



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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E-Mail: siting.council@ct.gov

Web Site: www.ct.gov/csc

VIA ELECTRONIC MAIL

November 3, 2020

Daniel Patrick, Esq.
Cuddy & Feder LLP
445 Hamilton Avenue, 14th Floor
White Plains, NY 10601

RE: **TS-CING-052-201007** – New Cingular Wireless PCS, LLC (AT&T) request for an order to approve tower sharing at an existing telecommunications facility located at 190 Colt Highway, Farmington, Connecticut.

Dear Attorney Patrick:

The Connecticut Siting Council (Council) is in receipt of your correspondence of October 30, 2020 submitted in response to the Council's October 28, 2020 notification of an incomplete request for tower sharing with regard to the above-referenced matter.

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

Thank you for your attention and cooperation.

Sincerely,

s/ Melanie A. Bachman

Melanie A. Bachman
Executive Director

MAB/IN/emr



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Daniel Patrick
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October 30, 2020

VIA EMAIL

Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Tower Sharing Request by New Cingular Wireless PCS, LLC
TS-CING-052-201007
Premises: 190-200 Colt Highway, Farmington, Connecticut

Dear Members of the Siting Council:

This letter is respectfully submitted on behalf of our client, New Cingular Wireless PCS, LLC ("AT&T"), in connection with AT&T's above referenced Tower Sharing Request dated October 7, 2020.

The Council issued a Notice of Incompletion dated October 28, 2020 requesting a mount analysis that is stamped and signed by a Professional Engineer licensed in the State of Connecticut. The Mount Analysis prepared by Hudson Design Group LLC dated November 22, 2019, enclosed as **Attachment 1**, demonstrates that the proposed mounts, with modifications, are capable of supporting AT&T's proposed installation. The proposed modifications are shown in the Mount Modification Design Drawings prepared by Hudson Design Group LLC dated December 4, 2019 enclosed as **Attachment 2**. These materials together show that the proposed antenna mounts can support the proposed loading.

Thank you for your consideration of this request. Should the Council members or Staff have any questions regarding the foregoing, please do not hesitate to contact me.

Very truly yours,

Daniel Patrick

Attachments

cc: AT&T
Lucia Chiochio, Esq.
Julie Durkin

ATTACHMENT 1

November 22, 2019



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT2907 (NSB)
 FA Number: 10553965
 PACE Number: MRCTB006401
 PT Number: 2051A0A0D2
 Site Name: FARMINGTON COLT HIGHWAY
 Site Address: 190 Colt Highway (Rt. 6)
 Farmington, CT 06032

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the new AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- **(3) TPA65R-BU8DA-K Antennas (96.0"x21.0"x7.7" – Wt. = 87 lbs. /each)**
- **(3) DMP65R-BU8DA-K Antennas (96.0"x20.7"x7.7" – Wt. = 96 lbs. /each)**
- **(3) HPA65R-BU8A Antennas (96.0"x11.7"x7.6" – Wt. = 54 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) 4415 B30 RRH's (16.5"x13.4"x5.9" – Wt. = 46 lbs. /each)**
- **(3) RRUS-E2 RRH's (24.4"x18.5"x7.5" – Wt. = 53 lbs. /each)**
- **(3) B5/B12 4449 RRH's (14.9"x13.2"x10.4" – Wt. = 73 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(6) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each)**

**Proposed equipment shown in bold*

Mount fabrication drawings prepared by SitePro1 P/N VFA12-WLL-30120, dated January 25, 2017 were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.85 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 3; tower is located at the upper half of a hill.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 1.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the New SitePro1 VFA12-WLL-30120 mounts **ARE CAPABLE** of supporting the proposed installation with the following modifications:

- **Install new sector frame stabilizer, SitePro P/N SFS-V (or approved equal) (typ. of 1 per sector, total of 3).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
New Mount Rating	96	LC30	109%	FAIL
Modified Mount Rating	89	LC7	77%	PASS

Reference Documents:

- Fabrication drawings prepared by SitePro1, P/N VFA 12-WLL-30120, dated January 25, 2017.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Vice President



Daniel P. Hamm, PE
Principal



HUDSON
Design Group LLC

**Wind & Ice
Calculations**

Date: 11/22/2019
 Project Name: FARMINGTON COLT HIGHWAY
 Project No.: CT2907
 Designed By: LBW Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

z = 221 (ft)
 z_g = 1200 (ft)
 α = 7.0

K_z = 1.240

K_{zmin} ≤ K_z ≤ 2.01

Table 2-4

Exposure	Z _g	α	K _{zmin}	K _c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K _t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$$K_{zt} = [1 + (K_c K_t / K_h)]^2$$

$$K_h = e^{(fz/H)}$$

K_{zt} = 1.05072627

K_h = 19.042373

K_c = 0.9 (from Table 2-4)

K_t = 0.53 (from Table 2-5)

f = 2 (from Table 2-5)

z = 221

z_s = 660 (Mean elevation of base of structure above sea level)

H = 150 (Ht. of the crest above surrounding terrain)

K_{zt} = 1.05 (from 2.6.6.2.1)

K_e = 0.98 (from 2.6.8)

(If Category 1 then K_{zt} = 1.0)

Category = 3

2.6.10 Design Ice Thickness

Max Ice Thickness =

t_i = 1.50 in

Importance Factor =

I = 1.0 (from Table 2-3)

K_{iz} = 1.21 (from Sec. 2.6.10)

$$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$$

t_{iz} = 1.85 in

Date: 11/22/2019
 Project Name: FARMINGTON COLT HIGHWAY
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 Designed By: LBW Checked By: MSC



2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$ $h =$ ht. of structure

$h =$ 1339 $G_h =$ 1.74

2.6.9.2 Guyed Masts

$G_h =$ 0.85

2.6.9.3 Pole Structures

$G_h =$ 1.1

2.6.9 Appurtenances

$G_h =$ 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilevered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

$G_h =$ 1.35 $G_h =$ 1.00

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

$q_z =$ 43.24
 q_z (ice) = 6.92
 q_z (30) = 2.49

$K_z =$ 1.240 (from 2.6.5.2)
 $K_{zt} =$ 1.1 (from 2.6.6.2.1)
 $K_s =$ 1.0 (from 2.6.7)
 $K_e =$ 0.98 (from 2.6.8)
 $K_d =$ 0.85 (from Table 2-2)
 $V_{max} =$ 125 mph (Ultimate Wind Speed)
 V_{max} (ice) = 50 mph
 $V_{30} =$ 30 mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 11/22/2019
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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance.)

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.85 in** Angle = **0 (deg)** Equivalent Angle = **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	4.57	1.29	782	153	45
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	4.64	1.30	773	151	45
HPA65R-BUBA Antenna	96.0	11.7	7.6	7.80	8.21	1.44	486	106	28
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	87	21	5
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	54	15	3
4415 B30 RRH	16.5	13.4	5.9	1.54	1.23	1.20	80	20	5
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	2.80	1.21	35	11	2
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.10	1.20	136	31	8
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.13	1.20	71	18	4
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.43	1.20	56	15	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.20	71	18	4
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	59	16	3
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	49	12	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	10	5	1
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	12	6	1
5/8" Round Bar	0.6	12.0		0.05	0.05	1.20	3	4	0
3/4" Round Bar	0.8	12.0		0.06	0.06	1.20	3	4	0

Date: 11/22/2019
 Project Name: FARMINGTON COLT HIGHWAY
 Project No.: CT2907
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 30 (deg)

Ice Thickness = 1.85 in.

Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	5.13	4.57	12.47	1.29	1.58	782	351	674
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	773	351	667
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	486	348	451
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	87	54	79
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	44	87	55
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	80	35	69
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	40	80	50
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	136	56	116
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	71	56	67
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	35	71	44
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	71	59	68
B2/B66A 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	35	71	44

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	99.7	24.7	11.4	17.09	7.89	4.04	8.75	1.27	1.46	150	80	132
DMP65R-BU8DA-K Antenna	99.7	24.4	11.4	16.89	7.89	4.09	8.75	1.27	1.46	148	80	131
HPA65R-BU8A Antenna	99.7	15.4	11.3	10.66	7.82	6.48	8.83	1.38	1.46	101	79	96
B14 4478 RRH	21.8	17.1	12.0	2.59	1.81	1.27	1.82	1.20	1.20	21	15	20
B14 4478 RRH (Side)	21.8	8.5	17.1	1.29	2.59	2.55	1.27	1.20	1.20	11	21	13
4415 B30 RRH	20.2	17.1	9.6	2.40	1.34	1.18	2.11	1.20	1.20	20	11	18
4415 B30 RRH (Side)	20.2	8.5	17.1	1.20	2.40	2.36	1.18	1.20	1.20	10	20	12
RRUS-E2 RRH	24.1	22.2	11.2	3.71	1.87	1.09	2.15	1.20	1.20	31	16	27
B5/B12 4449 RRH	18.6	16.9	14.1	2.18	1.82	1.10	1.32	1.20	1.20	18	15	17
B5/B12 4449 RRH (Side)	18.6	8.4	16.9	1.09	2.18	2.20	1.10	1.20	1.20	9	18	11
B2/B66A 8843 RRH	18.6	16.9	14.6	2.18	1.88	1.10	1.27	1.20	1.20	18	16	17
B2/B66A 8843 RRH (Side)	18.6	8.4	16.9	1.09	2.18	2.20	1.10	1.20	1.20	9	18	11

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	5.13	4.57	12.47	1.29	1.58	45	20	39
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	45	20	38
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	28	20	26
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	5
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	3	5	3
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	5	2	4
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	2	5	3
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	8	3	7
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	4
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
B2/B66A 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	4	3

Date: 11/22/2019
 Project Name: FARMINGTON COLT HIGHWAY
 Project No.: CI2907
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 60 (deg)

Ice Thickness = 1.85 in.

Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	5.13	4.57	12.47	1.29	1.58	782	351	459
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	773	351	457
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	486	348	382
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	87	54	62
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	66	87	82
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	80	35	47
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	60	80	75
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	136	56	76
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	71	56	60
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	53	71	66
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	71	59	62
B2/B66A 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	53	71	66

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	99.7	24.7	11.4	17.09	7.89	4.04	8.75	1.27	1.46	150	80	97
DMP65R-BU8DA-K Antenna	99.7	24.4	11.4	16.89	7.89	4.09	8.75	1.27	1.46	148	80	97
HPA65R-BU8A Antenna	99.7	15.4	11.3	10.66	7.82	6.48	8.83	1.38	1.46	101	79	85
B14 4478 RRH	21.8	17.1	12.0	2.59	1.81	1.27	1.82	1.20	1.20	21	15	17
B14 4478 RRH (Side)	21.8	12.8	17.1	1.94	2.59	1.70	1.27	1.20	1.20	16	21	20
4415 B30 RRH	20.2	17.1	9.6	2.40	1.34	1.18	2.11	1.20	1.20	20	11	13
4415 B30 RRH (Side)	20.2	12.8	17.1	1.80	2.40	1.58	1.18	1.20	1.20	15	20	19
RRUS-E2 RRH	24.1	22.2	11.2	3.71	1.87	1.09	2.15	1.20	1.20	31	16	19
B5/B12 4449 RRH	18.6	16.9	14.1	2.18	1.82	1.10	1.32	1.20	1.20	18	15	16
B5/B12 4449 RRH (Side)	18.6	12.7	16.9	1.64	2.18	1.47	1.10	1.20	1.20	14	18	17
B2/B66A 8843 RRH	18.6	16.9	14.6	2.18	1.88	1.10	1.27	1.20	1.20	18	16	16
B2/B66A 8843 RRH (Side)	18.6	12.7	16.9	1.64	2.18	1.47	1.10	1.20	1.20	14	18	17

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	5.13	4.57	12.47	1.29	1.58	45	20	26
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	45	20	26
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	28	20	22
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	4	5	5
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	5	2	3
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	3	5	4
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	8	3	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
B2/B66A 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	3	4	4

Date: 11/22/2019
 Project Name: FARMINGTON COLT HIGHWAY
 Project No.: CT2907
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.85 in. Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	5.13	4.57	12.47	1.29	1.58	782	351	351
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	773	351	351
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	486	348	348
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	87	54	54
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	54	87	87
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	80	35	35
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	35	80	80
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	136	56	56
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	71	56	56
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	56	71	71
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	71	59	59
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	59	71	71

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	99.7	24.7	11.4	17.09	7.89	4.04	8.75	1.27	1.46	150	80	80
DMP65R-BU8DA-K Antenna	99.7	24.4	11.4	16.89	7.89	4.09	8.75	1.27	1.46	148	80	80
HPA65R-BU8A Antenna	99.7	15.4	11.3	10.66	7.82	6.48	8.83	1.38	1.46	101	79	79
B14 4478 RRH	21.8	17.1	12.0	2.59	1.81	1.27	1.82	1.20	1.20	21	15	15
B14 4478 RRH (Side)	21.8	12.0	17.1	1.81	2.59	1.82	1.27	1.20	1.20	15	21	21
4415 B30 RRH	20.2	17.1	9.6	2.40	1.34	1.18	2.11	1.20	1.20	20	11	11
4415 B30 RRH (Side)	20.2	9.6	17.1	1.34	2.40	2.11	1.18	1.20	1.20	11	20	20
RRUS-E2 RRH	24.1	22.2	11.2	3.71	1.87	1.09	2.15	1.20	1.20	31	16	16
B5/B12 4449 RRH	18.6	16.9	14.1	2.18	1.82	1.10	1.32	1.20	1.20	18	15	15
B5/B12 4449 RRH (Side)	18.6	14.1	16.9	1.82	2.18	1.32	1.10	1.20	1.20	15	18	18
B2/B66A 8843 RRH	18.6	16.9	14.6	2.18	1.88	1.10	1.27	1.20	1.20	18	16	16
B2/B66A 8843 RRH (Side)	18.6	14.6	16.9	1.88	2.18	1.27	1.10	1.20	1.20	16	18	18

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	5.13	4.57	12.47	1.29	1.58	45	20	20
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	45	20	20
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	28	20	20
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	5
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	5	2	2
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	5	5
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	8	3	3
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4

Date: 11/22/2019
 Project Name: FARMINGTON COLT HIGHWAY
 Project No.: CT2907
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 120 (deg) Ice Thickness = 1.85 in. Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	5.13	4.57	12.47	1.29	1.58	782	351	459
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	773	351	457
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	486	348	382
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	87	54	62
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	66	87	82
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	80	35	47
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	60	80	75
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	136	56	76
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	71	56	60
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	53	71	66
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	71	59	62
B2/B66A 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	53	71	66

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	99.7	24.7	11.4	17.09	7.89	4.04	8.75	1.27	1.46	150	80	97
DMP65R-BU8DA-K Antenna	99.7	24.4	11.4	16.89	7.89	4.09	8.75	1.27	1.46	148	80	97
HPA65R-BU8A Antenna	99.7	15.4	11.3	10.66	7.82	6.48	8.83	1.38	1.46	101	79	85
B14 4478 RRH	21.8	17.1	12.0	2.59	1.81	1.27	1.82	1.20	1.20	21	15	17
B14 4478 RRH (Side)	21.8	12.8	17.1	1.94	2.59	1.70	1.27	1.20	1.20	16	21	20
4415 B30 RRH	20.2	17.1	9.6	2.40	1.34	1.18	2.11	1.20	1.20	20	11	13
4415 B30 RRH (Side)	20.2	12.8	17.1	1.80	2.40	1.58	1.18	1.20	1.20	15	20	19
RRUS-E2 RRH	24.1	22.2	11.2	3.71	1.87	1.09	2.15	1.20	1.20	31	16	19
B5/B12 4449 RRH	18.6	16.9	14.1	2.18	1.82	1.10	1.32	1.20	1.20	18	15	16
B5/B12 4449 RRH (Side)	18.6	12.7	16.9	1.64	2.18	1.47	1.10	1.20	1.20	14	18	17
B2/B66A 8843 RRH	18.6	16.9	14.6	2.18	1.88	1.10	1.27	1.20	1.20	18	16	16
B2/B66A 8843 RRH (Side)	18.6	12.7	16.9	1.64	2.18	1.47	1.10	1.20	1.20	14	18	17

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	5.13	4.57	12.47	1.29	1.58	45	20	26
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	45	20	26
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	28	20	22
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	4	5	5
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	5	2	3
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	3	5	4
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	8	3	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
B2/B66A 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	3	4	4

Date: 11/22/2019
 Project Name: FARMINGTON COLT HIGHWAY
 Project No.: CT2907
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 150 (deg) Ice Thickness = 1.85 in. Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	5.13	4.57	12.47	1.29	1.58	782	351	674
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	773	351	667
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	486	348	451
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	87	54	79
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	44	87	55
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	80	35	69
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	40	80	50
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	136	56	116
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	71	56	67
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	35	71	44
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	71	59	68
B2/B66A 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	35	71	44

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	99.7	24.7	11.4	17.09	7.89	4.04	8.75	1.27	1.46	150	80	132
DMP65R-BU8DA-K Antenna	99.7	24.4	11.4	16.89	7.89	4.09	8.75	1.27	1.46	148	80	131
HPA65R-BU8A Antenna	99.7	15.4	11.3	10.66	7.82	6.48	8.83	1.38	1.46	101	79	96
B14 4478 RRH	21.8	17.1	12.0	2.59	1.81	1.27	1.82	1.20	1.20	21	15	20
B14 4478 RRH (Side)	21.8	8.5	17.1	1.29	2.59	2.55	1.27	1.20	1.20	11	21	13
4415 B30 RRH	20.2	17.1	9.6	2.40	1.34	1.18	2.11	1.20	1.20	20	11	18
4415 B30 RRH (Side)	20.2	8.5	17.1	1.20	2.40	2.36	1.18	1.20	1.20	10	20	12
RRUS-E2 RRH	24.1	22.2	11.2	3.71	1.87	1.09	2.15	1.20	1.20	31	16	27
B5/B12 4449 RRH	18.6	16.9	14.1	2.18	1.82	1.10	1.32	1.20	1.20	18	15	17
B5/B12 4449 RRH (Side)	18.6	8.4	16.9	1.09	2.18	2.20	1.10	1.20	1.20	9	18	11
B2/B66A 8843 RRH	18.6	16.9	14.6	2.18	1.88	1.10	1.27	1.20	1.20	18	16	17
B2/B66A 8843 RRH (Side)	18.6	8.4	16.9	1.09	2.18	2.20	1.10	1.20	1.20	9	18	11

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	21.0	7.7	14.00	5.13	4.57	12.47	1.29	1.58	45	20	39
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	45	20	38
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	28	20	26
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	5
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	3	5	3
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	5	2	4
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	2	5	3
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	8	3	7
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	4
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
B2/B66A 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	4	3

Date: 11/22/2019

Project Name: FARMINGTON COLT HIGHWAY

Project No.: CT2907

Designed By: LBW Checked By: MSC



HUDSON
Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.85 in.
Density of ice: 56 pcf

TPA65R-BU8DA-K Antenna

Weight of ice based on total radial SF area:
Height (in): 96.0
Width (in): 21.0
Depth (in): 7.7
Total weight of ice on object: 438 lbs
Weight of object: 87.0 lbs
Combined weight of ice and object: 525 lbs

DMP65R-BU8DA-K Antenna

Weight of ice based on total radial SF area:
Height (in): 96.0
Width (in): 20.7
Depth (in): 7.7
Total weight of ice on object: 433 lbs
Weight of object: 96.0 lbs
Combined weight of ice and object: 529 lbs

HPA65R-BU8A Antenna

Weight of ice based on total radial SF area:
Height (in): 96.0
Width (in): 11.7
Depth (in): 7.6
Total weight of ice on object: 286 lbs
Weight of object: 54.0 lbs
Combined weight of ice and object: 340 lbs

B14 4478 RRH

Weight of ice based on total radial SF area:
Height (in): 18.1
Width (in): 13.4
Depth (in): 8.3
Total weight of ice on object: 60 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 120 lbs

4415 B30 RRH

Weight of ice based on total radial SF area:
Height (in): 16.5
Width (in): 13.4
Depth (in): 5.9
Total weight of ice on object: 51 lbs
Weight of object: 46.0 lbs
Combined weight of ice and object: 97 lbs

RRUS-E2 RRH

Weight of ice based on total radial SF area:
Height (in): 20.4
Width (in): 18.5
Depth (in): 7.5
Total weight of ice on object: 84 lbs
Weight of object: 53.0 lbs
Combined weight of ice and object: 137 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 10.4
Total weight of ice on object: 52 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 125 lbs

B2/B66A 8843 RRH

Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 10.9
Total weight of ice on object: 53 lbs
Weight of object: 72.0 lbs
Combined weight of ice and object: 125 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:
Depth (in): 24.0
Diameter(in): 9.7
Total weight of ice on object: 52 lbs
Weight of object: 33 lbs
Combined weight of ice and object: 85 lbs

2" pipe

Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 10 plf

5/8" Round Bar

Per foot weight of ice:
diameter (in): 0.625
Per foot weight of ice on object: 6 plf

2-1/2" pipe

Per foot weight of ice:
diameter (in): 2.88
Per foot weight of ice on object: 11 plf

PL 3-1/2x5/8

Weight of ice based on total radial SF area:
Height (in): 3.5
Width (in): 0.625
Per foot weight of ice on object: 12 plf

3/4" Round Bar

Per foot weight of ice:
diameter (in): 0.75
Per foot weight of ice on object: 6 plf

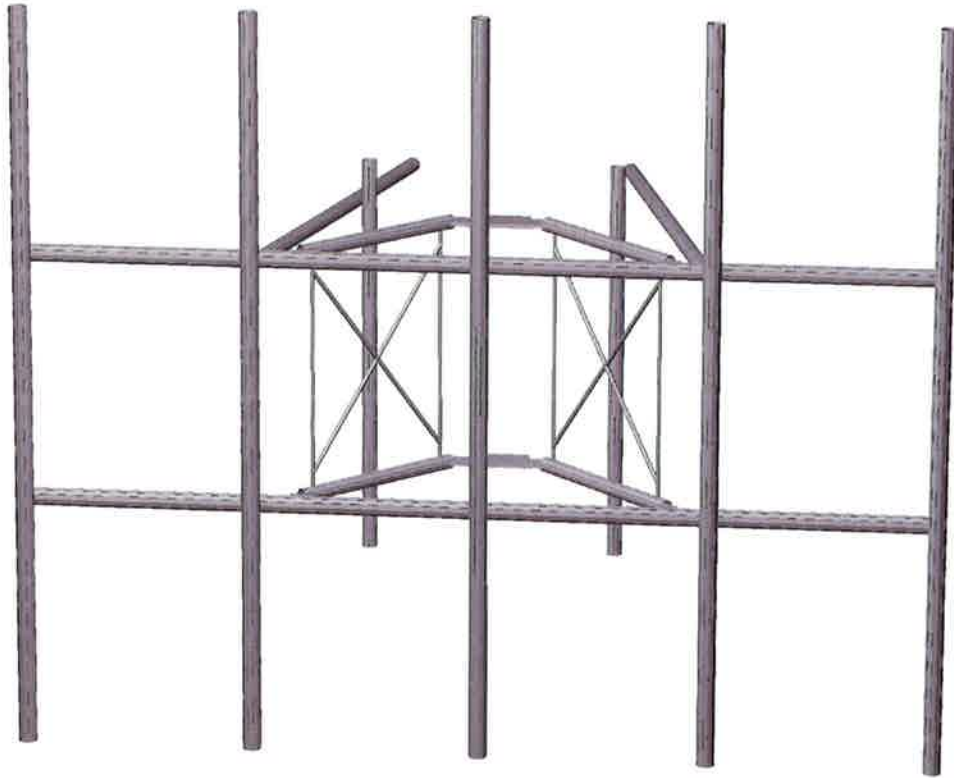
PL 11-1/4x5/8

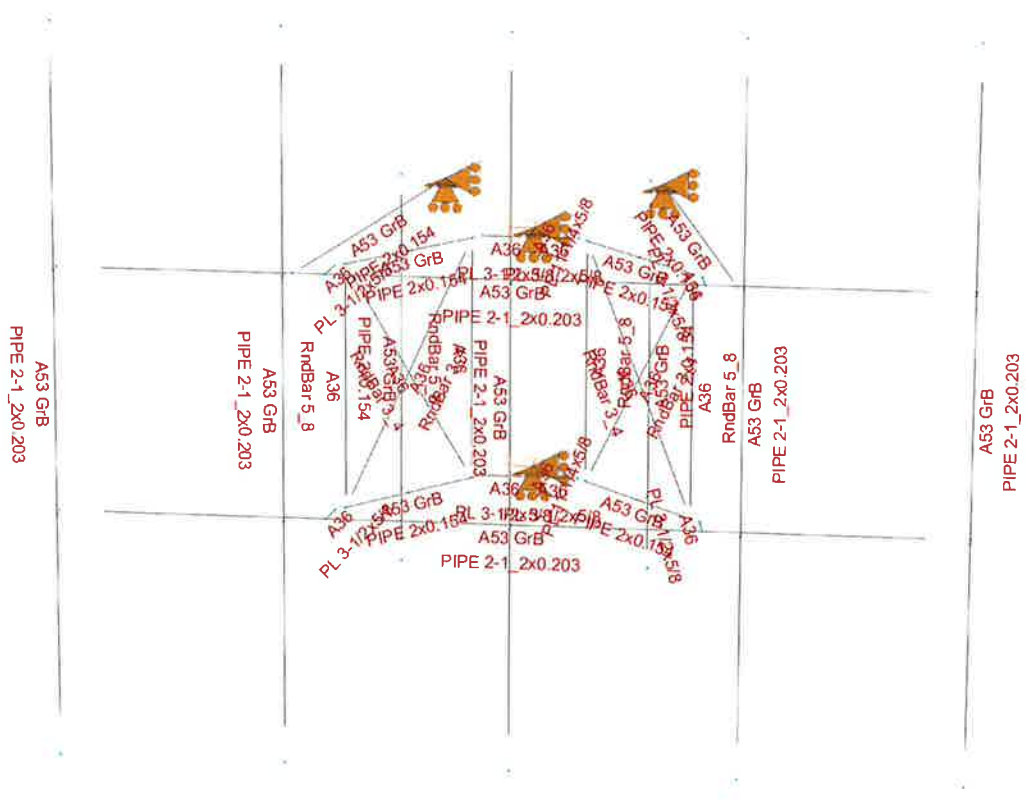
Weight of ice based on total radial SF area:
Height (in): 11.25
Width (in): 0.625
Per foot weight of ice on object: 30 plf



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Design Group LLC

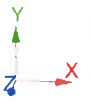
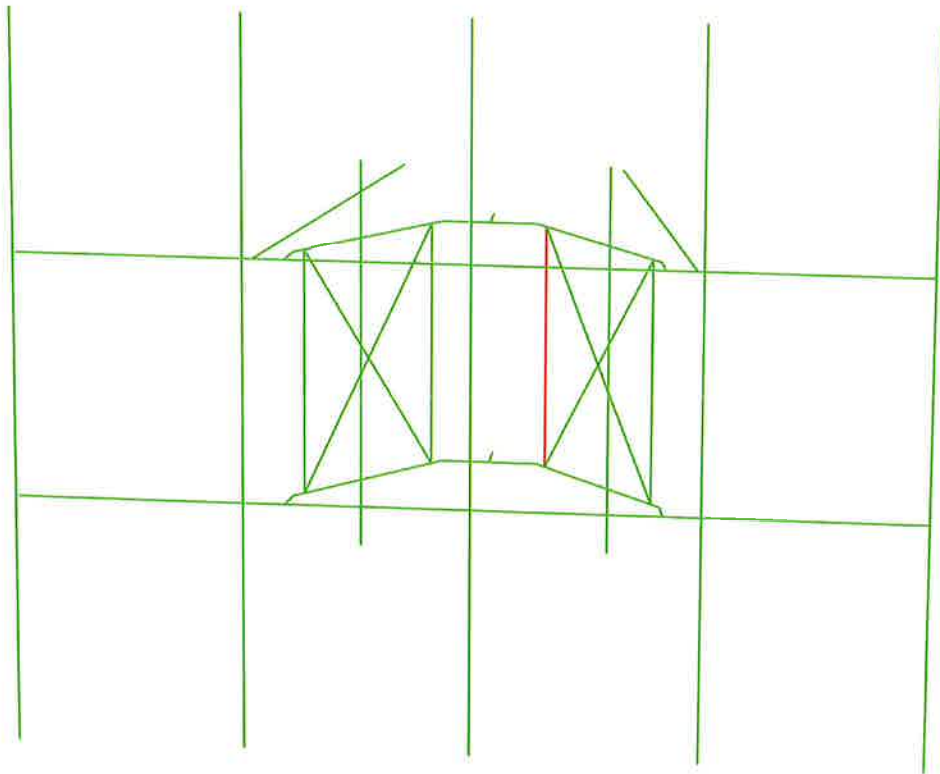
**New Mount
Calculations**

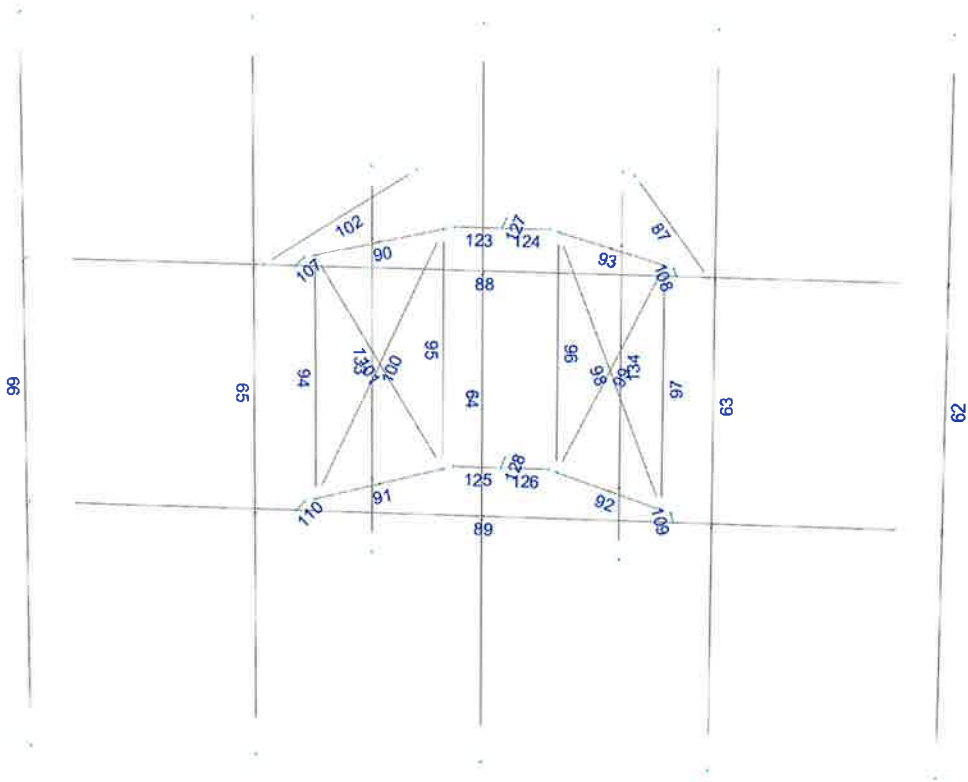




Design status

- Not designed
- Error on design
- Design O.K.
- With warnings





Current Date: 11/22/2019 12:00 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2907\2019 NSB\CT2907 (2019 NSB).retx

Load data

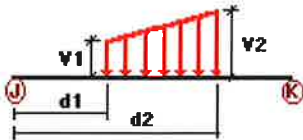
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No <td WIND	
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL

Distributed force on members

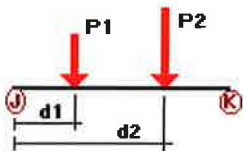


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	66	z	-0.012	0.00	0.00	No	0.00	No
	87	z	-0.01	0.00	0.00	No	0.00	No
	88	z	-0.012	0.00	0.00	No	0.00	No
	89	z	-0.012	0.00	0.00	No	0.00	No
	90	z	-0.01	0.00	0.00	No	0.00	No
	91	z	-0.01	0.00	0.00	No	0.00	No
	92	z	-0.01	0.00	0.00	No	0.00	No
	93	z	-0.01	0.00	0.00	No	0.00	No
	94	z	-0.003	0.00	0.00	No	0.00	No
	95	z	-0.003	0.00	0.00	No	0.00	No
	96	z	-0.003	0.00	0.00	No	0.00	No
	97	z	-0.003	0.00	0.00	No	0.00	No
	98	z	-0.003	0.00	0.00	No	0.00	No
	99	z	-0.003	0.00	0.00	No	0.00	No
W30	100	z	-0.003	0.00	0.00	No	0.00	No
	101	z	-0.003	0.00	0.00	No	0.00	No
	102	z	-0.01	0.00	0.00	No	0.00	No
	133	z	-0.01	0.00	0.00	No	0.00	No
	134	z	-0.01	0.00	0.00	No	0.00	No
	66	z	-0.012	0.00	0.00	No	0.00	No
	87	z	-0.01	0.00	0.00	No	0.00	No
	88	z	-0.012	0.00	0.00	No	0.00	No
	89	z	-0.012	0.00	0.00	No	0.00	No
	90	z	-0.01	0.00	0.00	No	0.00	No
	91	z	-0.01	0.00	0.00	No	0.00	No
	92	z	-0.01	0.00	0.00	No	0.00	No
	93	z	-0.01	0.00	0.00	No	0.00	No
	94	z	-0.003	0.00	0.00	No	0.00	No
95	z	-0.003	0.00	0.00	No	0.00	No	
96	z	-0.003	0.00	0.00	No	0.00	No	
97	z	-0.003	0.00	0.00	No	0.00	No	
98	z	-0.003	0.00	0.00	No	0.00	No	
99	z	-0.003	0.00	0.00	No	0.00	No	
100	z	-0.003	0.00	0.00	No	0.00	No	
101	z	-0.003	0.00	0.00	No	0.00	No	
102	z	-0.01	0.00	0.00	No	0.00	No	
133	z	-0.01	0.00	0.00	No	0.00	No	
134	z	-0.01	0.00	0.00	No	0.00	No	
W60	62	x	-0.012	0.00	0.00	No	0.00	No
	63	x	-0.012	0.00	0.00	No	0.00	No
	64	x	-0.012	0.00	0.00	No	0.00	No
	65	x	-0.012	0.00	0.00	No	0.00	No
	66	x	-0.012	0.00	0.00	No	0.00	No
	87	x	-0.01	0.00	0.00	No	0.00	No
	88	x	-0.012	0.00	0.00	No	0.00	No
	89	x	-0.012	0.00	0.00	No	0.00	No
	90	x	-0.01	0.00	0.00	No	0.00	No
	91	x	-0.01	0.00	0.00	No	0.00	No
	92	x	-0.01	0.00	0.00	No	0.00	No
	93	x	-0.01	0.00	0.00	No	0.00	No
	94	x	-0.003	0.00	0.00	No	0.00	No
	95	x	-0.003	0.00	0.00	No	0.00	No
96	x	-0.003	0.00	0.00	No	0.00	No	
97	x	-0.003	0.00	0.00	No	0.00	No	
98	x	-0.003	0.00	0.00	No	0.00	No	
99	x	-0.003	0.00	0.00	No	0.00	No	
100	x	-0.003	0.00	0.00	No	0.00	No	
101	x	-0.003	0.00	0.00	No	0.00	No	
102	x	-0.01	0.00	0.00	No	0.00	No	
133	x	-0.01	0.00	0.00	No	0.00	No	

	134	x	-0.01	0.00	0.00	No	0.00	No
W90	62	x	-0.012	0.00	0.00	No	0.00	No
	63	x	-0.012	0.00	0.00	No	0.00	No
	64	x	-0.012	0.00	0.00	No	0.00	No
	65	x	-0.012	0.00	0.00	No	0.00	No
	66	x	-0.012	0.00	0.00	No	0.00	No
	87	x	-0.01	0.00	0.00	No	0.00	No
	90	x	-0.01	0.00	0.00	No	0.00	No
	91	x	-0.01	0.00	0.00	No	0.00	No
	92	x	-0.01	0.00	0.00	No	0.00	No
	93	x	-0.01	0.00	0.00	No	0.00	No
	94	x	-0.003	0.00	0.00	No	0.00	No
	95	x	-0.003	0.00	0.00	No	0.00	No
	96	x	-0.003	0.00	0.00	No	0.00	No
97	x	-0.003	0.00	0.00	No	0.00	No	
98	x	-0.003	0.00	0.00	No	0.00	No	
99	x	-0.003	0.00	0.00	No	0.00	No	
100	x	-0.003	0.00	0.00	No	0.00	No	
101	x	-0.003	0.00	0.00	No	0.00	No	
102	x	-0.01	0.00	0.00	No	0.00	No	
133	x	-0.01	0.00	0.00	No	0.00	No	
W120	134	x	-0.01	0.00	0.00	No	0.00	No
	62	x	-0.012	0.00	0.00	No	0.00	No
	63	x	-0.012	0.00	0.00	No	0.00	No
	64	x	-0.012	0.00	0.00	No	0.00	No
	65	x	-0.012	0.00	0.00	No	0.00	No
	66	x	-0.012	0.00	0.00	No	0.00	No
	87	x	-0.01	0.00	0.00	No	0.00	No
	88	x	-0.012	0.00	0.00	No	0.00	No
	89	x	-0.012	0.00	0.00	No	0.00	No
	90	x	-0.01	0.00	0.00	No	0.00	No
	91	x	-0.01	0.00	0.00	No	0.00	No
	92	x	-0.01	0.00	0.00	No	0.00	No
	93	x	-0.01	0.00	0.00	No	0.00	No
94	x	-0.003	0.00	0.00	No	0.00	No	
95	x	-0.003	0.00	0.00	No	0.00	No	
96	x	-0.003	0.00	0.00	No	0.00	No	
97	x	-0.003	0.00	0.00	No	0.00	No	
98	x	-0.003	0.00	0.00	No	0.00	No	
99	x	-0.003	0.00	0.00	No	0.00	No	
100	x	-0.003	0.00	0.00	No	0.00	No	
101	x	-0.003	0.00	0.00	No	0.00	No	
102	x	-0.01	0.00	0.00	No	0.00	No	
133	x	-0.01	0.00	0.00	No	0.00	No	
134	x	-0.01	0.00	0.00	No	0.00	No	
W150	66	z	0.012	0.00	0.00	No	0.00	No
	87	z	0.01	0.00	0.00	No	0.00	No
	88	z	0.012	0.00	0.00	No	0.00	No
	89	z	0.012	0.00	0.00	No	0.00	No
	90	z	0.01	0.00	0.00	No	0.00	No
	91	z	0.01	0.00	0.00	No	0.00	No
	92	z	0.01	0.00	0.00	No	0.00	No
	93	z	0.01	0.00	0.00	No	0.00	No
	94	z	0.003	0.00	0.00	No	0.00	No
	95	z	0.003	0.00	0.00	No	0.00	No
	96	z	0.003	0.00	0.00	No	0.00	No
	97	z	0.003	0.00	0.00	No	0.00	No
	98	z	0.003	0.00	0.00	No	0.00	No
99	z	0.003	0.00	0.00	No	0.00	No	
100	z	0.003	0.00	0.00	No	0.00	No	

	101	z	0.003	0.00	0.00	No	0.00	No
	102	z	0.01	0.00	0.00	No	0.00	No
	133	z	0.01	0.00	0.00	No	0.00	No
	134	z	0.01	0.00	0.00	No	0.00	No
Di	62	y	-0.011	0.00	0.00	No	0.00	No
	63	y	-0.011	0.00	0.00	No	0.00	No
	64	y	-0.011	0.00	0.00	No	0.00	No
	65	y	-0.011	0.00	0.00	No	0.00	No
	66	y	-0.011	0.00	0.00	No	0.00	No
	87	y	-0.01	0.00	0.00	No	0.00	No
	88	y	-0.011	0.00	0.00	No	0.00	No
	89	y	-0.011	0.00	0.00	No	0.00	No
	90	y	-0.01	0.00	0.00	No	0.00	No
	91	y	-0.01	0.00	0.00	No	0.00	No
	92	y	-0.01	0.00	0.00	No	0.00	No
	93	y	-0.01	0.00	0.00	No	0.00	No
	94	y	-0.006	0.00	0.00	No	0.00	No
	95	y	-0.006	0.00	0.00	No	0.00	No
	96	y	-0.006	0.00	0.00	No	0.00	No
	97	y	-0.006	0.00	0.00	No	0.00	No
	98	y	-0.006	0.00	0.00	No	0.00	No
	99	y	-0.006	0.00	0.00	No	0.00	No
	100	y	-0.006	0.00	0.00	No	0.00	No
	101	y	-0.006	0.00	0.00	No	0.00	No
	102	y	-0.01	0.00	0.00	No	0.00	No
	107	y	-0.012	0.00	0.00	No	0.00	No
	108	y	-0.012	0.00	0.00	No	0.00	No
	109	y	-0.012	0.00	0.00	No	0.00	No
	110	y	-0.012	0.00	0.00	No	0.00	No
	123	y	-0.012	0.00	0.00	No	0.00	No
	124	y	-0.012	0.00	0.00	No	0.00	No
	125	y	-0.012	0.00	0.00	No	0.00	No
	126	y	-0.012	0.00	0.00	No	0.00	No
	127	y	-0.03	0.00	0.00	No	0.00	No
	128	y	-0.03	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	62	y	-0.044	1.50	No
		y	-0.044	8.50	No
	63	y	-0.048	1.50	No
		y	-0.048	8.50	No
	65	y	-0.027	1.50	No
		y	-0.027	8.50	No
	95	y	-0.033	1.67	No
	96	y	-0.033	1.67	No
	133	y	-0.106	0.50	No
		y	-0.053	4.75	No

	134	y	-0.145	0.50	No
Wo	62	z	-0.392	1.50	No
		z	-0.392	8.50	No
	63	z	-0.387	1.50	No
		z	-0.387	8.50	No
	65	z	-0.243	1.50	No
		z	-0.243	8.50	No
	95	z	-0.049	1.67	No
	96	z	-0.049	1.67	No
	133	z	-0.09	0.50	No
		z	-0.136	4.75	No
W30	134	z	-0.114	0.50	No
	62	3	-0.338	1.50	No
		3	-0.338	8.50	No
	63	3	-0.334	1.50	No
		3	-0.334	8.50	No
	65	3	-0.226	1.50	No
		3	-0.226	8.50	No
	95	3	-0.049	1.67	No
	96	3	-0.049	1.67	No
	133	3	-0.055	0.50	No
		3	-0.116	4.75	No
W60	134	3	-0.044	0.50	No
	62	3	-0.23	1.50	No
		3	-0.23	8.50	No
	63	3	-0.229	1.50	No
		3	-0.229	8.50	No
	65	3	-0.192	1.50	No
		3	-0.192	8.50	No
	95	3	-0.049	1.67	No
	96	3	-0.049	1.67	No
	133	3	-0.082	0.50	No
		3	-0.076	4.75	No
W90	134	3	-0.066	0.50	No
	62	x	-0.176	1.50	No
		x	-0.176	8.50	No
	63	x	-0.176	1.50	No
		x	-0.176	8.50	No
	65	x	-0.174	1.50	No
		x	-0.174	8.50	No
	95	x	-0.049	1.67	No
	96	x	-0.049	1.67	No
	133	x	-0.087	0.50	No
		x	-0.056	4.75	No
W120	134	x	-0.071	0.50	No
	62	2	-0.23	1.50	No
		2	-0.23	8.50	No
	63	2	-0.229	1.50	No
		2	-0.229	8.50	No
	65	2	-0.192	1.50	No
		2	-0.192	8.50	No
	95	2	-0.049	1.67	No
	96	2	-0.049	1.67	No
	133	2	-0.082	0.50	No
		2	-0.076	4.75	No
W150	134	2	-0.066	0.50	No
	62	2	-0.338	1.50	No
		2	-0.338	8.50	No
	63	2	-0.334	1.50	No
		2	-0.334	8.50	No

	65	2	-0.226	1.50	No
		2	-0.226	8.50	No
	95	2	-0.049	1.67	No
	96	2	-0.049	1.67	No
	133	2	-0.055	0.50	No
		2	-0.116	4.75	No
	134	2	-0.044	0.50	No
Di	62	y	-0.219	1.50	No
		y	-0.219	8.50	No
	63	y	-0.216	1.50	No
		y	-0.216	8.50	No
	65	y	-0.143	1.50	No
		y	-0.143	8.50	No
	95	y	-0.052	1.67	No
	96	y	-0.052	1.67	No
	133	y	-0.111	0.50	No
		y	-0.084	4.75	No
	134	y	-0.106	0.50	No
WI0	62	z	-0.077	1.50	No
		z	-0.077	8.50	No
	63	z	-0.076	1.50	No
		z	-0.076	8.50	No
	65	z	-0.054	1.50	No
		z	-0.054	8.50	No
	95	z	-0.012	1.67	No
	96	z	-0.012	1.67	No
	133	z	-0.026	0.50	No
		z	-0.031	4.75	No
	134	z	-0.031	0.50	No
WI30	62	3	-0.067	1.50	No
		3	-0.067	8.50	No
	63	3	-0.066	1.50	No
		3	-0.066	8.50	No
	65	3	-0.048	1.50	No
		3	-0.048	8.50	No
	95	3	-0.012	1.67	No
	96	3	-0.012	1.67	No
	133	3	-0.013	0.50	No
		3	-0.027	4.75	No
	134	3	-0.011	0.50	No
WI60	62	3	-0.049	1.50	No
		3	-0.049	8.50	No
	63	3	-0.049	1.50	No
		3	-0.049	8.50	No
	65	3	-0.043	1.50	No
		3	-0.043	8.50	No
	95	3	-0.012	1.67	No
	96	3	-0.012	1.67	No
	133	3	-0.02	0.50	No
		3	-0.019	4.75	No
	134	3	-0.017	0.50	No
WI90	62	x	-0.04	1.50	No
		x	-0.04	8.50	No
	63	x	-0.04	1.50	No
		x	-0.04	8.50	No
	65	x	-0.04	1.50	No
		x	-0.04	8.50	No
	95	x	-0.012	1.67	No
	96	x	-0.012	1.67	No
	133	x	-0.021	0.50	No

		x	-0.016	4.75	No
	134	x	-0.018	0.50	No
WI120	62	2	-0.049	1.50	No
		2	-0.049	8.50	No
	63	2	-0.049	1.50	No
		2	-0.049	8.50	No
	65	2	-0.043	1.50	No
		2	-0.043	8.50	No
	95	2	-0.012	1.67	No
	96	2	-0.012	1.67	No
	133	2	-0.02	0.50	No
		2	-0.019	4.75	No
	134	2	-0.017	0.50	No
WI150	62	2	-0.067	1.50	No
		2	-0.067	8.50	No
	63	2	-0.066	1.50	No
		2	-0.066	8.50	No
	65	2	-0.048	1.50	No
		2	-0.048	8.50	No
	95	2	-0.012	1.67	No
	96	2	-0.012	1.67	No
	133	2	-0.013	0.50	No
		2	-0.027	4.75	No
	134	2	-0.011	0.50	No
WL0	62	z	-0.023	1.50	No
		z	-0.023	8.50	No
	63	z	-0.023	1.50	No
		z	-0.023	8.50	No
	65	z	-0.014	1.50	No
		z	-0.014	8.50	No
	95	z	-0.003	1.67	No
	96	z	-0.003	1.67	No
	133	z	-0.005	0.50	No
		z	-0.008	4.75	No
	134	z	-0.007	0.50	No
WL30	62	3	-0.02	1.50	No
		3	-0.02	8.50	No
	63	3	-0.02	1.50	No
		3	-0.02	8.50	No
	65	3	-0.013	1.50	No
		3	-0.013	8.50	No
	95	3	-0.003	1.67	No
	96	3	-0.003	1.67	No
	133	3	-0.003	0.50	No
		3	-0.007	4.75	No
	134	3	-0.003	0.50	No
WL60	62	3	-0.014	1.50	No
		3	-0.014	8.50	No
	63	3	-0.014	1.50	No
		3	-0.014	8.50	No
	65	3	-0.012	1.50	No
		3	-0.012	8.50	No
	95	3	-0.003	1.67	No
	96	3	-0.003	1.67	No
	133	3	-0.005	0.50	No
		3	-0.004	4.75	No
	134	3	-0.004	0.50	No
WL90	62	x	-0.011	1.50	No
		x	-0.011	8.50	No
	63	x	-0.011	1.50	No

		x	-0.011	8.50	No
	65	x	-0.011	1.50	No
		x	-0.011	8.50	No
	95	x	-0.003	1.67	No
	96	x	-0.003	1.67	No
	133	x	-0.005	0.50	No
		x	-0.003	4.75	No
	134	x	-0.004	0.50	No
WL120	62	2	-0.014	1.50	No
		2	-0.014	8.50	No
	63	2	-0.014	1.50	No
		2	-0.014	8.50	No
	65	2	-0.012	1.50	No
		2	-0.012	8.50	No
	95	2	-0.003	1.67	No
	96	2	-0.003	1.67	No
	133	2	-0.005	0.50	No
		2	-0.004	4.75	No
	134	2	-0.004	0.50	No
WL150	62	2	-0.02	1.50	No
		2	-0.02	8.50	No
	63	2	-0.02	1.50	No
		2	-0.02	8.50	No
	65	2	-0.013	1.50	No
		2	-0.013	8.50	No
	95	2	-0.003	1.67	No
	96	2	-0.003	1.67	No
	133	2	-0.003	0.50	No
		2	-0.007	4.75	No
	134	2	-0.003	0.50	No
LL1	88	y	-0.25	50.00	Yes
LL2	88	y	-0.25	100.00	Yes
LL3	88	y	-0.25	0.00	Yes
LLa1	62	y	-0.25	5.00	No
LLa2	63	y	-0.25	5.00	No
LLa3	65	y	-0.25	5.00	No
LLa4	66	y	-0.25	5.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00

W1150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

Steel Code Check

Report: Summary - Group by member**Load conditions to be included in design :**

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+W10
LC26=1.2D+Di+W130
LC27=1.2D+Di+W160
LC28=1.2D+Di+W190
LC29=1.2D+Di+W120
LC30=1.2D+Di+W1150
LC31=1.2D+Di-W10
LC32=1.2D+Di-W130
LC33=1.2D+Di-W160
LC34=1.2D+Di-W190
LC35=1.2D+Di-W120
LC36=1.2D+Di-W1150
LC38=1.2D+1.5LL1
LC39=1.2D+1.5LL2
LC40=1.2D+1.5LL3
LC41=1.2D+W10+1.5LLa1
LC42=1.2D+W130+1.5LLa1
LC43=1.2D+W160+1.5LLa1
LC44=1.2D+W190+1.5LLa1
LC45=1.2D+W120+1.5LLa1
LC46=1.2D+W1150+1.5LLa1
LC47=1.2D-W10+1.5LLa1
LC48=1.2D-W130+1.5LLa1
LC49=1.2D-W160+1.5LLa1
LC50=1.2D-W190+1.5LLa1
LC51=1.2D-W120+1.5LLa1
LC52=1.2D-W1150+1.5LLa1
LC53=1.2D+W10+1.5LLa2

LC54=1.2D+WL30+1.5LLa2
 LC55=1.2D+WL60+1.5LLa2
 LC56=1.2D+WL90+1.5LLa2
 LC57=1.2D+WL120+1.5LLa2
 LC58=1.2D+WL150+1.5LLa2
 LC59=1.2D-WL0+1.5LLa2
 LC60=1.2D-WL30+1.5LLa2
 LC61=1.2D-WL60+1.5LLa2
 LC62=1.2D-WL90+1.5LLa2
 LC63=1.2D-WL120+1.5LLa2
 LC64=1.2D-WL150+1.5LLa2
 LC65=1.2D+WL0+1.5LLa3
 LC66=1.2D+WL30+1.5LLa3
 LC67=1.2D+WL60+1.5LLa3
 LC68=1.2D+WL90+1.5LLa3
 LC69=1.2D+WL120+1.5LLa3
 LC70=1.2D+WL150+1.5LLa3
 LC71=1.2D-WL0+1.5LLa3
 LC72=1.2D-WL30+1.5LLa3
 LC73=1.2D-WL60+1.5LLa3
 LC74=1.2D-WL90+1.5LLa3
 LC75=1.2D-WL120+1.5LLa3
 LC76=1.2D-WL150+1.5LLa3
 LC77=1.2D+WL0+1.5LLa4
 LC78=1.2D+WL30+1.5LLa4
 LC79=1.2D+WL60+1.5LLa4
 LC80=1.2D+WL90+1.5LLa4
 LC81=1.2D+WL120+1.5LLa4
 LC82=1.2D+WL150+1.5LLa4
 LC83=1.2D-WL0+1.5LLa4
 LC84=1.2D-WL30+1.5LLa4
 LC85=1.2D-WL60+1.5LLa4
 LC86=1.2D-WL90+1.5LLa4
 LC87=1.2D-WL120+1.5LLa4
 LC88=1.2D-WL150+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	62	LC7 at 33.33%	0.43	OK	Eq. H1-1b
		63	LC7 at 66.67%	0.42	OK	Eq. H1-1b
		64	LC5 at 33.33%	0.24	OK	Eq. H1-1b
		65	LC7 at 66.67%	0.26	OK	Eq. H1-1b
		66	LC82 at 33.33%	0.19	OK	Eq. H1-1b
		88	LC7 at 74.22%	0.79	OK	Eq. H1-1b
		89	LC7 at 70.83%	0.72	OK	Eq. H1-1b
	PIPE 2x0.154	87	LC13 at 100.00%	0.16	OK	Sec. E1
		90	LC12 at 93.75%	0.30	OK	Eq. H1-1b
		91	LC1 at 93.75%	0.30	OK	Eq. H1-1b
		92	LC25 at 93.75%	0.46	OK	Eq. H1-1b
		93	LC32 at 93.75%	0.52	OK	Eq. H1-1b
		102	LC16 at 0.00%	0.07	OK	Sec. E1
		133	LC77 at 20.83%	0.10	OK	Eq. H1-1b
		134	LC34 at 20.83%	0.19	OK	Eq. H1-1b
	PL 11-1/4x5/8	127	LC25 at 100.00%	0.46	OK	Eq. H1-1b
		128	LC31 at 100.00%	0.36	OK	Eq. H1-1b
	PL 3-1/2x5/8	107	LC11 at 100.00%	0.40	OK	Eq. H1-1b
		108	LC26 at 100.00%	0.56	OK	Eq. H1-1b
		109	LC31 at 100.00%	0.71	OK	Eq. H1-1b
		110	LC88 at 100.00%	0.31	OK	Eq. H1-1b
		123	LC36 at 100.00%	0.51	OK	Eq. H1-1b
		124	LC25 at 0.00%	0.88	OK	Eq. H1-1b
		125	LC36 at 100.00%	0.52	OK	Eq. H1-1b

	126	LC26 at 0.00%	0.95	OK	Eq. H1-1b
RndBar 3_4	98	LC30 at 0.00%	0.48	OK	Eq. H1-1a
	99	LC30 at 0.00%	0.37	OK	Eq. H1-1b
	100	LC36 at 100.00%	0.18	OK	Eq. H1-1b
	101	LC36 at 100.00%	0.19	OK	Eq. H1-1b
RndBar 5_8	94	LC12 at 50.00%	0.54	OK	Eq. H1-1a
	95	LC10 at 50.00%	0.69	OK	Eq. H1-1a
	96	LC30 at 87.50%	1.09	N.G.	Eq. H1-1a
	97	LC26 at 87.50%	0.96	OK	Eq. H1-1a

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
142	0.00	0.00	0.00	0
143	-0.6362	0.00	0.4783	0
144	0.00	-3.3333	0.00	0
145	-0.6362	-3.3333	0.4783	0
146	0.6362	-3.3333	0.4783	0
147	0.6362	0.00	0.4783	0
152	6.00	-6.6667	2.83	0
153	6.00	3.3333	2.83	0
154	-6.00	-6.6667	2.83	0
155	-6.00	3.3333	2.83	0
157	1.50	0.00	-2.50	0
162	-2.4126	0.00	2.2374	0
163	-2.4126	-3.3333	2.2374	0
164	2.4126	-3.3333	2.2374	0
165	2.4126	0.00	2.2374	0
166	-2.2835	0.00	2.1096	0
167	-2.2835	-3.3333	2.1096	0
168	-0.7653	0.00	0.6062	0
169	-0.7653	-3.3333	0.6062	0
170	0.7653	0.00	0.6062	0
171	0.7653	-3.3333	0.6062	0

172	2.2835	0.00	2.1096	0
173	2.2835	-3.3333	2.1096	0
175	-1.50	0.00	-2.50	0
176	-3.00	-6.6667	2.83	0
177	-3.00	3.3333	2.83	0
180	3.00	-6.6667	2.83	0
181	3.00	3.3333	2.83	0
184	-2.4792	0.00	2.63	0
185	2.4792	0.00	2.63	0
186	2.4792	-3.3333	2.63	0
187	-2.4792	-3.3333	2.63	0
188	0.00	-6.6667	2.83	0
189	0.00	3.3333	2.83	0
208	0.00	0.00	0.4783	0
209	0.00	-3.3333	0.4783	0
218	-1.6476	1.00	1.1979	0
219	1.6476	1.00	1.1979	0
220	-1.6476	-4.3333	1.1979	0
221	1.6476	-4.3333	1.1979	0
214	-1.6476	0.00	1.1979	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
142	1	1	1	1	0	1
144	1	1	1	1	0	1
157	1	1	1	0	0	0
175	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
62	153	152		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
63	181	180		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
64	189	188		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
65	177	176		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
66	155	154		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
87	156	157		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
88	158	159		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
89	160	161		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
90	162	143		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
91	163	145		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
92	164	146		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
93	165	147		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	166	167		RndBar 5_8	A36	0.00	0.00	0.00
95	168	169		RndBar 5_8	A36	0.00	0.00	0.00
96	170	171		RndBar 5_8	A36	0.00	0.00	0.00
97	172	173		RndBar 5_8	A36	0.00	0.00	0.00
98	170	173		RndBar 3_4	A36	0.00	0.00	0.00
99	171	172		RndBar 3_4	A36	0.00	0.00	0.00

100	167	168	RndBar 3_4	A36	0.00	0.00	0.00
101	166	169	RndBar 3_4	A36	0.00	0.00	0.00
102	174	175	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
107	162	184	PL 3-1/2x5/8	A36	0.00	0.00	0.00
108	165	185	PL 3-1/2x5/8	A36	0.00	0.00	0.00
109	164	186	PL 3-1/2x5/8	A36	0.00	0.00	0.00
110	163	187	PL 3-1/2x5/8	A36	0.00	0.00	0.00
123	143	208	PL 3-1/2x5/8	A36	0.00	0.00	0.00
124	208	147	PL 3-1/2x5/8	A36	0.00	0.00	0.00
125	145	209	PL 3-1/2x5/8	A36	0.00	0.00	0.00
126	209	146	PL 3-1/2x5/8	A36	0.00	0.00	0.00
127	208	142	PL 11-1/4x5/8	A36	11.25	9.25	0.00
128	209	144	PL 11-1/4x5/8	A36	11.25	9.25	0.00
133	218	220	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
134	219	221	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
62	315.00	0	0.00	0.00	0.00
63	315.00	0	0.00	0.00	0.00
64	315.00	0	0.00	0.00	0.00
65	315.00	0	0.00	0.00	0.00
66	315.00	0	0.00	0.00	0.00
94	0.00	2	0.00	0.00	1.00
95	315.00	0	0.00	0.00	0.00
96	315.00	0	0.00	0.00	0.00
97	0.00	2	0.00	0.00	1.00
107	90.00	0	0.00	0.00	0.00
108	90.00	0	0.00	0.00	0.00
109	90.00	0	0.00	0.00	0.00
110	90.00	0	0.00	0.00	0.00
123	90.00	0	0.00	0.00	0.00
124	90.00	0	0.00	0.00	0.00
125	90.00	0	0.00	0.00	0.00
126	90.00	0	0.00	0.00	0.00
127	90.00	0	0.00	0.00	0.00
128	90.00	0	0.00	0.00	0.00
133	315.00	0	0.00	0.00	0.00
134	315.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
98	0.00	-3.50	0.00	0.00	3.50	0.00
99	0.00	3.50	0.00	0.00	-3.50	0.00
100	0.00	3.50	0.00	0.00	-3.50	0.00
101	0.00	-3.50	0.00	0.00	3.50	0.00
127	0.00	-0.625	0.00	0.00	-0.625	0.00
128	0.00	-0.625	0.00	0.00	-0.625	0.00

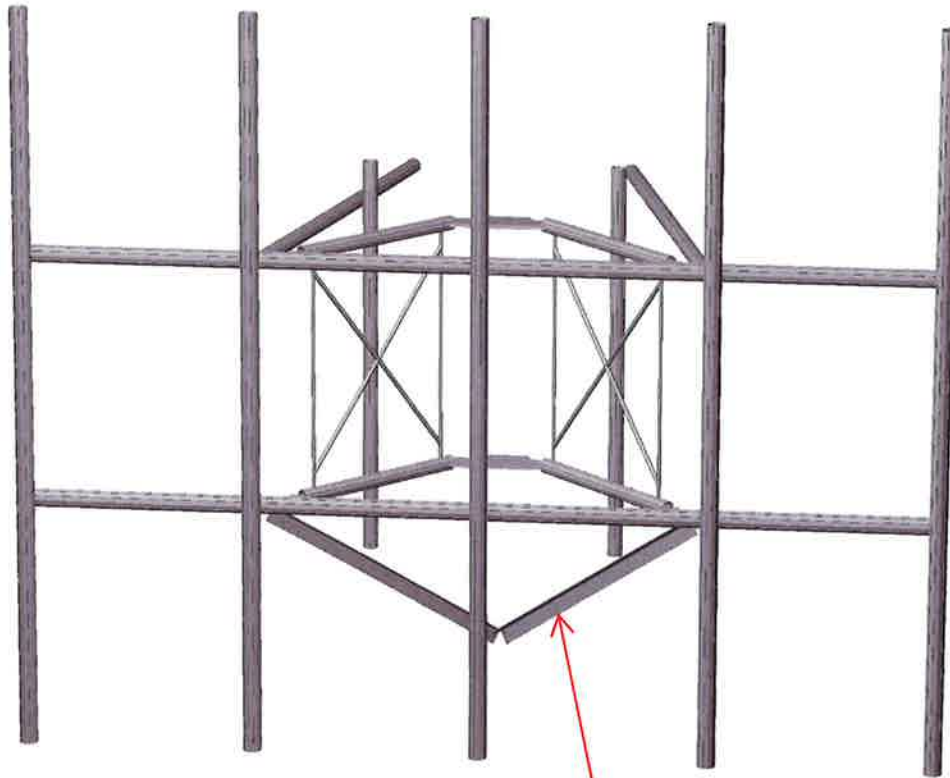
Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
87	1	1	0	0	0	0	0	0	0	0	Full
99	0	0	0	0	0	0	0	0	0	0	Tension only
101	0	0	0	0	0	0	0	0	0	0	Tension only
102	1	1	0	0	0	0	0	0	0	0	Full
107	1	1	0	0	0	0	0	0	0	0	Full
108	1	1	0	0	0	0	0	0	0	0	Full
109	1	1	0	0	0	0	0	0	0	0	Full
110	1	1	0	0	0	0	0	0	0	0	Full

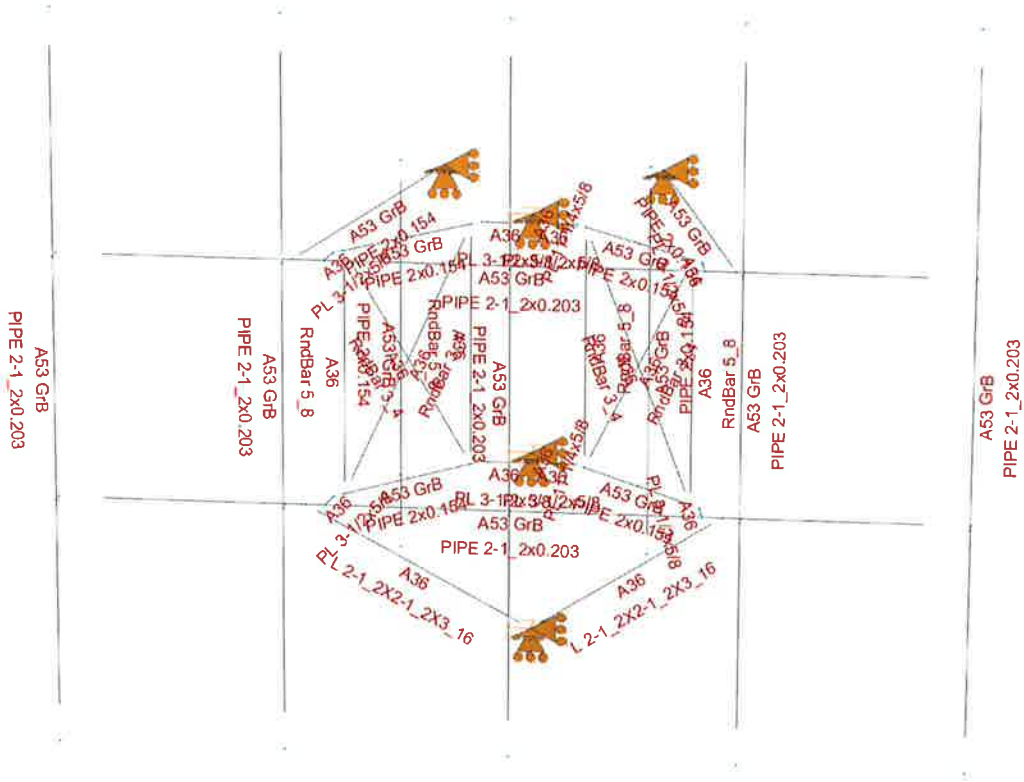


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**Mount Calculations
(Modified Conditions)**

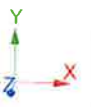
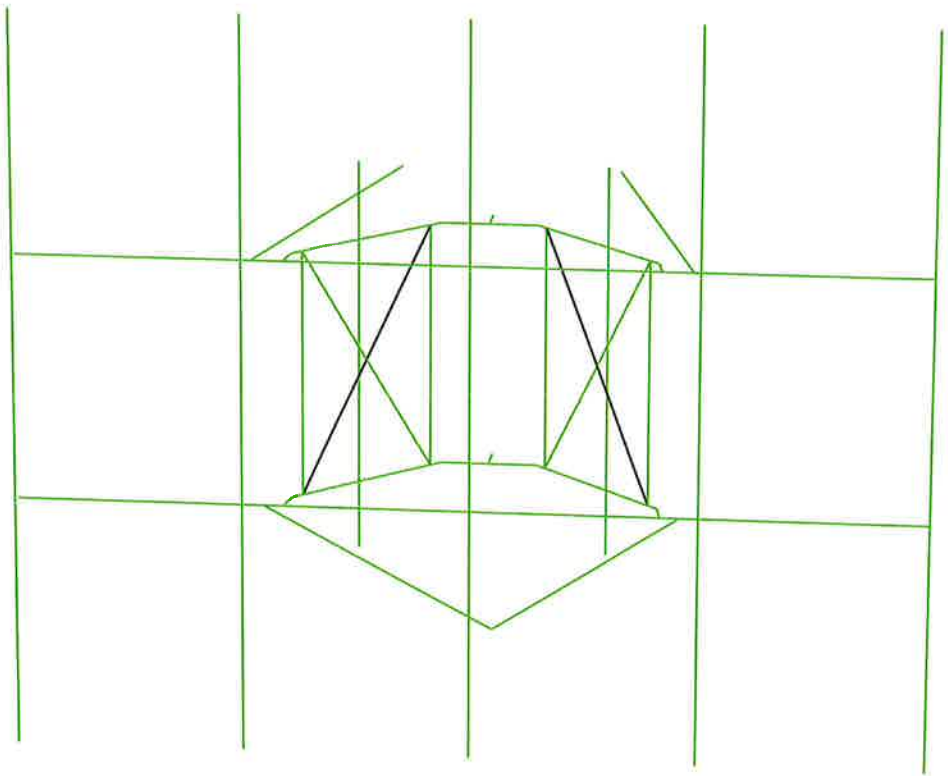


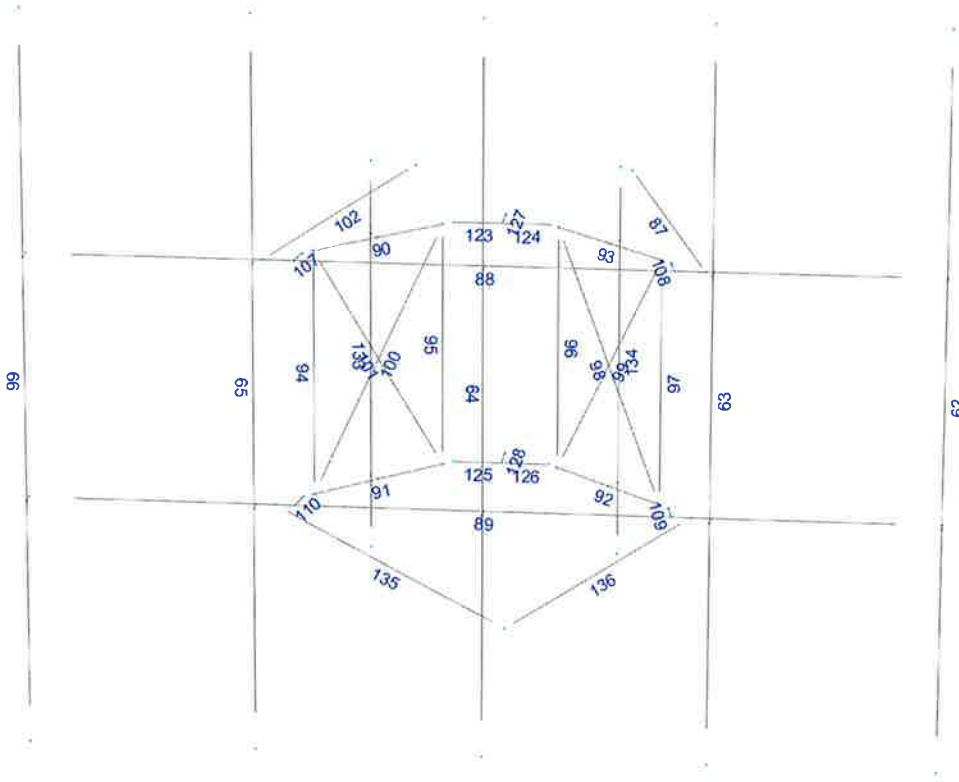
Install new sector frame stabilizer, SitePro1
P/N SFS-V (or approved equal) (typ. of 1
per sector, total of 3).



- Design status -

- Not designed
- Error on design
- Design O.K.
- With warnings





Current Date: 11/22/2019 12:02 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2907\2019 NSB\CT2907 (2019 NSB)(MODS).retx

Load data

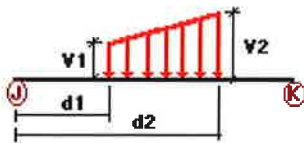
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No <td WIND	
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL

Distributed force on members

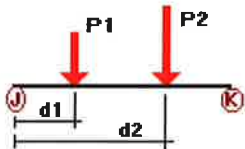


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	66	z	-0.012	0.00	0.00	No	0.00	No
	87	z	-0.01	0.00	0.00	No	0.00	No
	88	z	-0.012	0.00	0.00	No	0.00	No
	89	z	-0.012	0.00	0.00	No	0.00	No
	90	z	-0.01	0.00	0.00	No	0.00	No
	91	z	-0.01	0.00	0.00	No	0.00	No
	92	z	-0.01	0.00	0.00	No	0.00	No
	93	z	-0.01	0.00	0.00	No	0.00	No
	94	z	-0.003	0.00	0.00	No	0.00	No
	95	z	-0.003	0.00	0.00	No	0.00	No
	96	z	-0.003	0.00	0.00	No	0.00	No
	97	z	-0.003	0.00	0.00	No	0.00	No
	98	z	-0.003	0.00	0.00	No	0.00	No
	99	z	-0.003	0.00	0.00	No	0.00	No
W30	100	z	-0.003	0.00	0.00	No	0.00	No
	101	z	-0.003	0.00	0.00	No	0.00	No
	102	z	-0.01	0.00	0.00	No	0.00	No
	133	z	-0.01	0.00	0.00	No	0.00	No
	134	z	-0.01	0.00	0.00	No	0.00	No
	66	z	-0.012	0.00	0.00	No	0.00	No
	87	z	-0.01	0.00	0.00	No	0.00	No
	88	z	-0.012	0.00	0.00	No	0.00	No
	89	z	-0.012	0.00	0.00	No	0.00	No
	90	z	-0.01	0.00	0.00	No	0.00	No
	91	z	-0.01	0.00	0.00	No	0.00	No
	92	z	-0.01	0.00	0.00	No	0.00	No
	93	z	-0.01	0.00	0.00	No	0.00	No
	94	z	-0.003	0.00	0.00	No	0.00	No
95	z	-0.003	0.00	0.00	No	0.00	No	
96	z	-0.003	0.00	0.00	No	0.00	No	
97	z	-0.003	0.00	0.00	No	0.00	No	
98	z	-0.003	0.00	0.00	No	0.00	No	
99	z	-0.003	0.00	0.00	No	0.00	No	
100	z	-0.003	0.00	0.00	No	0.00	No	
101	z	-0.003	0.00	0.00	No	0.00	No	
102	z	-0.01	0.00	0.00	No	0.00	No	
133	z	-0.01	0.00	0.00	No	0.00	No	
134	z	-0.01	0.00	0.00	No	0.00	No	
W60	62	x	-0.012	0.00	0.00	No	0.00	No
	63	x	-0.012	0.00	0.00	No	0.00	No
	64	x	-0.012	0.00	0.00	No	0.00	No
	65	x	-0.012	0.00	0.00	No	0.00	No
	66	x	-0.012	0.00	0.00	No	0.00	No
	87	x	-0.01	0.00	0.00	No	0.00	No
	88	x	-0.012	0.00	0.00	No	0.00	No
	89	x	-0.012	0.00	0.00	No	0.00	No
	90	x	-0.01	0.00	0.00	No	0.00	No
	91	x	-0.01	0.00	0.00	No	0.00	No
	92	x	-0.01	0.00	0.00	No	0.00	No
	93	x	-0.01	0.00	0.00	No	0.00	No
	94	x	-0.003	0.00	0.00	No	0.00	No
	95	x	-0.003	0.00	0.00	No	0.00	No
96	x	-0.003	0.00	0.00	No	0.00	No	
97	x	-0.003	0.00	0.00	No	0.00	No	
98	x	-0.003	0.00	0.00	No	0.00	No	
99	x	-0.003	0.00	0.00	No	0.00	No	
100	x	-0.003	0.00	0.00	No	0.00	No	
101	x	-0.003	0.00	0.00	No	0.00	No	
102	x	-0.01	0.00	0.00	No	0.00	No	
133	x	-0.01	0.00	0.00	No	0.00	No	

	134	x	-0.01	0.00	0.00	No	0.00	No
W90	62	x	-0.012	0.00	0.00	No	0.00	No
	63	x	-0.012	0.00	0.00	No	0.00	No
	64	x	-0.012	0.00	0.00	No	0.00	No
	65	x	-0.012	0.00	0.00	No	0.00	No
	66	x	-0.012	0.00	0.00	No	0.00	No
	87	x	-0.01	0.00	0.00	No	0.00	No
	90	x	-0.01	0.00	0.00	No	0.00	No
	91	x	-0.01	0.00	0.00	No	0.00	No
	92	x	-0.01	0.00	0.00	No	0.00	No
	93	x	-0.01	0.00	0.00	No	0.00	No
	94	x	-0.003	0.00	0.00	No	0.00	No
	95	x	-0.003	0.00	0.00	No	0.00	No
	96	x	-0.003	0.00	0.00	No	0.00	No
	97	x	-0.003	0.00	0.00	No	0.00	No
	98	x	-0.003	0.00	0.00	No	0.00	No
	99	x	-0.003	0.00	0.00	No	0.00	No
	100	x	-0.003	0.00	0.00	No	0.00	No
	101	x	-0.003	0.00	0.00	No	0.00	No
	102	x	-0.01	0.00	0.00	No	0.00	No
	133	x	-0.01	0.00	0.00	No	0.00	No
	134	x	-0.01	0.00	0.00	No	0.00	No
W120	62	x	-0.012	0.00	0.00	No	0.00	No
	63	x	-0.012	0.00	0.00	No	0.00	No
	64	x	-0.012	0.00	0.00	No	0.00	No
	65	x	-0.012	0.00	0.00	No	0.00	No
	66	x	-0.012	0.00	0.00	No	0.00	No
	87	x	-0.01	0.00	0.00	No	0.00	No
	88	x	-0.012	0.00	0.00	No	0.00	No
	89	x	-0.012	0.00	0.00	No	0.00	No
	90	x	-0.01	0.00	0.00	No	0.00	No
	91	x	-0.01	0.00	0.00	No	0.00	No
	92	x	-0.01	0.00	0.00	No	0.00	No
	93	x	-0.01	0.00	0.00	No	0.00	No
	94	x	-0.003	0.00	0.00	No	0.00	No
	95	x	-0.003	0.00	0.00	No	0.00	No
	96	x	-0.003	0.00	0.00	No	0.00	No
	97	x	-0.003	0.00	0.00	No	0.00	No
	98	x	-0.003	0.00	0.00	No	0.00	No
	99	x	-0.003	0.00	0.00	No	0.00	No
	100	x	-0.003	0.00	0.00	No	0.00	No
	101	x	-0.003	0.00	0.00	No	0.00	No
	102	x	-0.01	0.00	0.00	No	0.00	No
	133	x	-0.01	0.00	0.00	No	0.00	No
	134	x	-0.01	0.00	0.00	No	0.00	No
W150	66	z	0.012	0.00	0.00	No	0.00	No
	87	z	0.01	0.00	0.00	No	0.00	No
	88	z	0.012	0.00	0.00	No	0.00	No
	89	z	0.012	0.00	0.00	No	0.00	No
	90	z	0.01	0.00	0.00	No	0.00	No
	91	z	0.01	0.00	0.00	No	0.00	No
	92	z	0.01	0.00	0.00	No	0.00	No
	93	z	0.01	0.00	0.00	No	0.00	No
	94	z	0.003	0.00	0.00	No	0.00	No
	95	z	0.003	0.00	0.00	No	0.00	No
	96	z	0.003	0.00	0.00	No	0.00	No
	97	z	0.003	0.00	0.00	No	0.00	No
	98	z	0.003	0.00	0.00	No	0.00	No
	99	z	0.003	0.00	0.00	No	0.00	No
	100	z	0.003	0.00	0.00	No	0.00	No

	101	z	0.003	0.00	0.00	No	0.00	No
	102	z	0.01	0.00	0.00	No	0.00	No
	133	z	0.01	0.00	0.00	No	0.00	No
	134	z	0.01	0.00	0.00	No	0.00	No
Di	62	y	-0.011	0.00	0.00	No	0.00	No
	63	y	-0.011	0.00	0.00	No	0.00	No
	64	y	-0.011	0.00	0.00	No	0.00	No
	65	y	-0.011	0.00	0.00	No	0.00	No
	66	y	-0.011	0.00	0.00	No	0.00	No
	87	y	-0.01	0.00	0.00	No	0.00	No
	88	y	-0.011	0.00	0.00	No	0.00	No
	89	y	-0.011	0.00	0.00	No	0.00	No
	90	y	-0.01	0.00	0.00	No	0.00	No
	91	y	-0.01	0.00	0.00	No	0.00	No
	92	y	-0.01	0.00	0.00	No	0.00	No
	93	y	-0.01	0.00	0.00	No	0.00	No
	94	y	-0.006	0.00	0.00	No	0.00	No
	95	y	-0.006	0.00	0.00	No	0.00	No
	96	y	-0.006	0.00	0.00	No	0.00	No
	97	y	-0.006	0.00	0.00	No	0.00	No
	98	y	-0.006	0.00	0.00	No	0.00	No
	99	y	-0.006	0.00	0.00	No	0.00	No
	100	y	-0.006	0.00	0.00	No	0.00	No
	101	y	-0.006	0.00	0.00	No	0.00	No
	102	y	-0.01	0.00	0.00	No	0.00	No
	107	y	-0.012	0.00	0.00	No	0.00	No
	108	y	-0.012	0.00	0.00	No	0.00	No
	109	y	-0.012	0.00	0.00	No	0.00	No
	110	y	-0.012	0.00	0.00	No	0.00	No
	123	y	-0.012	0.00	0.00	No	0.00	No
	124	y	-0.012	0.00	0.00	No	0.00	No
	125	y	-0.012	0.00	0.00	No	0.00	No
	126	y	-0.012	0.00	0.00	No	0.00	No
	127	y	-0.03	0.00	0.00	No	0.00	No
	128	y	-0.03	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	62	y	-0.044	1.50	No
		y	-0.044	8.50	No
	63	y	-0.048	1.50	No
		y	-0.048	8.50	No
	65	y	-0.027	1.50	No
		y	-0.027	8.50	No
	95	y	-0.033	1.67	No
	96	y	-0.033	1.67	No
	133	y	-0.106	0.50	No
		y	-0.053	4.75	No

	134	y	-0.145	0.50	No
Wo	62	z	-0.392	1.50	No
		z	-0.392	8.50	No
	63	z	-0.387	1.50	No
		z	-0.387	8.50	No
	65	z	-0.243	1.50	No
		z	-0.243	8.50	No
	95	z	-0.049	1.67	No
	96	z	-0.049	1.67	No
	133	z	-0.09	0.50	No
		z	-0.136	4.75	No
W30	134	z	-0.114	0.50	No
	62	3	-0.338	1.50	No
		3	-0.338	8.50	No
	63	3	-0.334	1.50	No
		3	-0.334	8.50	No
	65	3	-0.226	1.50	No
		3	-0.226	8.50	No
	95	3	-0.049	1.67	No
	96	3	-0.049	1.67	No
	133	3	-0.055	0.50	No
		3	-0.116	4.75	No
W60	134	3	-0.044	0.50	No
	62	3	-0.23	1.50	No
		3	-0.23	8.50	No
	63	3	-0.229	1.50	No
		3	-0.229	8.50	No
	65	3	-0.192	1.50	No
		3	-0.192	8.50	No
	95	3	-0.049	1.67	No
	96	3	-0.049	1.67	No
	133	3	-0.082	0.50	No
		3	-0.076	4.75	No
W90	134	3	-0.066	0.50	No
	62	x	-0.176	1.50	No
		x	-0.176	8.50	No
	63	x	-0.176	1.50	No
		x	-0.176	8.50	No
	65	x	-0.174	1.50	No
		x	-0.174	8.50	No
	95	x	-0.049	1.67	No
	96	x	-0.049	1.67	No
	133	x	-0.087	0.50	No
		x	-0.056	4.75	No
W120	134	x	-0.071	0.50	No
	62	2	-0.23	1.50	No
		2	-0.23	8.50	No
	63	2	-0.229	1.50	No
		2	-0.229	8.50	No
	65	2	-0.192	1.50	No
		2	-0.192	8.50	No
	95	2	-0.049	1.67	No
	96	2	-0.049	1.67	No
	133	2	-0.082	0.50	No
		2	-0.076	4.75	No
W150	134	2	-0.066	0.50	No
	62	2	-0.338	1.50	No
		2	-0.338	8.50	No
	63	2	-0.334	1.50	No
		2	-0.334	8.50	No

	65	2	-0.226	1.50	No
		2	-0.226	8.50	No
	95	2	-0.049	1.67	No
	96	2	-0.049	1.67	No
	133	2	-0.055	0.50	No
		2	-0.116	4.75	No
	134	2	-0.044	0.50	No
Di	62	y	-0.219	1.50	No
		y	-0.219	8.50	No
	63	y	-0.216	1.50	No
		y	-0.216	8.50	No
	65	y	-0.143	1.50	No
		y	-0.143	8.50	No
	95	y	-0.052	1.67	No
	96	y	-0.052	1.67	No
	133	y	-0.111	0.50	No
		y	-0.084	4.75	No
	134	y	-0.106	0.50	No
WI0	62	z	-0.077	1.50	No
		z	-0.077	8.50	No
	63	z	-0.076	1.50	No
		z	-0.076	8.50	No
	65	z	-0.054	1.50	No
		z	-0.054	8.50	No
	95	z	-0.012	1.67	No
	96	z	-0.012	1.67	No
	133	z	-0.026	0.50	No
		z	-0.031	4.75	No
	134	z	-0.031	0.50	No
WI30	62	3	-0.067	1.50	No
		3	-0.067	8.50	No
	63	3	-0.066	1.50	No
		3	-0.066	8.50	No
	65	3	-0.048	1.50	No
		3	-0.048	8.50	No
	95	3	-0.012	1.67	No
	96	3	-0.012	1.67	No
	133	3	-0.013	0.50	No
		3	-0.027	4.75	No
	134	3	-0.011	0.50	No
WI60	62	3	-0.049	1.50	No
		3	-0.049	8.50	No
	63	3	-0.049	1.50	No
		3	-0.049	8.50	No
	65	3	-0.043	1.50	No
		3	-0.043	8.50	No
	95	3	-0.012	1.67	No
	96	3	-0.012	1.67	No
	133	3	-0.02	0.50	No
		3	-0.019	4.75	No
	134	3	-0.017	0.50	No
WI90	62	x	-0.04	1.50	No
		x	-0.04	8.50	No
	63	x	-0.04	1.50	No
		x	-0.04	8.50	No
	65	x	-0.04	1.50	No
		x	-0.04	8.50	No
	95	x	-0.012	1.67	No
	96	x	-0.012	1.67	No
	133	x	-0.021	0.50	No

		x	-0.016	4.75	No
	134	x	-0.018	0.50	No
WI120	62	2	-0.049	1.50	No
		2	-0.049	8.50	No
	63	2	-0.049	1.50	No
		2	-0.049	8.50	No
	65	2	-0.043	1.50	No
		2	-0.043	8.50	No
	95	2	-0.012	1.67	No
	96	2	-0.012	1.67	No
	133	2	-0.02	0.50	No
		2	-0.019	4.75	No
	134	2	-0.017	0.50	No
WI150	62	2	-0.067	1.50	No
		2	-0.067	8.50	No
	63	2	-0.066	1.50	No
		2	-0.066	8.50	No
	65	2	-0.048	1.50	No
		2	-0.048	8.50	No
	95	2	-0.012	1.67	No
	96	2	-0.012	1.67	No
	133	2	-0.013	0.50	No
		2	-0.027	4.75	No
	134	2	-0.011	0.50	No
WL0	62	z	-0.023	1.50	No
		z	-0.023	8.50	No
	63	z	-0.023	1.50	No
		z	-0.023	8.50	No
	65	z	-0.014	1.50	No
		z	-0.014	8.50	No
	95	z	-0.003	1.67	No
	96	z	-0.003	1.67	No
	133	z	-0.005	0.50	No
		z	-0.008	4.75	No
	134	z	-0.007	0.50	No
WL30	62	3	-0.02	1.50	No
		3	-0.02	8.50	No
	63	3	-0.02	1.50	No
		3	-0.02	8.50	No
	65	3	-0.013	1.50	No
		3	-0.013	8.50	No
	95	3	-0.003	1.67	No
	96	3	-0.003	1.67	No
	133	3	-0.003	0.50	No
		3	-0.007	4.75	No
	134	3	-0.003	0.50	No
WL60	62	3	-0.014	1.50	No
		3	-0.014	8.50	No
	63	3	-0.014	1.50	No
		3	-0.014	8.50	No
	65	3	-0.012	1.50	No
		3	-0.012	8.50	No
	95	3	-0.003	1.67	No
	96	3	-0.003	1.67	No
	133	3	-0.005	0.50	No
		3	-0.004	4.75	No
	134	3	-0.004	0.50	No
WL90	62	x	-0.011	1.50	No
		x	-0.011	8.50	No
	63	x	-0.011	1.50	No

		x	-0.011	8.50	No
	65	x	-0.011	1.50	No
		x	-0.011	8.50	No
	95	x	-0.003	1.67	No
	96	x	-0.003	1.67	No
	133	x	-0.005	0.50	No
		x	-0.003	4.75	No
	134	x	-0.004	0.50	No
WL120	62	2	-0.014	1.50	No
		2	-0.014	8.50	No
	63	2	-0.014	1.50	No
		2	-0.014	8.50	No
	65	2	-0.012	1.50	No
		2	-0.012	8.50	No
	95	2	-0.003	1.67	No
	96	2	-0.003	1.67	No
	133	2	-0.005	0.50	No
		2	-0.004	4.75	No
	134	2	-0.004	0.50	No
WL150	62	2	-0.02	1.50	No
		2	-0.02	8.50	No
	63	2	-0.02	1.50	No
		2	-0.02	8.50	No
	65	2	-0.013	1.50	No
		2	-0.013	8.50	No
	95	2	-0.003	1.67	No
	96	2	-0.003	1.67	No
	133	2	-0.003	0.50	No
		2	-0.007	4.75	No
	134	2	-0.003	0.50	No
LL1	88	y	-0.25	50.00	Yes
LL2	88	y	-0.25	100.00	Yes
LL3	88	y	-0.25	0.00	Yes
LLa1	62	y	-0.25	5.00	No
LLa2	63	y	-0.25	5.00	No
LLa3	65	y	-0.25	5.00	No
LLa4	66	y	-0.25	5.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00

WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

Current Date: 11/22/2019 12:02 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2907\2019 NSB\CT2907 (2019 NSB)(MODS).retx

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+W10
LC26=1.2D+Di+W130
LC27=1.2D+Di+W160
LC28=1.2D+Di+W190
LC29=1.2D+Di+W120
LC30=1.2D+Di+W150
LC31=1.2D+Di-W10
LC32=1.2D+Di-W130
LC33=1.2D+Di-W160
LC34=1.2D+Di-W190
LC35=1.2D+Di-W120
LC36=1.2D+Di-W150
LC38=1.2D+1.5LL1
LC39=1.2D+1.5LL2
LC40=1.2D+1.5LL3
LC41=1.2D+W10+1.5LLa1
LC42=1.2D+W130+1.5LLa1
LC43=1.2D+W160+1.5LLa1
LC44=1.2D+W190+1.5LLa1
LC45=1.2D+W120+1.5LLa1
LC46=1.2D+W150+1.5LLa1
LC47=1.2D-W10+1.5LLa1
LC48=1.2D-W130+1.5LLa1
LC49=1.2D-W160+1.5LLa1
LC50=1.2D-W190+1.5LLa1
LC51=1.2D-W120+1.5LLa1
LC52=1.2D-W150+1.5LLa1
LC53=1.2D+W10+1.5LLa2

LC54=1.2D+WL30+1.5LLa2
 LC55=1.2D+WL60+1.5LLa2
 LC56=1.2D+WL90+1.5LLa2
 LC57=1.2D+WL120+1.5LLa2
 LC58=1.2D+WL150+1.5LLa2
 LC59=1.2D-WL0+1.5LLa2
 LC60=1.2D-WL30+1.5LLa2
 LC61=1.2D-WL60+1.5LLa2
 LC62=1.2D-WL90+1.5LLa2
 LC63=1.2D-WL120+1.5LLa2
 LC64=1.2D-WL150+1.5LLa2
 LC65=1.2D+WL0+1.5LLa3
 LC66=1.2D+WL30+1.5LLa3
 LC67=1.2D+WL60+1.5LLa3
 LC68=1.2D+WL90+1.5LLa3
 LC69=1.2D+WL120+1.5LLa3
 LC70=1.2D+WL150+1.5LLa3
 LC71=1.2D-WL0+1.5LLa3
 LC72=1.2D-WL30+1.5LLa3
 LC73=1.2D-WL60+1.5LLa3
 LC74=1.2D-WL90+1.5LLa3
 LC75=1.2D-WL120+1.5LLa3
 LC76=1.2D-WL150+1.5LLa3
 LC77=1.2D+WL0+1.5LLa4
 LC78=1.2D+WL30+1.5LLa4
 LC79=1.2D+WL60+1.5LLa4
 LC80=1.2D+WL90+1.5LLa4
 LC81=1.2D+WL120+1.5LLa4
 LC82=1.2D+WL150+1.5LLa4
 LC83=1.2D-WL0+1.5LLa4
 LC84=1.2D-WL30+1.5LLa4
 LC85=1.2D-WL60+1.5LLa4
 LC86=1.2D-WL90+1.5LLa4
 LC87=1.2D-WL120+1.5LLa4
 LC88=1.2D-WL150+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<i>L 2-1_2X2-1_2X3_16</i>	135	LC1 at 0.00%	0.54	OK	Eq. H2-1
		136	LC1 at 100.00%	0.61	OK	Sec. F1
	<i>PIPE 2-1_2x0.203</i>	62	LC1 at 66.67%	0.43	OK	Eq. H1-1b
		63	LC1 at 66.67%	0.42	OK	Eq. H1-1b
		64	LC5 at 33.33%	0.25	OK	Eq. H1-1b
		65	LC5 at 33.33%	0.27	OK	Eq. H1-1b
		66	LC82 at 33.33%	0.17	OK	Eq. H1-1b
		88	LC7 at 74.22%	0.76	OK	Eq. H1-1b
		89	LC7 at 71.09%	0.77	OK	Eq. H1-1b
	<i>PIPE 2x0.154</i>	87	LC13 at 100.00%	0.16	OK	Sec. E1
		90	LC12 at 93.75%	0.22	OK	Eq. H1-1b
		91	LC1 at 48.44%	0.21	OK	Eq. H1-1b
		92	LC7 at 92.19%	0.25	OK	Eq. H1-1b
		93	LC7 at 48.44%	0.21	OK	Eq. H1-1b
		102	LC16 at 0.00%	0.08	OK	Sec. E1
		133	LC1 at 81.25%	0.07	OK	Eq. H1-1b
		134	LC1 at 20.83%	0.08	OK	Eq. H1-1b
	<i>PL 11-1/4x5/8</i>	127	LC36 at 100.00%	0.16	OK	Eq. H1-1b
		128	LC31 at 100.00%	0.18	OK	Eq. H1-1b
	<i>PL 3-1/2x5/8</i>	107	LC5 at 100.00%	0.30	OK	Eq. H1-1b
		108	LC1 at 100.00%	0.30	OK	Eq. H1-1b
		109	LC7 at 100.00%	0.46	OK	Eq. H1-1b
		110	LC26 at 100.00%	0.18	OK	Eq. H1-1b

	123	LC10 at 100.00%	0.35	OK	Eq. H1-1b
	124	LC6 at 0.00%	0.46	OK	Eq. H1-1b
	125	LC36 at 100.00%	0.32	OK	Eq. H1-1b
	126	LC31 at 0.00%	0.47	OK	Eq. H1-1b
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RndBar 3_4	98	LC31 at 0.00%	0.12	With warnings	Eq. H1-1b
	99	LC6 at 50.00%	0.10	OK	Eq. H1-1b
	100	LC12 at 0.00%	0.10	With warnings	Eq. H1-1b
	101	LC11 at 50.00%	0.10	OK	Eq. H1-1b
<hr/>					
RndBar 5_8	94	LC12 at 87.50%	0.34	OK	Eq. H1-1a
	95	LC10 at 100.00%	0.55	OK	Eq. H1-1b
	96	LC4 at 100.00%	0.56	OK	Eq. H1-1b
	97	LC1 at 62.50%	0.37	OK	Eq. H1-1a

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
142	0.00	0.00	0.00	0
143	-0.6362	0.00	0.4783	0
144	0.00	-3.3333	0.00	0
145	-0.6362	-3.3333	0.4783	0
146	0.6362	-3.3333	0.4783	0
147	0.6362	0.00	0.4783	0
152	6.00	-6.6667	2.83	0
153	6.00	3.3333	2.83	0
154	-6.00	-6.6667	2.83	0
155	-6.00	3.3333	2.83	0
157	1.50	0.00	-2.50	0
162	-2.4126	0.00	2.2374	0
163	-2.4126	-3.3333	2.2374	0
164	2.4126	-3.3333	2.2374	0
165	2.4126	0.00	2.2374	0
166	-2.2835	0.00	2.1096	0
167	-2.2835	-3.3333	2.1096	0
168	-0.7653	0.00	0.6062	0
169	-0.7653	-3.3333	0.6062	0
170	0.7653	0.00	0.6062	0
171	0.7653	-3.3333	0.6062	0

172	2.2835	0.00	2.1096	0
173	2.2835	-3.3333	2.1096	0
174	-2.8958	0.00	2.63	0
175	-1.50	0.00	-2.50	0
176	-3.00	-6.6667	2.83	0
177	-3.00	3.3333	2.83	0
180	3.00	-6.6667	2.83	0
181	3.00	3.3333	2.83	0
184	-2.4792	0.00	2.63	0
185	2.4792	0.00	2.63	0
186	2.4792	-3.3333	2.63	0
187	-2.4792	-3.3333	2.63	0
188	0.00	-6.6667	2.83	0
189	0.00	3.3333	2.83	0
208	0.00	0.00	0.4783	0
209	0.00	-3.3333	0.4783	0
218	-1.6476	1.00	1.1979	0
219	1.6476	1.00	1.1979	0
220	-1.6476	-4.3333	1.1979	0
221	1.6476	-4.3333	1.1979	0
222	-2.7396	-3.3333	2.63	0
223	2.7396	-3.3333	2.63	0
224	0.00	-5.8333	0.00	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
142	1	1	1	1	0	1
144	1	1	1	1	0	1
157	1	1	1	0	0	0
175	1	1	1	0	0	0
224	1	1	1	1	0	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
62	153	152		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
63	181	180		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
64	189	188		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
65	177	176		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
66	155	154		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
87	156	157		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
88	158	159		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
89	160	161		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
90	162	143		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
91	163	145		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
92	164	146		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
93	165	147		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	166	167		RndBar 5_8	A36	0.00	0.00	0.00
95	168	169		RndBar 5_8	A36	0.00	0.00	0.00

96	170	171	RndBar 5_8	A36	0.00	0.00	0.00
97	172	173	RndBar 5_8	A36	0.00	0.00	0.00
98	170	173	RndBar 3_4	A36	0.00	0.00	0.00
99	171	172	RndBar 3_4	A36	0.00	0.00	0.00
100	167	168	RndBar 3_4	A36	0.00	0.00	0.00
101	166	169	RndBar 3_4	A36	0.00	0.00	0.00
102	174	175	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
107	162	184	PL 3-1/2x5/8	A36	0.00	0.00	0.00
108	165	185	PL 3-1/2x5/8	A36	0.00	0.00	0.00
109	164	186	PL 3-1/2x5/8	A36	0.00	0.00	0.00
110	163	187	PL 3-1/2x5/8	A36	0.00	0.00	0.00
123	143	208	PL 3-1/2x5/8	A36	0.00	0.00	0.00
124	208	147	PL 3-1/2x5/8	A36	0.00	0.00	0.00
125	145	209	PL 3-1/2x5/8	A36	0.00	0.00	0.00
126	209	146	PL 3-1/2x5/8	A36	0.00	0.00	0.00
127	208	142	PL 11-1/4x5/8	A36	11.25	9.25	0.00
128	209	144	PL 11-1/4x5/8	A36	11.25	9.25	0.00
133	218	220	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
134	219	221	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
135	222	224	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
136	224	223	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
62	315.00	0	0.00	0.00	0.00
63	315.00	0	0.00	0.00	0.00
64	315.00	0	0.00	0.00	0.00
65	315.00	0	0.00	0.00	0.00
66	315.00	0	0.00	0.00	0.00
94	0.00	2	0.00	0.00	1.00
95	315.00	0	0.00	0.00	0.00
96	315.00	0	0.00	0.00	0.00
97	0.00	2	0.00	0.00	1.00
107	90.00	0	0.00	0.00	0.00
108	90.00	0	0.00	0.00	0.00
109	90.00	0	0.00	0.00	0.00
110	90.00	0	0.00	0.00	0.00
123	90.00	0	0.00	0.00	0.00
124	90.00	0	0.00	0.00	0.00
125	90.00	0	0.00	0.00	0.00
126	90.00	0	0.00	0.00	0.00
127	90.00	0	0.00	0.00	0.00
128	90.00	0	0.00	0.00	0.00
133	315.00	0	0.00	0.00	0.00
134	315.00	0	0.00	0.00	0.00
135	90.00	0	0.00	0.00	0.00
136	90.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
98	0.00	-3.50	0.00	0.00	3.50	0.00
99	0.00	3.50	0.00	0.00	-3.50	0.00
100	0.00	3.50	0.00	0.00	-3.50	0.00
101	0.00	-3.50	0.00	0.00	3.50	0.00
127	0.00	-0.625	0.00	0.00	-0.625	0.00
128	0.00	-0.625	0.00	0.00	-0.625	0.00
135	0.00	-1.00	0.00	0.00	-1.00	0.00
136	0.00	-1.00	0.00	0.00	-1.00	0.00

Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
87	1	1	0	0	0	0	0	0	0	0	Full
99	0	0	0	0	0	0	0	0	0	0	Tension only
101	0	0	0	0	0	0	0	0	0	0	Tension only
102	1	1	0	0	0	0	0	0	0	0	Full
107	1	1	0	0	0	0	0	0	0	0	Full
108	1	1	0	0	0	0	0	0	0	0	Full
109	1	1	0	0	0	0	0	0	0	0	Full
110	1	1	0	0	0	0	0	0	0	0	Full

ATTACHMENT 2

STRUCTURAL NOTES:

- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
- WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
- ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
- NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
- SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS ¹
N/A	MATERIAL SPECIFICATIONS REPORT ²
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS ³
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS ⁴
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION ⁵
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS ⁶
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

- REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
- PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
- PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
- HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
- ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
- AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

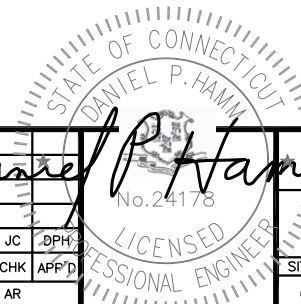
- ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"Ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
- VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
- CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
- EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.



SITE NUMBER: CT2907
SITE NAME: FARMINGTON COLT HIGHWAY
190 COLT HIGHWAY
FARMINGTON, CT 06032
HARTFORD COUNTY

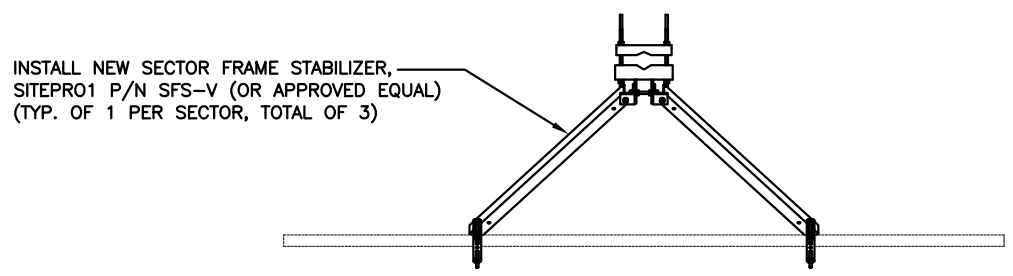


0	12/04/19	ISSUED FOR CONSTRUCTION	EB	JC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: JC	DRAWN BY: AR		



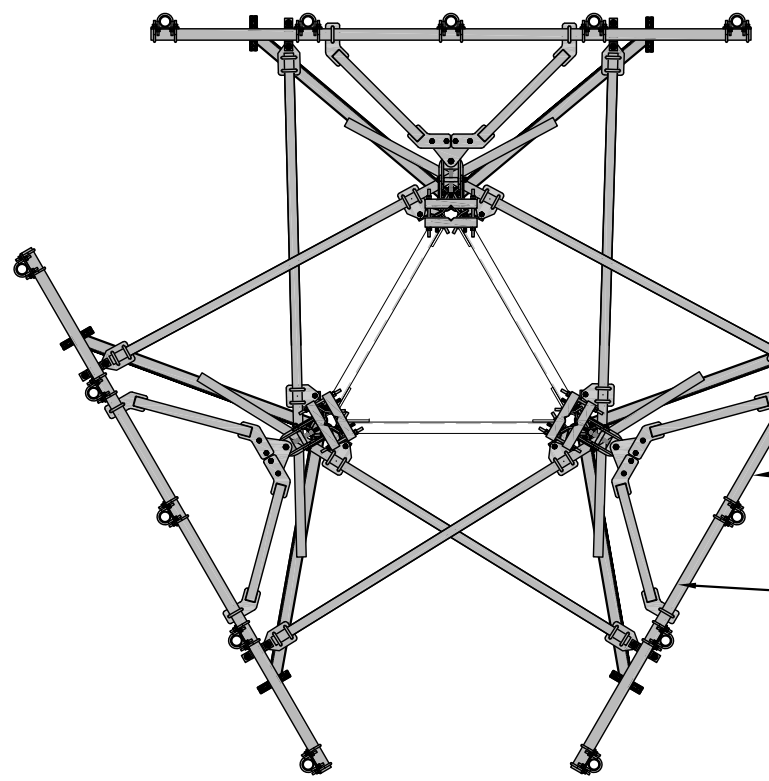
AT&T		
STRUCTURAL NOTES		
NSB 2019		
SITE NUMBER	DRAWING NUMBER	REV
CT2907	SN-1	0

NOTE:
 REFER TO MOUNT ANALYSIS BY:
 HUDSON DESIGN GROUP, LLC,
 DATED: NOVEMBER 22, 2019 FOR
 THE CAPACITY OF THE EXISTING
 STRUCTURES TO SUPPORT THE
 PROPOSED EQUIPMENT.



INSTALL NEW SECTOR FRAME STABILIZER,
 SITEPRO1 P/N SFS-V (OR APPROVED EQUAL)
 (TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED SECTOR FRAME STABILIZER KIT 1
 SCALE: N.T.S. S-1



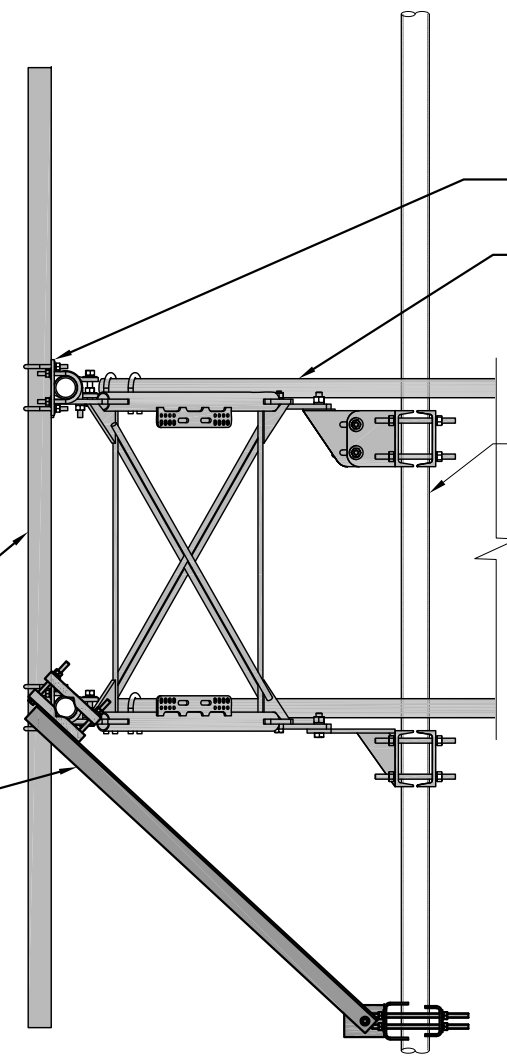
INSTALL 2.5" STD. (2.88" O.D.)
 STEEL PIPE MAST, SECURED TO
 THE PROPOSED MOUNT AT
 ANTENNA LOCATIONS (TYP. OF 2
 PER SECTOR, TOTAL OF 6)

INSTALL NEW SECTOR FRAME
 STABILIZER, SITEPRO1 P/N
 SFS-V (OR APPROVED EQUAL)
 (TYP. OF 1 PER SECTOR,
 TOTAL OF 3)

PROPOSED SITEPRO1 VALMONT
 ANTENNA MOUNT #VFA12-WLL-30120
 WITH TIE-BACK (TYP. OF 1 PER
 SECTOR, TOTAL OF 3)

PROPOSED CROSSOVER PLATE KIT
 (TYP. OF 4 PER SECTOR, TOTAL OF 12)

PROPOSED V-BOOM ANTENNA MOUNT PLAN 2
 22x34 SCALE: 1/2"=1'-0"
 11x17 SCALE: 1/4"=1'-0" S-1



PROPOSED CROSSOVER PLATE KIT
 (TYP. OF 4 PER SECTOR, TOTAL OF 12)

PROPOSED SITEPRO1 VALMONT ANTENNA
 MOUNT #VFA12-WLL-30120 WITH TIE-BACK
 (TYP. OF 1 PER SECTOR, TOTAL OF 3)

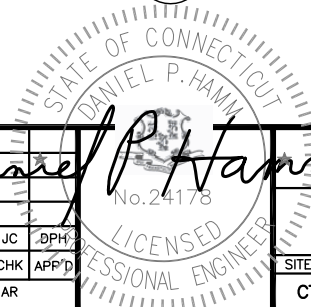
EXISTING TOWER LEG

INSTALL 2.5" STD. (2.88" O.D.)
 STEEL PIPE MAST, SECURED TO
 THE PROPOSED MOUNT AT
 ANTENNA LOCATIONS (TYP. OF 2
 PER SECTOR, TOTAL OF 6)

INSTALL NEW SECTOR FRAME
 STABILIZER, SITEPRO1 P/N
 SFS-V (OR APPROVED EQUAL)
 SECURED TO PROPOSED MOUNT
 & TOWER (TYP. OF 1 PER
 SECTOR, TOTAL OF 3)

MOUNT REINFORCEMENT ELEVATION DETAIL 3
 22x34 SCALE: 1"=1'-0"
 11x17 SCALE: 1/2"=1'-0" S-1

NO.	DATE	ISSUED FOR CONSTRUCTION	EB	JC	DPH
0	12/04/19	ISSUED FOR CONSTRUCTION			
REVISIONS		BY	CHK	APP'D	
SCALE: AS SHOWN		DESIGNED BY: JC	DRAWN BY: AR		



AT&T		
MOUNT MODIFICATION DESIGN		
NSB 2019		
SITE NUMBER	DRAWING NUMBER	REV
CT2907	S-1	0