00	14.594	10.65	455.9	0.0	519.1
80.00		1.00	1.21	39.426	43.37	354.34	0.730	0.000	5.00	14.141	10.32	447.7	0.0	502.9
85.00		1.00	1.23	39.927	43.92	344.98	0.730	0.000	5.00	13.688	9.99	438.9	0.0	486.6
86.00	Appurtenance(s)	1.00	1.23	40.024	44.03	343.07	0.730	0.000	1.00	2.683	1.96	86.2	0.0	95.4
90.00		1.00	1.24	40.405	44.45	335.36	0.730	0.000	4.00	10.552	7.70	342.4	0.0	375.0
95.00		1.00	1.25	40.862	44.95	325.51	0.730	0.000	5.00	12.783	9.33	419.4	0.0	454.1
98.00	Bot - Section 3	1.00	1.26	41.128	45.24	319.50	0.730	0.000	3.00	7.452	5.44	246.1	0.0	264.7
100.00		1.00	1.27	41.301	45.43	315.45	0.730	0.000	2.00	4.962	3.62	164.6	0.0	314.5
101.75	Top - Section 2	1.00	1.27	41.451	45.60	311.89	0.730	0.000	1.75	4.282	3.13	142.5	0.0	271.3
105.00		1.00	1.28	41.724	45.90	310.74	0.730	0.000	3.25	7.806	5.70	261.5	0.0	222.2
109.00	Top - Section 3	1.00	1.29	42.050	46.26	302.43	0.730	0.000	4.00	9.345	6.82	315.5	0.0	265.9
110.00		1.00	1.29	42.130	46.34	285.17	0.600	0.000	1.00	2.167	1.30	60.2	0.0	77.1
115.00		1.00	1.31	42.523	46.78	286.50	0.600	0.000	5.00	10.833	6.50	304.0	0.0	385.6
117.00	Appurtenance(s)	1.00	1.31	42.676	46.94	287.01	0.600	0.000	2.00	4.333	2.60	122.1	0.0	154.2
119.00	Top - Section 4	1.00	1.32	42.828	47.11	287.52	0.600	0.000	2.00	4.333	2.60	122.5	0.0	154.2
120.00		1.00	1.32	42.902	47.19	287.77	0.600	0.000	1.00	2.167	1.30	61.4	0.0	92.5
125.00		1.00	1.33	43.270	47.60	289.00	0.600	0.000	5.00	10.833	6.50	309.4	0.0	462.3
128.00	Appurtenance(s)	1.00	1.34	43.485	47.83	289.72	0.600	0.000	3.00	6.500	3.90	186.5	0.0	277.4
130.00		1.00	1.34	43.626	47.99	290.19	0.600	0.000	2.00	4.333	2.60	124.8	0.0	184.9
134.00	Appurtenance(s)	1.00	1.35	43.903	48.29	291.11	0.600	0.000	4.00	8.667	5.20	251.1	0.0	369.8
Totals:									134.00			11,425.5		16,784.3

Discrete Appurtenance Forces

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0W 117 mph Wind	Iterations 25
Dead Load Factor 0.90	
Wind Load Factor 1.00	

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor	x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	134.00	Lightning rod	1	43.903	48.293	1.00	1.00	0.38	5.85	0.000	0.000	18.35	0.00	0.00	
2	128.00	B2 B66A 8843	3	43.485	47.833	0.54	0.80	2.64	194.40	0.000	0.000	126.14	0.00	0.00	
3	128.00	TPA65R-BU8D	3	43.485	47.833	0.58	0.80	30.88	391.50	0.000	0.000	1477.06	0.00	0.00	
4	128.00	AIR 6449 N77	3	43.485	47.833	0.68	0.80	8.43	274.32	0.000	0.000	403.00	0.00	0.00	
5	128.00	Cci Antennas	3	43.485	47.833	0.58	0.80	31.31	258.39	0.000	0.000	1497.57	0.00	0.00	
6	128.00	RRUS 4478 B14	3	43.485	47.833	0.54	0.80	2.65	160.38	0.000	0.000	126.91	0.00	0.00	
7	128.00	4449 B5/B12	3	43.485	47.833	0.54	0.80	3.17	191.70	0.000	0.000	151.52	0.00	0.00	
8	128.00	Radio 4415 B30	3	43.485	47.833	0.54	0.80	2.99	124.20	0.000	0.000	143.06	0.00	0.00	
9	128.00	Ericsson AIR 6419 B77G	3	43.485	47.833	0.66	0.80	8.29	118.80	0.000	0.000	396.38	0.00	0.00	
10	128.00	(3) SitePro	1	43.485	47.833	0.75	0.75	38.03	2699.62	0.000	0.000	1818.85	0.00	0.00	
11	128.00	Ericsson Radio 2012 B29	3	43.485	47.833	0.54	0.80	2.99	116.10	0.000	0.000	143.06	0.00	0.00	
12	128.00	DC9-48-60-24-8C-EV	3	43.485	47.833	0.60	0.80	2.05	70.74	0.000	0.000	98.15	0.00	0.00	
13	128.00	RRUS 4415 B25	3	43.485	47.833	0.54	0.80	2.64	124.20	0.000	0.000	126.14	0.00	0.00	
14	128.00	DC6-48-60-18-8C-EV	1	43.485	47.833	0.60	0.80	2.87	23.58	0.000	0.000	137.19	0.00	0.00	
15	117.00	VHLP2.5-11	2	42.676	46.944	1.00	1.00	16.86	86.40	1.583	0.000	791.48	1253.1	0.00	
16	117.00	LP Platform w/ Handrail	1	42.676	46.944	1.00	1.00	46.00	2203.85	0.000	0.000	2159.42	0.00	0.00	
17	117.00	NNVV-65B-R4	3	42.676	46.944	0.55	0.75	20.43	228.69	0.000	0.000	959.04	0.00	0.00	
18	117.00	AAHC	3	42.676	46.944	0.56	0.75	7.10	279.99	0.000	0.000	333.51	0.00	0.00	
19	117.00	TD-RRH8x20-25	3	42.676	46.944	0.50	0.75	6.11	189.00	0.000	0.000	286.61	0.00	0.00	
20	117.00	800 MHz RRH	6	42.676	46.944	0.50	0.75	7.51	286.20	0.000	0.000	352.42	0.00	0.00	
21	117.00	1900 MHz RRH	3	42.676	46.944	0.50	0.75	4.18	162.00	0.000	0.000	196.03	0.00	0.00	
22	98.00	KRY 112 489/2	3	41.128	45.241	0.50	0.75	0.98	41.58	0.000	0.000	44.33	0.00	0.00	
23	98.00	RRUS 4415 B25	3	41.128	45.241	0.50	0.75	2.47	124.20	0.000	0.000	111.85	0.00	0.00	
24	98.00	4449 B71+ B85	3	41.128	45.241	0.50	0.75	2.49	189.00	0.000	0.000	112.53	0.00	0.00	
25	98.00	Air 32	4	41.128	45.241	0.65	0.75	16.99	475.92	0.000	0.000	768.69	0.00	0.00	
26	98.00	APX16DWV-16DWV-S-E-	3	41.128	45.241	0.46	0.75	9.01	109.89	0.000	0.000	407.69	0.00	0.00	
27	98.00	KRY 112 144/1	3	41.128	45.241	0.50	0.75	0.62	29.75	0.000	0.000	27.96	0.00	0.00	
28	98.00	AIR 6449 B41	3	41.128	45.241	0.52	0.75	10.28	359.64	0.000	0.000	465.29	0.00	0.00	
29	98.00	APXVAARR24_43-U-NA2	3	41.128	45.241	0.52	0.75	31.88	345.60	0.000	0.000	1442.18	0.00	0.00	
30	98.00	LP Platform w/ Handrail	1	41.128	45.241	1.00	1.00	46.00	2204.10	0.000	0.000	2081.06	0.00	0.00	
31	86.00	Samsung MT6407-77A	3	40.024	44.026	0.52	0.75	7.40	235.17	0.000	0.000	325.91	0.00	0.00	
32	86.00	Low Profile	1	40.024	44.026	1.00	1.00	22.00	1350.00	0.000	0.000	968.58	0.00	0.00	
33	86.00	Antel	3	40.024	44.026	0.66	0.75	9.48	40.50	0.000	0.000	417.56	0.00	0.00	
34	86.00	JMA MX06FR0660-03	6	40.024	44.026	0.65	0.75	38.64	324.00	0.000	0.000	1701.23	0.00	0.00	
35	86.00	Raycap	1	40.024	44.026	0.75	0.75	3.04	28.80	0.000	0.000	134.06	0.00	0.00	
36	86.00	Samsung B2/B66A	3	40.024	44.026	0.62	0.75	3.51	227.88	0.000	0.000	154.57	0.00	0.00	
37	86.00	Samsung B5/B13	3	40.024	44.026	0.58	0.75	3.26	189.81	0.000	0.000	143.40	0.00	0.00	
38	86.00	HRK12 (Handrail Kit)	1	40.024	44.026	1.00	1.00	6.75	235.55	0.000	0.000	297.18	0.00	0.00	
39	86.00	Kaelus BSF0020F3V1-1	4	40.024	44.026	0.49	0.75	1.87	63.36	0.000	0.000	82.42	0.00	0.00	

Totals: 14,764.66 21,428.39

Total Applied Force Summary

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

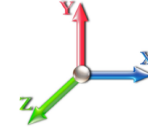


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Load Case: 0.9D + 1.0W 117 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		459.44	1087.77	0.00	0.00
10.00		449.37	1068.26	0.00	0.00
15.00		444.73	1048.75	0.00	0.00
20.00		460.15	1029.25	0.00	0.00
25.00		470.02	1009.74	0.00	0.00
30.00		476.04	990.23	0.00	0.00
35.00		479.17	970.72	0.00	0.00
40.00		480.05	951.21	0.00	0.00
45.00		479.10	931.70	0.00	0.00
48.25		309.00	595.15	0.00	0.00
50.00		167.99	525.35	0.00	0.00
53.25		311.79	964.02	0.00	0.00
55.00		166.69	274.09	0.00	0.00
60.00		475.79	772.13	0.00	0.00
65.00		470.01	755.87	0.00	0.00
70.00		463.35	739.61	0.00	0.00
75.00		455.89	723.36	0.00	0.00
80.00		447.71	707.10	0.00	0.00
85.00		438.87	690.84	0.00	0.00
86.00	(25) attachments	4311.14	2831.29	0.00	0.00
90.00		342.37	463.06	0.00	0.00
95.00		419.43	564.19	0.00	0.00
98.00	(26) attachments	5707.70	4210.39	0.00	0.00
100.00		164.57	328.86	0.00	0.00
101.75		142.54	283.92	0.00	0.00
105.00		261.53	245.58	0.00	0.00
109.00		315.54	294.70	0.00	0.00
110.00		60.25	84.31	0.00	0.00
115.00		304.04	421.53	0.00	0.00
117.00	(21) attachments	5200.57	3604.74	1253.17	0.00
119.00		122.49	161.08	0.00	0.00
120.00		61.35	95.88	0.00	0.00
125.00		309.38	479.42	0.00	0.00
128.00	(35) attachments	6831.59	5035.59	0.00	0.00
130.00		124.77	187.27	0.00	0.00
134.00	(1) attachments	269.48	380.39	0.00	0.00
Totals:		32,853.87	35,507.33	1,253.17	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

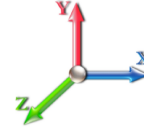


Load Case: 0.9D + 1.0W 117 mph Wind

Iterations 25

Dead Load Factor 0.90

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	27.680	0.00	1.23
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	27.680	0.00	4.68
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	27.680	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	27.680	0.00	4.68
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	28.022	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	28.022	0.00	4.68
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	29.673	0.00	1.23
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	29.673	0.00	4.68
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	31.038	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	31.038	0.00	4.68
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	32.209	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	32.209	0.00	4.68
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	33.239	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	33.239	0.00	4.68
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	34.161	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	34.161	0.00	4.68
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	34.999	0.00	1.23
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	34.999	0.00	4.68
48.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.025	0.000	35.506	0.00	0.80
48.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.025	0.000	35.506	0.00	3.04
50.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.026	0.000	35.768	0.00	0.43
50.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.026	0.000	35.768	0.00	1.64
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.026	0.000	36.236	0.00	0.80
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.026	0.000	36.236	0.00	3.04
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.026	0.000	36.479	0.00	0.43
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.026	0.000	36.479	0.00	1.64
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	37.142	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	37.142	0.00	4.68
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	37.763	0.00	1.23
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	37.763	0.00	4.68
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	38.348	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	38.348	0.00	4.68
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	38.901	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	38.901	0.00	4.68
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	39.426	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	39.426	0.00	4.68
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	39.927	0.00	1.23
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	39.927	0.00	4.68
86.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.031	0.000	40.024	0.00	0.25
86.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.031	0.000	40.024	0.00	0.94
90.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.032	0.000	40.405	0.00	0.98
90.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.032	0.000	40.405	0.00	3.74
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	40.862	0.00	1.23
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	40.862	0.00	4.68
98.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.034	0.000	41.128	0.00	0.74
98.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.034	0.000	41.128	0.00	2.81
100.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.035	0.000	41.301	0.00	0.49

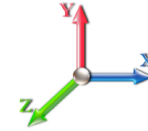
Linear Appurtenance Segment Forces (Factored)

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 19



Load Case: 0.9D + 1.0W 117 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.035	0.000	41.301	0.00	1.87
101.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.035	0.000	41.451	0.00	0.43
101.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.035	0.000	41.451	0.00	1.64
105.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.035	0.000	41.724	0.00	0.80
105.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.035	0.000	41.724	0.00	3.04
109.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.036	0.000	42.050	0.00	0.98
109.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.036	0.000	42.050	0.00	3.74
110.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.039	0.000	42.130	0.00	0.25
110.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.039	0.000	42.130	0.00	0.94
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.039	0.000	42.523	0.00	1.23
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.039	0.000	42.523	0.00	4.68
117.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.039	0.000	42.676	0.00	0.49
117.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.039	0.000	42.676	0.00	1.87
119.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.039	0.000	42.828	0.00	0.49
119.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.039	0.000	42.828	0.00	1.87
120.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.039	0.000	42.902	0.00	0.25
120.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.039	0.000	42.902	0.00	0.94
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.039	0.000	43.270	0.00	1.23
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.039	0.000	43.270	0.00	4.68
128.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.039	0.000	43.485	0.00	0.74
128.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.039	0.000	43.485	0.00	2.81
130.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.039	0.000	43.626	0.00	0.49
130.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.039	0.000	43.626	0.00	1.87
134.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.039	0.000	43.903	0.00	0.98
134.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.039	0.000	43.903	0.00	3.74
Totals:											0.0	158.3

Calculated Forces

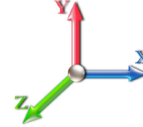
Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0W 117 mph Wind

Iterations 25

Dead Load Factor 0.90
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-35.43	-32.93	-1.23	-3205.7	-0.02	3205.72	3976.93	1023.83	4163.63	4011.62	0.00	0.000	0.000	0.809
5.00	-34.20	-32.62	-1.23	-3041.0	-0.02	3041.05	3920.48	1001.47	3983.76	3867.66	0.13	-0.251	0.000	0.796
10.00	-32.99	-32.31	-1.23	-2877.9	-0.02	2877.94	3862.67	979.11	3807.86	3724.90	0.53	-0.505	0.000	0.782
15.00	-31.81	-32.00	-1.23	-2716.3	-0.02	2716.38	3803.51	956.76	3635.94	3583.42	1.20	-0.762	0.000	0.768
20.00	-30.64	-31.66	-1.23	-2556.3	-0.02	2556.37	3742.99	934.40	3467.98	3443.32	2.14	-1.021	0.000	0.752
25.00	-29.50	-31.31	-1.23	-2398.0	-0.03	2398.05	3681.11	912.04	3304.00	3304.69	3.35	-1.283	-0.001	0.735
30.00	-28.38	-30.94	-1.23	-2241.5	-0.03	2241.51	3617.88	889.68	3143.99	3167.62	4.83	-1.547	-0.001	0.717
35.00	-27.28	-30.56	-1.23	-2086.8	-0.03	2086.80	3553.28	867.32	2987.95	3032.20	6.60	-1.812	-0.001	0.697
40.00	-26.21	-30.17	-1.23	-1934.0	-0.03	1934.01	3487.33	844.96	2835.88	2898.52	8.64	-2.077	-0.001	0.676
45.00	-25.18	-29.75	-1.23	-1783.1	-0.03	1783.16	3420.03	822.60	2687.78	2766.66	10.96	-2.343	-0.001	0.653
48.25	-24.53	-29.48	-1.23	-1686.4	-0.03	1686.47	3375.55	808.07	2593.65	2681.98	12.61	-2.518	-0.001	0.637
50.00	-23.94	-29.34	-1.23	-1634.8	-0.04	1634.89	3351.36	800.24	2543.66	2636.73	13.55	-2.613	-0.001	0.629
53.25	-22.93	-29.04	-1.23	-1539.5	-0.04	1539.53	2647.50	666.72	2118.80	2085.88	15.39	-2.786	-0.002	0.749
55.00	-22.56	-28.93	-1.24	-1488.7	-0.04	1488.72	2630.02	660.20	2077.55	2051.68	16.43	-2.880	-0.002	0.736
60.00	-21.67	-28.53	-1.24	-1344.0	-0.04	1344.05	2579.17	641.57	1961.94	1954.76	19.61	-3.175	-0.002	0.698
65.00	-20.80	-28.12	-1.24	-1201.4	-0.05	1201.41	2526.96	622.94	1849.64	1859.10	23.09	-3.464	-0.002	0.657
70.00	-19.96	-27.71	-1.24	-1060.8	-0.05	1060.81	2473.39	604.31	1740.65	1764.79	26.86	-3.744	-0.002	0.611
75.00	-19.15	-27.29	-1.24	-922.28	-0.06	922.28	2418.47	585.67	1634.96	1671.92	30.93	-4.013	-0.003	0.562
80.00	-18.36	-26.87	-1.24	-785.82	-0.06	785.82	2362.18	567.04	1532.59	1580.58	35.27	-4.267	-0.003	0.507
85.00	-17.64	-26.42	-1.24	-651.46	-0.07	651.46	2304.54	548.41	1433.52	1490.86	39.86	-4.503	-0.004	0.447
86.00	-15.12	-21.93	-1.24	-625.04	-0.07	625.04	2292.85	544.68	1414.11	1473.12	40.81	-4.550	-0.004	0.433
90.00	-14.61	-21.60	-1.24	-537.31	-0.08	537.31	2242.72	529.78	1337.77	1401.09	44.69	-4.722	-0.004	0.392
95.00	-14.03	-21.17	-1.25	-429.31	-0.08	429.31	2163.84	511.14	1245.33	1303.79	49.74	-4.917	-0.005	0.338
98.00	-10.31	-15.14	-1.25	-365.79	-0.09	365.79	2116.52	499.96	1191.45	1247.09	52.86	-5.023	-0.005	0.299
100.00	-9.98	-14.95	-1.25	-335.52	-0.09	335.52	2084.97	492.51	1156.19	1209.99	54.98	-5.091	-0.005	0.283
101.75	-9.69	-14.80	-1.25	-309.35	-0.09	309.35	1611.41	396.63	937.27	943.49	56.85	-5.147	-0.005	0.335
105.00	-9.44	-14.54	-1.25	-261.25	-0.09	261.25	1583.50	386.94	892.04	904.30	60.39	-5.244	-0.006	0.296
109.00	-9.16	-14.21	-1.25	-203.11	-0.10	203.11	1548.36	375.01	837.91	856.74	64.83	-5.367	-0.006	0.245
109.00	-9.16	-14.21	-1.25	-203.11	-0.10	203.11	933.38	285.53	41725.7	590.00	64.83	-5.367	-0.006	0.357
110.00	-9.06	-14.15	-1.25	-188.91	-0.10	188.91	933.38	285.53	41725.7	590.00	65.96	-5.395	-0.007	0.332
115.00	-8.66	-13.82	-1.25	-118.16	-0.11	118.16	933.38	285.53	41725.7	590.00	71.66	-5.500	-0.007	0.212
117.00	-5.56	-8.30	0.00	-90.53	0.01	90.53	933.38	285.53	41725.7	590.00	73.97	-5.529	-0.008	0.160
119.00	-5.41	-8.16	0.00	-73.94	0.01	73.94	933.38	285.53	41725.7	590.00	76.28	-5.551	-0.008	0.132
119.00	-5.41	-8.16	0.00	-73.94	0.01	73.94	950.95	285.28	54712.4	624.60	76.28	-5.551	-0.008	0.125
120.00	-5.32	-8.09	0.00	-65.78	0.01	65.78	950.95	285.28	54712.4	624.60	77.45	-5.561	-0.008	0.112
125.00	-4.87	-7.74	0.00	-25.33	0.00	25.33	950.95	285.28	54712.4	624.60	83.28	-5.587	-0.008	0.046
128.00	-0.53	-0.45	0.00	-2.12	0.00	2.12	950.95	285.28	54712.4	624.60	86.78	-5.592	-0.008	0.004
130.00	-0.35	-0.31	0.00	-1.22	0.00	1.22	950.95	285.28	54712.4	624.60	89.12	-5.592	-0.008	0.002
134.00	0.00	-0.27	0.00	0.00	0.00	0.00	950.95	285.28	54712.4	624.60	93.80	-5.593	-0.008	0.000

Wind Loading - Shaft

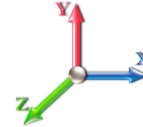
Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 21



Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 23

Dead Load Factor 1.20
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.055	5.56	0.00	1.200	0.705	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.055	5.56	0.00	1.200	0.843	5.00	21.373	25.65	142.6	257.1	1435.1
10.00		1.00	0.85	5.055	5.56	0.00	1.200	0.896	5.00	20.964	25.16	139.9	267.5	1419.5
15.00		1.00	0.86	5.118	5.63	0.00	1.200	0.930	5.00	20.540	24.65	138.8	271.7	1397.8
20.00		1.00	0.91	5.419	5.96	0.00	1.200	0.956	5.00	20.108	24.13	143.8	273.0	1373.0
25.00		1.00	0.95	5.668	6.24	0.00	1.200	0.976	5.00	19.672	23.61	147.2	272.6	1346.6
30.00		1.00	0.99	5.882	6.47	0.00	1.200	0.994	5.00	19.234	23.08	149.3	270.9	1318.9
35.00		1.00	1.02	6.070	6.68	0.00	1.200	1.009	5.00	18.793	22.55	150.6	268.4	1290.4
40.00		1.00	1.05	6.239	6.86	0.00	1.200	1.022	5.00	18.352	22.02	151.1	265.2	1261.2
45.00		1.00	1.07	6.392	7.03	0.00	1.200	1.034	5.00	17.909	21.49	151.1	261.5	1231.4
48.25	Bot - Section 2	1.00	1.09	6.484	7.13	0.00	1.200	1.041	3.25	11.402	13.68	97.6	168.2	784.8
50.00		1.00	1.10	6.532	7.19	0.00	1.200	1.044	1.75	6.154	7.38	53.1	91.5	696.6
53.25	Top - Section 1	1.00	1.11	6.618	7.28	0.00	1.200	1.051	3.25	11.285	13.54	98.6	168.0	1276.4
55.00		1.00	1.12	6.662	7.33	0.00	1.200	1.054	1.75	5.998	7.20	52.7	89.9	360.0
60.00		1.00	1.14	6.783	7.46	0.00	1.200	1.063	5.00	16.839	20.21	150.8	252.1	1009.3
65.00		1.00	1.16	6.897	7.59	0.00	1.200	1.072	5.00	16.393	19.67	149.2	247.0	982.5
70.00		1.00	1.18	7.003	7.70	0.00	1.200	1.080	5.00	15.947	19.14	147.4	241.7	955.6
75.00		1.00	1.19	7.104	7.81	0.00	1.200	1.087	5.00	15.500	18.60	145.4	236.2	928.4
80.00		1.00	1.21	7.200	7.92	0.00	1.200	1.094	5.00	15.053	18.06	143.1	230.5	901.0
85.00		1.00	1.23	7.292	8.02	0.00	1.200	1.101	5.00	14.606	17.53	140.6	224.6	873.4
86.00	Appurtenance(s)	1.00	1.23	7.310	8.04	0.00	1.200	1.102	1.00	2.867	3.44	27.7	44.7	171.8
90.00		1.00	1.24	7.379	8.12	0.00	1.200	1.107	4.00	11.290	13.55	110.0	174.9	674.8
95.00		1.00	1.25	7.463	8.21	0.00	1.200	1.113	5.00	13.710	16.45	135.1	212.4	817.9
98.00	Bot - Section 3	1.00	1.26	7.511	8.26	0.00	1.200	1.116	3.00	8.010	9.61	79.4	125.2	478.1
100.00		1.00	1.27	7.543	8.30	0.00	1.200	1.118	2.00	5.335	6.40	53.1	83.8	503.1
101.75	Top - Section 2	1.00	1.27	7.570	8.33	0.00	1.200	1.120	1.75	4.609	5.53	46.1	72.6	434.3
105.00		1.00	1.28	7.620	8.38	0.00	1.200	1.124	3.25	8.415	10.10	84.6	132.0	428.3
109.00	Top - Section 3	1.00	1.29	7.680	8.45	0.00	1.200	1.128	4.00	10.097	12.12	102.3	158.3	512.9
110.00		1.00	1.29	7.694	8.46	0.00	1.200	1.129	1.00	2.355	2.83	23.9	37.4	140.2
115.00		1.00	1.31	7.766	8.54	0.00	1.200	1.134	5.00	11.778	14.13	120.7	188.0	702.0
117.00	Appurtenance(s)	1.00	1.31	7.794	8.57	0.00	1.200	1.136	2.00	4.712	5.65	48.5	75.3	280.9
119.00	Top - Section 4	1.00	1.32	7.822	8.60	0.00	1.200	1.138	2.00	4.713	5.66	48.7	75.4	281.1
120.00		1.00	1.32	7.835	8.62	0.00	1.200	1.139	1.00	2.356	2.83	24.4	37.8	161.0
125.00		1.00	1.33	7.902	8.69	0.00	1.200	1.143	5.00	11.786	14.14	122.9	189.6	805.9
128.00	Appurtenance(s)	1.00	1.34	7.942	8.74	0.00	1.200	1.146	3.00	7.073	8.49	74.1	114.0	483.8
130.00		1.00	1.34	7.967	8.76	0.00	1.200	1.148	2.00	4.716	5.66	49.6	76.1	322.7
134.00	Appurtenance(s)	1.00	1.35	8.018	8.82	0.00	1.200	1.151	4.00	9.434	11.32	99.8	152.8	645.8
Totals:									134.00			3,743.8	28,686.8	

Discrete Appurtenance Forces

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 22

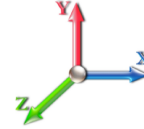


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 23

Dead Load Factor 1.20

Wind Load Factor 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	134.00	Lightning rod	1	8.018	8.820	1.00	1.00	1.10	26.45	0.000	0.000	9.68	0.00	0.00
2	128.00	B2 B66A 8843	3	7.942	8.736	0.54	0.80	3.18	324.48	0.000	0.000	27.80	0.00	0.00
3	128.00	TPA65R-BU8D	3	7.942	8.736	0.58	0.80	32.92	1810.27	0.000	0.000	287.56	0.00	0.00
4	128.00	AIR 6449 N77	3	7.942	8.736	0.68	0.80	9.55	619.78	0.000	0.000	83.41	0.00	0.00
5	128.00	Cci Antennas	3	7.942	8.736	0.58	0.80	33.37	1414.06	0.000	0.000	291.55	0.00	0.00
6	128.00	RRUS 4478 B14	3	7.942	8.736	0.54	0.80	3.20	267.33	0.000	0.000	27.96	0.00	0.00
7	128.00	4449 B5/B12	3	7.942	8.736	0.54	0.80	3.75	319.96	0.000	0.000	32.72	0.00	0.00
8	128.00	Radio 4415 B30	3	7.942	8.736	0.54	0.80	3.56	274.19	0.000	0.000	31.13	0.00	0.00
9	128.00	Ericsson AIR 6419 B77G	3	7.942	8.736	0.68	0.80	9.61	375.77	0.000	0.000	83.99	0.00	0.00
10	128.00	(3) SitePro	1	7.942	8.736	0.75	0.75	69.40	5704.19	0.000	0.000	606.27	0.00	0.00
11	128.00	Ericsson Radio 2012 B29	3	7.942	8.736	0.54	0.80	3.56	266.99	0.000	0.000	31.13	0.00	0.00
12	128.00	DC9-48-60-24-8C-EV	3	7.942	8.736	0.60	0.80	3.93	251.83	0.000	0.000	34.31	0.00	0.00
13	128.00	RRUS 4415 B25	3	7.942	8.736	0.54	0.80	3.18	218.38	0.000	0.000	27.79	0.00	0.00
14	128.00	DC6-48-60-18-8C-EV	1	7.942	8.736	0.60	0.80	3.22	144.89	0.000	0.000	28.10	0.00	0.00
15	117.00	VHLP2.5-11	2	7.794	8.573	1.00	1.00	19.08	243.88	1.583	0.000	163.59	259.02	0.00
16	117.00	LP Platform w/ Handrail	1	7.794	8.573	1.00	1.00	68.15	3656.07	0.000	0.000	584.31	0.00	0.00
17	117.00	NNVV-65B-R4	3	7.794	8.573	0.55	0.75	22.01	739.58	0.000	0.000	188.68	0.00	0.00
18	117.00	AAHC	3	7.794	8.573	0.56	0.75	8.00	504.55	0.000	0.000	68.55	0.00	0.00
19	117.00	TD-RRH8x20-25	3	7.794	8.573	0.50	0.75	6.88	452.30	0.000	0.000	58.99	0.00	0.00
20	117.00	800 MHz RRH	6	7.794	8.573	0.50	0.75	9.75	543.83	0.000	0.000	83.61	0.00	0.00
21	117.00	1900 MHz RRH	3	7.794	8.573	0.50	0.75	5.42	307.21	0.000	0.000	46.47	0.00	0.00
22	98.00	KRY 112 489/2	3	7.511	8.262	0.50	0.75	1.57	77.67	0.000	0.000	12.97	0.00	0.00
23	98.00	RRUS 4415 B25	3	7.511	8.262	0.50	0.75	2.97	216.26	0.000	0.000	24.53	0.00	0.00
24	98.00	4449 B71+ B85	3	7.511	8.262	0.50	0.75	2.99	371.14	0.000	0.000	24.66	0.00	0.00
25	98.00	Air 32	4	7.511	8.262	0.65	0.75	18.97	1075.51	0.000	0.000	156.69	0.00	0.00
26	98.00	APX16DWV-16DWV-S-E-	3	7.511	8.262	0.46	0.75	9.98	388.09	0.000	0.000	82.47	0.00	0.00
27	98.00	KRY 112 144/1	3	7.511	8.262	0.50	0.75	1.08	54.39	0.000	0.000	8.89	0.00	0.00
28	98.00	AIR 6449 B41	3	7.511	8.262	0.52	0.75	11.35	774.85	0.000	0.000	93.76	0.00	0.00
29	98.00	APXVAARR24_43-U-NA2	3	7.511	8.262	0.52	0.75	33.77	1226.21	0.000	0.000	278.99	0.00	0.00
30	98.00	LP Platform w/ Handrail	1	7.511	8.262	1.00	1.00	66.54	3788.83	0.000	0.000	549.74	0.00	0.00
31	86.00	Samsung MT6407-77A	3	7.310	8.040	0.53	0.75	8.42	472.93	0.000	0.000	67.69	0.00	0.00
32	86.00	Low Profile	1	7.310	8.040	1.00	1.00	33.15	2326.35	0.000	0.000	266.54	0.00	0.00
33	86.00	Antel	3	7.310	8.040	0.67	0.75	11.08	174.94	0.000	0.000	89.09	0.00	0.00
34	86.00	JMA MX06FR0660-03	6	7.310	8.040	0.66	0.75	42.43	941.23	0.000	0.000	341.13	0.00	0.00
35	86.00	Raycap	1	7.310	8.040	0.75	0.75	3.43	85.13	0.000	0.000	27.61	0.00	0.00
36	86.00	Samsung B2/B66A	3	7.310	8.040	0.64	0.75	4.25	362.42	0.000	0.000	34.20	0.00	0.00
37	86.00	Samsung B5/B13	3	7.310	8.040	0.59	0.75	3.95	309.37	0.000	0.000	31.78	0.00	0.00
38	86.00	HRK12 (Handrail Kit)	1	7.310	8.040	1.00	1.00	10.91	771.87	0.000	0.000	87.76	0.00	0.00
39	86.00	Kaelus BSF0020F3V1-1	4	7.310	8.040	0.52	0.75	2.51	89.94	0.000	0.000	20.15	0.00	0.00

Totals: 31,973.12

4,996.25

Total Applied Force Summary

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



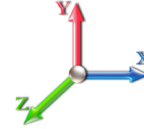
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 23

Dead Load Factor 1.20

Wind Load Factor 1.00



Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		142.62	1719.64	0.00	0.00
10.00		139.89	1705.35	0.00	0.00
15.00		138.75	1684.47	0.00	0.00
20.00		143.84	1660.44	0.00	0.00
25.00		147.19	1634.53	0.00	0.00
30.00		149.34	1607.35	0.00	0.00
35.00		150.59	1579.24	0.00	0.00
40.00		151.13	1550.42	0.00	0.00
45.00		151.10	1521.03	0.00	0.00
48.25		97.59	973.13	0.00	0.00
50.00		53.06	798.10	0.00	0.00
53.25		98.57	1464.94	0.00	0.00
55.00		52.75	461.62	0.00	0.00
60.00		150.77	1299.75	0.00	0.00
65.00		149.23	1273.26	0.00	0.00
70.00		147.42	1246.52	0.00	0.00
75.00		145.36	1219.55	0.00	0.00
80.00		143.07	1192.38	0.00	0.00
85.00		140.58	1165.02	0.00	0.00
86.00	(25) attachments	993.62	5764.34	0.00	0.00
90.00		109.97	807.85	0.00	0.00
95.00		135.05	984.32	0.00	0.00
98.00	(26) attachments	1312.13	8550.95	0.00	0.00
100.00		53.12	530.25	0.00	0.00
101.75		46.06	458.09	0.00	0.00
105.00		84.64	472.49	0.00	0.00
109.00		102.35	567.41	0.00	0.00
110.00		23.92	153.86	0.00	0.00
115.00		120.74	770.33	0.00	0.00
117.00	(21) attachments	1242.66	6755.72	259.02	0.00
119.00		48.65	298.41	0.00	0.00
120.00		24.37	169.70	0.00	0.00
125.00		122.94	849.45	0.00	0.00
128.00	(35) attachments	1667.86	12502.13	0.00	0.00
130.00		49.60	334.15	0.00	0.00
134.00	(1) attachments	109.53	695.31	0.00	0.00
	Totals:	8,740.06	66,421.50	259.02	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

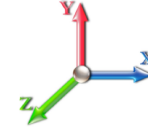


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 23

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.86	0.00	0.020	0.000	5.055	0.00	7.27
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.97	0.00	0.020	0.000	5.055	0.00	12.80
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.90	0.00	0.021	0.000	5.055	0.00	7.91
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.01	0.00	0.021	0.000	5.055	0.00	13.48
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.93	0.00	0.021	0.000	5.118	0.00	8.34
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.04	0.00	0.021	0.000	5.118	0.00	13.95
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.95	0.00	0.022	0.000	5.419	0.00	8.67
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.06	0.00	0.022	0.000	5.419	0.00	14.31
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.97	0.00	0.022	0.000	5.668	0.00	8.94
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.08	0.00	0.022	0.000	5.668	0.00	14.60
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.99	0.00	0.023	0.000	5.882	0.00	9.18
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.09	0.00	0.023	0.000	5.882	0.00	14.85
35.00	Safety Cable	Yes	5.00	0.000	0.38	1.00	0.00	0.023	0.000	6.070	0.00	9.38
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.10	0.00	0.023	0.000	6.070	0.00	15.07
40.00	Safety Cable	Yes	5.00	0.000	0.38	1.01	0.00	0.024	0.000	6.239	0.00	9.57
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.11	0.00	0.024	0.000	6.239	0.00	15.27
45.00	Safety Cable	Yes	5.00	0.000	0.38	1.02	0.00	0.025	0.000	6.392	0.00	9.73
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.12	0.00	0.025	0.000	6.392	0.00	15.44
48.25	Safety Cable	Yes	3.25	0.000	0.38	0.67	0.00	0.025	0.000	6.484	0.00	6.39
48.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.73	0.00	0.025	0.000	6.484	0.00	10.11
50.00	Safety Cable	Yes	1.75	0.000	0.38	0.36	0.00	0.026	0.000	6.532	0.00	3.46
50.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.40	0.00	0.026	0.000	6.532	0.00	5.46
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.67	0.00	0.026	0.000	6.618	0.00	6.48
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.74	0.00	0.026	0.000	6.618	0.00	10.21
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.36	0.00	0.026	0.000	6.662	0.00	3.51
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.40	0.00	0.026	0.000	6.662	0.00	5.51
60.00	Safety Cable	Yes	5.00	0.000	0.38	1.04	0.00	0.026	0.000	6.783	0.00	10.15
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.15	0.00	0.026	0.000	6.783	0.00	15.89
65.00	Safety Cable	Yes	5.00	0.000	0.38	1.05	0.00	0.027	0.000	6.897	0.00	10.28
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.16	0.00	0.027	0.000	6.897	0.00	16.03
70.00	Safety Cable	Yes	5.00	0.000	0.38	1.06	0.00	0.028	0.000	7.003	0.00	10.39
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.16	0.00	0.028	0.000	7.003	0.00	16.15
75.00	Safety Cable	Yes	5.00	0.000	0.38	1.06	0.00	0.029	0.000	7.104	0.00	10.50
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.17	0.00	0.029	0.000	7.104	0.00	16.26
80.00	Safety Cable	Yes	5.00	0.000	0.38	1.07	0.00	0.030	0.000	7.200	0.00	10.60
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.17	0.00	0.030	0.000	7.200	0.00	16.37
85.00	Safety Cable	Yes	5.00	0.000	0.38	1.08	0.00	0.031	0.000	7.292	0.00	10.70
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.18	0.00	0.031	0.000	7.292	0.00	16.48
86.00	Safety Cable	Yes	1.00	0.000	0.38	0.22	0.00	0.031	0.000	7.310	0.00	2.14
86.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.24	0.00	0.031	0.000	7.310	0.00	3.30
90.00	Safety Cable	Yes	4.00	0.000	0.38	0.86	0.00	0.032	0.000	7.379	0.00	8.63
90.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.95	0.00	0.032	0.000	7.379	0.00	13.26
95.00	Safety Cable	Yes	5.00	0.000	0.38	1.09	0.00	0.033	0.000	7.463	0.00	10.88
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.19	0.00	0.033	0.000	7.463	0.00	16.67
98.00	Safety Cable	Yes	3.00	0.000	0.38	0.65	0.00	0.034	0.000	7.511	0.00	6.56
98.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.72	0.00	0.034	0.000	7.511	0.00	10.04
100.00	Safety Cable	Yes	2.00	0.000	0.38	0.44	0.00	0.035	0.000	7.543	0.00	4.39

Linear Appurtenance Segment Forces (Factored)

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 25

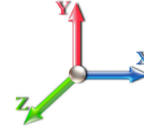


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 23

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.48	0.00	0.035	0.000	7.543	0.00	6.70
101.75	Safety Cable	Yes	1.75	0.000	0.38	0.38	0.00	0.035	0.000	7.570	0.00	3.85
101.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.42	0.00	0.035	0.000	7.570	0.00	5.88
105.00	Safety Cable	Yes	3.25	0.000	0.38	0.71	0.00	0.035	0.000	7.620	0.00	7.18
105.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.78	0.00	0.035	0.000	7.620	0.00	10.95
109.00	Safety Cable	Yes	4.00	0.000	0.38	0.88	0.00	0.036	0.000	7.680	0.00	8.89
109.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.96	0.00	0.036	0.000	7.680	0.00	13.53
110.00	Safety Cable	Yes	1.00	0.000	0.38	0.22	0.00	0.039	0.000	7.694	0.00	2.23
110.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.24	0.00	0.039	0.000	7.694	0.00	3.39
115.00	Safety Cable	Yes	5.00	0.000	0.38	1.10	0.00	0.039	0.000	7.766	0.00	11.21
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.21	0.00	0.039	0.000	7.766	0.00	17.01
117.00	Safety Cable	Yes	2.00	0.000	0.38	0.44	0.00	0.039	0.000	7.794	0.00	4.49
117.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.48	0.00	0.039	0.000	7.794	0.00	6.82
119.00	Safety Cable	Yes	2.00	0.000	0.38	0.44	0.00	0.039	0.000	7.822	0.00	4.51
119.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.48	0.00	0.039	0.000	7.822	0.00	6.83
120.00	Safety Cable	Yes	1.00	0.000	0.38	0.22	0.00	0.039	0.000	7.835	0.00	2.26
120.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.24	0.00	0.039	0.000	7.835	0.00	3.42
125.00	Safety Cable	Yes	5.00	0.000	0.38	1.11	0.00	0.039	0.000	7.902	0.00	11.35
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.22	0.00	0.039	0.000	7.902	0.00	17.17
128.00	Safety Cable	Yes	3.00	0.000	0.38	0.67	0.00	0.039	0.000	7.942	0.00	6.83
128.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.73	0.00	0.039	0.000	7.942	0.00	10.33
130.00	Safety Cable	Yes	2.00	0.000	0.38	0.45	0.00	0.039	0.000	7.967	0.00	4.57
130.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.49	0.00	0.039	0.000	7.967	0.00	6.90
134.00	Safety Cable	Yes	4.00	0.000	0.38	0.89	0.00	0.039	0.000	8.018	0.00	9.18
134.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.98	0.00	0.039	0.000	8.018	0.00	13.84
Totals:											0.0	694.9

Calculated Forces

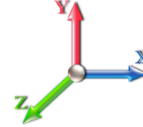
Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 26



Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 23

Dead Load Factor 1.20
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-66.42	-8.78	-0.26	-869.52	0.00	869.52	3976.93	1023.83	4163.63	4011.62	0.00	0.000	0.000	0.234
5.00	-64.69	-8.71	-0.26	-825.63	0.00	825.63	3920.48	1001.47	3983.76	3867.66	0.04	-0.068	0.000	0.230
10.00	-62.97	-8.65	-0.26	-782.06	0.00	782.06	3862.67	979.11	3807.86	3724.90	0.14	-0.137	0.000	0.226
15.00	-61.28	-8.58	-0.26	-738.83	0.00	738.83	3803.51	956.76	3635.94	3583.42	0.33	-0.207	0.000	0.222
20.00	-59.61	-8.50	-0.26	-695.94	0.00	695.94	3742.99	934.40	3467.98	3443.32	0.58	-0.278	0.000	0.218
25.00	-57.96	-8.42	-0.26	-653.43	0.00	653.43	3681.11	912.04	3304.00	3304.69	0.91	-0.349	0.000	0.214
30.00	-56.34	-8.33	-0.26	-611.35	0.00	611.35	3617.88	889.68	3143.99	3167.62	1.31	-0.421	0.000	0.209
35.00	-54.76	-8.23	-0.26	-569.71	0.00	569.71	3553.28	867.32	2987.95	3032.20	1.79	-0.493	0.000	0.203
40.00	-53.20	-8.14	-0.26	-528.54	0.00	528.54	3487.33	844.96	2835.88	2898.52	2.35	-0.566	0.000	0.198
45.00	-51.67	-8.02	-0.26	-487.86	0.00	487.86	3420.03	822.60	2687.78	2766.66	2.98	-0.638	0.000	0.192
48.25	-50.69	-7.95	-0.26	-461.78	0.00	461.78	3375.55	808.07	2593.65	2681.98	3.43	-0.686	0.000	0.187
50.00	-49.89	-7.92	-0.26	-447.88	0.00	447.88	3351.36	800.24	2543.66	2636.73	3.69	-0.712	0.000	0.185
53.25	-48.42	-7.83	-0.26	-422.15	0.00	422.15	2647.50	666.72	2118.80	2085.88	4.19	-0.760	0.000	0.221
55.00	-47.95	-7.82	-0.26	-408.45	0.00	408.45	2630.02	660.20	2077.55	2051.68	4.47	-0.785	0.000	0.217
60.00	-46.65	-7.71	-0.26	-369.37	0.00	369.37	2579.17	641.57	1961.94	1954.76	5.34	-0.866	0.000	0.207
65.00	-45.36	-7.60	-0.26	-330.81	0.00	330.81	2526.96	622.94	1849.64	1859.10	6.29	-0.946	0.000	0.196
70.00	-44.11	-7.49	-0.26	-292.79	0.00	292.79	2473.39	604.31	1740.65	1764.79	7.32	-1.023	-0.001	0.184
75.00	-42.88	-7.38	-0.26	-255.32	0.00	255.32	2418.47	585.67	1634.96	1671.92	8.43	-1.097	-0.001	0.171
80.00	-41.69	-7.26	-0.26	-218.42	0.00	218.42	2362.18	567.04	1532.59	1580.58	9.62	-1.168	-0.001	0.156
85.00	-40.52	-7.13	-0.26	-182.10	0.00	182.10	2304.54	548.41	1433.52	1490.86	10.88	-1.234	-0.001	0.140
86.00	-34.78	-6.03	-0.26	-174.97	0.00	174.97	2292.85	544.68	1414.11	1473.12	11.14	-1.247	-0.001	0.134
90.00	-33.96	-5.93	-0.26	-150.87	-0.01	150.87	2242.72	529.78	1337.77	1401.09	12.21	-1.295	-0.001	0.123
95.00	-32.98	-5.80	-0.26	-121.22	-0.01	121.22	2163.84	511.14	1245.33	1303.79	13.59	-1.350	-0.001	0.108
98.00	-24.46	-4.29	-0.26	-103.84	-0.01	103.84	2116.52	499.96	1191.45	1247.09	14.45	-1.380	-0.001	0.095
100.00	-23.93	-4.23	-0.26	-95.26	-0.01	95.26	2084.97	492.51	1156.19	1209.99	15.03	-1.399	-0.001	0.090
101.75	-23.47	-4.18	-0.26	-87.85	-0.01	87.85	1611.41	396.63	937.27	943.49	15.55	-1.415	-0.001	0.108
105.00	-23.00	-4.10	-0.26	-74.25	-0.01	74.25	1583.50	386.94	892.04	904.30	16.52	-1.443	-0.001	0.097
109.00	-22.43	-3.99	-0.26	-57.85	-0.01	57.85	1548.36	375.01	837.91	856.74	17.75	-1.478	-0.001	0.082
109.00	-22.43	-3.99	-0.26	-57.85	-0.01	57.85	933.38	285.53	41725.7	590.00	17.75	-1.478	-0.001	0.122
110.00	-22.28	-3.97	-0.26	-53.86	-0.01	53.86	933.38	285.53	41725.7	590.00	18.06	-1.486	-0.001	0.115
115.00	-21.51	-3.84	-0.26	-34.00	-0.01	34.00	933.38	285.53	41725.7	590.00	19.63	-1.516	-0.002	0.081
117.00	-14.79	-2.42	0.00	-26.33	0.00	26.33	933.38	285.53	41725.7	590.00	20.27	-1.524	-0.002	0.061
119.00	-14.49	-2.36	0.00	-21.49	0.00	21.49	933.38	285.53	41725.7	590.00	20.91	-1.530	-0.002	0.052
119.00	-14.49	-2.36	0.00	-21.49	0.00	21.49	950.95	285.28	54712.4	624.60	20.91	-1.530	-0.002	0.050
120.00	-14.32	-2.34	0.00	-19.13	0.00	19.13	950.95	285.28	54712.4	624.60	21.23	-1.533	-0.002	0.046
125.00	-13.48	-2.19	0.00	-7.46	0.00	7.46	950.95	285.28	54712.4	624.60	22.84	-1.541	-0.002	0.026
128.00	-1.02	-0.19	0.00	-0.89	0.00	0.89	950.95	285.28	54712.4	624.60	23.81	-1.542	-0.002	0.002
130.00	-0.69	-0.13	0.00	-0.51	0.00	0.51	950.95	285.28	54712.4	624.60	24.45	-1.543	-0.002	0.002
134.00	0.00	-0.11	0.00	0.00	0.00	0.00	950.95	285.28	54712.4	624.60	25.74	-1.543	-0.002	0.000

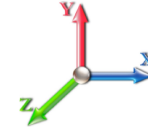
Seismic Segment Forces (Factored)

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 27

Load Case: 1.2D + 1.0Ev + 1.0Eh				Iterations 21
Gust Response Factor	1.10	Sds	0.21	Ss 0.19
Dead Load Factor	1.20	Seismic Load Factor	1.00	S1 0.05
Wind Load Factor	0.00	Structure Frequency (f1)	0.33	SA 0.03
				Seismic Importance Factor 1.00



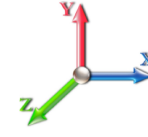
Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		1254.0	2.50	51.90	0.01	
10.00		1232.3	7.50	51.00	0.05	
15.00		1210.6	12.50	50.11	0.15	
20.00		1188.9	17.50	49.21	0.28	
25.00		1167.3	22.50	48.31	0.44	
30.00		1145.6	27.50	47.41	0.64	
35.00		1123.9	32.50	46.52	0.86	
40.00		1102.2	37.50	45.62	1.10	
45.00		1080.6	42.50	44.72	1.35	
48.25	Bot - Section 2	690.77	46.63	28.59	0.66	
50.00		599.60	49.13	24.82	0.56	
53.25	Top - Section 1	1100.6	51.63	45.55	2.07	
55.00		320.42	54.13	13.26	0.19	
60.00		903.30	57.50	37.38	1.73	
65.00		885.24	62.50	36.64	1.96	
70.00		867.18	67.50	35.89	2.20	
75.00		849.11	72.50	35.14	2.43	
80.00		831.05	77.50	34.39	2.66	
85.00		812.99	82.50	33.65	2.88	
86.00	Appurtenance(s)	3154.9	85.50	130.57	46.64	
90.00		534.08	88.00	22.10	1.42	
95.00		651.34	92.50	26.96	2.33	
98.00	Bot - Section 3	4692.8	96.50	194.22	131.44	
100.00		368.60	99.00	15.26	0.85	
101.75	Top - Section 2	318.26	100.88	13.17	0.66	
105.00		278.06	103.38	11.51	0.53	
109.00	Top - Section 3	333.84	107.00	13.82	0.82	
110.00		95.27	109.50	3.94	0.07	
115.00		476.36	112.50	19.71	1.84	
117.00	Appurtenance(s)	4008.4	116.00	165.90	138.57	
119.00	Top - Section 4	180.51	118.00	7.47	0.29	
120.00		107.30	119.50	4.44	0.11	
125.00		536.51	122.50	22.20	2.77	
128.00	Appurtenance(s)	5597.3	126.50	231.66	321.34	
130.00		208.60	129.00	8.63	0.46	
134.00	Appurtenance(s)	423.70	132.00	17.54	2.00	
Totals:		40,332.2		1,669.2	674.3	Total Wind: 32,853.9

Calculated Forces

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0Ev + 1.0Eh								Iterations 21
Gust Response Factor 1.10				Sds 0.21		Ss 0.19		
Dead Load Factor 1.20		Seismic Load Factor 1.00		Sd1 0.09		S1 0.05		
Wind Load Factor 0.00		Structure Frequency (f1) 0.33		SA 0.03		Seismic Importance Factor 1.00		



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-49.01	-0.68	0.00	-82.00	0.00	82.00	3976.93	1023.83	4163.63	4011.62	0.00	0.00	0.00	0.033
5.00	-47.51	-0.68	0.00	-78.62	0.00	78.62	3920.48	1001.47	3983.76	3867.66	0.00	-0.01	0.032	
10.00	-46.03	-0.69	0.00	-75.21	0.00	75.21	3862.67	979.11	3807.86	3724.90	0.01	-0.01	0.032	
15.00	-44.59	-0.69	0.00	-71.77	0.00	71.77	3803.51	956.76	3635.94	3583.42	0.03	-0.02	0.032	
20.00	-43.16	-0.70	0.00	-68.31	0.00	68.31	3742.99	934.40	3467.98	3443.32	0.06	-0.03	0.031	
25.00	-41.77	-0.70	0.00	-64.83	0.00	64.83	3681.11	912.04	3304.00	3304.69	0.09	-0.03	0.031	
30.00	-40.40	-0.70	0.00	-61.33	0.00	61.33	3617.88	889.68	3143.99	3167.62	0.13	-0.04	0.031	
35.00	-39.06	-0.71	0.00	-57.82	0.00	57.82	3553.28	867.32	2987.95	3032.20	0.17	-0.05	0.030	
40.00	-37.75	-0.71	0.00	-54.28	0.00	54.28	3487.33	844.96	2835.88	2898.52	0.23	-0.06	0.030	
45.00	-36.46	-0.71	0.00	-50.74	0.00	50.74	3420.03	822.60	2687.78	2766.66	0.29	-0.06	0.029	
48.25	-35.64	-0.71	0.00	-48.43	0.00	48.43	3375.55	808.07	2593.65	2681.98	0.33	-0.07	0.029	
50.00	-34.91	-0.71	0.00	-47.18	0.00	47.18	3351.36	800.24	2543.66	2636.73	0.36	-0.07	0.028	
53.25	-33.58	-0.71	0.00	-44.87	0.00	44.87	2647.50	666.72	2118.80	2085.88	0.41	-0.08	0.034	
55.00	-33.20	-0.71	0.00	-43.62	0.00	43.62	2630.02	660.20	2077.55	2051.68	0.44	-0.08	0.034	
60.00	-32.14	-0.72	0.00	-40.05	0.00	40.05	2579.17	641.57	1961.94	1954.76	0.53	-0.09	0.033	
65.00	-31.09	-0.72	0.00	-36.48	0.00	36.48	2526.96	622.94	1849.64	1859.10	0.62	-0.10	0.032	
70.00	-30.07	-0.72	0.00	-32.90	0.00	32.90	2473.39	604.31	1740.65	1764.79	0.73	-0.10	0.031	
75.00	-29.07	-0.72	0.00	-29.31	0.00	29.31	2418.47	585.67	1634.96	1671.92	0.84	-0.11	0.030	
80.00	-28.09	-0.72	0.00	-25.73	0.00	25.73	2362.18	567.04	1532.59	1580.58	0.96	-0.12	0.028	
85.00	-27.14	-0.71	0.00	-22.15	0.00	22.15	2304.54	548.41	1433.52	1490.86	1.09	-0.13	0.027	
86.00	-23.23	-0.66	0.00	-21.44	0.00	21.44	2292.85	544.68	1414.11	1473.12	1.12	-0.13	0.025	
90.00	-22.59	-0.66	0.00	-18.80	0.00	18.80	2242.72	529.78	1337.77	1401.09	1.23	-0.14	0.023	
95.00	-21.81	-0.66	0.00	-15.51	0.00	15.51	2163.84	511.14	1245.33	1303.79	1.38	-0.14	0.022	
98.00	-16.01	-0.51	0.00	-13.54	0.00	13.54	2116.52	499.96	1191.45	1247.09	1.47	-0.15	0.018	
100.00	-15.55	-0.51	0.00	-12.52	0.00	12.52	2084.97	492.51	1156.19	1209.99	1.53	-0.15	0.018	
101.75	-15.16	-0.51	0.00	-11.62	0.00	11.62	1611.41	396.63	937.27	943.49	1.59	-0.15	0.022	
105.00	-14.82	-0.51	0.00	-9.97	0.00	9.97	1583.50	386.94	892.04	904.30	1.70	-0.16	0.020	
109.00	-14.41	-0.51	0.00	-7.93	0.00	7.93	1548.36	375.01	837.91	856.74	1.83	-0.16	0.019	
109.00	-14.41	-0.51	0.00	-7.93	0.00	7.93	933.38	285.53	41725.7	590.00	1.83	-0.16	0.029	
110.00	-14.30	-0.51	0.00	-7.42	0.00	7.42	933.38	285.53	41725.7	590.00	1.86	-0.16	0.028	
115.00	-13.72	-0.51	0.00	-4.89	0.00	4.89	933.38	285.53	41725.7	590.00	2.03	-0.17	0.023	
117.00	-8.74	-0.35	0.00	-3.87	0.00	3.87	933.38	285.53	41725.7	590.00	2.10	-0.17	0.016	
119.00	-8.52	-0.35	0.00	-3.17	0.00	3.17	933.38	285.53	41725.7	590.00	2.17	-0.17	0.015	
119.00	-8.52	-0.35	0.00	-3.17	0.00	3.17	950.95	285.28	54712.4	624.60	2.17	-0.17	0.014	
120.00	-8.39	-0.35	0.00	-2.82	0.00	2.82	950.95	285.28	54712.4	624.60	2.21	-0.17	0.013	
125.00	-7.73	-0.35	0.00	-1.06	0.00	1.06	950.95	285.28	54712.4	624.60	2.39	-0.17	0.010	
128.00	-0.78	0.00	0.00	-0.02	0.00	0.02	950.95	285.28	54712.4	624.60	2.49	-0.17	0.001	
130.00	-0.52	0.00	0.00	-0.01	0.00	0.01	950.95	285.28	54712.4	624.60	2.56	-0.17	0.001	
134.00	0.00	0.00	0.00	0.00	0.00	0.00	950.95	285.28	54712.4	624.60	2.71	-0.17	0.000	

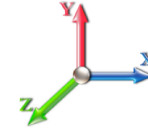
Seismic Segment Forces (Factored)

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0Ev + 1.0Eh				Iterations 21
Gust Response Factor	1.10	Sds	0.21	Ss 0.19
Dead Load Factor	0.90	Seismic Load Factor	1.00	S1 0.05
Wind Load Factor	0.00	Structure Frequency (f1)	0.33	SA 0.03
				Seismic Importance Factor 1.00



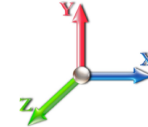
Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		1185.9	2.50	49.08	0.01	
10.00		1164.2	7.50	48.19	0.05	
15.00		1142.5	12.50	47.29	0.13	
20.00		1120.9	17.50	46.39	0.25	
25.00		1099.2	22.50	45.49	0.40	
30.00		1077.5	27.50	44.60	0.57	
35.00		1055.8	32.50	43.70	0.76	
40.00		1034.2	37.50	42.80	0.97	
45.00		1012.5	42.50	41.91	1.20	
48.25	Bot - Section 2	646.52	46.63	26.76	0.59	
50.00		575.78	49.13	23.83	0.52	
53.25	Top - Section 1	1056.3	51.63	43.72	1.92	
55.00		296.60	54.13	12.28	0.17	
60.00		835.23	57.50	34.57	1.49	
65.00		817.16	62.50	33.82	1.69	
70.00		799.10	67.50	33.07	1.88	
75.00		781.04	72.50	32.32	2.07	
80.00		762.97	77.50	31.58	2.26	
85.00		744.91	82.50	30.83	2.44	
86.00	Appurtenance(s)	3141.3	85.50	130.01	46.66	
90.00		504.72	88.00	20.89	1.28	
95.00		614.64	92.50	25.44	2.09	
98.00	Bot - Section 3	4670.8	96.50	193.31	131.40	
100.00		363.81	99.00	15.06	0.84	
101.75	Top - Section 2	314.06	100.88	13.00	0.65	
105.00		270.26	103.38	11.19	0.50	
109.00	Top - Section 3	324.25	107.00	13.42	0.78	
110.00		92.87	109.50	3.84	0.07	
115.00		464.37	112.50	19.22	1.77	
117.00	Appurtenance(s)	4003.6	116.00	165.70	139.50	
119.00	Top - Section 4	178.22	118.00	7.38	0.29	
120.00		106.16	119.50	4.39	0.10	
125.00		530.79	122.50	21.97	2.73	
128.00	Appurtenance(s)	5593.9	126.50	231.52	323.86	
130.00		207.81	129.00	8.60	0.46	
134.00	Appurtenance(s)	422.13	132.00	17.47	2.01	
Totals:		39,012.8		1,614.6	674.3	Total Wind: 32,853.9

Calculated Forces

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0Ev + 1.0Eh						Iterations 21
Gust Response Factor	1.10			Sds	0.21	Ss 0.19
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.09	S1 0.05
Wind Load Factor	0.00	Structure Frequency (f1)	0.33	SA	0.03	Seismic Importance Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-37.12	-0.68	0.00	-80.96	0.00	80.96	3976.93	1023.83	4163.63	4011.62	0.00	0.00	0.00	0.030
5.00	-35.98	-0.68	0.00	-77.58	0.00	77.58	3920.48	1001.47	3983.76	3867.66	0.00	-0.01	0.029	
10.00	-34.87	-0.68	0.00	-74.18	0.00	74.18	3862.67	979.11	3807.86	3724.90	0.01	-0.01	0.029	
15.00	-33.77	-0.69	0.00	-70.76	0.00	70.76	3803.51	956.76	3635.94	3583.42	0.03	-0.02	0.029	
20.00	-32.70	-0.69	0.00	-67.33	0.00	67.33	3742.99	934.40	3467.98	3443.32	0.05	-0.03	0.028	
25.00	-31.64	-0.69	0.00	-63.88	0.00	63.88	3681.11	912.04	3304.00	3304.69	0.09	-0.03	0.028	
30.00	-30.61	-0.70	0.00	-60.41	0.00	60.41	3617.88	889.68	3143.99	3167.62	0.12	-0.04	0.028	
35.00	-29.59	-0.70	0.00	-56.93	0.00	56.93	3553.28	867.32	2987.95	3032.20	0.17	-0.05	0.027	
40.00	-28.60	-0.70	0.00	-53.44	0.00	53.44	3487.33	844.96	2835.88	2898.52	0.22	-0.05	0.027	
45.00	-27.62	-0.70	0.00	-49.94	0.00	49.94	3420.03	822.60	2687.78	2766.66	0.29	-0.06	0.026	
48.25	-27.00	-0.70	0.00	-47.66	0.00	47.66	3375.55	808.07	2593.65	2681.98	0.33	-0.07	0.026	
50.00	-26.45	-0.70	0.00	-46.44	0.00	46.44	3351.36	800.24	2543.66	2636.73	0.35	-0.07	0.026	
53.25	-25.45	-0.70	0.00	-44.16	0.00	44.16	2647.50	666.72	2118.80	2085.88	0.40	-0.07	0.031	
55.00	-25.16	-0.70	0.00	-42.93	0.00	42.93	2630.02	660.20	2077.55	2051.68	0.43	-0.08	0.030	
60.00	-24.35	-0.70	0.00	-39.42	0.00	39.42	2579.17	641.57	1961.94	1954.76	0.52	-0.09	0.030	
65.00	-23.56	-0.70	0.00	-35.90	0.00	35.90	2526.96	622.94	1849.64	1859.10	0.61	-0.09	0.029	
70.00	-22.79	-0.70	0.00	-32.38	0.00	32.38	2473.39	604.31	1740.65	1764.79	0.72	-0.10	0.028	
75.00	-22.03	-0.70	0.00	-28.87	0.00	28.87	2418.47	585.67	1634.96	1671.92	0.83	-0.11	0.026	
80.00	-21.29	-0.70	0.00	-25.35	0.00	25.35	2362.18	567.04	1532.59	1580.58	0.95	-0.12	0.025	
85.00	-20.57	-0.70	0.00	-21.83	0.00	21.83	2304.54	548.41	1433.52	1490.86	1.08	-0.13	0.024	
86.00	-17.61	-0.65	0.00	-21.13	0.00	21.13	2292.85	544.68	1414.11	1473.12	1.11	-0.13	0.022	
90.00	-17.13	-0.65	0.00	-18.54	0.00	18.54	2242.72	529.78	1337.77	1401.09	1.22	-0.13	0.021	
95.00	-16.54	-0.65	0.00	-15.30	0.00	15.30	2163.84	511.14	1245.33	1303.79	1.36	-0.14	0.019	
98.00	-12.13	-0.50	0.00	-13.36	0.00	13.36	2116.52	499.96	1191.45	1247.09	1.45	-0.15	0.016	
100.00	-11.79	-0.50	0.00	-12.35	0.00	12.35	2084.97	492.51	1156.19	1209.99	1.51	-0.15	0.016	
101.75	-11.49	-0.50	0.00	-11.47	0.00	11.47	1611.41	396.63	937.27	943.49	1.57	-0.15	0.019	
105.00	-11.24	-0.50	0.00	-9.84	0.00	9.84	1583.50	386.94	892.04	904.30	1.67	-0.15	0.018	
109.00	-10.93	-0.50	0.00	-7.83	0.00	7.83	1548.36	375.01	837.91	856.74	1.80	-0.16	0.016	
109.00	-10.93	-0.50	0.00	-7.83	0.00	7.83	933.38	285.53	41725.7	590.00	1.80	-0.16	0.025	
110.00	-10.84	-0.50	0.00	-7.33	0.00	7.33	933.38	285.53	41725.7	590.00	1.83	-0.16	0.024	
115.00	-10.40	-0.50	0.00	-4.83	0.00	4.83	933.38	285.53	41725.7	590.00	2.00	-0.16	0.019	
117.00	-6.63	-0.35	0.00	-3.83	0.00	3.83	933.38	285.53	41725.7	590.00	2.07	-0.16	0.014	
119.00	-6.46	-0.35	0.00	-3.14	0.00	3.14	933.38	285.53	41725.7	590.00	2.14	-0.17	0.012	
119.00	-6.46	-0.35	0.00	-3.14	0.00	3.14	950.95	285.28	54712.4	624.60	2.14	-0.17	0.012	
120.00	-6.36	-0.35	0.00	-2.79	0.00	2.79	950.95	285.28	54712.4	624.60	2.18	-0.17	0.011	
125.00	-5.86	-0.34	0.00	-1.05	0.00	1.05	950.95	285.28	54712.4	624.60	2.35	-0.17	0.008	
128.00	-0.59	0.00	0.00	-0.02	0.00	0.02	950.95	285.28	54712.4	624.60	2.46	-0.17	0.001	
130.00	-0.40	0.00	0.00	-0.01	0.00	0.01	950.95	285.28	54712.4	624.60	2.53	-0.17	0.000	
134.00	0.00	0.00	0.00	0.00	0.00	0.00	950.95	285.28	54712.4	624.60	2.67	-0.17	0.000	

Wind Loading - Shaft

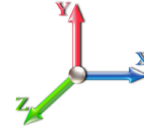
Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 31



Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 23

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	6.513	7.16	228.65	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	6.513	7.16	223.70	0.730	0.000	5.00	20.670	15.09	108.1	0.0	981.7
10.00		1.00	0.85	6.513	7.16	218.74	0.730	0.000	5.00	20.217	14.76	105.7	0.0	960.0
15.00		1.00	0.86	6.594	7.25	215.10	0.730	0.000	5.00	19.764	14.43	104.6	0.0	938.4
20.00		1.00	0.91	6.982	7.68	216.22	0.730	0.000	5.00	19.312	14.10	108.3	0.0	916.7
25.00		1.00	0.95	7.303	8.03	215.89	0.730	0.000	5.00	18.859	13.77	110.6	0.0	895.0
30.00		1.00	0.99	7.579	8.34	214.57	0.730	0.000	5.00	18.406	13.44	112.0	0.0	873.3
35.00		1.00	1.02	7.821	8.60	212.55	0.730	0.000	5.00	17.953	13.11	112.8	0.0	851.7
40.00		1.00	1.05	8.038	8.84	209.97	0.730	0.000	5.00	17.500	12.77	113.0	0.0	830.0
45.00		1.00	1.07	8.235	9.06	206.96	0.730	0.000	5.00	17.047	12.44	112.7	0.0	808.3
48.25	Bot - Section 2	1.00	1.09	8.355	9.19	204.80	0.730	0.000	3.25	10.838	7.91	72.7	0.0	513.8
50.00		1.00	1.10	8.416	9.26	203.59	0.730	0.000	1.75	5.849	4.27	39.5	0.0	504.3
53.25	Top - Section 1	1.00	1.11	8.526	9.38	201.23	0.730	0.000	3.25	10.715	7.82	73.4	0.0	923.6
55.00		1.00	1.12	8.584	9.44	203.23	0.730	0.000	1.75	5.691	4.15	39.2	0.0	225.1
60.00		1.00	1.14	8.739	9.61	199.33	0.730	0.000	5.00	15.953	11.65	112.0	0.0	631.0
65.00		1.00	1.16	8.886	9.77	195.20	0.730	0.000	5.00	15.500	11.31	110.6	0.0	612.9
70.00		1.00	1.18	9.023	9.93	190.88	0.730	0.000	5.00	15.047	10.98	109.0	0.0	594.9
75.00		1.00	1.19	9.154	10.07	186.37	0.730	0.000	5.00	14.594	10.65	107.3	0.0	576.8
80.00		1.00	1.21	9.277	10.20	181.71	0.730	0.000	5.00	14.141	10.32	105.3	0.0	558.8
85.00		1.00	1.23	9.395	10.33	176.91	0.730	0.000	5.00	13.688	9.99	103.3	0.0	540.7
86.00	Appurtenance(s)	1.00	1.23	9.418	10.36	175.93	0.730	0.000	1.00	2.683	1.96	20.3	0.0	106.0
90.00		1.00	1.24	9.507	10.46	171.98	0.730	0.000	4.00	10.552	7.70	80.6	0.0	416.7
95.00		1.00	1.25	9.615	10.58	166.93	0.730	0.000	5.00	12.783	9.33	98.7	0.0	504.6
98.00	Bot - Section 3	1.00	1.26	9.677	10.65	163.85	0.730	0.000	3.00	7.452	5.44	57.9	0.0	294.1
100.00		1.00	1.27	9.718	10.69	161.77	0.730	0.000	2.00	4.962	3.62	38.7	0.0	349.4
101.75	Top - Section 2	1.00	1.27	9.753	10.73	159.94	0.730	0.000	1.75	4.282	3.13	33.5	0.0	301.5
105.00		1.00	1.28	9.818	10.80	159.35	0.730	0.000	3.25	7.806	5.70	61.5	0.0	246.9
109.00	Top - Section 3	1.00	1.29	9.895	10.88	155.09	0.730	0.000	4.00	9.345	6.82	74.2	0.0	295.5
110.00		1.00	1.29	9.913	10.90	146.24	0.600	0.000	1.00	2.167	1.30	14.2	0.0	85.7
115.00		1.00	1.31	10.006	11.01	146.92	0.600	0.000	5.00	10.833	6.50	71.5	0.0	428.4
117.00	Appurtenance(s)	1.00	1.31	10.042	11.05	147.19	0.600	0.000	2.00	4.333	2.60	28.7	0.0	171.4
119.00	Top - Section 4	1.00	1.32	10.077	11.09	147.45	0.600	0.000	2.00	4.333	2.60	28.8	0.0	171.4
120.00		1.00	1.32	10.095	11.10	147.58	0.600	0.000	1.00	2.167	1.30	14.4	0.0	102.7
125.00		1.00	1.33	10.181	11.20	148.21	0.600	0.000	5.00	10.833	6.50	72.8	0.0	513.6
128.00	Appurtenance(s)	1.00	1.34	10.232	11.26	148.57	0.600	0.000	3.00	6.500	3.90	43.9	0.0	308.2
130.00		1.00	1.34	10.265	11.29	148.82	0.600	0.000	2.00	4.333	2.60	29.4	0.0	205.5
134.00	Appurtenance(s)	1.00	1.35	10.330	11.36	149.29	0.600	0.000	4.00	8.667	5.20	59.1	0.0	410.9
Totals:									134.00			2,688.4		18,649.2

Discrete Appurtenance Forces

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 23
Dead Load Factor 1.00	
Wind Load Factor 1.00	

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	134.00	Lightning rod	1	10.330	11.363	1.00	1.00	0.38	6.50	0.000	0.000	4.32	0.00	0.00
2	128.00	B2 B66A 8843	3	10.232	11.255	0.54	0.80	2.64	216.00	0.000	0.000	29.68	0.00	0.00
3	128.00	TPA65R-BU8D	3	10.232	11.255	0.58	0.80	30.88	435.00	0.000	0.000	347.55	0.00	0.00
4	128.00	AIR 6449 N77	3	10.232	11.255	0.68	0.80	8.43	304.80	0.000	0.000	94.83	0.00	0.00
5	128.00	Cci Antennas	3	10.232	11.255	0.58	0.80	31.31	287.10	0.000	0.000	352.38	0.00	0.00
6	128.00	RRUS 4478 B14	3	10.232	11.255	0.54	0.80	2.65	178.20	0.000	0.000	29.86	0.00	0.00
7	128.00	4449 B5/B12	3	10.232	11.255	0.54	0.80	3.17	213.00	0.000	0.000	35.65	0.00	0.00
8	128.00	Radio 4415 B30	3	10.232	11.255	0.54	0.80	2.99	138.00	0.000	0.000	33.66	0.00	0.00
9	128.00	Ericsson AIR 6419 B77G	3	10.232	11.255	0.66	0.80	8.29	132.00	0.000	0.000	93.27	0.00	0.00
10	128.00	(3) SitePro	1	10.232	11.255	0.75	0.75	38.03	2999.58	0.000	0.000	427.98	0.00	0.00
11	128.00	Ericsson Radio 2012 B29	3	10.232	11.255	0.54	0.80	2.99	129.00	0.000	0.000	33.66	0.00	0.00
12	128.00	DC9-48-60-24-8C-EV	3	10.232	11.255	0.60	0.80	2.05	78.60	0.000	0.000	23.10	0.00	0.00
13	128.00	RRUS 4415 B25	3	10.232	11.255	0.54	0.80	2.64	138.00	0.000	0.000	29.68	0.00	0.00
14	128.00	DC6-48-60-18-8C-EV	1	10.232	11.255	0.60	0.80	2.87	26.20	0.000	0.000	32.28	0.00	0.00
15	117.00	VHLP2.5-11	2	10.042	11.046	1.00	1.00	16.86	96.00	1.583	0.000	186.24	294.87	0.00
16	117.00	LP Platform w/ Handrail	1	10.042	11.046	1.00	1.00	46.00	2448.72	0.000	0.000	508.12	0.00	0.00
17	117.00	NNVV-65B-R4	3	10.042	11.046	0.55	0.75	20.43	254.10	0.000	0.000	225.67	0.00	0.00
18	117.00	AAHC	3	10.042	11.046	0.56	0.75	7.10	311.10	0.000	0.000	78.48	0.00	0.00
19	117.00	TD-RRH8x20-25	3	10.042	11.046	0.50	0.75	6.11	210.00	0.000	0.000	67.44	0.00	0.00
20	117.00	800 MHz RRH	6	10.042	11.046	0.50	0.75	7.51	318.00	0.000	0.000	82.93	0.00	0.00
21	117.00	1900 MHz RRH	3	10.042	11.046	0.50	0.75	4.18	180.00	0.000	0.000	46.13	0.00	0.00
22	98.00	KRY 112 489/2	3	9.677	10.645	0.50	0.75	0.98	46.20	0.000	0.000	10.43	0.00	0.00
23	98.00	RRUS 4415 B25	3	9.677	10.645	0.50	0.75	2.47	138.00	0.000	0.000	26.32	0.00	0.00
24	98.00	4449 B71+ B85	3	9.677	10.645	0.50	0.75	2.49	210.00	0.000	0.000	26.48	0.00	0.00
25	98.00	Air 32	4	9.677	10.645	0.65	0.75	16.99	528.80	0.000	0.000	180.87	0.00	0.00
26	98.00	APX16DWV-16DWV-S-E-	3	9.677	10.645	0.46	0.75	9.01	122.10	0.000	0.000	95.93	0.00	0.00
27	98.00	KRY 112 144/1	3	9.677	10.645	0.50	0.75	0.62	33.06	0.000	0.000	6.58	0.00	0.00
28	98.00	AIR 6449 B41	3	9.677	10.645	0.52	0.75	10.28	399.60	0.000	0.000	109.48	0.00	0.00
29	98.00	APXVAARR24_43-U-NA2	3	9.677	10.645	0.52	0.75	31.88	384.00	0.000	0.000	339.35	0.00	0.00
30	98.00	LP Platform w/ Handrail	1	9.677	10.645	1.00	1.00	46.00	2449.00	0.000	0.000	489.68	0.00	0.00
31	86.00	Samsung MT6407-77A	3	9.418	10.360	0.52	0.75	7.40	261.30	0.000	0.000	76.69	0.00	0.00
32	86.00	Low Profile	1	9.418	10.360	1.00	1.00	22.00	1500.00	0.000	0.000	227.91	0.00	0.00
33	86.00	Antel	3	9.418	10.360	0.66	0.75	9.48	45.00	0.000	0.000	98.25	0.00	0.00
34	86.00	JMA MX06FR0660-03	6	9.418	10.360	0.65	0.75	38.64	360.00	0.000	0.000	400.30	0.00	0.00
35	86.00	Raycap	1	9.418	10.360	0.75	0.75	3.04	32.00	0.000	0.000	31.54	0.00	0.00
36	86.00	Samsung B2/B66A	3	9.418	10.360	0.62	0.75	3.51	253.20	0.000	0.000	36.37	0.00	0.00
37	86.00	Samsung B5/B13	3	9.418	10.360	0.58	0.75	3.26	210.90	0.000	0.000	33.74	0.00	0.00
38	86.00	HRK12 (Handrail Kit)	1	9.418	10.360	1.00	1.00	6.75	261.72	0.000	0.000	69.93	0.00	0.00
39	86.00	Kaelus BSF0020F3V1-1	4	9.418	10.360	0.49	0.75	1.87	70.40	0.000	0.000	19.39	0.00	0.00

Totals: 16,405.18 5,042.15

Total Applied Force Summary

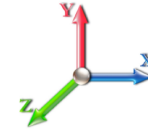
Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		108.11	1208.63	0.00	0.00
10.00		105.74	1186.96	0.00	0.00
15.00		104.65	1165.28	0.00	0.00
20.00		108.27	1143.61	0.00	0.00
25.00		110.60	1121.93	0.00	0.00
30.00		112.01	1100.25	0.00	0.00
35.00		112.75	1078.58	0.00	0.00
40.00		112.96	1056.90	0.00	0.00
45.00		112.73	1035.23	0.00	0.00
48.25		72.71	661.27	0.00	0.00
50.00		39.53	583.72	0.00	0.00
53.25		73.36	1071.13	0.00	0.00
55.00		39.22	304.54	0.00	0.00
60.00		111.95	857.92	0.00	0.00
65.00		110.60	839.86	0.00	0.00
70.00		109.03	821.79	0.00	0.00
75.00		107.27	803.73	0.00	0.00
80.00		105.35	785.67	0.00	0.00
85.00		103.27	767.60	0.00	0.00
86.00	(25) attachments	1014.42	3145.87	0.00	0.00
90.00		80.56	514.51	0.00	0.00
95.00		98.69	626.88	0.00	0.00
98.00	(26) attachments	1343.03	4678.22	0.00	0.00
100.00		38.72	365.40	0.00	0.00
101.75		33.54	315.46	0.00	0.00
105.00		61.54	272.86	0.00	0.00
109.00		74.25	327.45	0.00	0.00
110.00		14.18	93.67	0.00	0.00
115.00		71.54	468.36	0.00	0.00
117.00	(21) attachments	1223.70	4005.27	294.87	0.00
119.00		28.82	178.98	0.00	0.00
120.00		14.44	106.54	0.00	0.00
125.00		72.80	532.69	0.00	0.00
128.00	(35) attachments	1607.49	5595.10	0.00	0.00
130.00		29.36	208.08	0.00	0.00
134.00	(1) attachments	63.41	422.65	0.00	0.00
	Totals:	7,730.59	39,452.59	294.87	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

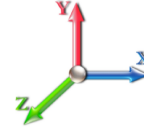


Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 23

Dead Load Factor 1.00

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	6.513	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	6.513	0.00	5.20
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	6.513	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	6.513	0.00	5.20
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	6.594	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	6.594	0.00	5.20
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	6.982	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	6.982	0.00	5.20
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	7.303	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	7.303	0.00	5.20
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	7.579	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	7.579	0.00	5.20
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	7.821	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	7.821	0.00	5.20
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	8.038	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	8.038	0.00	5.20
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	8.235	0.00	1.37
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	8.235	0.00	5.20
48.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.025	0.000	8.355	0.00	0.89
48.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.025	0.000	8.355	0.00	3.38
50.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.026	0.000	8.416	0.00	0.48
50.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.026	0.000	8.416	0.00	1.82
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.026	0.000	8.526	0.00	0.89
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.026	0.000	8.526	0.00	3.38
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.026	0.000	8.584	0.00	0.48
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.026	0.000	8.584	0.00	1.82
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	8.739	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	8.739	0.00	5.20
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	8.886	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	8.886	0.00	5.20
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	9.023	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	9.023	0.00	5.20
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	9.154	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	9.154	0.00	5.20
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	9.277	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	9.277	0.00	5.20
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	9.395	0.00	1.37
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	9.395	0.00	5.20
86.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.031	0.000	9.418	0.00	0.27
86.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.031	0.000	9.418	0.00	1.04
90.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.032	0.000	9.507	0.00	1.09
90.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.032	0.000	9.507	0.00	4.16
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	9.615	0.00	1.37
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	9.615	0.00	5.20
98.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.034	0.000	9.677	0.00	0.82
98.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.034	0.000	9.677	0.00	3.12
100.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.035	0.000	9.718	0.00	0.55

Linear Appurtenance Segment Forces (Factored)

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 23
Dead Load Factor 1.00	
Wind Load Factor 1.00	

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.035	0.000	9.718	0.00	2.08
101.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.035	0.000	9.753	0.00	0.48
101.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.035	0.000	9.753	0.00	1.82
105.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.035	0.000	9.818	0.00	0.89
105.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.035	0.000	9.818	0.00	3.38
109.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.036	0.000	9.895	0.00	1.09
109.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.036	0.000	9.895	0.00	4.16
110.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.039	0.000	9.913	0.00	0.27
110.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.039	0.000	9.913	0.00	1.04
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.039	0.000	10.006	0.00	1.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.039	0.000	10.006	0.00	5.20
117.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.039	0.000	10.042	0.00	0.55
117.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.039	0.000	10.042	0.00	2.08
119.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.039	0.000	10.077	0.00	0.55
119.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.039	0.000	10.077	0.00	2.08
120.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.039	0.000	10.095	0.00	0.27
120.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.039	0.000	10.095	0.00	1.04
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.039	0.000	10.181	0.00	1.37
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.039	0.000	10.181	0.00	5.20
128.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.039	0.000	10.232	0.00	0.82
128.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.039	0.000	10.232	0.00	3.12
130.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.039	0.000	10.265	0.00	0.55
130.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.039	0.000	10.265	0.00	2.08
134.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.039	0.000	10.330	0.00	1.09
134.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.039	0.000	10.330	0.00	4.16
Totals:											0.0	175.9

Calculated Forces

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 36



Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 23

Dead Load Factor 1.00

Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.45	-7.75	-0.29	-758.91	0.00	758.91	3976.93	1023.83	4163.63	4011.62	0.00	0.000	0.000	0.199
5.00	-38.23	-7.68	-0.29	-720.15	0.00	720.15	3920.48	1001.47	3983.76	3867.66	0.03	-0.059	0.000	0.196
10.00	-37.04	-7.61	-0.29	-681.74	0.00	681.74	3862.67	979.11	3807.86	3724.90	0.13	-0.120	0.000	0.193
15.00	-35.86	-7.54	-0.29	-643.67	0.00	643.67	3803.51	956.76	3635.94	3583.42	0.28	-0.180	0.000	0.189
20.00	-34.71	-7.47	-0.29	-605.95	0.00	605.95	3742.99	934.40	3467.98	3443.32	0.51	-0.242	0.000	0.185
25.00	-33.58	-7.39	-0.29	-568.61	0.00	568.61	3681.11	912.04	3304.00	3304.69	0.79	-0.304	0.000	0.181
30.00	-32.48	-7.31	-0.29	-531.66	0.00	531.66	3617.88	889.68	3143.99	3167.62	1.15	-0.367	0.000	0.177
35.00	-31.39	-7.22	-0.29	-495.12	0.00	495.12	3553.28	867.32	2987.95	3032.20	1.56	-0.429	0.000	0.172
40.00	-30.33	-7.13	-0.29	-459.02	0.00	459.02	3487.33	844.96	2835.88	2898.52	2.05	-0.492	0.000	0.167
45.00	-29.29	-7.04	-0.29	-423.35	0.00	423.35	3420.03	822.60	2687.78	2766.66	2.60	-0.555	0.000	0.162
48.25	-28.62	-6.97	-0.29	-400.48	0.00	400.48	3375.55	808.07	2593.65	2681.98	2.99	-0.597	0.000	0.158
50.00	-28.03	-6.94	-0.29	-388.28	0.00	388.28	3351.36	800.24	2543.66	2636.73	3.21	-0.620	0.000	0.156
53.25	-26.96	-6.87	-0.29	-365.71	0.00	365.71	2647.50	666.72	2118.80	2085.88	3.65	-0.661	0.000	0.186
55.00	-26.65	-6.85	-0.29	-353.68	0.00	353.68	2630.02	660.20	2077.55	2051.68	3.90	-0.683	0.000	0.183
60.00	-25.79	-6.76	-0.29	-319.42	0.00	319.42	2579.17	641.57	1961.94	1954.76	4.65	-0.753	0.000	0.174
65.00	-24.94	-6.67	-0.29	-285.61	0.00	285.61	2526.96	622.94	1849.64	1859.10	5.47	-0.822	-0.001	0.164
70.00	-24.11	-6.57	-0.29	-252.27	0.00	252.27	2473.39	604.31	1740.65	1764.79	6.37	-0.888	-0.001	0.153
75.00	-23.30	-6.48	-0.29	-219.40	0.00	219.40	2418.47	585.67	1634.96	1671.92	7.34	-0.952	-0.001	0.141
80.00	-22.51	-6.38	-0.29	-187.00	0.00	187.00	2362.18	567.04	1532.59	1580.58	8.37	-1.013	-0.001	0.128
85.00	-21.74	-6.28	-0.29	-155.08	0.00	155.08	2304.54	548.41	1433.52	1490.86	9.46	-1.069	-0.001	0.114
86.00	-18.62	-5.21	-0.29	-148.80	0.00	148.80	2292.85	544.68	1414.11	1473.12	9.68	-1.080	-0.001	0.109
90.00	-18.10	-5.14	-0.29	-127.94	0.00	127.94	2242.72	529.78	1337.77	1401.09	10.61	-1.121	-0.001	0.099
95.00	-17.47	-5.04	-0.29	-102.25	0.00	102.25	2163.84	511.14	1245.33	1303.79	11.81	-1.167	-0.001	0.087
98.00	-12.82	-3.60	-0.29	-87.14	0.00	87.14	2116.52	499.96	1191.45	1247.09	12.55	-1.193	-0.001	0.076
100.00	-12.45	-3.56	-0.29	-79.93	-0.01	79.93	2084.97	492.51	1156.19	1209.99	13.05	-1.209	-0.001	0.072
101.75	-12.14	-3.52	-0.29	-73.70	-0.01	73.70	1611.41	396.63	937.27	943.49	13.50	-1.222	-0.001	0.086
105.00	-11.87	-3.46	-0.29	-62.25	-0.01	62.25	1583.50	386.94	892.04	904.30	14.34	-1.245	-0.001	0.076
109.00	-11.54	-3.38	-0.29	-48.40	-0.01	48.40	1548.36	375.01	837.91	856.74	15.39	-1.275	-0.002	0.064
109.00	-11.54	-3.38	-0.29	-48.40	-0.01	48.40	933.38	285.53	41725.7	590.00	15.39	-1.275	-0.002	0.095
110.00	-11.44	-3.37	-0.29	-45.02	-0.01	45.02	933.38	285.53	41725.7	590.00	15.66	-1.281	-0.002	0.089
115.00	-10.98	-3.29	-0.29	-28.17	-0.01	28.17	933.38	285.53	41725.7	590.00	17.02	-1.307	-0.002	0.060
117.00	-7.00	-1.98	0.00	-21.58	0.00	21.58	933.38	285.53	41725.7	590.00	17.57	-1.313	-0.002	0.044
119.00	-6.82	-1.95	0.00	-17.63	0.00	17.63	933.38	285.53	41725.7	590.00	18.12	-1.319	-0.002	0.037
119.00	-6.82	-1.95	0.00	-17.63	0.00	17.63	950.95	285.28	54712.4	624.60	18.12	-1.319	-0.002	0.035
120.00	-6.72	-1.93	0.00	-15.68	0.00	15.68	950.95	285.28	54712.4	624.60	18.40	-1.321	-0.002	0.032
125.00	-6.18	-1.84	0.00	-6.04	0.00	6.04	950.95	285.28	54712.4	624.60	19.78	-1.327	-0.002	0.016
128.00	-0.63	-0.11	0.00	-0.51	0.00	0.51	950.95	285.28	54712.4	624.60	20.62	-1.328	-0.002	0.001
130.00	-0.42	-0.07	0.00	-0.29	0.00	0.29	950.95	285.28	54712.4	624.60	21.17	-1.328	-0.002	0.001
134.00	0.00	-0.06	0.00	0.00	0.00	0.00	950.95	285.28	54712.4	624.60	22.29	-1.328	-0.002	0.000

Final Analysis Summary

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.0W 117 mph Wind	33.0	0.00	47.27	0.03	1.23	3250.36
0.9D + 1.0W 117 mph Wind	32.9	0.00	35.43	0.02	1.23	3205.72
1.2D + 1.0Di + 1.0Wi 50 mph Wind	8.8	0.00	66.42	0.00	0.26	869.52
1.2D + 1.0Ev + 1.0Eh	0.7	0.00	49.01	0.00	0.00	82.00
0.9D + 1.0Ev + 1.0Eh	0.7	0.00	37.12	0.00	0.00	80.96
1.0D + 1.0W 60 mph Wind	7.8	0.00	39.45	0.00	0.29	758.91

Max Stresses


Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.0W 117 mph Wind	-47.27	-32.96	-1.23	-3250.3	-0.03	-3250.3	3976.93	1023.8	4163.63	4011.62	0.00	0.823
0.9D + 1.0W 117 mph Wind	-35.43	-32.93	-1.23	-3205.7	-0.02	-3205.7	3976.93	1023.8	4163.63	4011.62	0.00	0.809
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-66.42	-8.78	-0.26	-869.52	0.00	-869.52	3976.93	1023.8	4163.63	4011.62	0.00	0.234
1.2D + 1.0Ev + 1.0Eh	-33.58	-0.71	0.00	-44.87	0.00	-44.87	2647.50	666.72	2118.80	2085.88	53.25	0.034
0.9D + 1.0Ev + 1.0Eh	-25.45	-0.70	0.00	-44.16	0.00	-44.16	2647.50	666.72	2118.80	2085.88	53.25	0.031
1.0D + 1.0W 60 mph Wind	-39.45	-7.75	-0.29	-758.91	0.00	-758.91	3976.93	1023.8	4163.63	4011.62	0.00	0.199

Base Plate Summary

Structure: CT13070-A-01	Code: TIA-222-H	7/7/2023
Site Name: Waterbury 4, CT	Exposure: C	
Height: 134.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
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Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 60.00	Bolt Circle: 55.75
Moment (kip-ft): 3142.00	Width (in): 53.25	Number Bolts: 12.00
Axial (kip): 42.00	Style: Clipped	Bolt Type: 2.25" 18J
Shear (kip): 29.00	Polygon Sides: 0.00	Bolt Diameter (in): 2.25
Analysis (1.2D + 1.0W)	Clip Length (in): 9.00	Yield (ksi): 75.00
Moment (kip-ft): 3250.36	Effective Len (in): 10.37	Ultimate (ksi): 100.00
Axial (kip): 47.27	Moment (kip-in): 648.55	Arrangement: Clustered
Shear (kip): 32.96	Allow Stress (ksi): 81.00	Cluster Dist (in): 6.00
	Applied Stress (ksi): 41.31	Start Angle (deg): 45.00
	Stress Ratio: 0.51	Compression
		Force (kip): 170.59
		Allowable (kip): 268.39
		Ratio: 0.64
		Tension
		Force (kip): 162.71
		Allowable (kip): 243.75
		Ratio: 0.67

	Monopole Mat Foundation Design			Date
				6/15/2023
	Customer Name:	Verizon	TIA Standard:	TIA-222-H
	Site Name:		Structure Height (Ft.):	135
	Site Number:	CT13070-A	Engineer Name:	SBA Engineer
Engr. Number:		Engineer Login ID:		

Foundation Info Obtained from:

Drawings/Calculations
Monopole
Analysis

Structure Type:

Analysis or Design?

Base Reactions (Factored):

Axial Load (Kips):	47.3	Shear Force (Kips):	33.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3250.4
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	2.00
Length of Pad (ft.):	22	Width of Pad (ft.):	22
Final Length of pad (ft)	22.0	Final width of pad (ft):	22.0

Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
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):	35	Qty. of Rebar in Pad (W):	35	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	35	Qty. of Rebar in Pad (W):	35	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

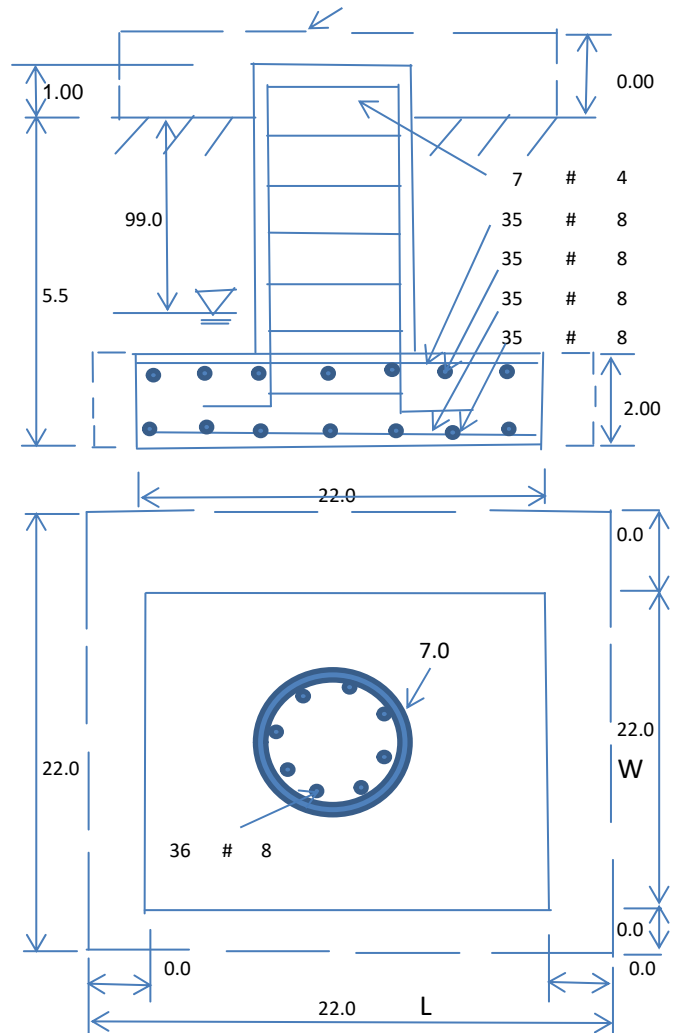
Soil Unit Weight (pcf):	130.0	Soil Buoyant Weight:	67.6	Pcf	
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad: 30
Ultimate Bearing Pressure (psf):	16000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad: 25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad: 25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00		

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	1559.30	Total Dry Soil Weight (Kips):	202.71
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	202.71	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1141.18	Total Dry Concrete Weight (Kips):	171.18
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	171.18	Total Vertical Load on Base (Kips):	421.16

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	3978	<	Allowable Factored Soil Bearing (psf):	12000	0.33	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	4221.4	>	Design Factored Momont (kips-ft):	3465	0.82	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.22					OK!



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):	0.79	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	4845.7	> Design Factored Moment (Mu, Kips-Ft)	3398.9	0.70	OK!
Calculated Shear Capacity (Kips):	660.1	> Design Factored Shear (Kips):	33.0	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	1535.8	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9747.6	> Design Factored Axial Load (Pu Kips):	47.3	0.00	OK!
Moment & Axial Strength Combination:	0.70	OK! Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	513.4	> One-Way Factored Shear (L-D. Kips):	235.6	0.46	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	513.4	> One-Way Factored Shear (W-D., Kips):	235.6	0.46	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	483.0	> One-Way Factored Shear (C-C, Kips):	245.1	0.51	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0051	OK! Lower Steel Pad Reinf. Ratio (W-Direct.):	0.0051		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	2435.7	> Moment at Bottom (L-Dir. K-Ft):	976.8	0.40	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	2435.7	> Moment at Bottom (W-Dir. K-Ft):	976.8	0.40	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	3397.4	> Moment at Bottom (C-C Dir. K-Ft):	1381.4	0.41	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0051	OK! Upper Steel Reinf. Ratio (W-Dir.):	0.0051		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	2435.7	> Moment at the top (L-Dir K-Ft):	460.1	0.19	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	2435.7	> Moment at the top (W-Dir K-Ft):	460.1	0.19	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	3397.4	> Moment at the top (C-C Dir. K-Ft):	434.4	0.13	OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	1300.1	k-ft.	Max. factored shear stress $v_{u,CD}$:	3.0	Psi
Max. factored shear stress $v_{u,AB}$:	14.8	Psi	Factored shear Strength ϕv_n :	189.7	Psi
Max. factored shear stress v_u :	14.8	Psi	Check Usage of Punching Shear Capacity:	0.08	OK!

(4).Check Bending Capacity of the Pad Within the Effective Slab Width:

Overturning moment to be transferred by flexure:	975.1	k-ft.	Effective Width for resisting OT moment:	13.0	ft.
Calculated number of Rebar in Effective width:	21		Actual number of Rebar in Effective width:	21	
Steel Pad Moment Capacity (L-Direc. Kips-ft):	1460.4	k-ft.	Check Usage of the Flexure Capacity:	0.67	OK!